Wyoming Beef Cattle Producers Survey

~ Final Report ~

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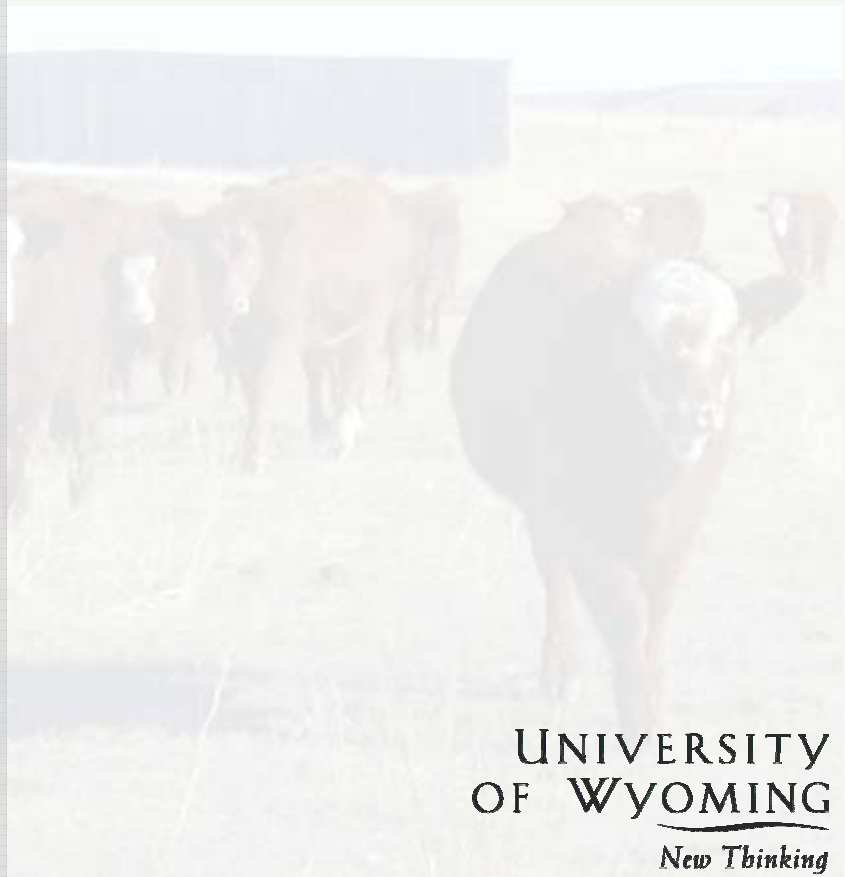
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A survey of Wyoming cattle producers was undertaken in 2005 to identify the industry's current production practices, management response to adverse events such as drought and attitudes towards emerging industry trends and new production alternatives. This report presents descriptive statistics for all questions asked of producers and is a comprehensive overview of all information gathered during the survey effort.

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Acknowledgements

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Introduction

A survey of Wyoming cattle producers was undertaken in 2005 to identify the industry's current production practices, management response to adverse events such as drought, and attitudes towards emerging industry trends and new production alternatives.

The survey was designed to be implemented via a mailed questionnaire and supplemented by telephone follow-up of non-respondents. A total of 3,000 surveys were sent out and 700 were returned. Recipients that did not respond to the mail survey were proportionally sampled and interviewed by phone. In total, 1,190 surveys were collected, giving a response rate of approximately 40 percent. Data were collected from all types of ranching operations within Wyoming, from small hobby farms to large scale ranches.

This report presents descriptive statistics for all questions asked of producers and is a comprehensive overview of all information gathered during the survey effort. This information will be used in future analyses of Wyoming's cattle industry.

Survey Design and Methods

The Wyoming Beef Cattle Producers Survey was developed to gather information about several aspects of cattle production in Wyoming. Specific production practices, drought impacts and management, sagebrush management, and Extension needs were all topics of interest. This study was based on information gathered during a pilot study of Wyoming cattle producers completed in 2003.

Survey Instrument

The survey instrument included four sections:

Part A: General Ranch Description. Twelve questions asked respondents about their operations and current production practices (e.g., land type and tenure, enterprise practices, herd management practices, typical expenses and labor needs, feed sources, and livestock markets).

Part B: Production and Marketing Practices. This section contained seven questions designed to elicit information about production and marketing practices, for example, ownership retention practices and preferences, niche marketing practices, and beliefs regarding the beef industry.

Part C: Drought and Sagebrush Management. In this section, producers were asked about the specific impacts of the 2000-2004 drought on their production practices as well as the strategies they adopted to mitigate drought. A second focus was on sagebrush abundance and control.

Part D: Demographic Information. Respondents were asked to identify their gender, age, education, and general information regarding their ranch.

The final survey instrument was eight pages in length. A copy of the instrument is attached in Appendix E.

Population and Sample Design

The population of interest for the survey was all Wyoming beef cattle producers. The National Agricultural Statistics Service provided a sampling frame. The producer lists kept by NASS are comprehensive and routinely updated. As their lists are confidential, NASS was responsible for all administration of both mail and phone surveys.

A stratified random sample of 3,000 producers was drawn from the population frame of approximately 4,900 beef producers in the state. Four strata were created based on responses to the 2002 Census of Agriculture: producers with less than 20 head, 20 to 299 head, 300 to 999 head, and 1,000 or more head of bred cows. By stratifying the sample local estimates from individual strata are obtainable and comparisons between strata are possible.

Administration

The survey was administered by the Wyoming office of the USDA's National Agricultural Statistics Service. A modified Dillman design was used. The initial mailing contained a cover letter, survey, and return postage-paid envelope. One week later, all potential respondents received a follow-up postcard reminder asking them to return the survey and thanking them if they had already done so. Two to three weeks after the initial mailing a second mailing was sent out containing a cover letter, another copy of the survey, and a postage-paid return envelope. Three weeks following the final mailing, non-respondents were re-sampled and the full instrument was delivered using telephone enumerators.

Analysis

Objectives

The purpose of this analysis is simply to provide a detailed and complete description of all survey results. Descriptive statistics for each question are presented for all ranches as well as for each of three operation sizes.

Dataset and Coding

Raw survey data were entered into a SAS dataset by NASS employees. Missing variables were coded 0 in the original data set. Checked boxes and affirmative "Yes" answers were coded 1, unchecked and "No" responses were coded 0. Variables were labeled (VAR1XX… VAR991XX) in the order in which they appeared on the survey instrument. The completed SAS set of raw data was provided to researchers in the Department of Agricultural and Applied Economics at the University of Wyoming. These data were then checked for possible errors during data cleaning.

Data Cleaning

In order to clean the data for analysis the following aspects were checked:

Discrete variables checked for valid responses. Discrete variables require a response within a specific range. For example, if possible responses are coded '1' or '0', the

variable was checked to ensure that only those responses were entered. Any anomalies were compared against the response in the original questionnaire and corrected.

Valid percentages and percentage summations.. Another type of question used in the survey required that responses be in the form a percent. Reported percentages over 100 percent were considered incorrect and were corrected or eliminated from analysis. Many of the questions asking for percentages required that the sum of the responses to equal 100 percent. Sums greater than or less than 100 percent were identified and checked against the original questionnaires.

Non-response coding corrections. Because non responses were coded as zero in the initial data some additional processing was undertaken to recode these responses. SAS will count a zero when performing various operations. This leads to zeros weighing down the averages. To correct for this specific SAS code for each question was written to eliminate non-respondents. This code is noted in Appendix C.

Limiting analysis by operation size. Some producers that responded had fewer than 20 bred cows that were the focus of this survey. These producers were removed from the dataset and will be analyses separately in subsequent analyses.

Specific code for further cleaning of each question is included in Appendix C.

Descriptive Statistics

In most cases simple means and standard deviations for the population as well as for three operation sizes based on strata groups are reported. Where it clarifies categories, results are also reported as average percentage of a total. Questions with a low number of responses may have means that are affected by potential outlier responses. These are noted in the text where appropriate.

Information on sample size, measure of averages or central tendency, and measure of dispersion is reported for each variable where appropriate:

Measures of averages and central tendency. The mean is reported for most continuous variables. For ordinal responses where a mean is not appropriate the median and mode are reported.

Measures of dispersion or spread. The Standard deviation (s) is reported as a measure of dispersion. s = 0 when all observations have the same value (i.e. there is no variation). A large standard deviation indicates a high degree of variability. If a variable is approximately normally distributed we expect 68 percent of observations to fall within one standard deviation of the mean and 95 percent to fall within 2 standard deviations of the mean.

Other measures. Minimum and maximum are given for some variables where defining the extremes of a distribution is interesting (e.g. cattle sale weights). Frequencies are provided where relevant to a particular question or item.

Results

The results portion of this report is a detailed descriptive overview of the responses to the 2005 Wyoming Beef Producers Survey. Any additional analysis is beyond the scope of this report—rather, the information presented here is intended as a springboard to future detailed analyses of the relationships reported.

Operations reporting fewer than 20 bred cows were not included in this report; however, data for these 376 respondents are available in the dataset for further analysis. This resulted in 814 responses (out of 1,190) overall used for this report.

Results for each question from the Wyoming Beef Producers Survey instrument are given for all ranches as well as for three operation sizes. Operation sizes were defined according to the number of bred cows reported as typically owned and are defined as: small operations, reporting 20 to 299 bred cows; medium operations, reporting 300 to 999 bred cows; and large operations, reporting 1,000 or more head of bred cows. Of 814 valid responses 610 were from small, 189 from medium, and 15 were from large operations.

Measures of central tendency and dispersion are reported for each variable where appropriate. These measures vary due to the specific nature of each question, however, in most cases number of responses, means, and standard deviations are reported.

Part A: General Ranch Description

Survey respondents were asked to answer twelve general questions describing their cattle operations. Detailed information was collected on land type and tenure; herd management practices; feed sources; ranch income, expenses, and labor needs; and markets for sales and purchases.

Land Type and Tenure

In the first question regarding general ranch descriptions, respondents were asked about their ranchland type and tenure. The total average holdings of private land used by a Wyoming cattle operation responding to this survey is 7,800 acres. Private land used by Wyoming beef cattle producers who responded is predominately pasture and rangeland, approximately two-thirds of which is owned by the producer. Five categories of cropland (for grain, silage, irrigated- and dry-land hay) together consist of less than 6 percent of total private lands. Respondents are more likely to own than to lease every category of cropland (Table 1).

Public lands play an important role in the Wyoming beef cattle operations represented with four acres of public land in use for every five acres of private land. The total average of public land used by cattle operations responding to this survey is 6,333 acres. Approximately 90 percent of public land used by respondents is federal forest service and BLM (Bureau of Land Management). BLM lands are the most common (67 percent). State lands account for only 11 percent of the total public land used (Table 1).

Large standard deviations for the mean acres of several land categories are due to the large range of answers for these questions (e.g., from 0 to 350,000 acres for pasture and rangelands owned and leased).

Table 1.
Average number of acres owned and leased across land categories for all ranches.

Land Type	Acres $n = 814$[1]	Percent of Total Private Land	Percent Owned vs. Leased
Private Land Owned or Leased			
Pastureland, Rangeland	7,314[2] (19,929)[3]	94%	67% / 33%[4] $n = 776$[1] (39)[3]
Harvested Cropland for Grain	52 (227)	< 1%	80% / 20% $n = 136$ (36)
Harvested Cropland for Silage	12 (140)	< 1%	78% / 22% $n = 50$ (40)
Irrigated & Sub-Irrigated Hay	248 (787)	3%	83% / 17% $n = 434$ (33)
Dry Land Hay	90 (233)	1%	79% / 21% $n = 222$ (39)
Other (Specify)	84 (1,196)	1%	80% / 20% $n = 50$ (38)

Public Lands		Percent of Total Public Land
Forest Service	1,438[2] (14,264)[3]	23%
BLM	4,226 (25,328)	67%
State Lands	669 (2,957)	11%

[1] Sample size. Limiting valid responses for percentage of acres owned verses leased to answers summing to 100% resulted in lower response rates as indicated.
[2] Mean acres and mean percentages (rounded to the nearest whole number).
[3] Standard deviation (rounded to the nearest whole number).
[4] e.g. X% / Y% with X = percent owned and Y = percent leased.

Seventy-one (71) respondents specified one or more "other" categories of private land. Fourteen (14) listed their homestead, house or farmyard, 12 specified CRP (Conservation Reserve Program) land, 9 listed fallow or other non-productive lands such as river and creek bottoms, badlands, and ditches, and 2 listed tribal lands. Fourteen (14) responses listed croplands for purposes other than grain or silage (e.g., beans, sugar beets, wheat). Many of the remaining lands listed duplicated categories listed in the survey. A complete list of individual responses for the "other" category are listed in Appendix D.

Survey results for land type and tenure by operation size show larger operations using more of every category of land. The only deviation from this is in forest service lands: medium size operators use more forest service lands than the largest operators (4,743

acres versus 2,067). A high standard deviation for this question suggests that this may be due to a few medium-sized producers with a high number of forest service acres skewing the average to the right (Table 2). High standard deviations for several other categories (private pasture and rangelands, BLM lands) also suggest outliers—reinforced by large median acres for each of these categories (reported in Appendix C).

There were insufficient responses to report percentages of land owned versus leased by operation size.

Table 2.
Average number of acres owned and leased across land categories by operation size.

	Operation Size		
	20-299 Bred Cows	300-999 Bred Cows	≥ 1,000 Bred Cows
Land Type	n = 610[1]	n = 189	n = 15
Private Lands (Owned or Leased)			
Pastureland, Rangeland	2,983[2] (4,960)[3]	16,178 (2,265)	71,751 (93,684)
Harvested Cropland for Grain	38 (157)	74 (298)	335 (785)
Harvested Cropland for Silage	5 (27)	22 (187)	200 (775)
Irrigated & Sub-Irrigated Hay	136 (353)	441 (682)	2,356 (4,300)
Dry Land Hay	60 (135)	187 (401)	77 (193)
Public Lands			
Forest Service	398 (3,195)	4,743 (28,824)	2,067 (4,480)
BLM	1,658 (10,089)	10,706 (45,739)	27,027 (57,626)
State Lands	218 (621)	1,762 (5,424)	5,249 (6,957)

[1] Sample size.
[2] Mean acres (rounded to the nearest whole number).
[3] Standard deviation (rounded to the nearest whole number).

There is no clear correlation between operation size and the ratio of private to public lands used by Wyoming beef cattle operations responding to this survey. The smallest and largest operations both use more private than public land (58 percent and 69 percent respectively) while mid-sized operators report a 1:1 ratio (Table 3).

Table 3.
Percent private versus public land by operation size.

Operation Size	Percent Private Land	Percent Public Land
All Ranches	55%	45%
20 to 299 Bred Cows	58%	41%
300 to 999 Bred Cows	50%	50%
≥ 1,000 or more Bred Cows	69%	31%

Summary: Land Type and Tenure. The average Wyoming cattle ranch represented incorporates 7,800 acres of private and 6,333 acres of public lands (an approximate ratio of five acres of private to four acres of public land). There is no direct relationship between this ratio and ranch size, however, larger operations tend to use a higher number of acres per bred cow (28 acres per bred cow for small, 35 acres for medium, and 37 acres per bred cow for large operations). Several of the mean acres reported are skewed by a few producers reporting very large amounts for particular land categories making them appear higher than actual average ranch sizes.

Gross Annual Sales

Wyoming Beef Producer Survey respondents were asked to give detailed information regarding percentages of gross annual sales coming from twelve ranch enterprises or practices. The vast majority of sales for all ranches (82 percent) came from cow-calf enterprises. In fact, 60 percent of all respondents reported 100 percent of their gross sales came from cow-calf operations. Other beef cattle enterprises and practices (backgrounding, feedlot, cow-yearling, club-calf, and replacement heifers) accounted for another 13 percent of sales. Non-beef livestock enterprises (including sheep, horses, goats, dairy cattle, hogs, and buffalo) accounted for 3 percent of sales (Table 4).

Percentages of gross annual sales remained fairly consistent across operation sizes. Producers with 300 to 999 bred cows reported slightly lower sales percentages from cow-calf (76 percent) and higher for cow-yearling (14 percent). None of the largest producers reported sales from feedlot enterprises (Table 4).

Sheep and horses accounted for largest number of non-beef livestock enterprises. Small-sized operations reported the highest frequency of non-beef enterprise in every category. None of the largest producers reported sales from goat, dairy cattle, or hog enterprises (Table 5)**.**

Table 4.
Percentage of gross annual sales from each ranch enterprise or practice.

		By Operation Size		
		20-299	300-999	≥ 1,000
	All Ranches	Bred Cows	Bred Cows	Bred Cows
Ranch Enterprise	n = 803[1]	n = 603	n = 185	n = 15
Cow-Calf	82%[2]	84%	76%	82%
	(31)[3]	(30)	(36)	(27)
Backgrounding	2%	2%	2%	2%
	(10)	(10)	(11)	(8)
Feedlot	2%	1%	2%	0
	(10)	(10)	(11)	-
Cow-Yearling	8%	6%	14%	10%
	(23)	(20)	(31)	(26)
Club-calves	< 1%	< 1%	< 1%	< 1%
	(4)	(4.4)	(< 1)	(< 1)
Replacement Heifers	1%	1%	2%	1%
	(6)	(5.7)	(8.4)	(4)
Non-Beef Livestock[4]	3%	3%	3%	5%
	(10)	(10)	(11)	(13)
Other	3%	3%	1%	< 1%
	(13)	(14)	(6)	(1)

[1]Sample size. Limiting valid responses to answers summing to 100% dropped 11 respondents (7 from small and 3 from medium operation sizes).
[2]Mean percentages rounded to the nearest whole percent.
[3]Standard deviation (rounded to the nearest whole number).
[4]Includes sheep, horses, goats, dairy cattle, hogs, and buffalo.

Table 5.
Frequency of gross annual sales from other livestock ranch enterprises.

		By Operation Size		
		20-299	300-999	≥ 1,000
	All Ranches	Bred Cows	Bred Cows	Bred Cows
Ranch Enterprise	n = 803[1]	n = 603	n = 185	n = 15
Sheep	49[2]	34	14	1
Horses	62	45	13	4
Goats	3	2	1	0
Dairy Cattle	3	2	1	0
Hogs	6	6	0	0
Buffalo	0	-	-	-

[1]Sample size. Limiting valid responses to answers summing to 100% dropped 11 respondents (7 from small and 3 medium operation size).
[2]Frequency count of percent gross annual sales coded as a binary variable.

One-hundred fifty-five (155) respondents specified one or more "other" sources of annual gross ranch sales. Twenty-eight (28) reported additional beef cattle enterprises or practices not listed such as selling rodeo stock, bulls, and seed stock. Forty-five (45) listings were for hay and another 25 reported pasture leases. Twenty-two (22) responses specified crops such as wheat, grain, and barley. Specialty enterprises listed included honey, horse boarding, chickens, and direct meat sales. Thirty-one (31) respondents listed outside farm or non-farm income or employment. A complete list of individual responses is included in Appendix D.

Summary: Gross Annual Sales. Wyoming beef cattle ranches represented in this survey rely predominately on cow-calf enterprises for gross annual sales, with 95 percent of all gross sales related to beef cattle enterprises. These percentages are fairly consistent for all operation sizes.

Herd Management Practices

Three questions regarding asked respondents to specify their calving, weaning, and general herd management practices.

Respondents reported 72 percent of calving occurring between March and April and 94 percent occurring between February and May. Calves were predominately weaned in October (56 percent) with 92 percent of weaning taking place between September and November (Table 6). These results remain consistent for all operation sizes with between 93 and 95 percent of calving occurring in the early spring (February through March) and 91 to 98 percent of weaning in the fall months of September through November (Table 7).

Table 6.
Percentage of calving and weaning during each month: all ranches.

Month	Percentage of Calving n = 785[1]	Percentage of Weaning n = 785
January	1%[2] (7)[3]	<1% (6)
February	12% (23)	<1% (6)
March	34% (28)	1% (7)
April	38% (30)	1% (10)
May	10% (18)	<1% (5)
June	2% (8)	<1% (5)
July	<1% (4)	<1% (6)
August	1% (5)	1% (11)
September	1% (8)	12% (31)
October	<1% (3)	56% (47)
November	<1% (1)	24% (41)
December	<1% (1)	3% (16)

[1] Sample size. Limiting valid responses to answers summing to 100 percent dropped 29 respondents.
[2] Mean percentages (rounded to the nearest whole number).
[3] Standard deviation (rounded to the nearest whole number).

Table 7.
Percentage of calving and weaning during each month by operation size.

Month	Operation Size					
	20-299 Bred Cows n = 588[1]		300-999 Bred Cows n = 182		≥1,000 Bred Cows n = 15	
	Calving	Weaning	Calving	Weaning	Calving	Weaning
January	1%[2] (7)[3]	<1% (6)	1% (6)	1% (8)	3% (13)	0 -
February	14% (24)	<1% (6)	8% (18)	<1% (4)	7% (13.5)	0 -
March	36% (28)	1% (6)	28% (26)	1% (10)	25% (20.8)	0
April	36% (30)	1% (10)	44% (29)	1% (8)	47% (21.0)	0 -
May	9% (17)	<1% (5)	13% (19)	1% (5)	15% (15.8)	0 -
June	2% (8)	1% (6)	3% (10)	0 -	1% (3.0)	0 -
July	<1% (4)	<1% (7)	1% (4)	0 -	<1% (0.8)	0 -
August	<1% (3)	1% (10)	1% (8)	2% (12)	<1% (0.5)	0 -
September	1% (9)	13% (33)	1% (7)	9% (27)	0 -	6% (21)
October	<1% (4)	56% (48)	0 -	55% (47)	0 -	59% (40)
November	<1% (1)	22% (40)	0 -	28% (42)	0 -	33% (37)
December	<1% (1)	3% (16)	0 -	3% (14)	0 -	1% (4)

[1] Sample size. Limiting dataset to answers summing to 100 % dropped 22 respondents from small and 7 from medium operations.
[2] Mean percentages (rounded to the nearest whole number).
[3] Standard deviation (rounded to the nearest whole number).

Table 8 presents percentages of respondents practicing different herd management techniques for most of their herd each year, for all ranches as well as by three operation sizes. Nearly all of the ranches represented included vaccination (97 percent) and castration (95 percent) as part of their herd management routine. Insect control (73 percent) and de-worming (72 percent) were practiced by three-quarters and pregnancy checks (68 percent), animal identification (66 percent), veterinary consultation (62 percent), and dehorning (56 percent) were practiced by more than half of respondents.

The largest means for every category were for medium and large producers with the highest overall means for producers with 1,000 or more bred cows (Table 8).

Table 8.
Herd management techniques practiced.

Practice	All Ranches n = 809[1]	By Operation Size		
		20-299 Bred Cows n = 605	300-999 Bred Cows n = 189	≥ 1,000 Bred Cows n = 15
Vaccinate	97%[2] (0.16)[3]	97% (0.17)	99% (0.07)	93% (0.26)
De-worm	72% (0.45)	68% (0.47)	82% (0.39)	87% (0.35)
Insect Control	73% (0.45)	71% (0.45)	78% (0.42)	73% (0.46)
Implant	19% (0.39)	15% (0.36)	30% (0.46)	27% (0.46)
Dehorn	56% (0.50)	52% (0.50)	69% (0.46)	60% (0.51)
Castrate	95% (0.22)	94% (0.23)	96% (0.19)	100% (0.00)
Animal ID System	66% (0.48)	66% (0.47)	64% (0.48)	80% (0.41)
Body Condition Scoring	21% (0.40)	18% (0.38)	29% (0.45)	33% (0.49)
Pregnancy Check	68% (0.47)	63% (0.48)	85% (0.36)	80% (0.41)
Breeding Soundness Exam	25% (0.43)	20% (0.40)	40% (0.49)	40% (0.51)
Artificial Insemination	18% (0.38)	17% (0.38)	20% (0.40)	27% (0.46)
Veterinarian Consultation	62% (0.48)	59% (0.49)	70% (0.46)	87% (0.35)
Other	2% (0.14)	2% (0.15)	2% (0.14)	0 -

[1] Sample size. Eliminating respondents who did not check any techniques dropped 5 respondents. All of these were from small operations.
[2] Mean of binary variable reported as a percentage.
[3] Standard deviation.

Two (2) percent of respondents specified "other" herd management techniques, however most of these responses duplicated listed categories (e.g., branding, ear tags, and specific vaccinations). A complete list of individual responses is included in Appendix D.

Summary: Herd Management Practices. Customary calving and weaning times are standard for most Wyoming beef cattle producers represented by this survey, with most calving done in early spring (March and April) and most weaning in October. This is consistent over every operation size. The majority of ranches practiced multiple herd management techniques with vaccination and castration almost universal. Herd management was more intensive for larger operations.

Ranch Expenses

Respondents were asked to report percentages of total ranch expenses allocated to twelve expense categories in a typical year.

For a typical year, Wyoming beef producers in the sample reported the highest percentage of ranch expenses on alfalfa hay (18 percent) and fuel costs (15 percent). All purchased feed sources (including alfalfa) accounted for 31 percent of expenses. Livestock purchases were reported as 9 percent of total ranch expenses for all producers. Alfalfa, livestock purchases, labor, and fuel were the most variable expense categories across ranches (Table 9).

Many expense categories remained fairly consistent across operation size (e.g., feed other than alfalfa, fertilizer, and veterinary supplies). Small operations reported higher expenses for alfalfa hay (20 percent versus 12 and 11 percent for medium and large operators, respectively). Fuel and machinery repair services as a percentage of total costs decreased as operation size increased. Medium-sized operations had the highest expense percentages related to livestock purchases. Large operations had higher percentages of expenses allocated to labor and general business expenses (interest and professional services) (Table 9).

Two-hundred and sixty-four (264) respondents listed one or more "other" ranch expenses, many of which duplicated or elaborated on categories provided. Eighty (80) expenses listed were for land leases or payments. Other common categories included: 41 listings for various taxes; 30 for ranch supplies; 25 listed ranch maintenance, repair, or general improvements; 24 were related to water and irrigation costs; 17 for equipment or machinery expense; 16 for trucking and freight; and 15 for various insurance costs. A complete list of individual responses is included in Appendix D.

Summary: Ranch Expenses. Feed and fuel costs accounted for the highest percentages of ranch expenses reported by Wyoming beef cattle producers responding to this survey. Many expense categories remained fairly consistent across operation sizes, however the smallest producers reported a higher percentage allocated to purchasing alfalfa hay, medium-size producers had higher costs related to purchasing livestock, and the largest producers reported higher percentages going to pay for labor, interest expense, and professional services.

Table 9.
Percentage of total ranch expenses for all ranches and by operation size.

Ranch Expense	All Ranches n = 673[1]	By Operation Size		
		20-299 Bred Cows n = 508	300-999 Bred Cows n = 152	≥ 1,000 Bred Cows n = 13
Purchased Livestock	9%[2]	8%	12%	3%
	(14)[3]	(13)	(16)	(5)
Alfalfa Hay	18%	20%	12%	11%
	(21)	(22)	(16)	(17)
Grain (Corn, Barley, Oats)	4%	4%	3%	3%
	(7)	(8)	(6)	(9)
Feed Concentrates	5%	5%	6%	4%
	(7)	(7)	(7)	(4)
Salt and Mineral	4%	4%	4%	5%
	(6)	(6)	(4)	(7)
Fertilizer, Chemicals, Seeds	6%	6%	6%	8%
	(9)	(10)	(8)	(13)
Veterinarian / Health Supplies	6%	6%	6%	5%
	(5)	(6)	(5)	(4)
Labor-hired / Contract Labor	8%	6%	12%	16%
	(12)	(12)	(13)	(12)
Diesel, Gas., Nat. Gas Fuels	15%	16%	13%	7%
	(12)	(13)	(11)	(4)
Interest Expense	7%	6%	7%	8%
	(10)	(10)	(9)	(13)
Professional Services	2%	1%	2%	6%
	(3)	(3)	(3)	(11)
Machinery Repair Services	9%	9%	8%	5%
	(9)	(9)	(8)	(4)
Other	9%	9%	7%	19%
	(16)	(16)	(13)	(21)

[1] Sample size. Limiting dataset to answers summing to 100% dropped 141 respondents (102 from small, 37 from medium, and 2 from large operations.
[2] Mean percentages (rounded to the nearest whole number).
[3] Standard deviation (rounded to the nearest whole number).

Family and Non-Family Labor

The labor needs of a typical Wyoming beef cattle ranch were detailed in a question about family and non-family workers (both paid and unpaid) employed on a full-time or part-time or seasonal basis.

Of all respondents who reported employing family or non-family labor, an average of 1.8 year-round family members and 2.1 part-time or seasonal family members were hired. Respondents also reported hiring 2.1 non-family employees on a year-round and 2.4 on a part-time or seasonal basis. Larger operations hire more of every category of employee (Tables 10 and 11).

Table 10.
Average number of family and non-family labor employed year-round and on a part time or seasonal basis: all ranches.

Number Employed	Family		Non-Family	
	Year Round	**Part Time**	**Year Round**	**Part Time**
For All Respondents n = 800[1]	1.5[2] (1.2)[3]	0.8 (1.4)	0.4 (1.6)	0.7 (1.9)
Of Those Reporting Labor	1.8[2] n = 688[1] (1.1)[3]	2.1 n = 285 (1.7)	2.1 n = 150 (3.3)	2.4 n = 239 (2.9)
Maximum Number	7[4]	20	25	20

[1]Sample size. Eliminating respondents who did not answer any part of question 7 or who dropped 14 respondents.
[2]Mean number of employees (rounded to the nearest tenth).
[3]Standard deviation (rounded to the nearest tenth).
[4]Maximum number of employees reported.

Table 11.
Average number of family and non-family labor employed year-round and on a part time or seasonal basis: by operation size.

Producers with 20 to 299 Bred Cows

| | Family | | Non-Family | |
| | Year Round | Part Time | Year Round | Part Time |
Number Employed				
For All Respondents n = 576[1]	1.4[2] (1.0)[3]	0.7 (1.2)	0.1 (0.4)[3]	0.5 (1.4)
Of Those Reporting Labor	1.6 n = 519 (0.9)	2.0 n = 203 (1.4)	1.3 n = 65 (0.6)	2.0 n = 140 (2.3)
Maximum Number	7[4]	8	5	20

Producers with 300 to 999 Bred Cows

| | Family | | Non-Family | |
| | Year Round | Part Time | Year Round | Part Time |
Number Employed				
For All Respondents n = 189	1.8 (1.5)	0.9 (1.4)	0.8 (1.5)	1.3 (2.7)
Of Those Reporting Labor	2.2 n = 157 (1.4)	2.2 n = 77 (1.4)	2.0 n = 74 (1.9)	2.8 n = 88 (3.4)
Maximum Number	7	10	12	20

Producers with 1,000 or more Bred Cows

| | Family | | Non-Family | |
| | Year Round | Part Time | Year Round | Part Time |
Number Employed				
For All Respondents n = 15	2.5 (2.0)	1.8 (5.1)	5.8 (8.7)[3]	3.4 (4.3)
Of Those Reporting Labor	3.1 n = 12 (1.7)	5.4 n = 5 (8.2)	7.9 n = 11 (9.4)	4.6 n = 11 (4.5)
Maximum Number	6	20	25	15

[1]Sample size. Eliminating respondents who did not answer any part of question 7 or who dropped 14 respondents.
[2]Mean number of employees (rounded to the nearest tenth).
[3]Standard deviation (rounded to the nearest tenth).
[4]Maximum number of employees reported.

The frequency table (Table 12) of family and non-family labor by month shows the majority of part-time or seasonal employees hired by survey respondents worked between the summer months of June and August. Frequencies for monthly employment by operation size is included in Appendix C.

Table 12.
Frequency of family and non-family labor employed on a part-time or seasonal basis by month: all ranches.

Month	Family	Non-Family
January	12[1]	16
February	19	22
March	38	44
April	64	74
May	91	95
June	140	123
July	138	122
August	134	111
September	65	71
October	55	61
November	28	24
December	13	7
All Months	79	22

[1]Frequency of a binary variable. Out of 876 respondents who entered a positive amount for number of family and 792 respondents who entered a positive number for number of non-family employed.

Feed Sources and Feeding

The Wyoming Beef Cattle Producers Survey included two questions detailing feed sources and feeding. Respondents were asked to list amounts of feed from on- and off-farm sources other than pasture, and which months each source was typically fed. The survey also asked numbers of several livestock classes owned, number of months each is typically owned, and the number of months cattle were fed on non-pasture sources.

Table 13 provides information on amounts of feed sources coming from on- and off-farm sources as well as which months producers started and finished feeding each source. Hay, alfalfa, and crop aftermath (other than corn) was predominately produced on-farm. An average respondent produced 271 tons of hay, 123 tons of alfalfa, and 68 acres of crop aftermath. High standard deviations for these categories are due to a few producers reporting very high amounts (e.g., 30,000 tons of on-farm grass hay, 1,000,000 bushels of off-farm grain). Maximum amounts for every category are reported in Appendix C. Protein supplements, concentrates, and grain were mainly procured off-farm.

Grass hay, crop aftermath, and grain are generally fed from fall (September or October) through spring (April, May, or June). Feeding of alfalfa, protein supplements, and concentrates typically began in August (Table 13).

Table 13.
On- and off-farm feed sources and months fed: all ranches.

Feed Source	On Farm n = 733[1]	Off Farm n = 733	Total	Months Fed	
				Started	Finished
Grass Hay, Other Hay	217 tons[2] (1,152)[3]	41 tons (130)	257 tons	Sept. through n = 568[1] (4)[3]	May n = 569 (1)
Alfalfa	123 tons (304)	57 tons (127)	180 tons	Aug. through n = 489 (4)	May n = 484 (2)
Protein Supplement	1 ton (10)	18 tons (136)	20 tons	Aug. through n =318 (5)	June n = 310 (3)
Concentrates	< 1 ton (4)	6 tons (24)	6 tons	Aug. through n = 137 (4)	June n = 139 (3)
Corn Stalks / Stubble	7 acres (39)	7 acres (97)	14 ac.	Oct. through n = 52 (3)	April n = 50 (4)
Other Crop Aftermath	61 acres (294)	12 acres (112)	73 ac.	Sept. through n = 94 (3)	July n = 92 (4)
All Grain	276 bushels (2,013)	1,567 bushels (36,956)	1,843 b.	Sept. through n = 130 (4)	June n = 130 (3)
Other	29 responses (350)	6 responses (65)			

[1] Sample size. Excluding respondents for all of question 8 who did not enter any amount for on- or off-farm feed sources dropped 81 respondents. Excluding respondents for months fed who did not enter a valid number (1-12) dropped respondents as indicated.
[2] Mean amounts (rounded to the nearest whole number).
[3] Standard deviation (rounded to the nearest whole number). For months fed, calculated from variable coded 1 - 12.

There were insufficient responses to present results for months fed by operation size.

Seventy-six (76) respondents listed one or more "other" feed source. The majority of these responses specified various grazing and pasture sources. Most of the remaining responses (listing silage, specific concentrates and supplements, cake, corn, etc.) duplicated listed categories. A complete list of individual responses is included in Appendix D.

Large operations reported producing a larger percentage of grass and other hay on-farm in comparison to other operations. Ninety-nine (99) percent of hay was produced on-farm for operations with 1,000 or more bred cows, 75 percent for both medium and small operations. Conversely, smaller producers reported producing a larger percentage of alfalfa on-farm (71 percent for small, and 65 percent for medium and large producers). Medium-sized producers had the largest percentages of protein supplements and concentrates from on-farm sources. Large producers did not purchase any corn aftermath and did not produce any concentrates (Tables 14, 15, and 16).

Table 14.
On- and off-farm feed sources: producers with 20 to 299 bred cows.

Feed Source	On Farm n = 542[1]	Off Farm n = 542	Total
Grass Hay, Other Hay	94 tons[2] (177)[3]	30 tons (70)	125 tons
Alfalfa	95 tons (237)	39 tons (75)	133 tons
Protein Supplement	1 ton (7)	16 tons (156)	17 tons
Concentrates	< 1 ton (2)	3 tons (14)	3 tons
Corn Stalks / Stubble	6 acres (29)	8 acres (112)	14 acres
Other Crop Aftermath	31 acres (122)	5 acres (49)	36 acres
All Grain	126 bushels (938)	170 bushels (1308)	296 bushels

[1] Sample size. Excluding respondents who did not enter any amount for on- or off-farm feed sources dropped 81 respondents from the dataset for this question. Of these 68 were for small operations.
[2] Mean amounts (rounded to the nearest whole number).
[3] Standard deviation (rounded to the nearest whole number).

Table 15.
On- and off-farm feed sources: producers with 300 to 999 bred cows.

Feed Source	On Farm n = 176[1]	Off Farm n = 176	Total
Grass Hay, Other Hay	414 tons[2] (517)[3]	75 tons (232)	489 tons
Alfalfa	195 tons (404)	106 tons (201)	301 tons
Protein Supplement	3 ton (15)	21 tons (37)	24 tons
Concentrates	1 ton (8)	11 tons (36)	12 tons
Corn Stalks / Stubble	6 acres (33)	3 acres (24)	9 acres
Other Crop Aftermath	118 acres (409)	29 acres (191)	147 acres
All Grain	557 bushels (2679)	318 bushels (1835)	875 bushels

[1] Sample size. Excluding respondents who did not enter any amount for on- or off-farm feed sources dropped 81 respondents for this question, 13 were from medium operations.
[2] Mean amounts (rounded to the nearest whole number).
[3] Standard deviation (rounded to the nearest whole number).

Table 16.
On- and off-farm feed sources: producers with 1,000 or more bred cows.

Feed Source	On Farm n = 15[1]	Off Farm n = 15	Total
Grass Hay, Other Hay	2,314 tons[2] (7,681)[3]	10 tons (28)	2,324 tons
Alfalfa	300 tons (704)	160 tons (264)	460 tons
Protein Supplement	7 tons (26)	61 tons (117)	67 tons
Concentrates	0 -	27 tons (78)	27 tons
Corn Stalks / Stubble	53 acres (181)	0 -	53 acres
Other Crop Aftermath	453 acres (1,267)	80 acres (310)	533 acres
All Grain	2,413 bushels (9,020)	66,667 bushels (258,199)	69,080 bushels

[1] Sample size. Excluding respondents who did not enter any amount for on- or off-farm feed sources dropped 81 respondents for this question. Of these none were for large operations.
[2] Mean amounts (rounded to the nearest whole number).
[3] Standard deviation (rounded to the nearest whole number).

Respondents were asked to report the peak number of livestock they typically owned, and the months they were fed on raised or purchased feed (other than pasture) during a typical year. A typical cattle herd for the respondents consisted of 50 percent bred cows, 36 percent steer and heifer calves, 7 percent replacement heifers, 4 percent retained yearlings, and 3 percent fat cows and herd bulls. Bred cows were owned the longest (an average of 11 months out of the year) and fed from non-pasture sources for 5 months of the year. Steer and heifer calves were owned for 5 to 6 months and fed for 2 months (Table 17).

Table 17.
Peak number of livestock typically owned, number of months owned, and months on feed other than pasture for all ranches.

Livestock Class	Peak Number Owned $n = 814^{1}$	Percent of Herd	Number of Months Owned $n = 814$	Number of Months Fed $n = 814$
Bred Cows	221^{2}	50%	11^{2}	5^{2}
	$(365)^{3}$		(3)	(2)
Steer Calves	79	18%	5	2
	(215)		(5)	(3)
Heifer Calves	77	18%	6	2
	(202)		(5)	(3)
Replacement Heifers	31	7%	7	3
	(71)		(6)	(3)
Retained Yearlings	19	4%	2	1
	(94)		(4)	(2)
Fattened Cows	1	< 1%	< 1	< 1
	(11)		(1)	(1)
Herd Bulls	10	2%	9	4
	(18)		(5)	(3)
Horses	8	0	7	3
	(19)		(6)	(4)
Other	32	0	1	< 1
	(504)		(3)	(2)

[1] Sample size.
[2] Mean number (rounded to the nearest whole number).
[3] Standard deviation (rounded to the nearest whole number).

There were 69 respondents who listed one or more "other" livestock classes. The majority of these repeated classes already listed. Additional cattle classes listed included bull calves (13), bull yearlings (3), rodeo stock (3), dairy cows (2), and open cows (1). Additional livestock classes listed included sheep (26) as well as llamas and alpacas, goats, chickens, bucks, hogs, emus, and mules. Three (3) working dogs were also listed.

A high standard deviation for number of other livestock owned is due to two respondents listing 10,000 sheep each. A complete list of individual responses is included in Appendix D.

Cattle herd composition percentages are consistent for small and medium operations with approximately 52 percent bred cows, 35 percent calves, and 7 percent replacement heifers. The largest operations reported slightly fewer bred cows in their herds (44 percent) and more calves (43 percent). Larger operations also reported owning calves longer (5 to 6 months for small, 6 months for medium, and 7 to 8 months for large operations) (Tables 18, 19, and 20).

Table 18.
Peak number of livestock typically owned, number of months owned, and months on feed other than pasture: producers with 20 to 299 bred cows.

Livestock Class	Peak Number Owned $n = 610^1$	Percent of Herd	Number of Months Owned $n = 610$	Number of Months Fed $n = 610$
Bred Cows	106^2	52%	11^2	5^2
	$(74)^3$		$(3)^3$	$(2)^3$
Steer Calves	36	18%	5	2
	(110)		(5)	(2)
Heifer Calves	35	17%	6	2
	(67)		(5)	(3)
Replacement Heifers	15	7%	7	3
	(28)		(6)	(3)
Retained Yearlings	7	3%	1	1
	(45)		(4)	(2)
Fattened Cows	1	1%	< 1	< 1
	(12)		(1)	(1)
Herd Bulls	5	2%	9	4
	(9)		(5)	(3)
Horses	5	0	7	3
	(11)		(6)	(4)

[1] Sample size.
[2] Mean number (rounded to the nearest whole number).
[3] Standard deviation (rounded to the nearest whole number).

Table 19.
Peak number of livestock typically owned, number of months owned, and months on feed other than pasture: producers with 300 to 999 bred cows.

Livestock Class	Peak Number n = 189[1]	Percent of Herd	Number of n = 189	Number of n = 189
Bred Cows	456[2]	52%	12[2]	4[2]
	(162)[3]		(2)	(2)
Steer Calves	156	18%	6	2
	(250)		(5)	(3)
Heifer Calves	137	16%	6	2
	(114)		(5)	(3)
Replacement Heifers	64	7%	8	4
	(90)		(6)	(3)
Retained Yearlings	46	5%	2	1
	(136)		(4)	(3)
Fattened Cows	1	<1%	< 1	< 1
	(6)		(2)	(1)
Herd Bulls	20	2%	10	4
	(13)		(5)	(3)
Horses	13	0	9	3
	(24)		(5)	(3)

[1] Sample size. [2] Mean number (rounded to the nearest whole number).
[3] Standard deviation (rounded to the nearest whole number).

Table 20.
Peak number of livestock typically owned, number of months owned, and months on feed other than pasture: producers with 1,000 or more bred cows.

Livestock Class	Peak # Owned n = 15[1]	Percent of Herd	Months Owned n = 15	Months Fed n = 15
Bred Cows	1,926[2]	44%	12[2]	4[2]
	(1642)[3]		(1)	(2)
Steer Calves	872	20%	8	2
	(699)		(4)	(4)
Heifer Calves	1,000	23%	7	2
	(983)		(4)	(3)
Replacement Heifers	287	7%	10	4
	(234)		(5)	(3)
Retained Yearlings	170	4%	2	1
	(365)		(5)	(2)
Fattened Cows	0	0	0	0
	-		-	-
Herd Bulls	85	2%	10	4
	(60)		(5)	(3)
Horses	48	0	10	4
	(74)		(5)	(4)

[1] Sample size. [2] Mean number (rounded to the nearest whole number).
[3] Standard deviation (rounded to the nearest whole number).

Summary: Feed Sources and Feeding. A typical Wyoming beef cattle ranch responding to this survey fed out 257 tons of grass hay (84 percent of which was produced on-farm) and 180 tons of alfalfa (68 percent from on-farm sources). Herds were fed grass hay, crop aftermath, and grain from fall through early spring while herds were generally started on alfalfa, protein supplements, and concentrates in August. Larger operations produced nearly all of their grass hay on-farm while smaller operations produced a larger percentage of their own alfalfa.

Cattle Markets

Three questions on the Wyoming Beef Producers Survey asked about livestock sale and purchasing market methods as well as typical sale weights and months for several livestock classes.

Respondents were asked to report the percentage of calves they sold using different market methods. The sale barn is the most common sales market institution for all ranches responding, accounting for 54 percent of all calf sales. Private sale or treaty (27 percent) and video auction (14 percent) accounted for most other sales (Table 21).

Sales methods varied by operation size. Larger operation size was related to a larger percentage of calves reported sold by private sale or treaty, retained slaughter sold live, and retained slaughter sold on-the-grid in-the-meat. Larger operations reported fewer sales via the sale barn. Medium-sized producers reported the most sales via video auction. The majority of small producers preferred the sale barn (Table 21).

Table 21.
Market methods for calf sales.

		By Operation Size		
Calf Sale Method	All Ranches $n = 805^1$	20-299 Bred Cows $n = 603$	300-999 Bred Cows $n = 187$	$\geq 1,000$ Bred Cows $n = 15$
Sale Barn	$54\%^2$ $(45)^3$	61% (45)	32% (40)	20% (35)
Video Auction	14% (32)	10% (28)	26% (39)	17% (34)
Private Sale / Treaty to Buyer	27% (40)	24% (39)	34% (43)	50% (45)
Non Traditional Methods[4]	6% (21)	5% (19)	8% (24)	13% (35)
Other	< 1% (6)	1% (7)	< 1% (1)	0 -

[1]Sample size. Limiting responses to producers who gave answers with percentages summing to 100% dropped 9 respondents (7 from small and 2 from medium operation sizes).
[2]Mean percent (rounded to the nearest whole number).
[3]Standard deviation (rounded to the nearest whole number).
[4]Includes forward cash contracts, futures and options, website listing, retained slaughter-sold live, retained slaughter-sold on the grid in the meat, retained-direct grass-fed or natural, and retained-direct certified organic.

Table 22 shows the frequency of calf sales through market methods other than sale barn, private treaty, or video auction were predominately retained slaughter—sold live, on-the-grid, or natural grass-fed. Every non-traditional calf sales method was more popular with smaller operations. Producers with 1,000 or more bred cows reported no forward contract, futures, website, retained natural, retained organic, or other sales.

Table 22.
Frequency of non-traditional sale methods for calves.

Calf Sale Method	All Ranches	By Operation Size		
		20-299 Bred Cows	300-999 Bred Cows	≥ 1,000 Bred Cows
Forward Cash Contracts	9[1]	8	1	0
Futures and Options	3	1	2	0
Website Listing	11	7	4	0
Retained Slaughter-Sold Live	34	21	11	2
Retained Slaughter-On-the-Grid In-the-Meat	20	10	9	1
Retained-Direct Grass-fed or Natural	20	12	8	0
Retained-Direct Certified Organic	2	1	1	0

[1]Frequency count of percent of sales coded as a binary variable.

Thirty (30) respondents listed one or more "other" sales methods. The majority of these duplicated or elaborated on categories provided. Several also indicated that animals were kept for meat or herd replacement. Additional sales markets listed included bull test auctions, consignment sales, cattle buyers, and ranch auctions. Three (3) respondents reported selling calves directly to feedlots but did not indicate a specific method. A complete list of individual responses is included in Appendix D.

Respondents were asked to report typical sale or maintenance weights by cattle class as well as the month each class of cattle was most typically sold. Sale weights for all ranches averaged 582 lbs to 547 lbs for weaned calves, 716 lbs for backgrounded calves, 898 lbs for long yearlings, and 845 lbs for replacement heifers. Weaned calves typically sold in September, backgrounded calves in May, and long yearlings in August (Table 23).

Table 23.
Typical sale or maintenance weights and month typically sold by cattle class for all ranches.

Cattle Class	n	Typical Weight	Minimum and Maximum Weight		Month Sold
Weaned Steer Calves	715[1]	582 lbs[2] (94)[3]	320 lbs	1,250 lbs	September (3)[3]
Weaned Heifer Calves	685	547 lbs (88)	300 lbs	1,150 lbs	September (3)
Backgrounded Calves	52	716 lbs (172)	400 lbs	1,300 lbs	May (4)
Long Yearlings	97	898 lbs (158)	300 lbs	1,400 lbs	August (2)
Finished Cattle	47	1,227 lbs (119)	900 lbs	1,500 lbs	June (3)
Replacement Heifers	208	845 lbs (177)	500 lbs	1,200 lbs	July (4)
Bred Cows	300	1,199 lbs (119)	800 lbs	1,800 lbs	August (4)
Fattened Cows	85	1,259 lbs (156)	950 lbs	1,700 lbs	August (3)
Herd Bulls	376	1,799 lbs (260)	950 lbs	3,000 lbs	August (3)
Other	55	1,063 lbs (410)			August (3)

[1] Sample size. Requiring some positive answer to either weight or month sold for any cattle class dropped 59 respondents. Minimum weight was set at 100 lbs for all calves and yearlings and 500 lbs for all adult cattle classes to eliminate nonsensical answers. Answers were eliminated for months sold that were not 1 - 12. This further reduced n for individual cattle classes as indicated in Table.
[2] Means (rounded to the nearest whole number).
[3] Standard deviation (rounded to the nearest whole number). Standard deviation for months was calculated from variable for months coded from 1 - 12.

Fifty-seven (57) respondents listed one or more "other" cattle class for sale or maintenance weights. The most common listed classes were cull cows (16), open cows (5), dry cows (5), bulls (5), and bull calves (4). A complete list of individual responses is included in Appendix D.

Sale or maintenance weights and months sold did not vary much by operation size, however smaller operations reported slightly higher weights for calves and yearlings despite the fact that the largest operations generally sold calves one month later in the year (Table 24).

Table 24.
Typical sale or maintenance weights and month typically sold for cattle classes by operation size.

	Operation Size					
	20-299 Bred Cows		300-999 Bred Cows		≥ 1,000 Bred Cows	
Cattle Class	**Typical Weight**	**Month Sold**	**Typical Weight**	**Month Sold**	**Typical Weight**	**Month Sold**
Weaned Steer Calves	591 lbs[2] n=540[1] (99)[3]	September[1] n=519 (3)	555 lbs n=161 (71)	September n=155 (3)	532 lbs n=14 (35)	October n=11 (3.1)
Weaned Heifer Calves	555 lbs n=520 (92)	September n=486 (3)	524 lbs n=151 (68)	September n=144 (3)	494 lbs n=14 (40)	October n=9 (3)
Backgrounded Calves	714 lbs n= 37 (164)	May n=31 (4)	659 lbs n=12 (116)	May n=11 (4.3)	967 lbs n=3 (293)	March n=2 (0)
Long Yearlings	911 lbs n= 54 (195)	August n=44 (3)	887 lbs n=37 (96)	September n=34 (2)	858 lbs n=6 (86)	August n=6 (3)
Finished Cattle	1,216 lbs n= 32 (140)	June n=25 (3)	1,252 lbs n=13 (46)	June n=13 (3)	1,250 lbs n=2 (71)	July n=1
Replacement Heifers	824 lbs n=146 (185)	July n=37 (4)	898 lbs n=55 (146)	August n=23 (4)	861 lbs n=7 (173)	May n=3 (4)
Bred Cows	1,200 lbs n=214 (131)	September n=73 (4)	1,197 lbs n=77 (80)	July n=41 (4)	1,186 lbs n=9 (74)	July n=2 (6)
Fattened Cows	1,261 lbs n= 64 (167)	August n=54 (4)	1,259 lbs n=19 (127)	August n=20 (3)	1,175 lbs n=2 (35)	November n=2 (1)
Herd Bulls	1,796 lbs n=262 (277)	August n=140 (3)	1,808 lbs n=102 (213)	August n=60 (3)	1,796 lbs n=12 (251)	August n=6 (4)

[1] Sample size. Forcing some positive answer to either weight or month sold for any cattle class dropped 59 respondents. Minimum weight was set at 100 lbs for all calves and yearlings and 500 lbs for all adult cattle classes. Answers were eliminated for months sold that were not 1 - 12. This further reduced n for individual cattle classes as indicated in Table.
[2] Means (rounded to the nearest whole number).
[3] Standard deviation (rounded to the nearest whole number). Standard deviation for months was calculated from variable for months coded from 1 – 12 (e.g., a standard deviation of 3 indicates a variance of 3 months).

Respondents were asked to report the percentage of purchased cattle acquired using different market methods. As with sales markets, the majority of Wyoming beef producers responding to the survey went to the sale barn (43 percent of sales), or used private sale or treaty (50 percent) to acquire cattle. Again, the sale barn was a more popular market for smaller producers. However, contrary to sales market preference

results, private treaty was also more popular with smaller producers while larger producers were more likely to use video auctions to purchase cattle (Table 25).

Table 25.

Percentage of cattle purchased by market method.

Purchase Method	All Ranches n = 587[1]	By Operation Size		
		20-299 Bred Cows n = 432	300-999 Bred Cows n = 145	≥ 1,000 Bred Cows n = 10
Sale Barn	43%[2]	42%	46%	25%
	(45)[3]	(46)	(45)	(43)
Video Auction	2%	2%	3%	5%
	(13)	(11)	(15)	(16)
Private Sale / Treaty	50%	52%	45%	50%
	(46)	(46)	(45)	(47)
Forward Cash Contracts	1%	1%	< 1%	0
	(8)	(8)	(4)	-
Website Listing	< 1%	< 1%	0	0
	(1)	(1)	-	-
Other	4%	3%	6%	20%
	(19)	(17)	(23)	(42)

[1] Sample size. Limiting to those responses that summed to 100% dropped 227 respondents (178 from small, 44 from medium, and 5 from large operation sizes).
[2] Mean percentages (rounded to the nearest whole number).
[3] Standard deviation (rounded to the nearest whole number).

Thirty-eight (38) respondents indicated one or more "other" methods for purchasing cattle. Several respondents indicated that they rely only on internal replacement. In addition to several duplicated categories, additional markets and methods listed included bull sales (9); private auction (4); classified ads, flyers, or newspaper ads (3); and ranch auctions. A complete list of individual responses is included in Appendix D.

Summary: Cattle Markets. Wyoming cattle producers represented by the survey rely on traditional sale barn and private agreements for the majority of their sales and purchases of livestock. Medium-sized operations reported the highest percentage of sales done via video auctions. There was little variation in sale weights over operation size. Small operations did report slightly higher weights for calves and yearlings despite the fact that large operations tended to sell calves a month later in the year.

Part B: Other Production and Marketing Practices

The second part of the Wyoming Beef Producers Survey asked respondents seven questions regarding other production and marketing practices. Topics included retained ownership of calves, direct marketing to consumers and other non-traditional marketing practices, and about current issued impacting the future of the beef industry.

Retained Ownership

A series of linked questions regarding Wyoming beef producers' practices and beliefs regarding retained ownership of calves asked respondents about their current practices as well as the potential number, location, and distance to calves retained at off-farm feedlots.

Nine (9) percent of all respondents reported currently retaining ownership of calves. There is a clear relationship between operation size and this practice: 6 percent of small, 18 percent of medium, and 27 percent of large operations reported currently retaining ownership (Table 26).

Table 26.

Producers currently retaining ownership of calves.

All Ranches	By Operation Size		
	20-299 Bred Cows	300-999 Bred Cows	≥ 1,000 Bred Cows
n = 791[1]	n = 593	n = 183	n = 15
9%[2]	6%	18%	27%
(0.28)[3]	(0.23)	(0.39)	(0.46)

[1]Sample size. Excluding respondents who did not answer either "yes" or "no" dropped 23 respondents from the dataset for this question (17 from small and 6 from medium operations).
[2]Mean (of a binary variable reported as a percentage) of respondents reporting "yes" (rounded to the nearest whole percentile).
[3]Standard deviation.

Of 70 respondents reporting that they currently retain ownership of calves, 63 percent held calves in-state and 37 percent at out-of-state feedlots. The average distance from the home ranch to an in-state feedlot was 73 miles with a maximum distance of 325 miles. The average distance to out-of-state calves was 142 miles with a maximum of 1,000 miles. Small producers who retained calves shipped them a shorter average distance to both in- and out-of-state facilities (Table 27).

Table 27.

Location of and distance to calves retained by producers who currently retain ownership into an off-farm feedlot.

			By Operation Size		
		All Ranches	20-299 Bred Cows	300-999 Bred Cows	≥ 1,000 Bred Cows
Location		n = 70[1]	n = 33	n = 33	n = 4
Percent Held In-State		63%[2]	70%	52%	100%
		(0.49)[3]	(0.47)	(0.51)	(0.00)
Distance From Home:	Average	64 miles[4]	53 miles	65 miles	146 miles
		(85)[3]	(83)	(88)	(42)
	Maximum	325 miles	325 miles	280 miles	200 miles
Percent Held Out-of-State		37%	24%	48%	50%
		(0.49)	(0.44)	(0.51)	(0.58)
Distance From Home:	Average	142 miles	75 miles	206 miles	161 miles
		(244)	(180)	(285)	(236)
	Maximum	1,000 miles	700 miles	1,000 miles	500 miles

[1]Sample size. Calculated from 70 respondents who answered "yes" to question 13—Do you currently retain ownership?
[2]Mean (of binary variable reported as a percentage) of respondents reporting "yes" (rounded to the nearest whole percentile).
[3]Standard deviation.
[4]Mean distance (rounded to the nearest whole number).

Respondents who reported that they did not currently retain ownership of calves into an off-farm feedlot were asked whether they would consider doing so. Out of these 708 respondents, 31 percent said that they would consider retaining ownership. Larger operation sizes were more likely to consider retaining ownership. Thirty (30) percent of small, 34 percent of medium producers, and 45 percent of large operations answered yes to this question (Table 28).

Table 28.

Percentage of producers who would consider retaining calves.

All Ranches	**By Operation Size**		
	20-299 Bred Cows	300-999 Bred Cows	≥ 1,000 Bred Cows
n = 708[1]	n = 551	n = 146	n = 11
31%[2]	30%	34%	45%
(0.46)[3]	(0.46)	(0.47)	(0.52)

[1]Sample size. Excluding respondents who either answered "no" to question 13—Do you currently retain ownership?—dropped 106 respondents (59 from small, 43 from medium, and 4 from large operations).
[2]Mean (of binary variable reported as a percentage) of respondents reporting "yes" (rounded to the nearest whole percentile).
[3]Standard deviation.

For respondents who do not currently, but who would consider, retaining ownership of their calves, 63 percent reported they preferred a location in-state an average distance of 73 miles away and 35 percent preferred out-of-state facilities 134 miles from the home ranch. The maximum distance these 224 respondents reported that they would be willing to ship calves was 1,000 miles to an in-state and 2,000 miles to an out-of-state feedlot. Smaller producers who reported considering retained ownership were more likely to prefer in-state while larger producers were more likely to prefer out-of-state facilities (Table 29).

Table 29.

Preferred location of and distance to calves for producers who would consider retaining ownership into an off-farm feedlot.

		By Operation Size		
		20-299	300-999	≥ 1,000
	All Ranches	Bred Cows	Bred Cows	Bred Cows
Location	n = 224[1]	n = 167	n = 52	n = 5
Percent Held In-State	63%[2]	67%	52%	40%
	(0.48)[3]	(0.47)	(0.50)	(0.55)
Preferred Distance From Home:				
Average	73 miles[4]	70 miles	88 miles	50 miles
	(129)[3]	(114)	(173)	(87)
Maximum	1,000 miles	1,000 miles	1,000 miles	200 miles
Percent Held Out-of-State	35%	31%	46%	60%
	(0.48)	(0.46)	(0.55)	(0.55)
Preferred Distance From Home:				
Average	134 miles	118 miles	176 miles	220 miles
	(262)	(265)	(253)	(228)
Maximum	2,000 miles	2,000 miles	1,000 miles	500 miles

[1]Sample size. Calculated from 224 respondents who answered "yes" to question 15—Would you consider retaining ownership?
[2]Mean (of binary variable reported as a percentage) of respondents reporting "yes" (rounded to the nearest whole percentile).
[3]Standard deviation.
[4]Mean distance (rounded to the nearest whole number).

Summary: Retained Ownership. Less than 10 percent of respondents to the Wyoming Beef Cattle Producers Survey reported currently retaining ownership of their calves in an off-farm feedlot. Larger producers were much more likely to retain ownership. Thirty-one (31) percent of those respondents who do not currently employ this practice said that they would consider doing so—again this percentage was much higher for larger operations. The preferred location and distance to calves for respondents who actually retained ownership and those who would consider this practice were very similar.

Alternative Practices

Respondents were asked about their current practices and opinions regarding direct marketing as well as several other alternative production, marketing, herd management, and income practices.

Respondents were asked to report the number of cattle they would direct market to consumers across state lines if a USDA inspector were available. The average number was 22 head for all ranches responding. There is a relationship between the number of head a producer would market directly and operation size with 13 head reported for

small, 24 for medium, and 360 for large operations. The large standard deviation for large operations is due to one producer reporting 3,500 head. The maximum number of head reported for medium and large producers was 500 and 600 head, respectively (Table 30).

Table 30.

Number of head a producer would direct market to consumers across state lines if a USDA inspector were available.

	By Operation Size		
All Ranches n = 814[1]	20-299 Bred Cows n = 610	300-999 Bred Cows n = 189	≥ 1,000 Bred Cows n = 15
22 head[2] (140)[3]	13 head (41)	24 head (86)	360 head (915)

[1]Sample size.
[2]Mean number of cattle (rounded to the nearest whole number).
[3]Standard deviation (rounded to the nearest whole number).

Respondents were asked whether they have considered or are currently doing several alternative practices related to production, marketing, herd management, and income.

The most common specialty production practice respondents reported currently doing was grass-fed or natural beef (30 percent). Less than 10 percent of respondents currently produce USDA certified organic beef. About 30 percent of respondents said that they "have considered" producing either natural or organic beef (Table 31).

Fourteen (14) percent of respondents currently market beef directly to consumers. Only 4 percent belong to a beef co-operative or alliance. About 1 in 4 respondents said that they "have considered" these alternative marketing practices, 1 in 3 have not considered them, and about 1 in 7 said they "would not" market using these methods (Table 31).

Alternative herd management practices of employing a National Animal Identification System or changing calving seasons are currently done by 5 and 9 percent of respondents, respectively. Forty (40) percent said they would consider a national I.D. system and 27 percent said that they would consider a different calving season (Table 31).

When asked about alternative sources of ranch income, 14 percent of respondents reported currently adding an additional enterprise to their beef operations. Another 29 percent said that they would consider this option. About one quarter of respondents said they currently sell some form of recreation on their ranch for additional income, although nearly half said that they "will not" or have not considered selling recreation. Forty-four (44) percent said they currently work off-farm for additional income with the remainder evenly split between "have considered", "have not considered", and "will not" work off-farm (Table 31).

Table 31.

"Have you considered or are you currently doing any of the following practices?":
all ranches.

Practice	Currently Doing n = 702[1]	Have Considered n = 702	Have Not Considered n = 702	Will Not Do n = 702
Production				
Organic Beef (USDA Certified)	6%[2] (0.23)[3]	31% (0.46)	32% (0.47)	18% (0.38)
Grass-fed or Natural Beef	30% (0.46)	30% (0.46)	23% (0.42)	10% (0.30)
Marketing				
Direct Customer Marketing	14% (0.35)	26% (0.44)	31% (0.46)	14% (0.35)
Join Beef Co-op or Alliance	4% (0.20)	29% (0.46)	36% (0.48)	14% (0.35)
Herd Management				
National Ind. Animal ID System	5% (0.22)	40% (0.49)	27% (0.44)	13% (0.33)
Change Calving Season	9% (0.28)	27% (0.45)	25% (0.43)	26% (0.44
Income				
Start an Additional Enterprise	14% (0.35)	29% (0.5)	24% (0.43)	17% (0.37)
Sell Recreation	24% (0.43)	20% (0.40)	20% (0.40)	23% (0.42)
Work Off-farm / ranch	44% (0.50)	14% (0.35)	14% (0.34)	17% (0.38)
Other	< 1% (0.04)	< 1% (0.07)	0 -	0 -

[1]Sample size. Eliminating those who did not respond to any part of question 18 or gave incomplete or nonsensical answers dropped 112 respondents.

[2]Mean of binary variable reported as a percentage (rounded to the nearest whole percentile).

[3]Standard deviation.

Four additional statements regarding sagebrush management were accidentally placed under question 18 on the survey instrument. These statements should have been coded using a likert scale indicating agreement. They are reported in Table 52 under Part C, Sagebrush Management.

Thirty-six (36) respondents listed one or more "other" practices under question 18. Responses to this opportunity to list miscellaneous ranch practices were diverse. Weed control was expressed as a concern in 19 responses and vermin control (e.g., control of prairie dogs, rabbits, and deer) in 5 others. Several respondents took this as an occasion to vent their opinions on endangered species, gas fields, off-farm employment, and sagebrush control. One respondent cryptically replied "flower". A complete list of individual responses is included in Appendix D.

Larger producers were more likely to currently be producing USDA certified organic beef, while a higher percent of smaller producers reported producing grass-fed or natural beef (Tables 32, 33, and 34).

Small and medium producers had similar opinions and practices related to alternative marketing with 14 percent currently marketing directly to consumers and 3 percent belonging to a beef co-operative or alliance. Large producers tended to be more active in both of these practices with 25 percent direct marketing and 17 percent members of a co-op or alliance. Large producers were also more likely to be willing to do or consider these marketing practices (Tables 32, 33, and 34).

Large producers reported the highest involvement in implementing a National Animal Identification System (17 percent of large versus 4 and 5 percent of medium and small operations, respectively). No large producer reported currently calving in a different season and were the least likely to report willingness to do so (Tables 32, 33, and 34).

When asked about several alternative sources of ranch income, large operations were more likely to report currently having added an additional enterprise (42 percent of large versus 17 percent of medium and 13 percent of small operations). No large operator said that they "will not" add an enterprise and they were the most likely to report having considered one. Larger operations were also most likely to be selling recreation (42 percent of large, 38 percent of medium, and 19 percent of small operations). Not surprisingly, large operations were the least likely to report working off-farm or having considered working off-farm for additional income (Tables 32, 33, and 34).

Table 32.

**"Have you considered or are you currently doing any of the following practices?":
producers with 20 to 299 bred cows.**

Practice	Currently Doing n = 522[1]	Have Considered n = 522	Have Not Considered n = 522	Will Not Do n = 522
Production				
Organic Beef (USDA Certified)	6%[2]	32%	32%	17%
	(0.24)[3]	(0.47)	(0.47)	(0.37)
Grass-fed or Natural Beef	32%	29%	22%	0%
	(0.47)	(0.46)	(0.42)	(0.28)
Marketing				
Direct Customer Marketing	14%	27%	30%	13%
	(0.35)	(0.44)	(0.46)	(0.34)
Join Beef Co-op or Alliance	3%	28%	38%	14%
	(0.18)	(0.45)	(0.48)	(0.35)
Herd Management				
National Ind. Animal ID System	5%	38%	28%	13%
	(0.23)	(0.48)	(0.45)	(0.33)
Change Calving Season	8%	28%	24%	25%
	(0.28)	(0.45)	(0.43)	(0.44)
Income				
Start an Additional Enterprise	13%	29%	25%	17%
	(0.33)	(0.45)	(0.43)	(0.37)
Sell Recreation	19%	20%	20%	26%
	(0.39)	(0.40)	(0.40)	(0.44)
Work Off-farm / ranch	52%	14%	11%	13%
	(0.50)	(0.34)	(0.31)	(0.34)

[1]Sample size. Eliminating those who did not respond to any part of question 18 or gave incomplete or nonsensical answers dropped 112 respondents (88 of these were from small operations).

[2]Mean of binary variable reported as a percentage (rounded to the nearest whole percentile).

[3]Standard deviation.

Table 33.

**"Have you considered or are you currently doing any of the following practices?":
producers with 300 to 999 bred cows.**

Practice	Currently Doing n = 168[1]	Have Considered n = 168	Have Not Considered n = 168	Will Not Do n = 168
Production				
Organic Beef (USDA Certified)	4%[2]	31%	35%	20%
	(0.20)[3]	(0.46)	(0.48)	(0.40)
Grass-fed or Natural Beef	24%	32%	24%	14%
	(0.43)	(0.47)	(0.43)	(0.34)
Marketing				
Direct Customer Marketing	14%	24%	33%	17%
	(0.34)	(0.43)	(0.47)	(0.37)
Join Beef Co-op or Alliance	5%	35%	33%	16%
	(0.23)	(0.48)	(0.47)	(0.37)
Herd Management				
National Ind. Animal ID System	4%	48%	22%	14%
	(0.20)	(0.50)	(0.42)	(0.34)
Change Calving Season	11%	25%	26%	26%
	(0.31)	(0.43)	(0.44)	(0.44)
Income				
Start an Additional Enterprise	17%	29%	23%	17%
	(0.38)	(0.45)	(0.42)	(0.38)
Sell Recreation	38%	23%	18%	13%
	(0.49)	(0.42)	(0.39)	(0.34)
Work Off-farm / ranch	22%	17%	22%	29%
	(0.42)	(0.37)	(0.42)	(0.45)

[1]Sample size. Eliminating those who did not respond to any part of question 18 or gave incomplete or nonsensical answers dropped 112 respondents (21 of these were from medium operations).

[2]Mean of binary variable reported as a percentage (rounded to the nearest whole percentile).

[3]Standard deviation.

Table 34.

**"Have you considered or are you currently doing any of the following practices?":
producers with 1,000 or more bred cows.**

Practice	Currently Doing n = 12[1]	Have Considered n = 12	Have Not Considered n = 12	Will Not Do n = 12
Production				
Organic Beef (USDA Certified)	17%[2]	25%	25%	25%
	(0.39)[3]	(0.45)	(0.45)	(0.45)
Grass-fed or Natural Beef	17%	50%	25%	8%
	(0.39)	(0.52)	(0.45)	(0.29)
Marketing				
Direct Customer Marketing	25%	33%	25%	8%
	(0.45)	(0.49)	(0.45)	(0.29)
Join Beef Co-op or Alliance	17%	25%	42%	8%
	(0.39)	(0.45)	(0.51)	(0.29)
Herd Management				
National Ind. Animal ID System	17%	42%	33%	0
	(0.39)	(0.51)	(0.49)	-
Change Calving Season	0	17%	42%	33%
	-	(0.39)	(0.51)	(0.49)
Income				
Start an Additional Enterprise	42%	33%	17%	0
	(0.51)	(0.49)	(0.39)	-
Sell Recreation	58%	17%	8%	8%
	(0.51)	(0.39)	(0.39)	(0.29)
Work Off-farm / ranch	17%	17%	8%	42%
	(0.39)	(0.39)	(0.29)	(0.51)

[1]Sample size. Eliminating those who did not respond to any part of question 18 or gave incomplete or nonsensical answers dropped 112 respondents (3 of these were from large operations).

[2]Mean of binary variable reported as a percentage (rounded to the nearest whole percentile).

[3]Standard deviation.

Summary: Alternative Practices. One in seven producers responding to the Wyoming Beef Cattle Producers Survey reported that they currently market beef directly to consumers (this was consistent across all operation sizes). If a USDA inspector were available, respondents reported that they would market an average of 22 head (up to 320 head for large operations) directly to consumers across state lines. Grass-fed or natural beef production was popular, especially with smaller producers. About one third of respondents report having considered producing natural or organic beef—up to 50 percent of large operators report interest in natural beef production. Large operations

were also more likely to have adopted or considered a National Animal Identification System but were more conservative when asked about changing calving seasons. Alternative enterprises and selling recreation were popular sources of income for larger operations while working off-farm was more often a source or potential source of income for small operations.

Future of the Beef Industry

Survey participants were asked to identify their level of agreement to thirteen statements regarding the future of the beef industry and their operations using a scale of strongly agree (1) to strongly disagree (5), 3 being an ambivalent response.

The statement, "A drought contingency plan in important for beef producers in Wyoming", received the highest level of agreement over all with a median response of 5. This held true for all operation sizes: 5 was the median response for small operations, with 4 recorded for both medium and large operation sizes. The mode, or most typical response, for all ranches as well as for each operation size for this question was 5 (Table 35).

Other statements eliciting high levels of agreement included those regarding the impact of BSE ("mad cow" disease) and Brucellosis on the future of the beef industry (each received a median response of 4). Overall, respondents also agreed with statements regarding consumers' willingness to pay a price premium for organic, grass-fed, and origin-identified beef and the need to consider alternative enterprises to stay in business. (the median response for each of these statements was 4) (Table 35).

Overall, respondents were ambivalent towards the need for a mandated cattle ID System, the need to learn more about or receive assistance with: market alternatives; retained ownership, alliances, and forward pricing; alternative production practices and risk management strategies. The overall median response to all of these statements was 3 (Table 35).

A large portion of all respondents expressed disagreement with statements regarding the necessity of government restrictions on the use of antibiotics, growth implants, and vaccinations (the median response was 3, however, the mode was 1 for this question indicating that responses were skewed towards "strongly disagree") (Table 35).

Small- and medium-sized producers agreed with statements regarding the future impact of BSE and Brucellosis. Large operations reported a higher level of agreement to a series of questions regarding the need to learn more about marketing alternatives, retained ownership, alliances, forward pricing, alternative production practices, and alternative risk management strategies. Also, large operations reported stronger agreement with statements about future reductions of government subsidies and federal grazing and were more likely to agree with the necessity of government restrictions on antibiotics, growth implants, and vaccinations (Table 35).

Table 35.

Table 35.

Level of agreement with statements regarding future changes in the beef industry.

Statement	All Ranches	By Operation Size		
		20-299 Bred Cows	300-999 Bred Cows	≥ 1,000 Bred Cows
A mandated cattle ID system is needed.	3.1(1.4)[1] 3.0[2] 3[3] n = 780[4]	3.1 (1.4) 3.0 3 n = 583	3.0 (1.4) 3.0 3 n = 182	3.0 (1.5) 3.0 1[a] n = 15
Government restrictions on the use of antibiotics, growth implants, and vaccinations are necessary.	2.5 (1.3) 3.0 1 n = 789	2.6 (1.3) 3.0 1 n = 590	2.5 (1.3) 2.0 1[a] n = 184	2.5 (1.5) 2.0 1 n = 15
Beef consumers are willing to pay a price premium for organic, grass fed, and origin-identified beef.	3.7 (1.1) 4.0 4 n = 785	3.7 (1.2) 4.0 4 n = 587	3.6 (1.1) 4.0 4 n = 183	3.4 (1.4) 4.0 4 n = 15
A drought contingency plan is important for beef producers in Wyoming.	4.3 (1.0) 5.0 5 n = 783	4.3 (1.0) 5.0 5 n = 586	4.2 (1.1) 4.0 5 n = 182	4.1 (1.0) 4.0 5 n = 15
BSE will have a big impact on the beef industry in the future.	3.8 (1.3) 4.0 5 n = 794	3.8 (1.2) 4.0 5 n = 596	3.6 (1.3) 4.0 5 n = 183	2.4 (1.4) 2.0 2 n = 15
Brucellosis will have a big impact on the beef industry in the future.	3.8 (1.2) 4.0 5 n = 791	3.8 (1.1) 4.0 5 n = 593	3.6 (1.3) 4.0 5 n = 183	3.2 (1.5) 3.0 5 n = 15
I need to consider alternative enterprises to stay in business.	3.4 (1.3) 4.0 4 n = 774	3.5 (1.3) 4.0 4 n = 576	3.0 (1.3) 3.0 3 n = 183	3.9 (1.4) 4.0 5 n = 15
I need to learn more about marketing alternatives to stay in business.	3.3 (1.2) 3.0 3 n = 775	3.3 (1.2) 3.0 3 n = 578	3.2 (1.2) 3.0 3 n = 182	3.5 (1.4) 4.0 3[a] n = 15

[1]Mean (rounded to the nearest tenth) along with its standard deviation in parentheses.
[2]Median.
[3]Mode or modes. [a] Multiple modes—lowest is reported.
[4]Sample size. Responses of "0" were recoded as missing.

(Table 35 continues on next page).

Table 35- Continued.

Level of agreement with statements regarding future changes in the beef industry.

Statement	All Ranches	By Operation Size		
		20-299 Bred Cows	300-999 Bred Cows	≥ 1,000 Bred Cows
I need assistance in approaching / assessing alternative markets for my cattle.	3.0 (1.2) 3.0 3 n = 776	3.0 (1.2) 3.0 3 n = 579	2.9 (1.3) 3.0 3 n = 182	3.2 (1.2) 3.0 4 n = 15
I need to learn more about retained ownership, alliances, and forward pricing to become more competitive.	3.0 (1.2) 3.0 3 n = 757	3.0 (1.2) 3.0 3 n = 567	2.9 (1.3) 3.0 3 n = 175	3.4 (1.5) 4.0 5 n = 15
I need to learn more about alternative production practices and alternative risk management strategies for my current enterprises to stay in business.	3.0 (1.2) 3.0 3 n = 754	3.0 (1.1) 3.0 3 n = 565	2.9 (1.2) 3.0 3 n = 174	3.3 (1.2) 4.0 4 n = 15
Government subsidies to ranchers/farmers will be reduced or eliminated in the future.	3.4 (1.2) 3.0 4 n = 764	3.4 (1.2) 3.0 4 n = 572	3.2 (1.3) 3.0 4 n = 177	3.8 (1.3) 4.0 5 n = 15
Livestock grazing on federal land will be reduced in the future.	3.2 (1.3) 3.0 4 n = 768	3.3 (1.3) 3.0 4 n = 573	3.1 (1.3) 3.0 3 n = 180	3.3 (1.8) 4.0 1[a] n = 15

[1]Mean (rounded to the nearest tenth) along with its standard deviation in parentheses.
[2]Median.
[3]Mode or modes. [a] Multiple modes—lowest is reported.
[4]Sample size. Responses of "0" were recoded as missing.

Part C: Drought and Sagebrush Management

The third part of the Wyoming Beef Cattle Producers Survey focused on specific drought and sagebrush management strategies and practices.

Drought Management

A series of questions regarding drought within the period of 2000 to 2004 asked respondents to detail impacts and changes they experienced as a result of recent drought as well as herd management, business, income, and tax strategies they employed to deal with the drought.

Respondents to the survey reported that they had been negatively impacted by the most recent drought an average of 4.8 consecutive years. The length of negative impacts did not vary much by operation size (Table 36).

Table 36.

Consecutive years negatively impacted by the most recent drought.

	By Operation Size		
	20-299	300-999	≥ 1,000
All Ranches	Bred Cows	Bred Cows	Bred Cows
n = 814[1]	n = 610	n = 189	n = 15
4.8[2]	4.7	4.9	4.9
(2.1)[3]	(2.0)	(2.3)	(1.9)

[1]Sample size.
[2]Mean consecutive years (rounded to the nearest tenth).
[3]Standard deviation (rounded to the nearest tenth).

Relatively low standard deviations in Table 36 indicate that the length of drought impacts was fairly consistent for all respondents. The frequency graph shown in Figure 1 reinforces this finding: responses range from 0 to 10 years with a mode response of 5 years. Sixty-nine (69) percent of respondents report that negative drought impacts lasted 4 to 6 years.

Figure 1.

Consecutive years negatively impacted by the most recent drought.
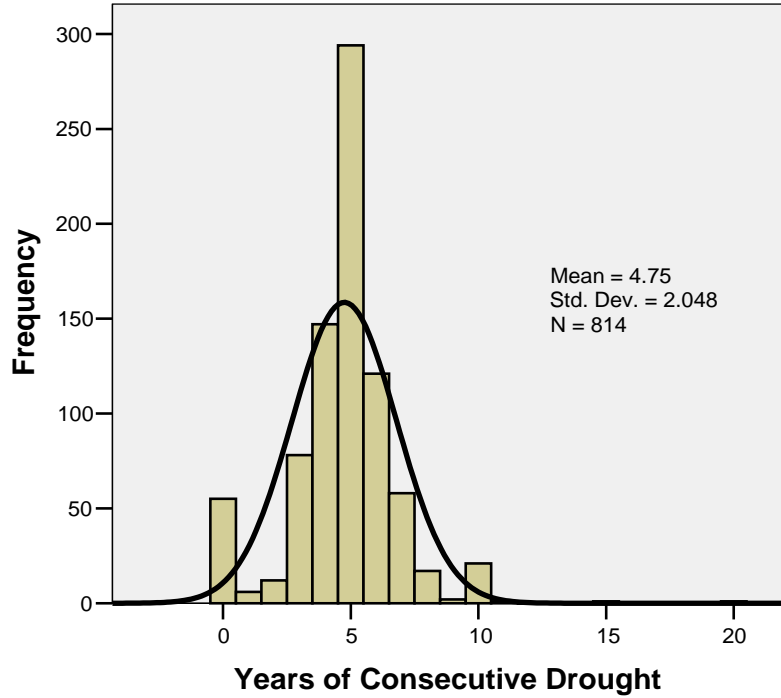
Respondents were asked to quantify changes experienced each year from 2000 through 2004 as a result of drought compared to a normal year. Mean percentages suggest that the severity of impact increased over time. For all respondents, grazing capacity reduction, irrigation water reduction, and winter feed reduction had increasing impacts for the first three years of drought which tapered off to a slower rate of increase in subsequent years. Respondents reported increasing changes in average sale weight reduction between 2000 and 2002 which began to decline by 2004. Rates of change for reduction in percent weaned and owner equity each increased between 2000 and 2002. This rate remained constant between 2002 and 2004. Standard deviations indicate a wide variation in responses (Table 37).

Table 37.

Changes experienced as a percentage compared to a normal year as a result of recent drought: all ranches.

	Year				
	2000	**2001**	**2002**	**2003**	**2004**
Changes Experienced			$n = 759$[1]		
Grazing capacity reduction	16%[2]	20%	28%	28%	31%
	(23)[3]	(23)	(26)	(25)	(28)
Irrigation water reduction	12%	15%	21%	21%	22%
	(24)	(25)	(30)	(29)	(31)
Winter feed production reduction	18%	21%	30%	28%	35%
	(27)	(27)	(31)	(31)	(36)
Average sale weight reduction	4%	5%	7%	7%	6%
	(14)	(13)	(15)	(16)	(15)
Percent weaned reduction	4%	5%	6%	6%	6%
	(15)	(16)	(17)	(17)	(17)
Owner equity reduction	4%	5%	7%	7%	7%
	(13)	(14)	(17)	(17)	(18)
Other	<1%	<1%	1%	1%	1%
	(2)	(3)	(5)	(5)	(7)

[1]Sample size. Excluding respondents who answered "0" to question 20 dropped 55 respondents.
[2]Mean percentages (rounded to the nearest whole percent).
[3]Standard deviation (rounded to the nearest whole percent).

Thirty-nine (39) respondents listed "other" changes they experienced each year as a result of recent drought. Twelve (12) of these comments were related to pasture and land management issues. Respondents indicated problems with grasshoppers, weeds, inability to plow hay fields, need to reseed grass killed by drought, and heat stressed plants. Several indicated that they had been unable to put hay up and had increased grazing costs. Changes in herd management accounted for 8 responses: reduction of cows, earlier calving, problems with pregnancy and calving rates, and increased feeding were listed. Five (5) responses dealt with the need to haul or develop water for stock. Two (2) respondents listed positive changes related to the drought (program giving higher prices for calves and increased production). A complete list of individual responses for the "other" category are included in Appendix D.

Tables 38, 39, and 40 report changes experienced as a result of drought as a percentage compared to a normal year by operation size for small, medium, and large operations.

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Table 38.

Changes experienced as a percentage compared to a normal year as a result of recent drought: producers with 20 to 299 bred cows.

	Year				
	2000	**2001**	**2002**	**2003**	**2004**
Changes Experienced			n = 569[1]		
Grazing capacity reduction	17%[2]	20%	28%	28%	32%
	(24)[3]	(24)	(26)	(26)	(28)
Irrigation water reduction	12%	14%	20%	20%	21%
	(24)	(24)	(29)	(29)	(31)
Winter feed production reduction	18%	21%	29%	28%	34%
	(27)	(27)	(31)	(31)	(36)
Average sale weight reduction	4%	5%	6%	6%	6%
	(13)	(13)	(14)	(15)	(15)
Percent weaned reduction	5%	6%	6%	6%	6%
	(15)	(17)	(16)	(16)	(17)
Owner equity reduction	4%	4%	6%	6%	7%
	(12)	(14)	(16)	(16)	(17)

[1]Sample size. Excluding respondents who answered "0" to question 20 dropped 55 respondents: 41 of these were from small operations.
[2]Mean percentages (rounded to the nearest whole percent).
[3]Standard deviation.

Table 39.

Changes experienced as a percentage compared to a normal year as a result of recent drought: producers with 300 to 999 bred cows.

	Year				
	2000	**2001**	**2002**	**2003**	**2004**
Changes Experienced			n = 176[1]		
Grazing capacity reduction	14%[2]	20%	29%	28%	31%
	(12)[3]	(21)	(25)	(23)	(27)
Irrigation water reduction	12%	15%	23%	22%	24%
	(23)	(25)	(30)	(30)	(32)
Winter feed production reduction	19%	21%	32%	29%	36%
	(26)	(26)	(32)	(31)	(36.
Average sale weight reduction	5%	6%	9%	8%	8%
	(15)	(15)	(18)	(19)	(18)
Percent weaned reduction	4%	4%	7%	7%	7%
	(15)	(16)	(20)	(18)	(19)
Owner equity reduction	4%	5%	9%	7%	9%
	(15)	(15)	(19)	(18)	(20)

[1]Sample size. Excluding respondents who answered "0" to question 20 dropped 55 respondents, 13 from medium operations.
[2]Mean percentages (rounded to the nearest whole percent).
[3]Standard deviation.

Table 40.

Changes experienced as a percentage compared to a normal year as a result of recent drought: producers with 1,000 or more bred cows.

Changes Experienced	Year				
	2000	**2001**	**2002**	**2003**	**2004**
			n = 14[1]		
Grazing capacity reduction	15%[2] (20)[3]	21% (18)	23% (21)	23% (20)	23% (19)
Irrigation water reduction	21% (29)	42% (39)	44% (31)	40% (28)	36% (32)
Winter feed production reduction	18% (17)	32% (33)	36% (30)	33% (28)	34% (30)
Average sale weight reduction	3% (7)	5% (10)	9% (13)	6% (8)	4% (8)
Percent weaned reduction	3% (5)	3% (5)	8% (12)	5% (9)	3% (5)
Owner equity reduction	4% (11)	5% (12)	6% (15)	9% (15)	5% (8)

[1]Sample size. Excluding respondents who answered "0" to question 20 dropped 55 respondents, 1 of these was a large operation.
[2]Mean percentages (rounded to the nearest whole percent).
[3]Standard deviation.

Multiple strategies employed by respondents throughout the recent drought were enumerated for each year from 2000 through 2004. Respondents were asked about specific herd management strategies, additional sources of income, and new business enterprises. The three most frequently checked management strategies across years were purchasing additional winter feed, partial herd reduction, and participating in a government feed assistance program. The least common response was total herd liquidation. A low response for this strategy could be due to producers in the sample not participating if they no longer had cattle when they received the survey (Table 41).

Table 41.

Strategies used each year to deal with recent drought: all ranches.

	Year				
Strategies Used	**2000**	**2001**	**2002**	**2003**	**2004**
			n = 759[1]		
Partial Herd Liquidation	28%[2]	35%	50%	45%	44%
	(0.5)[3]	(0.5)	(0.5)	(0.5)	(0.5)
Total Herd Liquidation	1%	2%	2%	2%	3%
	(0.1)	(0.1)	(0.1)	(0.1)	(0.2)
Selling Retained Yearlings	6%	8%	12%	12%	13%
	(0.2)	(0.3)	(0.3)	(0.3)	(0.3)
Lease / Purchase Additional Grazing	16%	21%	29%	31%	33%
	(0.4)	(0.4)	(0.5)	(0.5)	(0.5)
Purchase Additional Winter Feed	35%	44%	59%	56%	59%
	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)
Early Weaning of Calves to Reduce	11%	15%	29%	31%	34%
	(0.3)	(0.4)	(0.5)	(0.5)	(0.5)
Participated in Government Feed	15%	23%	52%	55%	42%
	(0.4)	(0.4)	(0.5)	(0.5)	(0.5)
Participated in Government Income	4%	6%	10%	11%	10%
	(0.2)	(0.2)	(0.3)	(0.3)	(0.3)
Earn Off-Farm Income	36%	40%	42%	44%	44%
	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)
Added Alternative Livestock	3%	3%	4%	6%	7%
	(0.2)	(0.2)	(0.2)	(0.2)	(0.3)
Added Alternative Crop Enterprise	1%	1%	2%	2%	3%
	(0.1)	(0.1)	(0.1)	(0.2)	(0.2)
Other	2%	3%	4%	4%	4%
	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)

[1]Sample size. Excluding respondents who answered "0" to question 20 dropped 55 respondents.
[2]Mean of a binary variable is reported as a percentage (rounded to the nearest whole percent).
[3]Standard deviation.

There were 86 individual responses listing one or more "other" strategies used to deal with recent drought. Twenty-three (23) listed changes in grazing, pasture, or other feed sources. Twenty-one (21) responses specified herd reductions (e.g., culling cows or not keeping replacement heifers. Fifteen (15) herd management strategies were listed including pasture rotation, moving herds off of pasture early, and not backgrounding calves. Nine (9) respondents reported hauling water or changing irrigation practices in response to water availability. There were 12 responses listing increasing income from additional ranch and off-ranch sources. Five (5) comments indicated that respondents had

not experienced any drought-related impacts. In one instance "Jack Daniels" was used as a coping strategy. A complete list of individual responses is included in Appendix D.

A much higher percentage of respondents in small and medium operation size categories indicated earning off-farm income as a strategy to mitigate drought impacts. Large operations were much more likely to add alternative crop or livestock enterprises. Medium-sized operations were more likely to indicate selling retained yearlings as a strategy. Medium- and large-size operations were more likely to lease or purchase additional grazing as the length of the drought increased. No large operations reported using total herd liquidation (Tables 42, 43, and 44).

Table 42.

Strategies used each year to deal with recent drought: producers with 20 to 299 bred cows.

	Year				
	2000	**2001**	**2002**	**2003**	**2004**
Strategies Used			n = 569[1]		
Partial Herd Liquidation	27%[2]	33%	48%	43%	43%
	(0.5)[3]	(0.5)	(0.5)	(0.5)	(0.5)
Total Herd Liquidation	1%	2%	2%	2%	2%
	(0.1)	(0.1)	(0.1)	(0.1)	(0.2)
Selling Retained Yearlings	5%	7%	9%	10%	10%
	(0.2)	(0.3)	(0.3)	(0.3)	(0.3)
Lease / Purchase Additional Grazing	15%	20%	27%	29%	32%
	(0.4)	(0.4)	(0.5)	(0.5)	(0.5)
Purchase Additional Winter Feed	34%	41%	56%	54%	57%
	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)
Early Weaning of Calves to Reduce	11%	14%	26%	30%	33%
	(0.3)	(0.4)	(0.4)	(0.5)	(0.5)
Participated in Government Feed	14%	21%	49%	52%	39%
	(0.3)	(0.4)	(0.5)	(0.5)	(0.5)
Participated in Government Income	4%	6%	10%	11%	9%
	(0.2)	(0.2)	(0.3)	(0.3)	(0.3)
Earn Off-Farm Income	41%	45%	47%	49%	49%
	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)
Added Alternative Livestock	4%	4%	4%	6%	7%
	(0.2)	(0.2)	(0.2)	(0.2)	(0.3)
Added Alternative Crop Enterprise	1%	1%	2%	2%	3%
	(0.1)	(0.1)	(0.1)	(0.1)	(0.2)

[1]Sample size. Excluding respondents who answered "0" to question 20 dropped 55 respondents. 41 of these were from small operations.
[2]Mean of a binary variable is reported as a percentage (rounded to the nearest whole percent).
[3]Standard deviation.

Table 43.

Strategies used each year to deal with recent drought: producers with 300-999 bred cows.

Strategies Used	2000	2001	2002	2003	2004
			Year		
			$n = 176^1$		
Partial Herd Liquidation	30%[2]	42%	57%	51%	49%
	(0.5)[3]	(0.5)	(0.5)	(0.5)	(0.5)
Total Herd Liquidation	2%	3%	3%	2%	5%
	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)
Selling Retained Yearlings	6%	10%	18%	15%	19%
	(0.2)	(0.3)	(0.4)	(0.4)	(0.4)
Lease / Purchase Additional Grazing	19%	24%	32%	37%	36%
	(0.4)	(0.4)	(0.5)	(0.5)	(0.5)
Purchase Additional Winter Feed	39%	51%	66%	64%	64%
	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)
Early Weaning of Calves to Reduce	11%	18%	35%	36%	36%
	(0.3)	(0.4)	(0.5)	(0.5)	(0.5)
Participated in Government Feed	20%	30%	63%	64%	52%
	(0.4)	(0.5)	(0.5)	(0.5)	(0.5)
Participated in Government Income	4%	7%	13%	13%	13%
	(0.2)	(0.3)	(0.3)	(0.3)	(0.3)
Earn Off-Farm Income	22%	24%	28%	31%	32%
	(0.4)	(0.4)	(0.5)	(0.5)	(0.5)
Added Alternative Livestock	1%	1%	3%	4%	5%
	(0.1)	(0.1)	(0.2)	(0.2)	(0.2)
Added Alternative Crop Enterprise	1%	1%	2%	2%	5%
	(0.1)	(0.1)	(0.1)	(0.2)	(0.2)

[1]Sample size. Excluding respondents who answered "0" to question 20 dropped 55 respondents. 13 of these were from medium operations.
[2]Mean of a binary variable is reported as a percentage (rounded to the nearest whole percent).
[3]Standard deviation.

Table 44.

Strategies used each year to deal with recent drought: producers with 1,000 or more bred cows.

	Year				
Strategies Used	2000	2001	2002	2003	2004
			n = 14[1]		
Partial Herd Liquidation	29%[2]	36%	57%	50%	36%
	(0.5)[3]	(0.5)	(0.51)	(0.5)	(0.5)
Total Herd Liquidation	0	0	0	0	0
	-	-	-	-	-
Selling Retained Yearlings	14%	14%	21%	21%	21%
	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)
Lease / Purchase Additional Grazing	14%	21%	43%	36%	50%
	(0.4)	(0.4)	(0.5)	(0.5)	(0.5)
Purchase Additional Winter Feed	50%	64%	79%	71%	64%
	(0.5)	(0.5)	(0.4)	(0.5)	(0.5
Early Weaning of Calves to Reduce	14%	14%	36%	29%	36%
	(0.4)	(0.4)	(0.5)	(0.5)	(0.5)
Participated in Government Feed	7%	21%	57%	93%	43%
	(0.3)	(0.4)	(0.5)	(0.3)	(0.5)
Participated in Government Income	0	0	7%	14%	7%
	-	-	(0.3)	(0.4)	(0.3)
Earn Off-Farm Income	14%	14%	14%	14%	14%
	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)
Added Alternative Livestock	0	7%	21%	21%	21%
	-	(0.3)	(0.4)	(0.4)	(0.4)
Added Alternative Crop Enterprise	0	7%	14%	14%	7%
	-	(0.3)	(0.4)	(0.4)	(0.3)

[1]Sample size. Excluding respondents who answered "0" to question 20 dropped 55 respondents. 1 of these was from large operations.
[2]Mean of a binary variable is reported as a percentage (rounded to the nearest whole percent).
[3]Standard deviation.

Of 593 respondents who reported liquidating part or all of their beef cattle herd in response to recent drought, 27 percent said that they used income averaging to reduce income tax liability associated with increased income from liquidation sale with the hope of replacements being purchased within twenty-four months . Medium-sized operators were the most likely to use income averaging (38 percent) followed by small and large operators (Table 45).

Table 45.

Producers reporting using income averaging to reduce tax liability.

	By Operation Size		
	20-299	300-999	≥ 1,000
All Ranches	Bred Cows	Bred Cows	Bred Cows
n = 593[1]	n = 439	n = 144	n = 15
27%[2]	24%	38%	20%
(0.5)[3]	(0.4)	(0.5)	(0.4)

[1]Sample size. Excluding respondents who did not respond or who gave a nonsensical answer to this question dropped 221 respondents. 171 of these were from small and 45 from medium operations.
[2]Mean of as a percentage of respondents reporting "yes" (rounded to the nearest whole percent).
[3]Standard deviation.

Of producers who used income averaging to mitigate tax liability 11 percent reported replacing their herd with purchased breeding stock to pre-drought levels. Larger operations were much more likely to have purchased cattle to repopulate their herds (Table 46).

Table 46.

Producers reporting replacing liquidated herds to pre-drought levels.

	By Operation Size		
	20-299	300-999	≥ 1,000
All Ranches	Bred Cows	Bred Cows	Bred Cows
n = 571[1]	n = 418	n = 144	n = 9
11%[2]	9%	13%	33%
(0.3)[3]	(0.3)	(0.3)	(0.5)

[1]Sample size. Excluding respondents who did not give an affirmative answer to question 23—Did you use income averaging?—and who did not respond or who gave a nonsensical answer to this question dropped 243 respondents. 192 of these were from small, 45 from medium, and 6 from large operations.
[2]Mean of as a percentage of respondents reporting "yes" (rounded to the nearest whole percent).
[3]Standard deviation.

Respondents who reported using income averaging and repopulating their herds to pre-drought levels with purchased cattle were asked to specify the type of breeding stock they purchased. Of 56 responses the most common type of cattle purchased were bred cows (44 percent) followed by bred heifers (23 percent), and heifers and mature cows (19 and 14 percent, respectively) (Table 47).

Table 47.

Breeding stock type for producers replacing liquidated herds to pre-drought levels.

		By Operation Size		
		20-299	300-999	≥ 1,000
	All Ranches	Bred Cows	Bred Cows	Bred Cows
Type of Breeding Stock	n = 56[1]	n = 34	n = 18	n = 4
Heifers	19%[2]	16%	20%	35%
	(37)[3]	(35)	(39)	(47)
Bred Heifers	23%	23%	27%	13%
	(38)	(38)	(42)	(25)
Mature Cows	14%	21	0	15%
	(33)	(39)	-	(30)
Bred Cows	44%	40	53	38%
	(46)	(46)	(47)	(48)

[1]Sample size. Excluding respondents answered "no" to question 24—did replace a liquidated herd, as well as answers that did not sum to 100% dropped 758 respondents. 576 of these were from small, 171 from medium, and 11 from large operations.
[2]Mean percentage (rounded to the nearest whole percent).
[3]Standard deviation (rounded to the nearest whole number).

Summary: Drought Management. Respondents reported negative impacts from recent drought lasting an average of 5 years. Although there was a wide variation in responses, overall the severity of impacts increased over time. The largest changes reported were reductions in winter feed production, grazing capacity, and irrigation water. Respondents reported employing multiple strategies over the duration of the drought to mitigate its impacts, most commonly purchasing additional winter feed, partial herd reduction, and participation in government feed assistance programs. The number of strategies employed increased over time. A higher percentage of smaller operations relied on increased off-farm income to survive the drought while larger operations were more likely to purchase additional grazing as the length of the drought increased.

Sagebrush Management

A series of three questions asked respondents about the abundance of sagebrush on their private and public ranch lands as well as management techniques they use to control it.

Despite a high variability in responses (indicated by high standard deviations reflecting answers ranging from 0 to 400,000 acres), respondents reported somewhat less abundant sagebrush cover on private than public ranch lands. The mean acreage for every category of cover increased with operation size (Table 48). Maximum acres reported for each coverage category are reported in Appendix C.

Table 48.

Number of acres with following abundance of sagebrush.

All Ranches

Land Tenure	None	Light	Moderate n = 698[1]	Abundant	Heavy
Private	1,450 acres[2] (8,298)[3]	1,062 acres (5,518)	1,578 acres (6,435)	450 acres (2,022)	299 acres (2,229)
Public	291 acres (3,431)	794 acres (9,732)	1,270 acres (15,577)	1,093 acres (12,334)	673 acres (6,691)

Producers with 20 to 299 Bred Cows

Land Tenure	None	Light	Moderate n = 521	Abundant	Heavy
Private	621 acres (1,866)[3]	424 acres (1,819)	753 acres (2,410)	208 acres (817)	84 acres (456)
Public	237 acres (3,657)	422 acres (4,792)	356 acres (2,867)	269 acres (2,854)	321 acres (4,527)

Producers with 300 to 999 Bred Cows

Land Tenure	None	Light	Moderate n = 162	Abundant	Heavy
Private	3,015 acres (10,023)[3]	1,757 acres (4,285)	3,013 acres (7,570)	1,128 acres (3,781)	979 acres (4,480)
Public	490 acres (2,779)	622 acres (2,997)	4,136 acres (31,789)	3,240 acres (24,464)	1,855 acres (11,215)

Producers with 1,000 or more Bred Cows

Land Tenure	None	Light	Moderate n = 15	Abundant	Heavy
Private	13,333 acres (44,024)[3]	15,692 acres (30,528)	14,763 acres (30,844)	1,549 acres (2,364)	420 acres (1,294)
Public	0 -	15,555 acres (59,331)	2,067 acres (5,257)	6,533 acres (16,677)	133 acres (516)

[1]Sample size. Excluding respondents who did not answer any part of questions 26 – 28 dropped 117 respondents, 87 of these were from small and 27 from medium operations.

[2]Mean acres (rounded to the nearest whole number).

[3]Standard deviation(rounded to the nearest whole number).

Although all respondents were slightly more likely to report using herbicide to control sagebrush on their ranches, no single method for control stands out as the most common. Larger operations were slightly more likely to report using burning for sagebrush control. Also, medium and large operations were more likely to report using some method for control (Table 49).

Table 49.

Methods used to control sagebrush.

Method	All Ranches n = 698[1]	By Operation Size		
		20-299 Bred Cows n = 521	300-999 Bred Cows n = 162	≥ 1,000 Bred Cows n = 15
Burning	16%[2] (0.37)[3]	11% (0.32)	31% (0.46)	33% (0.49)
Herbicide	19% (0.40)	15% (0.35)	35% (0.48)	27% (0.46)
Other	12% (0.33)	12% (0.32)	14% (0.34)	13% (0.35)

[1]Sample size. Excluding respondents who did not answer any part of questions 26 – 28 dropped 117 respondents, 87 of these were from small and 27 from medium operations.
[2]Mean of binary variable reported as a percentage.
[3]Standard deviation.

There were 156 responses listing one or more "other" methods used to control sagebrush. The majority of these (79) listed mechanical removal methods such as a brush hogging, dragging, mowing, grading, digging, tilling, or chopping sagebrush. Twenty-seven (27) others reported management methods incorporating some type of grazing. Six (6) respondents listed flood irrigation. Thirty-seven responded that they either do not control or have no sagebrush on their land. A complete list of individual responses is included in Appendix D.

Respondents who reported using burning as a method to control sagebrush typically repopulated burned areas with cattle one or two months after burning. Larger operations tended to wait longer—generally, four to six months. There was very little difference over land tenure in the time before cattle were returned to burned areas (Table 50).

Table 50.
"How long do you wait before putting cattle back on land burned for sagebrush control?"

All Ranches		Operation Size					
		20-299 Bred Cows		300-999 Bred Cows		≥ 1,000 Bred Cows	
n = 698		n = 521		n = 162		n = 15	
Private Lands	**Public Lands**	**Private Lands**	**Public Lands**	**Private Lands**	**Public Lands**	**Private Lands**	**Public Lands**
0.2 years	0.1 years	0.1 years	0.1 years	0.5 years	0.3 years	0.3 years	0.3 years
(0.8)	(0.6)	(0.4)	(0.4)	(1.5)	(1.0)	(0.8)	(0.8)

[1] Sample size. Excluding respondents who did not answer any part of questions 26 – 28 dropped 117 respondents, 87 of these were from small and 27 from medium operations.
[2] Mean years (rounded to the nearest tenth).
[3] Standard deviation (rounded to the nearest tenth).

Typical sagebrush control burn sizes for all ranches were approximately 30 acres on both private and public land. Small operations typically burned 7 acres of private and 3 acres on public lands, medium operations burned 94 private and 109 public acres, and large operations reported typical burns of 87 acres on private and 114 acres on public lands (Table 51).

Table 51.
"What is the typical size of your burn?"

All Ranches		Operation Size					
		20-299 Bred Cows		300-999 Bred Cows		≥ 1,000 Bred Cows	
n = 698		n = 521		n = 162		n = 15	
Private Lands	**Public Lands**	**Private Lands**	**Public Lands**	**Private Lands**	**Public Lands**	**Private Lands**	**Public Lands**
29 acres	30 acres	7 acres	3 acres	94 acres	109 acres	87 acres	114 acres
(173)	(398)	(45)	(30)	(332)	(812)	(264)	(387)

[1] Sample size. Excluding respondents who did not answer any part of questions 26 – 28 dropped 117 respondents, 87 of these were from small and 27 from medium operations.
[2] Mean acres (rounded to the nearest whole number).
[3] Standard deviation (rounded to the nearest whole number).

Responses indicating agreement or disagreement with four statements regarding reduction of forage yields on private and public ranch land due to sagebrush cover, possible habitat destruction due to sagebrush control and the effect of cheat grass on sagebrush management mistakenly included in question 18 of the survey are reported in Table 52. Data were not sorted by operation size and include only telephone survey data.

Table 52.

"Have you considered or are you currently doing any of the following practices?": all ranches.

Statement	n missing	Strongly Agree (1) n = 324 [1]	(2) n = 324	(3) n = 324	(4)	Strongly Disagree (5) n = 324
Sagebrush cover reduces forage yields on the *privately-owned* lands that you ranch.	109	18%	7%	18%	28%	29%
Sagebrush cover reduces forage yields on the *pubic* lands that you ranch.	126	18%	7%	24%	24%	18%
Endangered wildlife and possible habitat destruction are a concern for you in controlling sagebrush on your ranch.	110	32%	18%	24%	14%	12%
The presence of cheat grass affects your sagebrush management decisions.	117	32%	21%	27%	12%	9%

[1]Sample size. Limiting responses to phone survey results in an overall sample size of 324.

[2]Mean of binary variable reported as a percentage (rounded to the nearest whole percentile).

[3]Standard deviation.

Part D: Demographic Information

The final portion of the Wyoming Beef Cattle Producers Survey collected information describing ranch location, ranch income, and basic demographic information on the primary operator.

Respondents were asked to list their mailing ZIP code. Figure 2 indicates the frequency of responses by ZIP Code. Southwest Fremont county and Platte county had the highest frequency of responses. Generally, southwestern Wyoming had fewer responses.

Figure 2.

Frequency of responses by ZIP code.
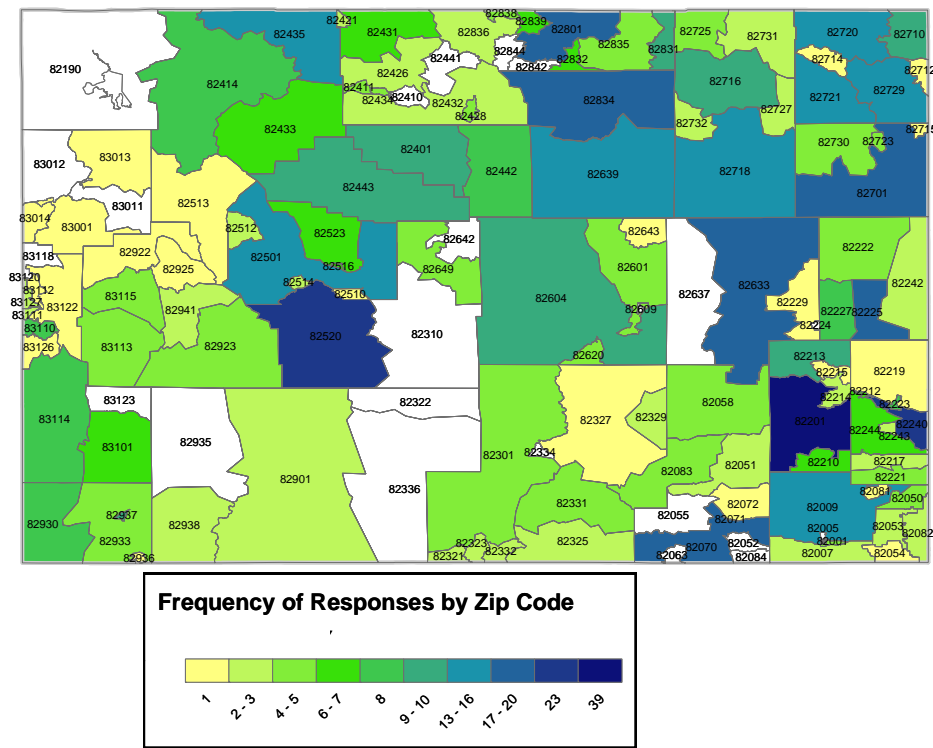
Respondents were also asked to report the elevation of their ranch. The state of Wyoming ranges in elevation range from 2,953 to 13,000 feet above sea level. The average elevation of a ranch represented by the Wyoming Beef Cattle Producers Survey was 5,366 ft. Larger operations tended to be located at slightly higher elevations (Table 53).

Table 53.

Ranch elevation.

	By Operation Size		
	20-299	300-999	≥ 1,000
All Ranches	Bred Cows	Bred Cows	Bred Cows
n = 770[1]	n = 572	n = 183	n = 15
5,366 ft[2]	5,268 ft	5,610 ft	6,113 ft
(1,216)[3]	(1,164)	(1,326)	(1,158)

[1]Sample size. Limiting answers to a range of 2,000 to 13,000 ft above sea level dropped 44 responses. 38 of these were from small and 6 from medium operations.
[2]Mean feet above sea level.
[3]Standard deviation (rounded to the nearest whole number).

Eighty-eight (88) percent of respondents to the Wyoming Beef Cattle Producers Survey were male and 11 percent were women. Currently in the population women operators are 11.2 percent of all principal operators and 27.2 percent of all farm operators (NASS 2002). There was little difference over the gender of the primary operator by operation size (Table 54).

Table 54.

Gender of primary operator.

		By Operation Size		
		20-299	300-999	≥ 1,000
	All Ranches	Bred Cows	Bred Cows	Bred Cows
Gender	n = 814[1]	n = 610	n = 189	n = 15
Male	88%[2]	87%	89%	87%
	(0.33)[3]	(0.34)	(0.31)	(0.35)
Female	11%	11%	10%	13%
	(0.31)	(0.32)	(0.29)	(0.35)

[1]Sample size.
[2]Mean of binary variable reported as a percentage.
[3]Standard deviation.

Primary operator ages for respondents was diverse with every age category 35 years or over represented by at least 10 percent of respondents. Half of the primary operators were between the ages of 45 and 59 years. There is no clear relationship between age and operation size (Table 55). The national average for all principal farm operators is 55.3 years and has increased in every census since 1978 (NASS 2002 Census of Agriculture). Regionally, this age ranges from 55.4 years in Montana to 53.3 years of age in South Dakota.

Table 55.

Age of primary operator.

		By Operation Size		
		20-299	300-999	≥ 1,000
	All Ranches	Bred Cows	Bred Cows	Bred Cows
Age Category	n = 792[1]	n = 593	n = 185	n = 14
25-34 Years Old	3%[2]	3%	1%	7%
	(0.16)[3]	(0.17)	(0.10)	(0.27)
35-44 Years Old	11%	12%	8%	7%
	(0.31)	(0.33)	(0.27)	(0.27)
45-49 Years Old	16%	15%	19%	14%
	(0.37)	(0.36)	(0.39)	(0.36)
50-54 Years Old	20%	19%	22%	29%
	(0.40)	(0.39)	(0.42)	(0.47)
55-59 Years Old	15%	16%	11%	21%
	(0.36)	(0.37)	(0.32)	(0.43)
60-64 Years Old	13%	12%	19%	0
	(0.34)	(0.32)	(0.40)	-
65-69 Years Old	10%	11%	8%	7%
	(0.30)	(0.31)	(0.27)	(0.27)
70 or more Years Old	14%	13%	15%	14%
	(0.35)	(0.34)	(0.36)	(0.36)

[1]Sample size. Excluding respondents who did not respond to any age category dropped 22 respondents. 17 of these were from small, 4 from medium, and 1 from large operations.
[2]Mean of binary variable reported as a percentage.
[3]Standard deviation.

Thirty-four (34) percent of all primary operators represented in this survey reported High School as their highest level of education, 27 percent reported attending some college, and 19 percent had received a bachelors degree. A much higher percentage (60 percent) of primary operators of large operations had received their bachelors (Table 56). The USDA ERS Agricultural Resource Management study reported that for all farms operators 24.7 percent of operators reported "some college" and only 18.9 percent were college graduates. US Census data for rural education levels are similar with 25.7 percent of non-metro persons 25 or more years old reported some college and 15.5 percent had graduated with a college degree. Education levels for respondents similar to these national and regional estimates for rural education suggest no non-response bias in the sample.

An average respondent to the Wyoming Beef Cattle Producers Survey reported having 35 years of experience raising beef cattle. The average ranged from 34 for small to 39 years for large operations (Table 57).

Forty-two (42) percent of survey respondents reported being employed off-farm at least part time—along with 46 percent of their spouses. Both respondents and their spouses from small operations were more likely to report working off-farm (Table 58).

Table 56.

Primary operator's highest level of education.

Highest Level of Education	All Ranches n = 814[1]	By Operation Size		
		20-299 Bred Cows n = 610	300-999 Bred Cows n = 189	≥ 1,000 Bred Cows n = 15
High School	34%[2] (0.47)[3]	35% (0.48)	32% (0.47)	13% (0.35)
Some College	27% (0.45)	26% (0.44)	33% (0.47)	13% (0.35)
Technical / Vocational Degree	8% (0.3)	11% (0.34)	1% (0.1)	0 -
Bachelors Degree	19% (0.39)	17% (0.37)	22% (0.41)	60% (0.51)
Some Graduate Education	4% (0.2)	4% (0.19)	5% (0.22)	7% (0.26)
Graduate Degree	8% (0.27)	8% (0.26)	9% (0.29)	7% (0.26)

[1]Sample size. [2]Mean of binary variable reported as a percentage.
[3]Standard deviation.

Table 57.

Years of experience raising beef cattle.

All Ranches n = 813[1]	By Operation Size		
	20-299 Bred Cows n = 610	300-999 Bred Cows n = 188	≥ 1,000 Bred Cows n = 15
35[2] (17)[3]	34 (17)	37 (16)	39 (14)

[1]Sample size. Limiting answers to 100 years of experience dropped 1 response from medium operations.
[2]Mean years (rounded to the nearest whole number).
[3]Standard deviation (rounded to the nearest whole number).

Table 58.

"Are you or your spouse employed off-farm?"

Employee	All Ranches n = 814[1]	By Operation Size		
		20-299 Bred Cows n = 610	300-999 Bred Cows n = 189	≥ 1,000 Bred Cows n = 15
Self	42%[2] (0.49)[3]	50% (0.50)	18% (0.39)	13% (0.35)
Spouse	46% (0.50)	50% (0.50)	34% (0.47)	20% (0.41)

[1]Sample size.
[2]Mean of binary variable reported as a percentage.
[3]Standard deviation.

An average of 65 percent of household income for all respondents was reported to be from ranching or farming. This percentage was closely related to operation size with 81 percent of household income from farming or ranching for large and medium operations and 59 percent for small operations (Table 59).

Table 59.

Percentage of household income from ranching or farming.

	By Operation Size		
All Ranches n = 704[1]	20-299 Bred Cows n = 519	300-999 Bred Cows n = 171	≥ 1,000 Bred Cows n = 14
65%[2] (33)[3]	59% (33)	81% (26)	81% (32)

[1]Sample size. Eliminating answers of 0% dropped 110 responses: 91 from small, 18 from medium, and 1 from large operations.
[2]Mean percentage.
[3]Standard deviation.

The distribution of respondents reported gross annual income from the previous year centered around $100,000 to $249,999 with 64 percent of all respondents reporting between $25,000 and $249,999 in gross sales. There was a strong relationship between gross sales and operation size. None of the largest producers reported gross sales in 2003 less than $250,000 while the average small operator reported $25,000 to $49,999 (Table 60).

Table 60.

Last year's annual gross ranch sales.

		By Operation Size		
		20-299	300-999	$\geq 1,000$
	All Ranches	Bred Cows	Bred Cows	Bred Cows
Gross Annual Income	n = 745[1]	n = 555	n = 176	n = 14
Less Than $1,000	< 1%[2]	1%	0	0
	(0.06)[3]	(0.07)	-	-
$1,000 to $4,999	2%	2%	0	0
	(0.13)	(0.15)	-	-
$5,000 to $9,999	3%	4%	1%	0
	(0.18)	(0.20)	(0.08)	-
$10,000 to $24,999	15%	19%	1%	0
	(0.35)	(0.39)	(0.11)	-
$25,000 to $49,999	20%	26%	4%	0
	(0.4)	(0.44)	(0.20)	-
$50,000 to $99,999	20%	25%	9%	0
	(0.4)	(0.43)	(0.28)	-
$100,000 to $249,999	24%	19%	41%	0
	(0.43)	(0.39)	(0.49)	-
$250,000 to $499,999	12%	4%	36%	14%
	(0.33)	(0.2)	(0.48)	(0.36)
$500,000 or more	4%	1%	9%	86%
	(0.2)	(0.07)	(0.28)	(0.36)

[1]Sample size. Excluding respondents who did not respond to any income category dropped 69 respondents. 55 of these were from small, 13 from medium, and 1 from large operations.
[2]Mean of binary variable reported as a percentage.
[3]Standard deviation.

References Cited

Wyoming Agricultural Statistics 2004. USDA NASS, Wyoming Statistical Office.

National Agricultural Statistical Service. 2002. Census of Agriculture.

USDA Economic Research Service. 1998. Agricultural Resource Management Study, version 1.

Appendix A: Sampling Population

Number of Beef Cattle Operators by County & Size Group

County	1-49 head*	50-299 head	300-1,000 head	>1,000 head	Total
Albany	56	68	61	23	208
Big Horn	109	108	55	25	297
Campbell	90	162	104	18	374
Carbon	40	57	62	39	198
Converse	57	87	71	27	242
Crook	74	161	105	18	358
Fremont	228	239	126	35	628
Goshen	114	191	118	27	450
Hot Springs	32	40	12	9	93
Johnson	54	79	76	25	234
Laramie	122	135	52	23	332
Lincoln	102	134	49	11	296
Natrona	75	57	49	27	208
Niobrara	17	89	91	17	214
Park	147	104	43	13	307
Platte	99	147	73	21	340
Sheridan	140	146	68	18	372
Sublette	39	48	67	22	176
Sweetwater	32	36	28	4	100
Teton	15	7	9	4	35
Uinta	53	81	54	12	200
Washakie	30	41	42	10	123
Weston	36	66	48	21	171
State Total	1,761	2,283	1,463	449	5,956

Source: Wyoming Agricultural Statistics Service personal communication January 10, 2005.

* Operations with fewer than 20 head were eliminated from the 1-49 head category, leaving 771 operations with 20-49 head. Total operators in the sampling frame was 4,966 for the state.

Appendix B: Data Coding, Cleaning, and Aggregation

The following explains the data cleaning operations that were conducted on the original NASS dataset.

1- Limit to valid responses then replace nonsense answers with valid ones. Using SAS to find the maximums and minimums of all the variables, it was possible to identify discrete variables that were too big or otherwise invalid. Once specific surveys were identified, SAS code was written to fix the problems. For example var190xx corresponds to a "yes/no" question on vaccination. However three responses in the SAS data set were larger than "1." Once the actual surveys were checked the following code changed the SAS data set to reflect the correct response.

```
if var190xx >1    then var190xx =1;
```

2- Force valid percentages. Survey questions that required that responses be in the form a percent: invalid responses = those over 100%. Here the SAS code used to correct the problem looked like this:

```
if POID=800002990 then var111xx =100;
```

Unlike cleaning discrete variables, here the SAS code identifies a specific survey and then gives the variable to be corrected.

3- Force percentages to sum to 100. Many of the questions asking for percentages required that the sum of the responses equaled 100%. In order to correct mistakes on these questions, new variables had to be created that would sum the responses. For example question 2 asks for the percentage of annual gross sales from different types of ranch enterprises. The created variable is termed "q12var410" the "q12" means question 12 of the survey and "var410" is the first variable that is in the summation. Here is the SAS code which creates the new variable "q12var410."

```
q12var410= var410xx + var412xx + var414xx + var415xx + var416xx;
```

Once the new variables were created mistakes were corrected in the same manner as other percent errors. SAS identified the survey responses which were too big (i.e. greater than 100%) and then the appropriate SAS code fixed the problem. The following SAS code corrects a problem with "q12var410." Note how the new numbers add up to 100.

```
if POID=300066880 then var410xx =25;
if POID=300066880 then var411xx =5;
if POID=300066880 then var415xx =70;
```

4- Simple response count. Even after these changes were made a small number of surveys still had to be corrected. With these surveys it could not be reasoned out what the

appropriate response was. So as to not loose the data entirely by coding these responses as missing new variables were created to simply count if any response was made. The following is SAS code which created counting variables for question 12.

```
if var410xx GE 1   then SB=1; else SB =0;
if var412xx GE 1   then VA =1; else VA =0;
if var415xx GE 1   then PS =1; else PS =0;
if var416xx GE 1   then FC =1; else FC =0;
if var411xx GE 1   then WB =1; else WB =0;
if var414xx GE 1   then OT =1; else OT =0;
```

5- "Non-zeros". Included with this write-up are the summary statistics for each variable, including the created variables. During the data entry process non responses were entered in as zeros, SAS will count a zero when performing various operations. This leads to zeros weighing down the averages. To correct for this SAS code was written to change zeros to missing. The following is the SAS code used to change zeros to missing. In SAS "." denotes a missing value.

```
if var190xx =0    then var190xx =.;
if var191xx =0    then var191xx =.;
if var192xx =0    then var192xx =.;
if var193xx =0    then var193xx =.;
if var194xx =0    then var194xx =.;
```

Appendix C: Statistical Analysis / Output

Part A: General Ranch Description

The following code was used for every question to 1) limit the dataset to producers with 20 or more cattle, and 2) sort the data into three strata by operation size:

```
*ignore operations with less than 20 bred cattle;
if var330xx le 19 then delete;

*sort into three operation sizes based on # of bred cows;
if var330XX ge 20 and var330XX lt 300 then opsize=1;
if var330xx ge 300 and var330xx lt 1000 then opsize=2;
if var330xx ge 1000 then opsize=3;
```

Question 1

Procedure:

- "Including zeros" dataset.
- Excluded producers with less than 20 bred cattle.
- Sorted data into three operation sizes based on number of bred cows.
- For percentage owned VS leased: excluded incorrect responses (i.e. answers that did not sum to 100).
- Calculated percent of total for each type of private and public land.
- SAS procedure, SAS UNIVARIATE procedure.

Code:

```
*eliminate answers not summing to 100%;
var112x1 = var111xx + var112xx;
if var112x1 ne 100 then var111xx=.;
if var112x1 ne 100 then var112xx=.;…


var128x1 = var127xx + var128xx;
if var128x1 ne 100 then var127xx=.;
if var128x1 ne 100 then var128xx=.;

*Private Land Percent Total;
var121x2 = var110xx + …var126xx;
pt110 = var110xx / var121x2;…
pt126 = var126xx / var121x2;

*Public Land Percent Total;
var131x1 = var129xx + var130xx + var131xx;
pt129 = var129xx / var131x1;…
pt131 = var131xx / var131x1;
```

Output:

```
                        The MEANS Procedure
 Variable      N         Mean        Std Dev       Minimum        Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
Land Type
```

```
Private Land
Pastureland, Rangeland
 VAR110XX      814         7313.71        19928.77              0       375000.00
 VAR111XX      776        66.7403351      38.9791330            0       100.0000000
 VAR112XX      776        33.2596649      38.9791330            0       100.0000000
 ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
Harvested Cropland for Grain
VAR113XX       814        51.9398034     226.5853593            0         3000.00
 VAR114XX      136        80.2352941      36.1499419            0       100.0000000
 VAR115XX      136        19.7647059      36.1499419            0       100.0000000
 ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ

Harvested Cropland for Silage
VAR116XX       814        12.4901720     140.1204693            0         3000.00
 VAR117XX       50        77.6000000      39.5670446            0       100.0000000
 VAR118XX       50        22.4000000      39.5670446            0       100.0000000
 ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ

Irrigated and Sub-irrigated Hay
VAR119XX       814       247.5995086     786.9976653            0        17117.00
VAR120XX       434        83.4147465      32.6078720            0       100.0000000
VAR121XX       434        16.5852535      32.6078720            0       100.0000000
 ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ

Dry Land Hay
VAR122XX       814        89.5761671     232.8431438            0         2100.00
VAR123XX       222        78.6081081      38.7636361            0       100.0000000
VAR124XX       222        21.3918919      38.7636361            0       100.0000000
 ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ

Other (specify)
VAR126XX       814        83.7948403       1196.11             0        30000.00
VAR127XX        50        79.5400000      37.9307694            0       100.0000000
VAR128XX        50        20.4600000      37.9307694            0       100.0000000
 ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
Private Land Percent of Total
var121x2       814         7799.11        20230.60     12.0000000       380150.00
pt110          814         0.9377618       2.5552619            0        48.0824094
pt113          814         0.0066597       0.0290527            0         0.3846593
pt116          814         0.0016015       0.0179662            0         0.3846593
pt119          814         0.0317471       0.1009087            0         2.1947376
pt122          814         0.0114854       0.0298551            0         0.2692615
pt126          814         0.0107442       0.1533652            0         3.8465928
 ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
Public Land
VAR129XX       814         1437.52        14264.32             0       350000.00
VAR130XX       814         4226.34        25327.90             0       400000.00
VAR131XX       814       669.2481572       2956.67             0        63000.00
 ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
Public Land Percent of Total
var131x1       814         6333.11        32431.68             0       463000.00
pt129          814         0.2269854       2.2523411            0        55.2651067
pt130          814         0.6673400       3.9992835            0        63.1601220
pt131          814         0.1056745       0.4668598            0         9.9477192
Public and Private Land by Operation Size
 ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
------------------------------ opsize=1 ----------------------------------
VAR110XX       610         2982.84         4960.06             0        50000.00
VAR113XX       610        38.0295082     157.0445507            0         2000.00
VAR116XX       610         4.8557377      27.0502575            0       300.0000000
VAR119XX       610       135.8590164     353.1655623            0         5800.00
VAR122XX       610        59.7606557     134.5586415            0       900.0000000
VAR126XX       610        39.0049180     572.4702343            0        14000.00
VAR129XX       610       397.9655738       3194.91             0        50000.00
VAR130XX       610         1657.98        10089.16             0       125000.00
VAR131XX       610       217.9442623     620.5247423            0         8600.00
VAR330XX       610       105.6885246      74.3040266     20.0000000      298.0000000
 ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
------------------------------ opsize=2 ----------------------------------
VAR110XX       189        16177.56        22651.19             0       150000.00
VAR113XX       189        74.3968254     297.9064472            0         2000.00
VAR116XX       189        22.2486772     186.4515982            0         2500.00
VAR119XX       189       440.8730159     681.6559349            0         5000.00
VAR122XX       189       186.7777778     400.7762990            0         2100.00
VAR126XX       189       235.0052910       2257.27             0        30000.00
VAR129XX       189         4742.78        28824.00             0       350000.00
VAR130XX       189        10706.18        45738.73             0       400000.00
VAR131XX       189         1762.34         5423.72             0        63000.00
VAR330XX       189       455.8306878     161.6873556    300.0000000      950.0000000
 ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
------------------------------ opsize=3 ----------------------------------
VAR110XX        15        71751.13        93683.79       1940.00        375000.00
```

```
VAR113XX    15     334.6666667      784.8281583                 0          3000.00
VAR116XX    15     200.0000000      774.5966692                 0          3000.00
VAR119XX    15     2356.47          4299.87                     0         17117.00
VAR122XX    15     77.3333333       193.4449596                 0       600.0000000
VAR126XX    15     0                0                           0             0
VAR129XX    15     2066.67          4479.58                     0         15000.00
VAR130XX    15     27026.87         57626.37                    0        210000.00
VAR131XX    15     5249.33          6957.15                     0         20000.00
VAR330XX    15     1926.07          1642.30               1000.00          6891.00
```

The UNIVARIATE Procedure

Variable: VAR110XX (Pastureland / Rangeland)

Location		Variability	
Mean	7313.708	Std Deviation	19929
Median	2000.000	Variance	397155825
Mode	0.000	Range	375000
		Interquartile Range	6000

Extreme Observations

----Lowest----		-----Highest----	
Value	Obs	Value	Obs
0	764	120000	678
0	752	120000	695
0	738	139000	804
0	728	150000	775
0	706	375000	802

-------------------------------- opsize=1 --------------------------------

Location		Variability	
Mean	2982.841	Std Deviation	4960
Median	1393.500	Variance	24602152
Mode	0.000	Range	50000
		Interquartile Range	3150

Extreme Observations

----Lowest----		----Highest----	
Value	Obs	Value	Obs
0	604	25760	196
0	596	29000	269
0	588	32926	262
0	564	50000	178
0	559	50000	536

-------------------------------- opsize=2 --------------------------------

Location		Variability	
Mean	16177.56	Std Deviation	22651
Median	9600.00	Variance	513076587
Mode	10000.00	Range	150000
		Interquartile Range	12650

Extreme Observations

----Lowest----		-----Highest----	
Value	Obs	Value	Obs
0	764	80000	635
0	752	112000	653
0	738	120000	678
0	728	120000	695
0	706	150000	775

-------------------------------- opsize=3 --------------------------------

Location		Variability	
Mean	71751.13	Std Deviation	93684
Median	36680.00	Variance	8776651985
Mode	20000.00	Range	373060
		Interquartile Range	80000

NOTE: The mode displayed is the smallest of 2 modes with a count of 2.

Extreme Observations

-----Lowest----		-----Highest----	
Value	Obs	Value	Obs
1940	809	90000	805
4500	814	100000	801
8500	813	100000	803
20000	812	139000	804
20000	811	375000	802

Question 2

Procedure:

- "Including zeros" dataset.

- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.

- Excluded incorrect percentage responses (i.e. answers that did not sum to 100).
- Aggregated non-beef enterprises.
- Created variables to calculate frequency counts for non-beef enterprises.
- SAS Means procedure.

Code:

```
*eliminates answers not summing to 100;
var153x1 = var140xx + var141xx + var142xx + var143xx + var144xx +
var145xx + var146xx + var147xx + var148xx +
var149xx + var150xx + var151xx + var153xx;
if var153x1 ne 100 then delete;

*aggregate variable for all non-beef enterprises;
var153x2 = var143xx + var147xx + var148xx + var149xx + var150xx +
var151xx;

*For frequency counts of specific non-beef enterprises;
if var143xx gt 0 then var143x1 = 1;
if var147xx gt 0 then var147x1 = 1;
if var148xx gt 0 then var148x1 = 1;
if var149xx gt 0 then var149x1 = 1;
if var150xx gt 0 then var150x1 = 1;
if var151xx gt 0 then var151x1 = 1;
```

Output:

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
ƒƒƒ						
		Percent Gross Annual Sales- All Ranches				
VAR140XX	Cow/Calf	803	81.77	31.27	0.00	100.00
VAR141XX	Backgnd	803	1.71	10.20	0.00	100.00
VAR142XX	Feedlot	803	1.53	9.87	0.00	100.00
VAR143XX	Sheep	803	1.64	8.48	0.00	76.00
VAR144XX	Cow/Yrlg	803	7.87	23.27	0.00	100.00
VAR145XX	Club Clv	803	0.27	3.80	0.00	100.00
VAR146XX	Repl Heif	803	1.41	6.41	0.00	90.00
VAR147XX	Horses	803	0.85	4.74	0.00	60.00
VAR148XX	Buffalo	803	0.00	0.00	0.00	0.00
VAR149XX	GOATS	803	0.01	0.26	0.00	5.00
VAR150XX	Dairy	803	0.05	1.08	0.00	30.00
VAR151XX	Hogs	803	0.18	2.94	0.00	75.00
VAR153XX	Other	803	2.71	12.62	0.00	100.00
var153x2	Sum Non-Beef	803	2.73	10.14	0.00	76.00
ƒƒƒ						
		Percent Gross Annual Sales- By Operation Size				
-- opsize=1 --						
VAR140XX	Cow/Calf	603	83.53	29.76	0.00	100.00
VAR141XX	Backgnd	603	1.65	10.12	0.00	100.00
VAR142XX	Feedlot	603	1.38	9.65	0.00	100.00
VAR143XX	Sheep	603	1.41	7.66	0.00	60.00
VAR144XX	Cow/Yrlg	603	5.96	20.13	0.00	100.00
VAR145XX	Club Clv	603	0.35	4.38	0.00	100.00
VAR146XX	Repl Heif	603	1.27	5.74	0.00	60.00
VAR147XX	Horses	603	0.83	4.74	0.00	60.00
VAR148XX	Buffalo	603	0.00	0.00	0.00	0.00
VAR149XX	GOATS	603	0.02	0.29	0.00	5.00
VAR150XX	Dairy	603	0.06	1.24	0.00	30.00
VAR151XX	Hogs	603	0.23	3.39	0.00	75.00
VAR153XX	Other	603	3.31	14.17	0.00	100.00
var153x2	Sum Non-Beef	603	2.55	9.63	0.00	75.00
-- opsize=2 --						
VAR140XX	Cow/Calf	185	76.06	35.60	0.00	100.00
VAR141XX	Backgnd	185	1.89	10.67	0.00	100.00
VAR142XX	Feedlot	185	2.16	10.93	0.00	100.00
VAR143XX	Sheep	185	2.28	10.51	0.00	76.00
VAR144XX	Cow/Yrlg	185	13.94	30.55	0.00	100.00
VAR145XX	Club Clv	185	0.01	0.15	0.00	2.00
VAR146XX	Repl Heif	185	1.88	8.36	0.00	90.00

```
VAR147XX    Horses         185      0.82        4.62        0.00       50.00
VAR148XX    Buffalo        185      0.00        0.00        0.00        0.00
VAR149XX    GOATS          185      0.01        0.15        0.00        2.00
VAR150XX    Dairy          185      0.01        0.15        0.00        2.00
VAR151XX    Hogs           185      0.00        0.00        0.00        0.00
VAR153XX    Other          185      0.95        5.65        0.00       60.00
var153x2    Sum Non-Beef   185      3.12       11.48        0.00       76.00
------------------------------------- opsize=3 -------------------------------------
VAR140XX    Cow/Calf        15     81.47       26.69        0.00      100.00
VAR141XX    Backgnd         15      2.00        7.75        0.00       30.00
VAR142XX    Feedlot         15      0.00        0.00        0.00        0.00
VAR143XX    Sheep           15      3.00       11.62        0.00       45.00
VAR144XX    Cow/Yrlg        15      9.60       26.11        0.00       99.00
VAR145XX    Club Clv        15      0.07        0.26        0.00        1.00
VAR146XX    Repl Heif       15      1.40        3.50        0.00       10.00
VAR147XX    Horses          15      2.13        6.46        0.00       25.00
VAR148XX    Buffalo         15      0.00        0.00        0.00        0.00
VAR149XX    GOATS           15      0.00        0.00        0.00        0.00
VAR150XX    Dairy           15      0.00        0.00        0.00        0.00
VAR151XX    Hogs            15      0.00        0.00        0.00        0.00
VAR153XX    Other           15      0.33        1.29        0.00        5.00
var153x2    Sum Non-Beef    15      5.13       12.77        0.00       45.00
ffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff
                    frequency of non-beef livestock- All Ranches
        var143x1     49          1.00        0.00        1.00        1.00
        var147x1     62          1.00        0.00        1.00        1.00
        var148x1      0           .           .           .           .
        var149x1      3          1.00        0.00        1.00        1.00
        var150x1      3          1.00        0.00        1.00        1.00
        var151x1      6          1.00        0.00        1.00        1.00
        ffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff
                  frequency of non-beef livestock- By Operation Size
------------------------------------- opsize=1 -------------------------------------
        var143x1     34          1.00        0.00        1.00        1.00
        var147x1     45          1.00        0.00        1.00        1.00
        var148x1      0           .           .           .           .
        var149x1      2          1.00        0.00        1.00        1.00
        var150x1      2          1.00        0.00        1.00        1.00
        var151x1      6          1.00        0.00        1.00        1.00
------------------------------------- opsize=2 -------------------------------------
        var143x1     14          1.00        0.00        1.00        1.00
        var147x1     13          1.00        0.00        1.00        1.00
        var148x1      0           .           .           .           .
        var149x1      1          1.00         .          1.00        1.00
        var150x1      1          1.00         .          1.00        1.00
        var151x1      0           .           .           .           .
------------------------------------- opsize=3 -------------------------------------
        var143x1      1          1.00         .          1.00        1.00
        var147x1      4          1.00        0.00        1.00        1.00
        var148x1      0           .           .           .           .
        var149x1      0           .           .           .           .
        var150x1      0           .           .           .           .
        var151x1      0           .           .           .           .
```

Questions 3 and 4

Procedure:

- "including zeros" dataset.

- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.

- Excluded incorrect percentage responses (i.e. answers that did not sum to 100).

- SAS Means procedure.

Code:

```
*ignore responses not summing to 100%;
var171x1 = var160xx + …var171xx;
var183x1 = var172xx + …var183xx;
if var171x1 ne 100 then delete;
```

```
if var183x1 ne 100 then delete;
```

Output:

```
Variable  Label    N       Mean      Std Dev    Minimum    Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
Question 3- All Ranches
VAR160XX  Jan      785     1.25       6.68       0.00       65.00
VAR164XX  Feb      785    12.25      22.76       0.00       99.00
VAR168XX  March    785    33.54      27.66       0.00      100.00
VAR161XX  April    785    38.36      29.56       0.00      100.00
VAR165XX  May      785    10.25      17.86       0.00      100.00
VAR169XX  June     785     1.83       8.30       0.00       90.00
VAR162XX  July     785     0.40       4.05       0.00       90.00
VAR166XX  Aug      785     0.64       4.83       0.00       70.00
VAR170XX  Sept     785     1.19       8.14       0.00       90.00
VAR163XX  Oct      785     0.22       3.03       0.00       75.00
VAR167XX  Nov      785     0.04       0.56       0.00       11.00
VAR171XX  Dec      785     0.03       0.53       0.00       11.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
Question 4- All Ranches
VAR172XX  Jan      785     0.47       6.32       0.00      100.00
VAR176XX  Feb      785     0.41       5.54       0.00      100.00
VAR180XX  March    785     0.68       7.20       0.00      100.00
VAR173XX  April    785     1.19       9.55       0.00      100.00
VAR177XX  May      785     0.39       4.67       0.00      100.00
VAR181XX  June     785     0.41       5.43       0.00      100.00
VAR174XX  July     785     0.37       5.67       0.00      100.00
VAR178XX  Aug      785     1.32      10.67       0.00      100.00
VAR182XX  Sept     785    12.14      31.19       0.00      100.00
VAR175XX  Oct      785    56.08      47.37       0.00      100.00
VAR179XX  Nov      785    23.56      40.65       0.00      100.00
VAR183XX  Dec      785     2.99      15.46       0.00      100.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
Question 3- By Operation Size
-------------------------------- opsize=1 --------------------------------
VAR160XX  Jan      588     1.21       6.70       0.00       65.00
VAR164XX  Feb      588    13.79      24.12       0.00       99.00
VAR168XX  March    588    35.54      28.17       0.00      100.00
VAR161XX  April    588    36.26      29.72       0.00      100.00
VAR165XX  May      588     9.17      17.37       0.00      100.00
VAR169XX  June     588     1.62       7.83       0.00       90.00
VAR162XX  July     588     0.35       3.97       0.00       90.00
VAR166XX  Aug      588     0.45       3.34       0.00       50.00
VAR170XX  Sept     588     1.23       8.57       0.00       90.00
VAR163XX  Oct      588     0.29       3.50       0.00       75.00
VAR167XX  Nov      588     0.05       0.65       0.00       11.00
VAR171XX  Dec      588     0.04       0.61       0.00       11.00
-------------------------------- opsize=2 --------------------------------
VAR160XX  Jan      182     1.21       5.88       0.00       50.00
VAR164XX  Feb      182     7.68      17.67       0.00       90.00
VAR168XX  March    182    27.73      25.61       0.00       90.00
VAR161XX  April    182    44.43      28.77       0.00      100.00
VAR165XX  May      182    13.34      19.22       0.00       90.00
VAR169XX  June     182     2.55       9.94       0.00       85.00
VAR162XX  July     182     0.60       4.43       0.00       50.00
VAR166XX  Aug      182     1.29       8.03       0.00       70.00
VAR170XX  Sept     182     1.17       6.98       0.00       60.00
VAR163XX  Oct      182     0.00       0.00       0.00        0.00
VAR167XX  Nov      182     0.00       0.00       0.00        0.00
VAR171XX  Dec      182     0.00       0.00       0.00        0.00
-------------------------------- opsize=3 --------------------------------
VAR160XX  Jan       15     3.33      12.91       0.00       50.00
VAR164XX  Feb       15     7.33      13.48       0.00       50.00
VAR168XX  March     15    25.33      20.83       0.00       60.00
VAR161XX  April     15    47.33      21.03       0.00       80.00
VAR165XX  May       15    15.00      15.81       0.00       50.00
VAR169XX  June      15     1.33       2.97       0.00       10.00
VAR162XX  July      15     0.20       0.77       0.00        3.00
VAR166XX  Aug       15     0.13       0.52       0.00        2.00
VAR170XX  Sept      15     0.00       0.00       0.00        0.00
VAR163XX  Oct       15     0.00       0.00       0.00        0.00
VAR167XX  Nov       15     0.00       0.00       0.00        0.00
VAR171XX  Dec       15     0.00       0.00       0.00        0.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
Question 4- By Operation Size
-------------------------------- opsize=1 --------------------------------
VAR172XX  Jan      588     0.41       5.94       0.00      100.00
VAR176XX  Feb      588     0.45       6.05       0.00      100.00
VAR180XX  March    588     0.51       5.82       0.00      100.00
VAR173XX  April    588     1.29      10.00       0.00      100.00
```

```
VAR177XX   May     588         0.35            4.68          0.00        100.00
VAR181XX   June    588         0.54            6.27          0.00        100.00
VAR174XX   July    588         0.49            6.55          0.00        100.00
VAR178XX   Aug     588         1.27           10.42          0.00        100.00
VAR182XX   Sept    588        13.29           32.54          0.00        100.00
VAR175XX   Oct     588        56.41           47.74          0.00        100.00
VAR179XX   Nov     588        21.85           40.12          0.00        100.00
VAR183XX   Dec     588         3.14           15.98          0.00        100.00
------------------------------- opsize=2 -------------------------------
VAR172XX   Jan     182         0.69            7.63          0.00        100.00
VAR176XX   Feb     182         0.30            3.72          0.00         50.00
VAR180XX   March   182         1.29           10.67          0.00        100.00
VAR173XX   April   182         0.93            8.39          0.00        100.00
VAR177XX   May     182         0.58            4.85          0.00         50.00
VAR181XX   June    182         0.00            0.00          0.00          0.00
VAR174XX   July    182         0.00            0.00          0.00          0.00
VAR178XX   Aug     182         1.59           11.84          0.00        100.00
VAR182XX   Sept    182         8.93           27.01          0.00        100.00
VAR175XX   Oct     182        54.74           46.89          0.00        100.00
VAR179XX   Nov     182        28.31           42.31          0.00        100.00
VAR183XX   Dec     182         2.64           14.32          0.00        100.00
------------------------------- opsize=3 -------------------------------
VAR172XX   Jan      15         0.00            0.00          0.00          0.00
VAR176XX   Feb      15         0.00            0.00          0.00          0.00
VAR180XX   March    15         0.00            0.00          0.00          0.00
VAR173XX   April    15         0.00            0.00          0.00          0.00
VAR177XX   May      15         0.00            0.00          0.00          0.00
VAR181XX   June     15         0.00            0.00          0.00          0.00
VAR172XX   Jan      15         0.00            0.00          0.00          0.00
VAR176XX   Feb      15         0.00            0.00          0.00          0.00
VAR180XX   March    15         0.00            0.00          0.00          0.00
VAR173XX   April    15         0.00            0.00          0.00          0.00
VAR177XX   May      15         0.00            0.00          0.00          0.00
VAR181XX   June     15         0.00            0.00          0.00          0.00
```

Question 5

Procedure:

- "including zeros" dataset.
- Excluded producers with less than 20 bred cattle.
- Sorted data into three operation sizes based on number of bred cows.
- Excluded respondents who did not check any of the options.
- SAS Means procedure.

Code:

```
*exclude respondents who did not check any box;
var203x1 = var190xx + var191xx + var192xx + var193xx + var194xx +
var195xx + var196xx +
var197xx + var198xx + var199xx + var200xx + var201xx + var203xx;
if var203x1 = 0 then delete;
```

Output:

```
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
Question 5- All Ranches
Variable  Label     N       Mean      Std Dev    Minimum      Maximum
VAR190XX  vacc     809       0.97       0.16       0.00         1.00
VAR192XX  deworm   809       0.72       0.45       0.00         1.00
VAR194XX  insect   809       0.73       0.45       0.00         1.00
VAR196XX  implant  809       0.19       0.39       0.00         1.00
VAR198XX  dehorn   809       0.56       0.50       0.00         1.00
VAR200XX  cast     808       0.95       0.22       0.00         1.00
VAR191XX  an id    809       0.66       0.48       0.00         1.00
VAR193XX  body c   809       0.21       0.40       0.00         1.00
VAR195XX  preg     809       0.68       0.47       0.00         1.00
VAR197XX  breed s  809       0.25       0.43       0.00         1.00
VAR199XX  ai       809       0.18       0.38       0.00         1.00
VAR201XX  vet c    809       0.62       0.48       0.00         1.00
VAR203XX  other    809       0.02       0.14       0.00         1.00
```

```
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
Question 5- By Operation Size

Variable  Label      N        Mean      Std Dev      Minimum        Maximum
--------------------------------- opsize=1 ---------------------------------
VAR190XX  vacc       605      0.97      0.17         0.00           1.00
VAR192XX  deworm     605      0.68      0.47         0.00           1.00
VAR194XX  insect     605      0.71      0.45         0.00           1.00
VAR196XX  implant    605      0.15      0.36         0.00           1.00
VAR198XX  dehorn     605      0.52      0.50         0.00           1.00
VAR200XX  cast       604      0.94      0.23         0.00           1.00
VAR191XX  an id      605      0.66      0.47         0.00           1.00
VAR193XX  body c     605      0.18      0.38         0.00           1.00
VAR195XX  preg       605      0.63      0.48         0.00           1.00
VAR197XX  breed s    605      0.20      0.40         0.00           1.00
VAR199XX  ai         605      0.17      0.38         0.00           1.00
VAR201XX  vet c      605      0.59      0.49         0.00           1.00
VAR203XX  other      605      0.02      0.15         0.00           1.00
--------------------------------- opsize=2 ---------------------------------
VAR190XX  vacc       189      0.99      0.07         0.00           1.00
VAR192XX  deworm     189      0.82      0.39         0.00           1.00
VAR194XX  insect     189      0.78      0.42         0.00           1.00
VAR196XX  implant    189      0.30      0.46         0.00           1.00
VAR198XX  dehorn     189      0.69      0.46         0.00           1.00
VAR200XX  cast       189      0.96      0.19         0.00           1.00
VAR191XX  an id      189      0.64      0.48         0.00           1.00
VAR193XX  body c     189      0.29      0.45         0.00           1.00
VAR195XX  preg       189      0.85      0.36         0.00           1.00
VAR197XX  breed s    189      0.40      0.49         0.00           1.00
VAR199XX  ai         189      0.20      0.40         0.00           1.00
VAR201XX  vet c      189      0.70      0.46         0.00           1.00
VAR203XX  other      189      0.02      0.14         0.00           1.00
--------------------------------- opsize=3 ---------------------------------
VAR190XX  vacc       15       0.93      0.26         0.00           1.00
VAR192XX  deworm     15       0.87      0.35         0.00           1.00
VAR194XX  insect     15       0.73      0.46         0.00           1.00
VAR196XX  implant    15       0.27      0.46         0.00           1.00
VAR198XX  dehorn     15       0.60      0.51         0.00           1.00
VAR200XX  cast       15       1.00      0.00         1.00           1.00
VAR191XX  an id      15       0.80      0.41         0.00           1.00
VAR193XX  body c     15       0.33      0.49         0.00           1.00
VAR195XX  preg       15       0.80      0.41         0.00           1.00
VAR197XX  breed s    15       0.40      0.51         0.00           1.00
VAR199XX  ai         15       0.27      0.46         0.00           1.00
VAR201XX  vet c      15       0.87      0.35         0.00           1.00
VAR203XX  other      15       0.00      0.00         0.00           0.00
```

Question 6

Procedure:

- "including zeros" dataset.

- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.

- Excluded incorrect percentage responses (i.e. answers that did not sum to 100).

- SAS Means procedure.

Code:

```
*excludes respondents with responses that did not sum to 100;
var223x1 = var210xx +… var223xx;
if var223x1 ne 100 then delete;
```

Output:

```
Variable  Label      N        Mean      Std Dev      Minimum        Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
Question 6- All Ranches
VAR210XX  p lvstk    673      8.93      13.85        0.00           100.00
VAR212XX  alf        673      17.83     20.91        0.00           100.00
VAR214XX  grain      673      3.67      7.28         0.00           80.00
VAR216XX  feed c     673      5.00      6.88         0.00           36.00
```

```
VAR218XX  salt    673      4.21      5.47      0.00     80.00
VAR220XX  fert    673      5.73      9.36      0.00     60.00
VAR211XX  vet s   673      6.15      5.44      0.00     47.00
VAR213XX  labor   673      7.51     12.32      0.00     90.00
VAR215XX  fuel    673     15.37     12.13      0.00     80.00
VAR217XX  intst   673      6.57      9.72      0.00     75.00
VAR219XX  prof s  673      1.66      3.13      0.00     40.00
VAR221XX  repair  673      8.51      8.69      0.00     50.00
VAR223XX  other   673      8.86     15.78      0.00     84.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
Question 6- By Operation Size
------------------------------ opsize=1 -----------------------------------
VAR210XX  p lvstk 508      8.01     13.26      0.00     87.00
VAR212XX  alf     508     19.66     22.03      0.00    100.00
VAR214XX  grain   508      3.90      7.65      0.00     80.00
VAR216XX  feed c  508      4.61      6.82      0.00     36.00
VAR218XX  salt    508      4.33      5.78      0.00     80.00
VAR220XX  fert    508      5.70      9.54      0.00     60.00
VAR211XX  vet s   508      6.30      5.68      0.00     47.00
VAR213XX  labor   508      5.97     11.75      0.00     90.00
VAR215XX  fuel    508     16.19     12.59      0.00     80.00
VAR217XX  intst   508      6.26      9.92      0.00     75.00
VAR219XX  prof s  508      1.44      2.58      0.00     15.00
VAR221XX  repair  508      8.60      8.92      0.00     50.00
VAR223XX  other   508      9.03     16.21      0.00     84.00
------------------------------ opsize=2 -----------------------------------
VAR210XX  p lvstk 152     12.47     15.61      0.00    100.00
VAR212XX  alf     152     12.34     15.71      0.00     89.00
VAR214XX  grain   152      2.96      5.77      0.00     38.00
VAR216XX  feed c  152      6.46      7.10      0.00     30.00
VAR218XX  salt    152      3.70      4.17      0.00     25.00
VAR220XX  fert    152      5.60      8.37      0.00     60.00
VAR211XX  vet s   152      5.76      4.67      0.00     25.00
VAR213XX  labor   152     11.96     12.90      0.00     50.00
VAR215XX  fuel    152     13.32     10.45      0.00     60.00
VAR217XX  intst   152      7.47      8.68      0.00     35.00
VAR219XX  prof s  152      2.05      3.30      0.00     20.00
VAR221XX  repair  152      8.47      8.15      0.00     50.00
VAR223XX  other   152      7.44     13.43      0.00     60.00
------------------------------ opsize=3 -----------------------------------
VAR210XX  p lvstk  13      3.31      5.19      0.00     15.00
VAR212XX  alf      13     10.85     17.32      0.00     60.00
VAR214XX  grain    13      3.08      8.55      0.00     30.00
VAR216XX  feed c   13      3.54      4.03      0.00     10.00
VAR218XX  salt     13      5.15      6.52      0.00     25.00
VAR220XX  fert     13      8.38     13.07      0.00     37.00
VAR211XX  vet s    13      5.23      4.21      0.00     15.00
VAR213XX  labor    13     15.69     12.41      0.00     40.00
VAR215XX  fuel     13      7.00      3.94      0.00     15.00
VAR217XX  intst    13      8.15     12.79      0.00     45.00
VAR219XX  prof s   13      5.69     10.46      0.00     40.00
VAR221XX  repair   13      5.23      4.04      0.00     10.00
VAR223XX  other    13     18.69     21.30      0.00     67.00
```

Question 7

Procedure for number employed:

- Calculated from both "no zeros" and "including zeros" datasets.

- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.

- Excluded respondents who did not enter any amount for family or non-family number employed or for any month.

- SAS Means procedure.

Code:

```
*Requires some valid answer for family or non-family labor;
```

```
if var230xx + var231xx + var232xx + var233xx + var234xx + var235xx +
var236xx + var237xx + var238xx + var239xx + var240xx + var241xx +
var242xx + var243xx
+ var244xx + var245xx + var246xx + var247xx + var248xx + var249xx +
var250xx + var251xx + var252xx + var253xx + var254xx + var255xx +
var256xx + var257xx
+ var260xx + var261xx + var262xx + var263xx + var264xx + var265xx +
var266xx + var267xx + var268xx + var269xx + var270xx + var271xx +
var272xx + var273xx
+ var274xx + var275xx + var276xx + var277xx + var278xx + var279xx +
var280xx + var281xx + var282xx + var283xx + var284xx + var285xx +
var286xx + var287xx
= 0 then delete;
```

Output:

```
Variable  Label        N        Mean       Std Dev     Minimum      Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                        Q7- # Family Employed
VAR230XX  # Emp Y/R  688        1.78       1.10        1.00         7.00
VAR244XX  # Emp P/T  285        2.09       1.72        1.00        20.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                  Q7- # Family Employed by Operation Size
------------------------------- opsize=1 -------------------------------
VAR230XX  # Emp Y/R  519        1.63       0.94        1.00         7.00
VAR244XX  # Emp P/T  203        2.00       1.36        1.00         8.00
------------------------------- opsize=2 -------------------------------
VAR230XX  # Emp Y/R  157        2.16       1.36        1.00         7.00
VAR244XX  # Emp P/T   77        2.12       1.40        1.00        10.00
------------------------------- opsize=3 -------------------------------
VAR230XX  # Emp Y/R   12        3.08       1.73        1.00         6.00
VAR244XX  # Emp P/T    5        5.40       8.20        1.00        20.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                     Q7- # Non-Family Employed
VAR260XX  # Emp Y/R  150        2.10       3.27        1.00        25.00
VAR274XX  # Emp P/T  239        2.40       2.93        1.00        20.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                Q7- # Non-Family Employed by Operation Size
------------------------------- opsize=1 -------------------------------
VAR260XX  # Emp Y/R   65        1.26       0.62        1.00         5.00
VAR274XX  # Emp P/T  140        1.99       2.34        1.00        20.00
------------------------------- opsize=2 -------------------------------
VAR260XX  # Emp Y/R   74        1.97       1.92        1.00        12.00
VAR274XX  # Emp P/T   88        2.76       3.39        1.00        20.00
------------------------------- opsize=3 -------------------------------
VAR260XX  # Emp Y/R   11        7.91       9.41        1.00        25.00
VAR274XX  # Emp P/T   11        4.64       4.48        1.00        15.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                        Q7- # Family Employed
VAR230XX  # Emp Y/R  800        1.53       1.19        0.00         7.00
VAR244XX  # Emp P/T  800        0.75       1.44        0.00        20.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                  Q7- # Family Employed by Operation Size
------------------------------- opsize=1 -------------------------------
VAR230XX  # Emp Y/R  596        1.42       1.03        0.00         7.00
VAR244XX  # Emp P/T  596        0.68       1.24        0.00         8.00
------------------------------- opsize=2 -------------------------------
VAR230XX  # Emp Y/R  189        1.79       1.48        0.00         7.00
VAR244XX  # Emp P/T  189        0.86       1.37        0.00        10.00
------------------------------- opsize=3 -------------------------------
VAR230XX  # Emp Y/R   15        2.47       2.00        0.00         6.00
VAR244XX  # Emp P/T   15        1.80       5.12        0.00        20.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                     Q7- # Non-Family Employed
VAR260XX  # Emp Y/R  800        0.39       1.63        0.00        25.00
VAR274XX  # Emp P/T  800        0.72       1.94        0.00        20.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                Q7- # Non-Family Employed by Operation Size
------------------------------- opsize=1 -------------------------------
VAR260XX  # Emp Y/R  596        0.14       0.44        0.00         5.00
VAR274XX  # Emp P/T  596        0.47       1.41        0.00        20.00
------------------------------- opsize=2 -------------------------------
VAR260XX  # Emp Y/R  189        0.77       1.54        0.00        12.00
VAR274XX  # Emp P/T  189        1.29       2.69        0.00        20.00
------------------------------- opsize=3 -------------------------------
VAR260XX  # Emp Y/R   15        5.80       8.74        0.00        25.00
```

```
VAR274XX  # Emp P/T   15          3.40          4.34          0.00          15.00
```

Procedure for part-time or seasonal family by months employed:

- Calculated from both "no zeros" dataset.

- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.

- Excluded respondents who did not give a positive number for number of part-time or seasonal family members employed.

- SAS Means procedure.

Code:

```
*Requires a positive answer to # part time or seasonal family employed;
if var244xx = 0 then delete;
```

Output:

```
Variable  Label     N       Mean        Std Dev      Minimum       Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                 Q7- Part Time or Seasonal Family Labor
VAR245XX  Jan       12       1.00        0.00         1.00          1.00
VAR246XX  Feb       19       1.00        0.00         1.00          1.00
VAR247XX  March     38       1.00        0.00         1.00          1.00
VAR248XX  April     64       1.00        0.00         1.00          1.00
VAR249XX  May       91       1.00        0.00         1.00          1.00
VAR250XX  June      140      1.00        0.00         1.00          1.00
VAR251XX  July      138      1.00        0.00         1.00          1.00
VAR252XX  Aug       134      1.00        0.00         1.00          1.00
VAR253XX  Sept      65       1.00        0.00         1.00          1.00
VAR254XX  Oct       55       1.00        0.00         1.00          1.00
VAR255XX  Nov       28       1.00        0.00         1.00          1.00
VAR256XX  Dec       13       1.00        0.00         1.00          1.00
VAR257XX  All       79       1.00        0.00         1.00          1.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                 Q7- Part Time Family Labor by Operation Size
------------------------------ opsize=1 ------------------------------
VAR245XX  Jan       9        1.00        0.00         1.00          1.00
VAR246XX  Feb       18       1.00        0.00         1.00          1.00
VAR247XX  March     33       1.00        0.00         1.00          1.00
VAR248XX  April     47       1.00        0.00         1.00          1.00
VAR249XX  May       66       1.00        0.00         1.00          1.00
VAR250XX  June      97       1.00        0.00         1.00          1.00
VAR251XX  July      96       1.00        0.00         1.00          1.00
VAR252XX  Aug       93       1.00        0.00         1.00          1.00
VAR253XX  Sept      52       1.00        0.00         1.00          1.00
VAR254XX  Oct       39       1.00        0.00         1.00          1.00
VAR255XX  Nov       17       1.00        0.00         1.00          1.00
VAR256XX  Dec       8        1.00        0.00         1.00          1.00
VAR257XX  All       54       1.00        0.00         1.00          1.00
------------------------------ opsize=2 ------------------------------
VAR245XX  Jan       3        1.00        0.00         1.00          1.00
VAR246XX  Feb       1        1.00        .            1.00          1.00
VAR247XX  March     5        1.00        0.00         1.00          1.00
VAR248XX  April     17       1.00        0.00         1.00          1.00
VAR249XX  May       23       1.00        0.00         1.00          1.00
VAR250XX  June      39       1.00        0.00         1.00          1.00
VAR251XX  July      39       1.00        0.00         1.00          1.00
VAR252XX  Aug       38       1.00        0.00         1.00          1.00
VAR253XX  Sept      13       1.00        0.00         1.00          1.00
VAR254XX  Oct       15       1.00        0.00         1.00          1.00
VAR255XX  Nov       10       1.00        0.00         1.00          1.00
VAR256XX  Dec       5        1.00        0.00         1.00          1.00
VAR257XX  All       24       1.00        0.00         1.00          1.00
------------------------------ opsize=3 ------------------------------
VAR245XX  Jan       0        .           .            .             .
VAR246XX  Feb       0        .           .            .             .
VAR247XX  March     0        .           .            .             .
VAR248XX  April     0        .           .            .             .
VAR249XX  May       2        1.00        0.00         1.00          1.00
VAR250XX  June      4        1.00        0.00         1.00          1.00
VAR251XX  July      3        1.00        0.00         1.00          1.00
```

```
VAR252XX  Aug      3    1.00        0.00        1.00       1.00
VAR253XX  Sept     0    .           .           .          .
VAR254XX  Oct      1    1.00        .           1.00       1.00
VAR255XX  Nov      1    1.00        .           1.00       1.00
VAR256XX  Dec      0    .           .           .          .
VAR257XX  All      1    1.00        .           1.00       1.00
```

Procedure for part-time or seasonal non-family by months employed:

- Calculated from both "no zeros" dataset.

- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.

- Excluded respondents who did not give a positive number for number of part-time or seasonal non-family members employed.

- SAS Means procedure.

Code:

```
*Requires a positive answer to # non-family part-time or seasonal
employed;
if var274xx = 0 then delete;
```

Output:

```
Variable  Label     N      Mean       Std Dev     Minimum     Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
          Q7- Part-time or Seasonal Non-Family Labor All Ranches
VAR275XX  Jan      16     1.00        0.00        1.00       1.00
VAR276XX  Feb      22     1.00        0.00        1.00       1.00
VAR277XX  March    44     1.00        0.00        1.00       1.00
VAR278XX  April    74     1.00        0.00        1.00       1.00
VAR279XX  May      95     1.00        0.00        1.00       1.00
VAR280XX  June     123    1.00        0.00        1.00       1.00
VAR281XX  July     122    1.00        0.00        1.00       1.00
VAR282XX  Aug      111    1.00        0.00        1.00       1.00
VAR283XX  Sept     71     1.13        1.07        1.00       10.00
VAR284XX  Oct      61     1.00        0.00        1.00       1.00
VAR285XX  Nov      24     1.00        0.00        1.00       1.00
VAR286XX  Dec      7      1.00        0.00        1.00       1.00
VAR287XX  All      22     1.00        0.00        1.00       1.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
          Q7- Part-time or Seasonal Non-Family Labor by Operation Size
-------------------------------- opsize=1 --------------------------------
VAR275XX  Jan      11     1.00        0.00        1.00       1.00
VAR276XX  Feb      15     1.00        0.00        1.00       1.00
VAR277XX  March    26     1.00        0.00        1.00       1.00
VAR278XX  April    40     1.00        0.00        1.00       1.00
VAR279XX  May      48     1.00        0.00        1.00       1.00
VAR280XX  June     64     1.00        0.00        1.00       1.00
VAR281XX  July     69     1.00        0.00        1.00       1.00
VAR282XX  Aug      62     1.00        0.00        1.00       1.00
VAR283XX  Sept     34     1.26        1.54        1.00       10.00
VAR284XX  Oct      26     1.00        0.00        1.00       1.00
VAR285XX  Nov      10     1.00        0.00        1.00       1.00
VAR286XX  Dec      5      1.00        0.00        1.00       1.00
VAR287XX  All      11     1.00        0.00        1.00       1.00
-------------------------------- opsize=2 --------------------------------
VAR275XX  Jan      4      1.00        0.00        1.00       1.00
VAR276XX  Feb      6      1.00        0.00        1.00       1.00
VAR277XX  March    17     1.00        0.00        1.00       1.00
VAR278XX  April    31     1.00        0.00        1.00       1.00
VAR279XX  May      42     1.00        0.00        1.00       1.00
VAR280XX  June     50     1.00        0.00        1.00       1.00
VAR281XX  July     45     1.00        0.00        1.00       1.00
VAR282XX  Aug      42     1.00        0.00        1.00       1.00
VAR283XX  Sept     34     1.00        0.00        1.00       1.00
VAR284XX  Oct      29     1.00        0.00        1.00       1.00
VAR285XX  Nov      12     1.00        0.00        1.00       1.00
VAR286XX  Dec      2      1.00        0.00        1.00       1.00
VAR287XX  All      11     1.00        0.00        1.00       1.00
-------------------------------- opsize=3 --------------------------------
VAR275XX  Jan      1      1.00        .           1.00       1.00
VAR276XX  Feb      1      1.00        .           1.00       1.00
```

```
VAR277XX  March   1        1.00        .          1.00        1.00
VAR278XX  April   3        1.00      0.00         1.00        1.00
VAR279XX  May     5        1.00      0.00         1.00        1.00
VAR280XX  June    9        1.00      0.00         1.00        1.00
VAR281XX  July    8        1.00      0.00         1.00        1.00
VAR282XX  Aug     7        1.00      0.00         1.00        1.00
VAR283XX  Sept    3        1.00      0.00         1.00        1.00
VAR284XX  Oct     6        1.00      0.00         1.00        1.00
VAR285XX  Nov     2        1.00      0.00         1.00        1.00
VAR286XX  Dec     0        .          .            .           .
VAR287XX  All     0        .          .            .           .
```

Question 8

Procedure:

- "including zeros" dataset.

- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.

- Excluded respondents who did not enter any positive amount for any feed source.

- Limited variable for months fed to a number between 1 and 12.

- SAS Means procedure.

Code:

```
*deletes respondents who did not enter amounts for any feed source;
var320x1 = var290xx + var294xx + var298xx + var302xx + var306xx +
var310xx + var314xx + var319xx
+ var291xx + var295xx + var299xx + var303xx + var307xx + var311xx +
var315xx + var320xx;
if var320x1 = 0 then delete;
*deletes responses to months that are not 1-12;
if var292xx = 0 then var292xx = .;if var296xx = 0 then var296xx = .;
if var300xx = 0 then var300xx = .;if var304xx = 0 then var304xx = .;
if var308xx = 0 then var308xx = .;if var312xx = 0 then var312xx = .;
if var316xx = 0 then var316xx = .;if var321xx = 0 then var321xx = .;
if var293xx = 0 then var293xx = .;if var297xx = 0 then var297xx = .;
if var301xx = 0 then var301xx = .;if var305xx = 0 then var305xx = .;
if var309xx = 0 then var309xx = .;if var313xx = 0 then var313xx = .;
if var317xx = 0 then var317xx = .;if var322xx = 0 then var322xx = .;
```

Output:

```
Variable  Label   N        Mean       Std Dev     Minimum      Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
          On Farm Sources All Ranches
VAR290XX  hay    733       216.53     1151.48      0.00      30000.00
VAR294XX  alf    733       122.89      303.77      0.00       3000.00
VAR298XX  prot   733         1.26       10.23      0.00        150.00
VAR302XX  conc   733         0.42        4.41      0.00        100.00
VAR306XX  corn   733         6.87       39.12      0.00        700.00
VAR310XX  crop   733        60.75      293.68      0.00       4500.00
VAR314XX  grn    733       275.97     2012.81      0.00      35000.00
VAR319XX  othr   733        28.99      350.28      0.00       6000.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
               On Farm Sources By Operation Size                    2
--------------------------------- opsize=1 ---------------------------------
VAR290XX  hay    542        94.35      176.78      0.00       1500.00
VAR294XX  alf    542        94.62      236.50      0.00       3000.00
VAR298XX  prot   542         0.66        7.03      0.00        150.00
VAR302XX  conc   542         0.26        1.88      0.00         24.00
VAR306XX  corn   542         5.90       28.58      0.00        220.00
VAR310XX  crop   542        31.23      121.76      0.00       1300.00
VAR314XX  grn    542       125.53      938.31      0.00      15000.00
VAR319XX  othr   542        25.26      311.67      0.00       5600.00
```

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```
---------------------------------- opsize=2 ----------------------------------
    VAR290XX   hay    176      414.03      517.05        0.00      2500.00
    VAR294XX   alf    176      194.85      403.80        0.00      2500.00
    VAR298XX   prot   176        2.67       15.04        0.00       150.00
    VAR302XX   conc   176        0.94        8.37        0.00       100.00
    VAR306XX   corn   176        5.91       32.78        0.00       300.00
    VAR310XX   crop   176      118.18      409.11        0.00      3000.00
    VAR314XX   grn    176      557.10     2678.54        0.00     20000.00
    VAR319XX   othr   176       42.95      461.11        0.00      6000.00
---------------------------------- opsize=3 ----------------------------------
    VAR290XX   hay     15     2314.07     7680.80        0.00     30000.00
    VAR294XX   alf     15      300.07      703.88        0.00      2700.00
    VAR298XX   prot    15        6.73       25.80        0.00       100.00
    VAR302XX   conc    15        0.00        0.00        0.00         0.00
    VAR306XX   corn    15       53.33      180.74        0.00       700.00
    VAR310XX   crop    15      453.33     1266.53        0.00      4500.00
    VAR314XX   grn     15     2413.33     9020.13        0.00     35000.00
    VAR319XX   othr    15        0.00        0.00        0.00         0.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                       Off Farm Sources All Ranches
    VAR291XX   hay    733       40.69      129.68        0.00      2000.00
    VAR295XX   alf    733       57.26      127.29        0.00      1200.00
    VAR299XX   prot   733       18.32      136.19        0.00      2600.00
    VAR303XX   conc   733        5.52       24.10        0.00       300.00
    VAR307XX   corn   733        6.82       96.81        0.00      2500.00
    VAR311XX   crop   733       12.36      112.15        0.00      2100.00
    VAR315XX   grn    733     1566.54    36956.42        0.00   1000000.00
    VAR320XX   othr   733        6.04       65.23        0.00      1200.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                    Off Farm Sources By Operation Size
---------------------------------- opsize=1 ----------------------------------
    VAR291XX   hay    542       30.27       69.52        0.00       700.00
    VAR295XX   alf    542       38.51       74.80        0.00       500.00
    VAR299XX   prot   542       16.16      155.68        0.00      2600.00
    VAR303XX   conc   542        3.05       13.46        0.00       100.00
    VAR307XX   corn   542        8.12      111.77        0.00      2500.00
    VAR311XX   crop   542        5.18       49.43        0.00       640.00
    VAR315XX   grn    542      170.41     1307.73        0.00     24000.00
    VAR320XX   othr   542        4.39       50.95        0.00      1000.00
---------------------------------- opsize=2 ----------------------------------
    VAR291XX   hay    176       75.41      231.76        0.00      2000.00
    VAR295XX   alf    176      106.26      201.24        0.00      1200.00
    VAR299XX   prot   176       21.38       37.27        0.00       200.00
    VAR303XX   conc   176       11.28       35.89        0.00       300.00
    VAR307XX   corn   176        3.41       23.66        0.00       200.00
    VAR311XX   crop   176       28.73      191.20        0.00      2100.00
    VAR315XX   grn    176      317.68     1834.68        0.00     20000.00
    VAR320XX   othr   176       11.65       98.64        0.00      1200.00
---------------------------------- opsize=3 ----------------------------------
    VAR291XX   hay     15       10.00       28.03        0.00       100.00
    VAR295XX   alf     15      160.00      264.03        0.00       900.00
    VAR299XX   prot    15       60.60      116.87        0.00       400.00
    VAR303XX   conc    15       27.00       78.19        0.00       300.00
    VAR307XX   corn    15        0.00        0.00        0.00         0.00
    VAR311XX   crop    15       80.00      309.84        0.00      1200.00
    VAR315XX   grn     15    66666.67   258198.89        0.00   1000000.00
    VAR320XX   othr    15        0.00        0.00        0.00         0.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                        Start Feeding All Ranches
    VAR292XX   hay    530        8.98        4.21        1.00        12.00
    VAR296XX   alf    464        8.19        4.45        1.00        12.00
    VAR300XX   prot   300        8.09        4.52        1.00        12.00
    VAR304XX   conc   129        8.06        4.36        1.00        12.00
    VAR308XX   corn    47       10.38        2.58        1.00        12.00
    VAR312XX   crop    89        9.44        2.59        1.00        12.00
    VAR316XX   grn    120        8.57        3.95        1.00        12.00
    VAR321XX   othr    41        7.39        4.28        1.00        12.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                     Start Feeding By Operation Size
---------------------------------- opsize=1 ----------------------------------
    VAR292XX   hay    380        9.00        4.15        1.00        12.00
    VAR296XX   alf    346        8.48        4.29        1.00        12.00
    VAR300XX   prot   210        8.15        4.46        1.00        12.00
    VAR304XX   conc    92        7.95        4.38        1.00        12.00
    VAR308XX   corn    34       10.74        1.88        1.00        12.00
    VAR312XX   crop    53        9.42        2.59        1.00        12.00
    VAR316XX   grn     90        8.42        4.05        1.00        12.00
    VAR321XX   othr    29        7.66        4.31        1.00        12.00
---------------------------------- opsize=2 ----------------------------------
    VAR292XX   hay    139        8.99        4.36        1.00        12.00
    VAR296XX   alf    106        7.51        4.77        1.00        12.00
```

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```
VAR300XX   prot    82      8.07      4.67      1.00      12.00
VAR304XX   conc    34      8.09      4.45      1.00      12.00
VAR308XX   corn    11     10.18      3.09      1.00      12.00
VAR312XX   crop    33      9.39      2.74      1.00      12.00
VAR316XX   grn     27      9.30      3.54      1.00      12.00
VAR321XX   othr    12      6.75      4.33      1.00      12.00
-------------------------------- opsize=3 --------------------------------
VAR292XX   hay     11      8.27      4.52      1.00      12.00
VAR296XX   alf     12      5.92      4.93      1.00      12.00
VAR300XX   prot     8      6.75      4.86      1.00      12.00
VAR304XX   conc     3     11.33      0.58     11.00      12.00
VAR308XX   corn     2      5.50      6.36      1.00      10.00
VAR312XX   crop     3     10.33      0.58     10.00      11.00
VAR316XX   grn      3      6.33      4.73      1.00      10.00
VAR321XX   othr     0        .         .         .          .
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                      Stop Feeding All Ranches
VAR293XX   hay    532      4.84      1.48      1.00      12.00
VAR297XX   alf    460      4.88      1.48      1.00      12.00
VAR301XX   prot   293      5.68      2.98      1.00      12.00
VAR305XX   conc   131      6.16      3.33      1.00      12.00
VAR309XX   corn    46      4.09      3.35      1.00      12.00
VAR313XX   crop    87      6.36      4.21      1.00      12.00
VAR317XX   grn    120      5.83      3.17      1.00      12.00
VAR322XX   othr    39      5.87      3.04      2.00      12.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                  Stop Feeding By Operation Size
-------------------------------- opsize=1 --------------------------------
VAR293XX   hay    381      4.88      1.56      1.00      12.00
VAR297XX   alf    342      4.97      1.53      1.00      12.00
VAR301XX   prot   204      5.92      3.11      1.00      12.00
VAR305XX   conc    93      6.33      3.37      1.00      12.00
VAR309XX   corn    33      3.91      2.91      1.00      12.00
VAR313XX   crop    51      5.76      3.94      1.00      12.00
VAR317XX   grn     90      5.81      3.26      1.00      12.00
VAR322XX   othr    28      6.07      3.39      2.00      12.00
-------------------------------- opsize=2 --------------------------------
VAR293XX   hay    140      4.77      1.27      2.00      12.00
VAR297XX   alf    106      4.69      1.35      1.00      12.00
VAR301XX   prot    81      5.23      2.64      2.00      12.00
VAR305XX   conc    35      6.00      3.19      1.00      12.00
VAR309XX   corn    11      4.73      4.73      1.00      12.00
VAR313XX   crop    33      7.70      4.36      1.00      12.00
VAR317XX   grn     27      5.70      2.84      3.00      12.00
VAR322XX   othr    11      5.36      1.91      4.00      10.00
-------------------------------- opsize=3 --------------------------------
VAR293XX   hay    11      4.55      1.04      2.00       6.00
VAR297XX   alf    12      4.25      0.87      2.00       5.00
VAR301XX   prot    8      4.00      1.31      1.00       5.00
VAR305XX   conc    3      2.67      2.08      1.00       5.00
VAR309XX   corn    2      3.50      2.12      2.00       5.00
VAR313XX   crop    3      1.67      0.58      1.00       2.00
VAR317XX   grn     3      7.67      3.79      5.00      12.00
VAR322XX   othr    0        .         .         .          .
```

Question 9

Procedure:

- "including zeros" dataset.

- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.

- SAS Means procedure.

Output:

```
Variable   Label        N       Mean     Std Dev    Minimum      Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
               Typical Number Owned All Ranches
VAR330XX   bred cow    814     220.53     364.78     20.00     6891.00
VAR333XX   str calf    814      78.97     215.15      0.00     3000.00
VAR336XX   hfr calf    814      76.71     202.11      0.00     4000.00
VAR339XX   repl hfr    814      31.20      70.94      0.00     1000.00
VAR342XX   ret yrlg    814      18.82      93.49      0.00     1055.00
```

VAR345XX	fat cow	814	0.72	10.99	0.00	300.00
VAR348XX	bull	814	9.80	17.49	0.00	220.00
VAR351XX	horse	814	7.75	18.94	0.00	300.00
VAR355XX	other	814	31.65	503.45	0.00	10000.00

ƒƒ
Typical Number Owned By Operation Size
------------------------------------ opsize=1 ------------------------------------

VAR330XX	bred cow	610	105.69	74.30	20.00	298.00
VAR333XX	str calf	610	35.53	110.06	0.00	2500.00
VAR336XX	hfr calf	610	35.46	66.87	0.00	1110.00
VAR339XX	repl hfr	610	14.89	27.75	0.00	500.00
VAR342XX	ret yrlg	610	6.80	44.71	0.00	900.00
VAR345XX	fat cow	610	0.70	12.31	0.00	300.00
VAR348XX	bull	610	4.89	9.06	0.00	150.00
VAR351XX	horse	610	5.00	10.66	0.00	150.00
VAR355XX	other	610	3.55	24.61	0.00	350.00

------------------------------------ opsize=2 ------------------------------------

VAR330XX	bred cow	189	455.83	161.69	300.00	950.00
VAR333XX	str calf	189	156.24	249.51	0.00	3000.00
VAR336XX	hfr calf	189	136.56	114.11	0.00	470.00
VAR339XX	repl hfr	189	63.52	89.68	0.00	1000.00
VAR342XX	ret yrlg	189	45.62	135.53	0.00	1055.00
VAR345XX	fat cow	189	0.85	5.58	0.00	55.00
VAR348XX	bull	189	19.73	12.80	0.00	70.00
VAR351XX	horse	189	13.43	24.40	0.00	200.00
VAR355XX	other	189	71.96	749.20	0.00	10000.00

------------------------------------ opsize=3 ------------------------------------

VAR330XX	bred cow	15	1926.07	1642.30	1000.00	6891.00
VAR333XX	str calf	15	872.33	698.47	0.00	2900.00
VAR336XX	hfr calf	15	1000.33	983.00	0.00	4000.00
VAR339XX	repl hfr	15	287.47	233.91	0.00	862.00
VAR342XX	ret yrlg	15	170.00	365.38	0.00	1000.00
VAR345XX	fat cow	15	0.00	0.00	0.00	0.00
VAR348XX	bull	15	84.80	59.87	0.00	220.00
VAR351XX	horse	15	47.73	73.64	0.00	300.00
VAR355XX	other	15	666.67	2581.99	0.00	10000.00

ƒƒ
Typical Number of Months Owned All Ranches

VAR331XX	bred cow	814	11.27	2.73	0.00	12.00
VAR334XX	str calf	814	5.10	4.52	0.00	12.00
VAR337XX	hfr calf	814	5.81	4.70	0.00	12.00
VAR340XX	repl hfr	814	7.26	5.78	0.00	12.00
VAR343XX	ret yrlg	814	1.57	3.95	0.00	12.00
VAR346XX	fat cow	814	0.19	1.39	0.00	12.00
VAR349XX	bull	814	8.97	5.16	0.00	12.00
VAR352XX	horse	814	7.44	5.77	0.00	12.00
VAR356XX	other	814	0.55	2.46	0.00	12.00

ƒƒ
Typical Number of Months Owned By Operation Size
------------------------------------ opsize=1 ------------------------------------

VAR331XX	bred cow	610	11.19	2.87	0.00	12.00
VAR334XX	str calf	610	4.85	4.49	0.00	12.00
VAR337XX	hfr calf	610	5.58	4.75	0.00	12.00
VAR340XX	repl hfr	610	7.00	5.85	0.00	12.00
VAR343XX	ret yrlg	610	1.37	3.75	0.00	12.00
VAR346XX	fat cow	610	0.18	1.36	0.00	12.00
VAR349XX	bull	610	8.71	5.31	0.00	12.00
VAR352XX	horse	610	6.97	5.87	0.00	12.00
VAR356XX	other	610	0.54	2.43	0.00	12.00

------------------------------------ opsize=2 ------------------------------------

VAR331XX	bred cow	189	11.50	2.30	0.00	12.00
VAR334XX	str calf	189	5.67	4.54	0.00	12.00
VAR337XX	hfr calf	189	6.42	4.52	0.00	12.00
VAR340XX	repl hfr	189	7.92	5.55	0.00	12.00
VAR343XX	ret yrlg	189	2.13	4.42	0.00	12.00
VAR346XX	fat cow	189	0.22	1.53	0.00	12.00
VAR349XX	bull	189	9.78	4.60	0.00	12.00
VAR352XX	horse	189	8.78	5.26	0.00	12.00
VAR356XX	other	189	0.56	2.52	0.00	12.00

------------------------------------ opsize=3 ------------------------------------

VAR331XX	bred cow	15	11.80	0.77	9.00	12.00
VAR334XX	str calf	15	7.87	3.70	0.00	12.00
VAR337XX	hfr calf	15	7.40	4.22	0.00	12.00
VAR340XX	repl hfr	15	9.60	4.97	0.00	12.00
VAR343XX	ret yrlg	15	2.40	4.97	0.00	12.00
VAR346XX	fat cow	15	0.00	0.00	0.00	0.00
VAR349XX	bull	15	9.60	4.97	0.00	12.00
VAR352XX	horse	15	9.60	4.97	0.00	12.00
VAR356XX	other	15	0.80	3.10	0.00	12.00

ƒƒ
Typical Number of Months on Feed All Ranches

```
VAR332XX    bred cow    814         4.89        2.22        0.00        12.00
VAR335XX    str calf    814         1.56        2.52        0.00        12.00
VAR338XX    hfr calf    814         1.97        2.75        0.00        12.00
VAR341XX    repl hfr    814         3.42        3.14        0.00        12.00
VAR344XX    ret yrlg    814         0.77        2.10        0.00        12.00
VAR347XX    fat cow     814         0.11        0.80        0.00        12.00
VAR350XX    bull        814         3.85        2.95        0.00        12.00
VAR353XX    horse       814         3.02        3.46        0.00        12.00
VAR357XX    other       814         0.37        1.75        0.00        12.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                 Typical Number of Months on Feed By Operation Size
-------------------------------------- opsize=1 -------------------------------------
VAR332XX    bred cow    610         5.06        2.30        0.00        12.00
VAR335XX    str calf    610         1.51        2.44        0.00        12.00
VAR338XX    hfr calf    610         1.98        2.78        0.00        12.00
VAR341XX    repl hfr    610         3.38        3.20        0.00        12.00
VAR344XX    ret yrlg    610         0.65        1.93        0.00        12.00
VAR347XX    fat cow     610         0.11        0.75        0.00         9.00
VAR350XX    bull        610         3.82        3.07        0.00        12.00
VAR353XX    horse       610         2.92        3.50        0.00        12.00
VAR357XX    other       610         0.39        1.80        0.00        12.00
-------------------------------------- opsize=2 -------------------------------------
VAR332XX    bred cow    189         4.44        1.87        0.00        10.00
VAR335XX    str calf    189         1.65        2.64        0.00        12.00
VAR338XX    hfr calf    189         1.97        2.62        0.00        12.00
VAR341XX    repl hfr    189         3.50        2.96        0.00        12.00
VAR344XX    ret yrlg    189         1.13        2.56        0.00        12.00
VAR347XX    fat cow     189         0.12        0.96        0.00        12.00
VAR350XX    bull        189         3.93        2.53        0.00        12.00
VAR353XX    horse       189         3.24        3.29        0.00        12.00
VAR357XX    other       189         0.35        1.62        0.00        12.00
-------------------------------------- opsize=3 -------------------------------------
VAR332XX    bred cow     15         3.73        2.19        0.00         7.00
VAR335XX    str calf     15         2.20        3.71        0.00        12.00
VAR338XX    hfr calf     15         1.67        3.37        0.00        12.00
VAR341XX    repl hfr     15         4.33        3.11        0.00        12.00
VAR344XX    ret yrlg     15         0.87        1.88        0.00         6.00
VAR347XX    fat cow      15         0.00        0.00        0.00         0.00
VAR350XX    bull         15         4.13        3.16        0.00        12.00
VAR353XX    horse        15         4.07        3.95        0.00        12.00
VAR357XX    other        15         0.20        0.77        0.00         3.00
```

Question 10

Procedure:

- "including zeros" dataset.

- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.

- Excluded percentages that did not sum to 100%.

- Aggregated variable for all non-traditional market methods.

- Created variables to calculate frequencies for non-traditional market methods.

- SAS Means procedure.

Code:

```
*excludes respondents with responses that did not sum to 100;
var371x1 = var360xx + var361xx + var362xx + var363xx + var364xx +
var365xx + var366xx +
var367xx + var368xx + var370xx + var371xx;
if var371x1 ne 100 then delete;

*Sum of non-traditional market methods;
var371x2 = var361xx + var363xx + var365xx + var366xx + var367xx +
var368xx + var371xx;
```

```
*to calculate frequency of non-traditional market;
if var361xx gt 0 then var361x1 = 1;
if var363xx gt 0 then var363x1 = 1;
if var365xx gt 0 then var365x1 = 1;
if var366xx gt 0 then var366x1 = 1;
if var367xx gt 0 then  var367x1 = 1;
if var368xx gt 0 then  var368x1 = 1;
if var371xx gt 0 then  var371x3 = 1;
```

Output:

```
Variable    Label            N        Mean      Std Dev    Minimum      Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                    Percent Gross Annual Sales- All Ranches
VAR140XX    Cow/Calf        803       81.77      31.27      0.00         100.00
VAR141XX    Backgnd         803        1.71      10.20      0.00         100.00
VAR142XX    Feedlot         803        1.53       9.87      0.00         100.00
VAR143XX    Sheep           803        1.64       8.48      0.00          76.00
VAR144XX    Cow/Yrlg        803        7.87      23.27      0.00         100.00
VAR145XX    Club Clv        803        0.27       3.80      0.00         100.00
VAR146XX    Repl Heif       803        1.41       6.41      0.00          90.00
VAR147XX    Horses          803        0.85       4.74      0.00          60.00
VAR148XX    Buffalo         803        0.00       0.00      0.00           0.00
VAR149XX    GOATS           803        0.01       0.26      0.00           5.00
VAR150XX    Dairy           803        0.05       1.08      0.00          30.00
VAR151XX    Hogs            803        0.18       2.94      0.00          75.00
VAR153XX    Other           803        2.71      12.62      0.00         100.00
var153x2    Sum Non-Beef    803        2.73      10.14      0.00          76.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                    Percent Gross Annual Sales- By Operation Size
-------------------------------------- opsize=1 --------------------------------------
VAR140XX    Cow/Calf        603       83.53      29.76      0.00         100.00
VAR141XX    Backgnd         603        1.65      10.12      0.00         100.00
VAR142XX    Feedlot         603        1.38       9.65      0.00         100.00
VAR143XX    Sheep           603        1.41       7.66      0.00          60.00
VAR144XX    Cow/Yrlg        603        5.96      20.13      0.00         100.00
VAR145XX    Club Clv        603        0.35       4.38      0.00         100.00
VAR146XX    Repl Heif       603        1.27       5.74      0.00          60.00
VAR147XX    Horses          603        0.83       4.74      0.00          60.00
VAR148XX    Buffalo         603        0.00       0.00      0.00           0.00
VAR149XX    GOATS           603        0.02       0.29      0.00           5.00
VAR150XX    Dairy           603        0.06       1.24      0.00          30.00
VAR151XX    Hogs            603        0.23       3.39      0.00          75.00
VAR153XX    Other           603        3.31      14.17      0.00         100.00
var153x2    Sum Non-Beef    603        2.55       9.63      0.00          75.00
-------------------------------------- opsize=2 --------------------------------------
VAR140XX    Cow/Calf        185       76.06      35.60      0.00         100.00
VAR141XX    Backgnd         185        1.89      10.67      0.00         100.00
VAR142XX    Feedlot         185        2.16      10.93      0.00         100.00
VAR143XX    Sheep           185        2.28      10.51      0.00          76.00
VAR144XX    Cow/Yrlg        185       13.94      30.55      0.00         100.00
VAR145XX    Club Clv        185        0.01       0.15      0.00           2.00
VAR146XX    Repl Heif       185        1.88       8.36      0.00          90.00
VAR147XX    Horses          185        0.82       4.62      0.00          50.00
VAR148XX    Buffalo         185        0.00       0.00      0.00           0.00
VAR149XX    GOATS           185        0.01       0.15      0.00           2.00
VAR150XX    Dairy           185        0.01       0.15      0.00           2.00
VAR151XX    Hogs            185        0.00       0.00      0.00           0.00
VAR153XX    Other           185        0.95       5.65      0.00          60.00
var153x2    Sum Non-Beef    185        3.12      11.48      0.00          76.00
-------------------------------------- opsize=3 --------------------------------------
VAR140XX    Cow/Calf         15       81.47      26.69      0.00         100.00
VAR141XX    Backgnd          15        2.00       7.75      0.00          30.00
VAR142XX    Feedlot          15        0.00       0.00      0.00           0.00
VAR143XX    Sheep            15        3.00      11.62      0.00          45.00
VAR144XX    Cow/Yrlg         15        9.60      26.11      0.00          99.00
VAR145XX    Club Clv         15        0.07       0.26      0.00           1.00
VAR146XX    Repl Heif        15        1.40       3.50      0.00          10.00
VAR147XX    Horses           15        2.13       6.46      0.00          25.00
VAR148XX    Buffalo          15        0.00       0.00      0.00           0.00
VAR149XX    GOATS            15        0.00       0.00      0.00           0.00
VAR150XX    Dairy            15        0.00       0.00      0.00           0.00
VAR151XX    Hogs             15        0.00       0.00      0.00           0.00
VAR153XX    Other            15        0.33       1.29      0.00           5.00
var153x2    Sum Non-Beef     15        5.13      12.77      0.00          45.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
```

85

frequency of non-beef livestock- All Ranches

var143x1		49	1.00	0.00	1.00	1.00
var147x1		62	1.00	0.00	1.00	1.00
var148x1		0	.	.	.	.
var149x1		3	1.00	0.00	1.00	1.00
var150x1		3	1.00	0.00	1.00	1.00
var151x1		6	1.00	0.00	1.00	1.00

ƒƒ

frequency of non-beef livestock- By Operation Size

-- opsize=1 --

var143x1		34	1.00	0.00	1.00	1.00
var147x1		45	1.00	0.00	1.00	1.00
var148x1		0	.	.	.	.
var149x1		2	1.00	0.00	1.00	1.00
var150x1		2	1.00	0.00	1.00	1.00
var151x1		6	1.00	0.00	1.00	1.00

-- opsize=2 --

var143x1		14	1.00	0.00	1.00	1.00
var147x1		13	1.00	0.00	1.00	1.00
var148x1		0	.	.	.	.
var149x1		1	1.00	.	1.00	1.00
var150x1		1	1.00	.	1.00	1.00
var151x1		0	.	.	.	.

-- opsize=3 --

var143x1		1	1.00	.	1.00	1.00
var147x1		4	1.00	0.00	1.00	1.00
var148x1		0	.	.	.	.
var149x1		0	.	.	.	.
var150x1		0	.	.	.	.
var151x1		0	.	.	.	.

ƒƒ

Calf Sale Methods- All Ranches

VAR360XX	sale brn	805	53.58	45.33	0.00	100.00
VAR362XX	video	805	13.75	31.68	0.00	100.00
VAR364XX	pvt	805	26.62	40.24	0.00	100.00
VAR366XX	fwd cnt	805	1.02	9.82	0.00	100.00
VAR368XX	future	805	0.13	2.50	0.00	50.00
VAR371XX	web	805	0.86	8.26	0.00	100.00
VAR361XX	ret-lve	805	1.88	11.92	0.00	100.00
VAR363XX	ret-grd	805	0.99	8.37	0.00	100.00
VAR365XX	ret-nat	805	0.55	6.26	0.00	100.00
VAR367XX	ret-org	805	0.19	3.94	0.00	100.00
VAR370XX	other	805	0.44	5.62	0.00	100.00
var371x2	Sum small	805	5.61	20.95	0.00	100.00

ƒƒ

Calf Sale Methods- By Operation Size

-------------------------------- opsize=1 ----------------------------------

VAR360XX	sale brn	603	61.05	44.66	0.00	100.00
VAR362XX	video	603	9.99	27.88	0.00	100.00
VAR364XX	pvt	603	23.71	38.83	0.00	100.00
VAR366XX	fwd cnt	603	1.30	11.24	0.00	100.00
VAR368XX	future	603	0.08	2.04	0.00	50.00
VAR371XX	web	603	0.60	6.72	0.00	100.00
VAR361XX	ret-lve	603	1.39	10.48	0.00	100.00
VAR363XX	ret-grd	603	0.53	6.20	0.00	100.00
VAR365XX	ret-nat	603	0.61	6.93	0.00	100.00
VAR367XX	ret-org	603	0.17	4.07	0.00	100.00
VAR370XX	other	603	0.58	6.48	0.00	100.00
var371x2	Sum small	603	4.67	19.33	0.00	100.00

-------------------------------- opsize=2 ----------------------------------

VAR360XX	sale brn	187	32.21	40.04	0.00	100.00
VAR362XX	video	187	25.56	39.33	0.00	100.00
VAR364XX	pvt	187	34.15	42.87	0.00	100.00
VAR366XX	fwd cnt	187	0.19	2.56	0.00	35.00
VAR368XX	future	187	0.29	3.67	0.00	50.00
VAR371XX	web	187	1.78	12.16	0.00	100.00
VAR361XX	ret-lve	187	2.80	13.88	0.00	100.00
VAR363XX	ret-grd	187	2.30	12.78	0.00	100.00
VAR365XX	ret-nat	187	0.39	3.75	0.00	50.00
VAR367XX	ret-org	187	0.27	3.66	0.00	50.00
VAR370XX	other	187	0.05	0.73	0.00	10.00
var371x2	Sum small	187	8.02	24.10	0.00	100.00

-------------------------------- opsize=3 ----------------------------------

VAR360XX	sale brn	15	19.67	35.07	0.00	100.00
VAR362XX	video	15	17.33	34.17	0.00	100.00
VAR364XX	pvt	15	49.67	45.22	0.00	100.00
VAR366XX	fwd cnt	15	0.00	0.00	0.00	0.00
VAR368XX	future	15	0.00	0.00	0.00	0.00
VAR371XX	web	15	0.00	0.00	0.00	0.00
VAR361XX	ret-lve	15	10.00	28.03	0.00	100.00
VAR363XX	ret-grd	15	3.33	12.91	0.00	50.00

```
VAR365XX   ret-nat       15        0.00          0.00           0.00           0.00
VAR367XX   ret-org       15        0.00          0.00           0.00           0.00
VAR370XX   other         15        0.00          0.00           0.00           0.00
var371x2   Sum small     15       13.33         35.19           0.00         100.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                  Frequency of non-traditional markets- All Ranches
var361x1      34           1.00          0.00           1.00           1.00
var363x1      20           1.00          0.00           1.00           1.00
var365x1      20           1.00          0.00           1.00           1.00
var366x1       9           1.00          0.00           1.00           1.00
var367x1       2           1.00          0.00           1.00           1.00
var368x1       3           1.00          0.00           1.00           1.00
var371x3      11           1.00          0.00           1.00           1.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                 Frequency of non-traditional markets- By Operation Size
-------------------------------- opsize=1 ----------------------------------
var361x1      21           1.00          0.00           1.00           1.00
var363x1      10           1.00          0.00           1.00           1.00
var365x1      12           1.00          0.00           1.00           1.00
var366x1       8           1.00          0.00           1.00           1.00
var367x1       1           1.00            .            1.00           1.00
var368x1       1           1.00            .            1.00           1.00
var371x3       7           1.00          0.00           1.00           1.00
-------------------------------- opsize=2 ----------------------------------
var361x1      11           1.00          0.00           1.00           1.00
var363x1       9           1.00          0.00           1.00           1.00
var365x1       8           1.00          0.00           1.00           1.00
var366x1       1           1.00            .            1.00           1.00
var367x1       1           1.00            .            1.00           1.00
var368x1       2           1.00          0.00           1.00           1.00
var371x3       4           1.00          0.00           1.00           1.00
-------------------------------- opsize=3 ----------------------------------
var361x1       2           1.00          0.00           1.00           1.00
var363x1       1           1.00            .            1.00           1.00
var365x1       0             .            .              .              .
var366x1       0             .            .              .              .
var367x1       0             .            .              .              .
var368x1       0             .            .              .              .
var371x3       0             .            .              .              .
```

Question 11

Procedure:

- "including zeros" dataset.

- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.

- Required variables for months to be a number between 1 and 12.

- Eliminated cattle weights below 100lbs for calves and below 500lbs for adult cattle classes.

- SAS Means procedure.

Code:

```
*forces months to a number between 1 and 12;
if var381xx = 0 then var381xx = .;
*sets min cattle weights at 500lbs for adult cattle;
*sets minimum cattle weights at 100lbs for calves;
if var380xx < 100 then var380xx =.;
if var382xx < 100 then var382xx = .;
if var383xx = 0 then var383xx = .;
if var384xx < 100 then var384xx = .;
if var385xx = 0 then var385xx = .;
if var386xx < 100 then var386xx = .;
if var387xx = 0 then var387xx = .;
```

```
if var388xx < 500 then var388xx = .;
if var389xx = 0 then var389xx = .;
if var390xx < 500 then var390xx = .;
if var391xx = 0 then var391xx = .;
if var392xx < 500 then var392xx = .;
if var393xx = 0 then var393xx = .;
if var394xx < 500 then var394xx = .;
if var395xx = 0 then var395xx = .;
if var396xx < 500 then var396xx = .;
if var397xx = 0 then var397xx = .;
if var399xx = 0 then var399xx = .;
if var400xx = 0 then var400xx = .;
```

Output:

```
Variable   Label       N        Mean       Std Dev     Minimum      Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                         Sale Weight- All Ranches
VAR380XX   str calf    715      581.64       94.06      320.00      1250.00
VAR382XX   hfr calf    685      546.94       87.56      300.00      1150.00
VAR384XX   bkgd calf    52      715.77      172.38      400.00      1300.00
VAR386XX   lg yrlng     97      898.39      158.07      300.00      1400.00
VAR388XX   finishd      47     1227.34      119.00      900.00      1500.00
VAR390XX   repl hfr    208      845.16      177.41      500.00      1200.00
VAR392XX   brd cow     300     1198.83      118.57      800.00      1800.00
VAR394XX   fat cow      85     1258.75      156.38      950.00      1700.00
VAR396XX   bull        376     1799.06      260.19      950.00      3000.00
VAR399XX   other        55     1063.47      409.67       12.00      2000.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                         Sale Month- All Ranches
VAR381XX   str calf    685        9.30        2.87        1.00        12.00
VAR383XX   hfr calf    639        9.05        3.14        1.00        12.00
VAR385XX   bkgd calf    44        5.14        4.10        1.00        12.00
VAR387XX   lg yrlng     84        8.20        2.40        1.00        12.00
VAR389XX   finishd      39        6.26        2.82        1.00        12.00
VAR391XX   repl hfr     63        7.27        3.99        1.00        12.00
VAR393XX   brd cow     116        8.32        3.81        1.00        12.00
VAR395XX   fat cow      76        7.95        3.39        1.00        12.00
VAR397XX   bull        206        8.17        3.14        1.00        12.00
VAR400XX   other        51        7.88        3.36        1.00        12.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                      Sale Weight by Operation Size
------------------------------- opsize=1 -------------------------------------
VAR380XX   str calf    540      590.79       99.22      320.00      1250.00
VAR382XX   hfr calf    520      554.98       91.80      300.00      1150.00
VAR384XX   bkgd calf    37      713.92      164.01      450.00      1300.00
VAR386XX   lg yrlng     54      910.93      194.55      300.00      1400.00
VAR388XX   finishd      32     1215.78      139.95      900.00      1500.00
VAR390XX   repl hfr    146      824.42      184.98      500.00      1200.00
VAR392XX   brd cow     214     1200.18      131.25      800.00      1800.00
VAR394XX   fat cow      64     1261.31      166.53      950.00      1700.00
VAR396XX   bull        262     1795.78      277.41      950.00      3000.00
VAR399XX   other        39     1007.21      399.64       12.00      1500.00
------------------------------- opsize=2 -------------------------------------
VAR380XX   str calf    161      555.30       70.82      350.00       850.00
VAR382XX   hfr calf    151      524.19       68.25      350.00       750.00
VAR384XX   bkgd calf    12      658.75      115.74      400.00       775.00
VAR386XX   lg yrlng     37      886.59       96.05      600.00      1050.00
VAR388XX   finishd      13     1252.31       46.40     1150.00      1300.00
VAR390XX   repl hfr     55      898.22      146.23      550.00      1200.00
VAR392XX   brd cow      77     1196.56       80.19      900.00      1400.00
VAR394XX   fat cow      19     1258.95      127.23     1050.00      1600.00
VAR396XX   bull        102     1807.84      213.38     1200.00      2200.00
VAR399XX   other        16     1200.63      413.87      110.00      2000.00
------------------------------- opsize=3 -------------------------------------
VAR380XX   str calf     14      531.64       35.28      490.00       618.00
VAR382XX   hfr calf     14      494.00       39.97      425.00       565.00
VAR384XX   bkgd calf     3      966.67      292.97      750.00      1300.00
VAR386XX   lg yrlng      6      858.33       86.12      750.00      1000.00
VAR388XX   finishd       2     1250.00       70.71     1200.00      1300.00
VAR390XX   repl hfr      7      860.71      173.12      500.00      1000.00
VAR392XX   brd cow       9     1186.11       74.07     1100.00      1300.00
VAR394XX   fat cow       2     1175.00       35.36     1150.00      1200.00
VAR396XX   bull         12     1795.83      250.87     1300.00      2200.00
VAR399XX   other         0         .           .           .            .
```

```
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                         Sale Month by Operation Size
------------------------------- opsize=1 -------------------------------------
   VAR381XX   str calf    519        9.23        2.92        1.00        12.00
   VAR383XX   hfr calf    486        8.94        3.19        1.00        12.00
   VAR385XX   bkgd calf    31        5.35        4.20        1.00        12.00
   VAR387XX   lg yrlng     44        7.84        2.70        1.00        12.00
   VAR389XX   finishd      25        6.36        3.01        1.00        12.00
   VAR391XX   repl hfr     37        6.97        4.09        1.00        12.00
   VAR393XX   brd cow      73        8.85        3.52        1.00        12.00
   VAR395XX   fat cow      54        7.85        3.48        1.00        12.00
   VAR397XX   bull        140        8.06        3.23        1.00        12.00
   VAR400XX   other        36        7.64        3.33        1.00        12.00
------------------------------- opsize=2 -------------------------------------
   VAR381XX   str calf    155        9.49        2.71        1.00        12.00
   VAR383XX   hfr calf    144        9.34        2.92        1.00        12.00
   VAR385XX   bkgd calf    11        4.91        4.28        1.00        12.00
   VAR387XX   lg yrlng     34        8.68        1.75        3.00        12.00
   VAR389XX   finishd      13        6.00        2.61        3.00        12.00
   VAR391XX   repl hfr     23        8.00        3.85        1.00        12.00
   VAR393XX   brd cow      41        7.46        4.12        1.00        12.00
   VAR395XX   fat cow      20        7.90        3.26        1.00        12.00
   VAR397XX   bull         60        8.42        2.86        1.00        12.00
   VAR400XX   other        15        8.47        3.48        1.00        12.00
------------------------------- opsize=3 -------------------------------------
   VAR381XX   str calf     11       10.09        3.08        1.00        12.00
   VAR383XX   hfr calf      9        9.89        3.41        1.00        12.00
   VAR385XX   bkgd calf     2        3.00        0.00        3.00         3.00
   VAR387XX   lg yrlng      6        8.17        3.13        2.00        10.00
   VAR389XX   finishd       1        7.00         .          7.00         7.00
   VAR391XX   repl hfr      3        5.33        4.04        3.00        10.00
   VAR393XX   brd cow       2        6.50        6.36        2.00        11.00
   VAR395XX   fat cow       2       11.00        1.41       10.00        12.00
   VAR397XX   bull          6        8.17        4.07        3.00        12.00
   VAR400XX   other         0         .           .           .            .
```

Question 12

Procedure:

- "including zeros" dataset.

- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.

- Excluded incorrect percentage responses (i.e. answers that did not sum to 100).

- SAS Means procedure.

Code:

```
*excludes respondents with responses that did not sum to 100;
var416x1 = var410xx + var411xx + var412xx + var414xx + var415xx +
var416xx;
if var416x1 ne 100 then delete;
```

Output:

```
Variable  Label       N        Mean      Std Dev     Minimum      Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                         Purchase Methods- All Ranches
VAR410XX  sale brn    587       42.90       45.33       0.00       100.00
VAR412XX  video       587        2.19       12.50       0.00       100.00
VAR415XX  pvt         587       50.21       46.01       0.00       100.00
VAR416XX  fwd cnt     587        0.63        7.47       0.00       100.00
VAR411XX  web         587        0.04        0.85       0.00        20.00
VAR414XX  other       587        4.02       19.39       0.00       100.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                     Purchase Methods- By Operation Size
------------------------------- opsize=1 -------------------------------------
VAR410XX  sale brn    432       42.22       45.66       0.00       100.00
VAR412XX  video       432        1.74       11.30       0.00       100.00
VAR415XX  pvt         432       52.13       46.31       0.00       100.00
VAR416XX  fwd cnt     432        0.74        8.37       0.00       100.00
```

```
VAR411XX   web       432          0.06          0.99          0.00         20.00
VAR414XX   other     432          3.11         17.16          0.00        100.00
------------------------------- opsize=2 -------------------------------
VAR410XX   sale brn  145         46.17         44.45          0.00        100.00
VAR412XX   video     145          3.34         15.36          0.00        100.00
VAR415XX   pvt       145         44.52         44.88          0.00        100.00
VAR416XX   fwd cnt   145          0.34          4.15          0.00         50.00
VAR411XX   web       145          0.00          0.00          0.00          0.00
VAR414XX   other     145          5.62         22.69          0.00        100.00
------------------------------- opsize=3 -------------------------------
VAR410XX   sale brn   10         25.00         42.49          0.00        100.00
VAR412XX   video      10          5.00         15.81          0.00         50.00
VAR415XX   pvt        10         50.00         47.14          0.00        100.00
VAR416XX   fwd cnt    10          0.00          0.00          0.00          0.00
VAR411XX   web        10          0.00          0.00          0.00          0.00
VAR414XX   other      10         20.00         42.16          0.00        100.00
```

Part B: Other Production and Marketing Practices

Question 13

Procedure:

- "including zeros" dataset.

- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.

- Eliminated answers that were not either "yes" or "no".

- SAS Means procedure.

Code:

```
*forces either a yes or no answer;
var421x1 = var420xx + var421xx;
if var421x1 ne 1 then delete;
```

Output:

```
Variable  Label     N           Mean         Std Dev       Minimum       Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
               Currently Retain Ownership- All Ranches
Variable  Label     N           Mean         Std Dev       Minimum       Maximum
VAR420XX  YES      791          0.09          0.28          0.00          1.00
VAR421XX  NO       791          0.91          0.28          0.00          1.00
var421x1           791          1.00          0.00          1.00          1.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
               Currently Retain Ownership- By Operation Size
------------------------------- opsize=1 -------------------------------
VAR420XX  YES      593          0.06          0.23          0.00          1.00
VAR421XX  NO       593          0.94          0.23          0.00          1.00
var421x1           593          1.00          0.00          1.00          1.00
------------------------------- opsize=2 -------------------------------
VAR420XX  YES      183          0.18          0.39          0.00          1.00
VAR421XX  NO       183          0.82          0.39          0.00          1.00
var421x1           183          1.00          0.00          1.00          1.00
------------------------------- opsize=3 -------------------------------
VAR420XX  YES       15          0.27          0.46          0.00          1.00
VAR421XX  NO        15          0.73          0.46          0.00          1.00
var421x1            15          1.00          0.00          1.00          1.00
```

Question 14

Procedure:

- "including zeros" dataset.

- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.
- Excluded respondents who answered "No" to question 13.
- SAS Means procedure.

Code:

```
*Only respondents who answered "yes" to Q13";
if var420xx ne 1 then delete;
```

Output:

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
ƒƒ						
		Location and Distance of Retained Calves- All Ranches				
VAR422XX	In St	70	0.63	0.49	0.00	1.00
VAR424XX	Mls In St	70	64.30	85.14	0.00	325.00
VAR423XX	Out St	70	0.37	0.49	0.00	1.00
VAR425XX	Mls Out St	70	141.89	243.47	0.00	1000.00
ƒƒ						
		Location and Distance of Retained Calves- By Operation Size				
----------------------------------- opsize=1 -----------------------------------						
VAR422XX	In St	33	0.70	0.47	0.00	1.00
VAR424XX	Mls In St	33	53.42	82.53	0.00	325.00
VAR423XX	Out St	33	0.24	0.44	0.00	1.00
VAR425XX	Mls Out St	33	75.45	180.02	0.00	700.00
----------------------------------- opsize=2 -----------------------------------						
VAR422XX	In St	33	0.52	0.51	0.00	1.00
VAR424XX	Mls In St	33	65.24	87.69	0.00	280.00
VAR423XX	Out St	33	0.48	0.51	0.00	1.00
VAR425XX	Mls Out St	33	205.97	285.24	0.00	1000.00
----------------------------------- opsize=3 -----------------------------------						
VAR422XX	In St	4	1.00	0.00	1.00	1.00
VAR424XX	Mls In St	4	146.25	42.30	100.00	200.00
VAR423XX	Out St	4	0.50	0.58	0.00	1.00
VAR425XX	Mls Out St	4	161.25	235.95	0.00	500.00

Question 15

Procedure:

- "including zeros" dataset.
- Excluded producers with less than 20 bred cattle.
- Sorted data into three operation sizes based on number of bred cows.
- Excluded respondents who answered "Yes" to question 13.
- Eliminated answers that were not either "yes" or "no".
- SAS Means procedure.

Code:

```
*Only respondents who answered "no" to Q13";
if var421xx ne 1 then delete;
*forces either a yes or no answer;
var431x1 = var430xx + var431xx;
if var431x1 ne 1 then delete;
```

Output:

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
ƒƒ						
		Would Consider Retained Ownership- All Ranches				
VAR430XX	YES	708	0.31	0.46	0.00	1.00
VAR431XX	NO	708	0.69	0.46	0.00	1.00
var431x1		708	1.00	0.00	1.00	1.00
ƒƒ						
		Would Consider Retained Ownership- By Operation Size				

```
-------------------------------- opsize=1 --------------------------------
  VAR430XX  YES    551        0.30            0.46           0.00            1.00
  VAR431XX  NO     551        0.70            0.46           0.00            1.00
  var431x1         551        1.00            0.00           1.00            1.00
-------------------------------- opsize=2 --------------------------------
  VAR430XX  YES    146        0.34            0.47           0.00            1.00
  VAR431XX  NO     146        0.66            0.47           0.00            1.00
  var431x1         146        1.00            0.00           1.00            1.00
-------------------------------- opsize=3 --------------------------------
  VAR430XX  YES     11        0.45            0.52           0.00            1.00
  VAR431XX  NO      11        0.55            0.52           0.00            1.00
  var431x1          11        1.00            0.00           1.00            1.00
```

Question 16

Procedure:

- "including zeros" dataset.
- Excluded producers with less than 20 bred cattle.
- Sorted data into three operation sizes based on number of bred cows.
- Excluded respondents who answered "No" to question 15.
- SAS Means procedure.

Code:

```
*Only respondents who answered "yes" to Q15;
if var430xx ne 1 then delete;
```

Output:

```
Variable  Label         N        Mean       Std Dev       Minimum        Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
          Prefered Location and Distance of Retained Calves- All Ranches
VAR440XX  In St        224        0.63          0.48          0.00           1.00
VAR442XX  Mls In St    224       73.49        129.06          0.00        1000.00
VAR441XX  Out St       224        0.35          0.48          0.00           1.00
VAR443XX  Mls Out St   224      134.16        261.90          0.00        2000.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
          Prefered Location and Distance of Retained Calves- By Operation Size
-------------------------------- opsize=1 --------------------------------
VAR440XX  In St        167        0.67          0.47          0.00           1.00
VAR442XX  Mls In St    167       69.79        113.53          0.00        1000.00
VAR441XX  Out St       167        0.31          0.46          0.00           1.00
VAR443XX  Mls Out St   167      118.41        264.93          0.00        2000.00
-------------------------------- opsize=2 --------------------------------
VAR440XX  In St         52        0.52          0.50          0.00           1.00
VAR442XX  Mls In St     52       87.62        173.16          0.00        1000.00
VAR441XX  Out St        52        0.46          0.50          0.00           1.00
VAR443XX  Mls Out St    52      176.46        253.01          0.00        1000.00
-------------------------------- opsize=3 --------------------------------
VAR440XX  In St          5        0.40          0.55          0.00           1.00
VAR442XX  Mls In St      5       50.00         86.60          0.00         200.00
VAR441XX  Out St         5        0.60          0.55          0.00           1.00
VAR443XX  Mls Out St     5      220.00        228.04          0.00         500.00
```

Question 17

Procedure:

- "including zeros" dataset.
- Excluded producers with less than 20 bred cattle.
- Sorted data into three operation sizes based on number of bred cows.
- SAS Means procedure.

Output:

```
        N           Mean          Std Dev         Minimum          Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                # Head Direct Marketed with Inspector- All Ranches
                    Analysis Variable : VAR450XX # Head Dir Mkt
       814          22.07          139.82          0.00          3500.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
            # Head Direct Marketed with Inspector- By Operation Size
--------------------------------- opsize=1 ----------------------------------
       610          13.20          41.10          0.00          600.00
--------------------------------- opsize=2 ----------------------------------
       189          23.91          85.89          0.00          500.00
--------------------------------- opsize=3 ----------------------------------
        15         360.00         914.80          0.00         3500.00
```

Question 18

Procedure:

- "including zeros" dataset.

- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.

- Eliminated respondents who gave no positive answer to any practice.

- Limited answers to one response per item.

- SAS Means procedure.

Code:

```
*eliminate respondents who gave no positive answer to any practice;
var495x1 = var460xx + … var495xx;
if var495x1 = 0 then delete;
*eliminates incorrect responses (other than 0 or 1) for specific
variables;
if var513xx gt 1 then delete;
*eliminates multiple responses (limits row sums to 1);
var463x1 = var460xx + var461xx + var462xx + var463xx;
if var463x1 gt 1 then delete;
…
var495x2 = var492xx + var493xx + var494xx + var495xx;
if  var495x2 gt 1 then delete;
```

Output:

```
Variable   Label        N          Mean          Std Dev        Minimum        Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                    Practices Currently Doing- All Ranches
VAR460XX   organic      702        0.06          0.23          0.00          1.00
VAR464XX   natural      702        0.30          0.46          0.00          1.00
VAR468XX   direct       702        0.14          0.35          0.00          1.00
VAR472XX   co-op        702        0.04          0.20          0.00          1.00
VAR476XX   nat ID       702        0.05          0.22          0.00          1.00
VAR480XX   dif clv      702        0.09          0.28          0.00          1.00
VAR484XX   add ent      702        0.14          0.35          0.00          1.00
VAR488XX   sell rec     702        0.24          0.43          0.00          1.00
VAR492XX   work         702        0.44          0.50          0.00          1.00
VAR513XX   other        702        0.00          0.04          0.00          1.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                    Practices Curretly Doing- By Operation Size
--------------------------------- opsize=1 ----------------------------------
VAR460XX   organic      522        0.06          0.24          0.00          1.00
VAR464XX   natural      522        0.32          0.47          0.00          1.00
VAR468XX   direct       522        0.14          0.35          0.00          1.00
VAR472XX   co-op        522        0.03          0.18          0.00          1.00
VAR476XX   nat ID       522        0.05          0.23          0.00          1.00
VAR480XX   dif clv      522        0.08          0.28          0.00          1.00
VAR484XX   add ent      522        0.13          0.33          0.00          1.00
VAR488XX   sell rec     522        0.19          0.39          0.00          1.00
```

VAR492XX	work	522	0.52	0.50	0.00	1.00
VAR513XX	other	522	0.00	0.04	0.00	1.00
---------------------------- opsize=2 ----------------------------						
VAR460XX	organic	168	0.04	0.20	0.00	1.00
VAR464XX	natural	168	0.24	0.43	0.00	1.00
VAR468XX	direct	168	0.14	0.34	0.00	1.00
VAR472XX	co-op	168	0.05	0.23	0.00	1.00
VAR476XX	nat ID	168	0.04	0.20	0.00	1.00
VAR480XX	dif clv	168	0.11	0.31	0.00	1.00
VAR484XX	add ent	168	0.17	0.38	0.00	1.00
VAR488XX	sell rec	168	0.38	0.49	0.00	1.00
VAR492XX	work	168	0.22	0.42	0.00	1.00
VAR513XX	other	168	0.00	0.00	0.00	0.00
---------------------------- opsize=3 ----------------------------						
VAR460XX	organic	12	0.17	0.39	0.00	1.00
VAR464XX	natural	12	0.17	0.39	0.00	1.00
VAR468XX	direct	12	0.25	0.45	0.00	1.00
VAR472XX	co-op	12	0.17	0.39	0.00	1.00
VAR476XX	nat ID	12	0.17	0.39	0.00	1.00
VAR480XX	dif clv	12	0.00	0.00	0.00	0.00
VAR484XX	add ent	12	0.42	0.51	0.00	1.00
VAR488XX	sell rec	12	0.58	0.51	0.00	1.00
VAR492XX	work	12	0.17	0.39	0.00	1.00
VAR513XX	other	12	0.00	0.00	0.00	0.00

ƒƒƒ

Practices Have Considered- All Ranches

VAR461XX	organic	702	0.31	0.46	0.00	1.00
VAR465XX	natural	702	0.30	0.46	0.00	1.00
VAR469XX	direct	702	0.26	0.44	0.00	1.00
VAR473XX	co-op	702	0.29	0.46	0.00	1.00
VAR477XX	nat ID	702	0.40	0.49	0.00	1.00
VAR481XX	dif clv	702	0.27	0.45	0.00	1.00
VAR485XX	add Ent	702	0.29	0.45	0.00	1.00
VAR489XX	sell rec	702	0.20	0.40	0.00	1.00
VAR493XX	work	702	0.14	0.35	0.00	1.00
VAR514XX	other	701	0.00	0.07	0.00	1.00

ƒƒƒ

Practices Have Considered- By Operation Size

---------------------------- opsize=1 ----------------------------						
VAR461XX	organic	522	0.32	0.47	0.00	1.00
VAR465XX	natural	522	0.29	0.46	0.00	1.00
VAR469XX	direct	522	0.27	0.44	0.00	1.00
VAR473XX	co-op	522	0.28	0.45	0.00	1.00
VAR477XX	nat ID	522	0.38	0.48	0.00	1.00
VAR481XX	dif clv	522	0.28	0.45	0.00	1.00
VAR485XX	add Ent	522	0.29	0.45	0.00	1.00
VAR489XX	sell rec	522	0.20	0.40	0.00	1.00
VAR493XX	work	522	0.14	0.34	0.00	1.00
VAR514XX	other	521	0.01	0.08	0.00	1.00
---------------------------- opsize=2 ----------------------------						
VAR461XX	organic	168	0.31	0.46	0.00	1.00
VAR465XX	natural	168	0.32	0.47	0.00	1.00
VAR469XX	direct	168	0.24	0.43	0.00	1.00
VAR473XX	co-op	168	0.35	0.48	0.00	1.00
VAR477XX	nat ID	168	0.48	0.50	0.00	1.00
VAR481XX	dif clv	168	0.25	0.43	0.00	1.00
VAR485XX	add Ent	168	0.29	0.45	0.00	1.00
VAR489XX	sell rec	168	0.23	0.42	0.00	1.00
VAR493XX	work	168	0.17	0.37	0.00	1.00
VAR514XX	other	168	0.00	0.00	0.00	0.00
---------------------------- opsize=3 ----------------------------						
VAR461XX	organic	12	0.25	0.45	0.00	1.00
VAR465XX	natural	12	0.50	0.52	0.00	1.00
VAR469XX	direct	12	0.33	0.49	0.00	1.00
VAR473XX	co-op	12	0.25	0.45	0.00	1.00
VAR477XX	nat ID	12	0.42	0.51	0.00	1.00
VAR481XX	dif clv	12	0.17	0.39	0.00	1.00
VAR485XX	add Ent	12	0.33	0.49	0.00	1.00
VAR489XX	sell rec	12	0.17	0.39	0.00	1.00
VAR493XX	work	12	0.17	0.39	0.00	1.00
VAR514XX	other	12	0.00	0.00	0.00	0.00

ƒƒƒ

Practices Have Not Considered- All Ranches

VAR462XX	organic	702	0.32	0.47	0.00	1.00
VAR466XX	natural	702	0.23	0.42	0.00	1.00
VAR470XX	direct	702	0.31	0.46	0.00	1.00
VAR474XX	co-op	702	0.36	0.48	0.00	1.00
VAR478XX	nat ID	702	0.27	0.44	0.00	1.00
VAR482XX	dif clv	702	0.25	0.43	0.00	1.00
VAR486XX	add Ent	702	0.24	0.43	0.00	1.00
VAR490XX	sell rec	702	0.20	0.40	0.00	1.00

VAR494XX	work	702	0.14	0.34	0.00	1.00
VAR515XX	other	702	0.00	0.00	0.00	0.00

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Practices Have Not Considered-- By Operation Size
-------------------------------- opsize=1 ---------------------------------

VAR462XX	organic	522	0.32	0.47	0.00	1.00
VAR466XX	natural	522	0.22	0.42	0.00	1.00
VAR470XX	direct	522	0.30	0.46	0.00	1.00
VAR474XX	co-op	522	0.38	0.48	0.00	1.00
VAR478XX	nat ID	522	0.28	0.45	0.00	1.00
VAR482XX	dif clv	522	0.24	0.43	0.00	1.00
VAR486XX	add Ent	522	0.25	0.43	0.00	1.00
VAR490XX	sell rec	522	0.20	0.40	0.00	1.00
VAR494XX	work	522	0.11	0.31	0.00	1.00
VAR515XX	other	522	0.00	0.00	0.00	0.00

-------------------------------- opsize=2 ---------------------------------

VAR462XX	organic	168	0.35	0.48	0.00	1.00
VAR466XX	natural	168	0.24	0.43	0.00	1.00
VAR470XX	direct	168	0.33	0.47	0.00	1.00
VAR474XX	co-op	168	0.33	0.47	0.00	1.00
VAR478XX	nat ID	168	0.22	0.42	0.00	1.00
VAR482XX	dif clv	168	0.26	0.44	0.00	1.00
VAR486XX	add Ent	168	0.23	0.42	0.00	1.00
VAR490XX	sell rec	168	0.18	0.39	0.00	1.00
VAR494XX	work	168	0.22	0.42	0.00	1.00
VAR515XX	other	168	0.00	0.00	0.00	0.00

-------------------------------- opsize=3 ---------------------------------

VAR462XX	organic	12	0.25	0.45	0.00	1.00
VAR466XX	natural	12	0.25	0.45	0.00	1.00
VAR470XX	direct	12	0.25	0.45	0.00	1.00
VAR474XX	co-op	12	0.42	0.51	0.00	1.00
VAR478XX	nat ID	12	0.33	0.49	0.00	1.00
VAR482XX	dif clv	12	0.42	0.51	0.00	1.00
VAR486XX	add Ent	12	0.17	0.39	0.00	1.00
VAR490XX	sell rec	12	0.08	0.29	0.00	1.00
VAR494XX	work	12	0.08	0.29	0.00	1.00
VAR515XX	other	12	0.00	0.00	0.00	0.00

fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff

Practices Will Not Do- All Ranches

VAR463XX	organic	702	0.18	0.38	0.00	1.00
VAR467XX	natural	702	0.10	0.30	0.00	1.00
VAR471XX	direct	702	0.14	0.35	0.00	1.00
VAR475XX	co-op	702	0.14	0.35	0.00	1.00
VAR479XX	nat ID	702	0.13	0.33	0.00	1.00
VAR483XX	dif clv	702	0.26	0.44	0.00	1.00
VAR487XX	add Ent	702	0.17	0.37	0.00	1.00
VAR491XX	sell rec	701	0.23	0.42	0.00	1.00
VAR495XX	work	702	0.17	0.38	0.00	1.00
VAR516XX	other	702	0.00	0.00	0.00	0.00

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Practices Will Not Do- By Operation Size
-------------------------------- opsize=1 ---------------------------------

VAR463XX	organic	522	0.17	0.37	0.00	1.00
VAR467XX	natural	522	0.09	0.28	0.00	1.00
VAR471XX	direct	522	0.13	0.34	0.00	1.00
VAR475XX	co-op	522	0.14	0.35	0.00	1.00
VAR479XX	nat ID	522	0.13	0.33	0.00	1.00
VAR483XX	dif clv	522	0.25	0.44	0.00	1.00
VAR487XX	add Ent	522	0.17	0.37	0.00	1.00
VAR491XX	sell rec	521	0.26	0.44	0.00	1.00
VAR495XX	work	522	0.13	0.34	0.00	1.00
VAR516XX	other	522	0.00	0.00	0.00	0.00

-------------------------------- opsize=2 ---------------------------------

VAR463XX	organic	168	0.20	0.40	0.00	1.00
VAR467XX	natural	168	0.14	0.34	0.00	1.00
VAR471XX	direct	168	0.17	0.37	0.00	1.00
VAR475XX	co-op	168	0.16	0.37	0.00	1.00
VAR479XX	nat ID	168	0.14	0.34	0.00	1.00
VAR483XX	dif clv	168	0.26	0.44	0.00	1.00
VAR487XX	add Ent	168	0.17	0.38	0.00	1.00
VAR491XX	sell rec	168	0.13	0.34	0.00	1.00
VAR495XX	work	168	0.29	0.45	0.00	1.00
VAR516XX	other	168	0.00	0.00	0.00	0.00

-------------------------------- opsize=3 ---------------------------------

VAR463XX	organic	12	0.25	0.45	0.00	1.00
VAR467XX	natural	12	0.08	0.29	0.00	1.00
VAR471XX	direct	12	0.08	0.29	0.00	1.00
VAR475XX	co-op	12	0.08	0.29	0.00	1.00
VAR479XX	nat ID	12	0.00	0.00	0.00	0.00
VAR483XX	dif clv	12	0.33	0.49	0.00	1.00
VAR487XX	add Ent	12	0.00	0.00	0.00	0.00

```
VAR491XX   sell rec      12          0.08          0.29          0.00          1.00
VAR495XX   work          12          0.42          0.51          0.00          1.00
VAR516XX   other         12          0.00          0.00          0.00          0.00
```

Note: Results for the last four items listed in the survey instrument on Question 18 are reported under Part C, Sagebrush management, Table [Q18-Extra].

Question 19

- Procedure: "including zeros" dataset.

- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.

- Recoded responses of "0" as missing (question was coded as a five point likert scale from 1 to 5).

- SAS Means procedure.

- SPSS frequencies procedure to calculate median and mode.

Code:

```
*eliminate respondents did not respond to particular items;
if var517xx = 0 then var517xx = .;
if var518xx = 0 then var518xx = .;
if var519xx = 0 then var519xx = .;
if var520xx = 0 then var520xx = .;
if var521xx = 0 then var521xx = .;
if var522xx = 0 then var522xx = .;
if var523xx = 0 then var523xx = .;
if var524xx = 0 then var524xx = .;
if var525xx = 0 then var525xx = .;
if var526xx = 0 then var526xx = .;
if var527xx = 0 then var527xx = .;
if var527xx = 0 then var527xx = .;
if var528xx = 0 then var528xx = .;
if var529xx = 0 then var529xx = .;
```

Output:

```
Variable  Label         N         Mean       Std Dev     Minimum      Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
            Agreement with Statements RE Future- All Ranches
VAR517XX   Mand ID      780          3.05          1.38          1.00          5.00
VAR518XX   Rst Vacc     789          2.52          1.29          1.00          5.00
VAR519XX   Org Prem     785          3.65          1.14          1.00          5.00
VAR520XX   DrghtPlan    783          4.27          1.00          1.00          5.00
VAR521XX   BSE          794          3.75          1.25          1.00          5.00
VAR522XX   Bruc         791          3.75          1.16          1.00          5.00
VAR523XX   Alt Ent      774          3.35          1.32          1.00          5.00
VAR524XX   Markt Alt    775          3.30          1.18          1.00          5.00
VAR525XX   Markt Asst   776          3.01          1.22          1.00          5.00
VAR526XX   Ret Own      757          2.96          1.22          1.00          5.00
VAR527XX   Alt Prod     754          2.98          1.16          1.00          5.00
VAR528XX   Subs Elim    764          3.36          1.20          1.00          5.00
VAR529XX   Fed Graz     768          3.23          1.32          1.00          5.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
            Agreement with Statements RE Future- By Operation Size
----------------------------------- opsize=1 -----------------------------------
VAR517XX   Mand ID      583          3.08          1.37          1.00          5.00
VAR518XX   Rst Vacc     590          2.55          1.30          1.00          5.00
VAR519XX   Org Prem     587          3.66          1.16          1.00          5.00
VAR520XX   DrghtPlan    586          4.31          0.98          1.00          5.00
VAR521XX   BSE          596          3.83          1.22          1.00          5.00
VAR522XX   Bruc         593          3.80          1.12          1.00          5.00
VAR523XX   Alt Ent      576          3.45          1.30          1.00          5.00
VAR524XX   Markt Alt    578          3.32          1.17          1.00          5.00
```

```
VAR525XX   Markt Asst   579        3.03         1.21         1.00         5.00
VAR526XX   Ret Own      567        2.98         1.20         1.00         5.00
VAR527XX   Alt Prod     565        3.00         1.14         1.00         5.00
VAR528XX   Subs Elim    572        3.40         1.17         1.00         5.00
VAR529XX   Fed Graz     573        3.26         1.31         1.00         5.00
------------------------------- opsize=2 -------------------------------
VAR517XX   Mand ID      182        2.97         1.40         1.00         5.00
VAR518XX   Rst Vacc     184        2.45         1.27         1.00         5.00
VAR519XX   Org Prem     183        3.63         1.07         1.00         5.00
VAR520XX   DrghtPlan    182        4.15         1.05         1.00         5.00
VAR521XX   BSE          183        3.61         1.27         1.00         5.00
VAR522XX   Bruc         183        3.62         1.25         1.00         5.00
VAR523XX   Alt Ent      183        2.99         1.34         1.00         5.00
VAR524XX   Markt Alt    182        3.23         1.19         1.00         5.00
VAR525XX   Markt Asst   182        2.93         1.26         1.00         5.00
VAR526XX   Ret Own      175        2.86         1.25         1.00         5.00
VAR527XX   Alt Prod     174        2.87         1.21         1.00         5.00
VAR528XX   Subs Elim    177        3.19         1.28         1.00         5.00
VAR529XX   Fed Graz     180        3.13         1.33         1.00         5.00
------------------------------- opsize=3 -------------------------------
VAR517XX   Mand ID      15         3.00         1.51         1.00         5.00
VAR518XX   Rst Vacc     15         2.47         1.46         1.00         5.00
VAR519XX   Org Prem     15         3.40         1.35         1.00         5.00
VAR520XX   DrghtPlan    15         4.07         1.03         2.00         5.00
VAR521XX   BSE          15         2.40         1.35         1.00         5.00
VAR522XX   Bruc         15         3.20         1.52         1.00         5.00
VAR523XX   Alt Ent      15         3.87         1.36         1.00         5.00
VAR524XX   Markt Alt    15         3.47         1.36         1.00         5.00
VAR525XX   Markt Asst   15         3.20         1.21         1.00         5.00
VAR526XX   Ret Own      15         3.40         1.50         1.00         5.00
VAR527XX   Alt Prod     15         3.33         1.23         1.00         5.00
VAR528XX   Subs Elim    15         3.80         1.32         2.00         5.00
VAR529XX   Fed Graz     15         3.27         1.75         1.00         5.00
```

All Ranches

Statistics

		Mandate ID	Restrict Vacc	Organic Prem	Drought Plan	BSE	Brucellosis
N	Valid	780	789	785	783	794	791
	Missing	34	25	29	31	20	23
Mean		3.05	2.52	3.65	4.27	3.75	3.75
Median		3.00	3.00	4.00	5.00	4.00	4.00
Mode		3	1	4	5	5	5

Statistics

		Alt Ent	Market Alt	Market Assist	Ret Own	Alt Prod	Subsidy Elim	Fed Grazing
N	Valid	774	775	776	757	754	764	768
	Missing	40	39	38	57	60	50	46
Mean		3.35	3.30	3.01	2.96	2.98	3.36	3.23
Median		4.00	3.00	3.00	3.00	3.00	3.00	3.00
Mode		4	3	3	3	3	4	4

Operation Size 1

Statistics[a]

		Mandate ID	Restrict Vacc	Organic Prem	Drought Plan	BSE	Brucellosis
N	Valid	583	590	587	586	596	593
	Missing	27	20	23	24	14	17
Mean		3.08	2.55	3.66	4.31	3.83	3.80
Median		3.00	3.00	4.00	5.00	4.00	4.00
Mode		3	1	4	5	5	5

a. opsize = 1

Statistics[a]

		Alt Ent	Market Alt	Market Assist	Ret Own	Alt Prod	Subsidy Elim	Fed Grazing
N	Valid	576	578	579	567	565	572	573
	Missing	34	32	31	43	45	38	37
Mean		3.45	3.32	3.03	2.98	3.00	3.40	3.26
Median		4.00	3.00	3.00	3.00	3.00	3.00	3.00
Mode		4	3	3	3	3	4	4

a. opsize = 1

Operation Size 2

Statistics[b]

		Mandate ID	Restrict Vacc	Organic Prem	Drought Plan	BSE	Brucellosis
N	Valid	182	184	183	182	183	183
	Missing	7	5	6	7	6	6
Mean		2.97	2.45	3.63	4.15	3.61	3.62
Median		3.00	2.00	4.00	4.00	4.00	4.00
Mode		3	1[a]	4	5	5	5

a. Multiple modes exist. The smallest value is shown

b. opsize = 2

Statistics[a]

		Alt Ent	Market Alt	Market Assist	Ret Own	Alt Prod	Subsidy Elim	Fed Grazing
N	Valid	183	182	182	175	174	177	180
	Missing	6	7	7	14	15	12	9
Mean		2.99	3.23	2.93	2.86	2.87	3.19	3.13
Median		3.00	3.00	3.00	3.00	3.00	3.00	3.00
Mode		3	3	3	3	3	4	3

a. opsize = 2

Operation Size 3

Statistics[b]

		Mandate ID	Restrict Vacc	Organic Prem	Drought Plan	BSE	Brucellosis
N	Valid	15	15	15	15	15	15
	Missing	0	0	0	0	0	0
Mean		3.00	2.47	3.40	4.07	2.40	3.20
Median		3.00	2.00	4.00	4.00	2.00	3.00
Mode		1[a]	1	4	5	2	5

a. Multiple modes exist. The smallest value is shown

b. opsize = 3

Statistics[b]

		Alt Ent	Market Alt	Market Assist	Ret Own	Alt Prod	Subsidy Elim	Fed Grazing
N	Valid	15	15	15	15	15	15	15
	Missing	0	0	0	0	0	0	0
Mean		3.87	3.47	3.20	3.40	3.33	3.80	3.27
Median		4.00	4.00	3.00	4.00	4.00	4.00	4.00
Mode		5	3[a]	4	5	4	5	1[a]

a. Multiple modes exist. The smallest value is shown

b. opsize = 3

Part C: Drought and Sagebrush Management

Question 20

Procedure:

- "including zeros" dataset.

- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.

- SAS Means procedure, UNIVARIATE procedure.

- SPSS descriptive statistics, frequency histogram.

Code:

```
data q20; set dat.inczero071105;
*ignores operations with less than 20 bred cattle;
if var330xx le 19 then delete;
*New operation sizes based on original strata;
if var330XX ge 20 and var330XX lt 300 then opsize=1;
if var330xx ge 300 and var330xx lt 1000 then opsize=2;
if var330xx ge 1000 then opsize=3;
```

Output:

```
                Years of Negative Drought Impact for All Ranches
                     Analysis Variable : VAR530XX drght yrs
      N              Mean           Std Dev          Minimum          Maximum
    814              4.75             2.05             0.00            20.00
        ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                Years of Negative Drought Impact by Operation Size
--------------------------------- opsize=1 ----------------------------------
      N              Mean           Std Dev          Minimum          Maximum
    610              4.71             1.98             0.00            15.00
--------------------------------- opsize=2 ----------------------------------
      N              Mean           Std Dev          Minimum          Maximum
    189              4.85             2.27             0.00            20.00
--------------------------------- opsize=3 ----------------------------------
      N              Mean           Std Dev          Minimum          Maximum
     15              4.93             1.87             0.00             9.00
                Years of Negative Drought Impact by Operation Size
                          The UNIVARIATE Procedure
                     Variable:   VAR530XX   (drght yrs)
      N                          814     Sum Weights                     814
      Mean                 4.74692875     Sum Observations               3864
      Std Deviation        2.04796942     Variance                 4.19417875
      Skewness             0.37840313     Kurtosis                 5.27384763
             Location                         Variability
         Mean      4.746929       Std Deviation              2.04797
         Median    5.000000       Variance                   4.19418
         Mode      5.000000       Range                     20.00000
                                  Inter-quartile Range       2.00000
        ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                                  drght yrs
                                             Cumulative      Cumulative
         VAR530XX     Frequency     Percent   Frequency       Percent
                0         55         6.76         55             6.76
                1          6         0.74         61             7.49
                2         12         1.47         73             8.97
                3         78         9.58        151            18.55
                4        147        18.06        298            36.61
                5        294        36.12        592            72.73
                6        121        14.86        713            87.59
                7         58         7.13        771            94.72
                8         17         2.09        788            96.81
                9          2         0.25        790            97.05
               10         21         2.58        811            99.63
               11          1         0.12        812            99.75
               15          1         0.12        813            99.88
               20          1         0.12        814           100.00
```

Statistics

drght yrs

N	Valid	814
	Missing	0
Mean		4.75
Median		5.00
Mode		5
Std. Deviation		2.048
Minimum		0
Maximum		20

Question 21

- Procedure: "including zeros" dataset.

- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.

- Excluded respondents who did not report negative drought impacts (i.e. who indicated 0 years in question 20—years of consecutive drought).

- SAS Means procedure.

Code:

```
*drops respondents who did not report negative drought impacts;
if var530xx = 0 then delete;
```

Output:

```
Variable  Label    N         Mean      Std Dev    Minimum     Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
               Changes Experienced in 2000 All Ranches
VAR540XX  2000    759       16.14     22.93      0.00        100.00
VAR545XX  2000    759       12.14     23.55      0.00        100.00
VAR550XX  2000    759       18.22     26.56      0.00        100.00
VAR555XX  2000    759        4.25     13.52      0.00        100.00
VAR560XX  2000    759        4.36     14.94      0.00        100.00
VAR565XX  2000    759        3.84     12.95      0.00        100.00
VAR571XX  2000    759        0.15      1.91      0.00         30.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
               Changes Experienced in 2001 All Ranches
VAR541XX  2001    759       19.69     23.20      0.00        100.00
VAR546XX  2001    759       14.83     24.64      0.00        100.00
VAR551XX  2001    759       21.20     27.12      0.00        100.00
VAR556XX  2001    759        4.83     13.11      0.00        100.00
VAR561XX  2001    759        5.21     16.30      0.00        100.00
VAR566XX  2001    759        4.61     14.06      0.00        100.00
VAR572XX  2001    759        0.26      2.81      0.00         50.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
               Changes Experienced in 2002 All Ranches
VAR542XX  2002    759       27.93     25.88      0.00        100.00
VAR547XX  2002    759       21.20     29.58      0.00        100.00
VAR552XX  2002    759       29.69     31.35      0.00        100.00
VAR557XX  2002    759        6.69     15.11      0.00        100.00
VAR562XX  2002    759        6.48     17.05      0.00        100.00
VAR567XX  2002    759        6.87     16.94      0.00        100.00
VAR573XX  2002    759        0.50      5.43      0.00        100.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
               Changes Experienced in 2003 All Ranches
VAR543XX  2003    759       28.09     25.04      0.00        100.00
VAR548XX  2003    759       21.12     29.10      0.00        100.00
VAR553XX  2003    759       28.35     30.55      0.00        100.00
VAR558XX  2003    759        6.66     15.78      0.00        100.00
VAR563XX  2003    759        6.15     16.55      0.00        100.00
```

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VAR568XX  2003   759         6.75          16.70         0.00       100.00
VAR574XX  2003   759         0.52           5.06         0.00       100.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
              Changes Experienced in 2004 All Ranches
VAR544XX  2004   759        31.36          27.48         0.00       100.00
VAR549XX  2004   759        21.66          30.94         0.00       100.00
VAR554XX  2004   759        34.57          36.05         0.00       100.00
VAR559XX  2004   759         6.41          15.41         0.00       100.00
VAR564XX  2004   759         6.49          16.95         0.00       100.00
VAR569XX  2004   759         7.37          17.49         0.00       100.00
VAR575XX  2004   759         0.77           6.93         0.00       100.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
              Changes Experienced in 2000 By Operation Size
-------------------------------- opsize=1 --------------------------------
VAR540XX  2000   569        16.72          23.85         0.00       100.00
VAR545XX  2000   569        11.98          23.67         0.00       100.00
VAR550XX  2000   569        18.10          27.05         0.00       100.00
VAR555XX  2000   569         4.07          13.12         0.00       100.00
VAR560XX  2000   569         4.59          15.01         0.00       100.00
VAR565XX  2000   569         3.67          12.43         0.00       100.00
VAR571XX  2000   569         0.15           1.94         0.00        30.00
-------------------------------- opsize=2 --------------------------------
VAR540XX  2000   176        14.31          19.94         0.00       100.00
VAR545XX  2000   176        11.95          22.74         0.00       100.00
VAR550XX  2000   176        18.58          25.67         0.00       100.00
VAR555XX  2000   176         4.91          15.13         0.00       100.00
VAR560XX  2000   176         3.71          15.27         0.00       100.00
VAR565XX  2000   176         4.39          14.72         0.00       100.00
VAR571XX  2000   176         0.14           1.88         0.00        25.00
-------------------------------- opsize=3 --------------------------------
VAR540XX  2000    14        15.36          19.56         0.00        50.00
VAR545XX  2000    14        20.93          28.86         0.00        80.00
VAR550XX  2000    14        18.21          17.17         0.00        50.00
VAR555XX  2000    14         3.21           6.68         0.00        20.00
VAR560XX  2000    14         2.86           4.69         0.00        10.00
VAR565XX  2000    14         3.57          10.82         0.00        40.00
VAR571XX  2000    14         0.00           0.00         0.00         0.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
              Changes Experienced in 2001 By Operation Size
-------------------------------- opsize=1 --------------------------------
VAR541XX  2001   569        19.70          23.89         0.00       100.00
VAR546XX  2001   569        14.04          23.92         0.00       100.00
VAR551XX  2001   569        20.87          27.38         0.00       100.00
VAR556XX  2001   569         4.53          12.55         0.00       100.00
VAR561XX  2001   569         5.53          16.71         0.00       100.00
VAR566XX  2001   569         4.40          13.79         0.00       100.00
VAR572XX  2001   569         0.19           2.11         0.00        40.00
-------------------------------- opsize=2 --------------------------------
VAR541XX  2001   176        19.53          21.32         0.00       100.00
VAR546XX  2001   176        15.22          24.47         0.00       100.00
VAR551XX  2001   176        21.41          25.74         0.00       100.00
VAR556XX  2001   176         5.76          14.99         0.00       100.00
VAR561XX  2001   176         4.33          15.51         0.00       100.00
VAR566XX  2001   176         5.27          15.13         0.00       100.00
VAR572XX  2001   176         0.51           4.44         0.00        50.00
-------------------------------- opsize=3 --------------------------------
VAR541XX  2001    14        21.43          18.13         0.00        50.00
VAR546XX  2001    14        42.14          39.06         0.00       100.00
VAR551XX  2001    14        32.14          32.80         0.00       100.00
VAR556XX  2001    14         5.21          10.03         0.00        33.00
VAR561XX  2001    14         3.21           5.41         0.00        15.00
VAR566XX  2001    14         4.64          11.51         0.00        40.00
VAR572XX  2001    14         0.00           0.00         0.00         0.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
              Changes Experienced in 2002 By Operation Size
-------------------------------- opsize=1 --------------------------------
VAR542XX  2002   569        27.57          26.25         0.00       100.00
VAR547XX  2002   569        20.07          29.15         0.00       100.00
VAR552XX  2002   569        28.88          31.36         0.00       100.00
VAR557XX  2002   569         6.06          14.21         0.00       100.00
VAR562XX  2002   569         6.16          16.29         0.00       100.00
VAR567XX  2002   569         6.34          16.21         0.00       100.00
VAR573XX  2002   569         0.44           5.16         0.00       100.00
-------------------------------- opsize=2 --------------------------------
VAR542XX  2002   176        29.48          25.02         0.00       100.00
VAR547XX  2002   176        23.10          30.25         0.00       100.00
VAR552XX  2002   176        31.86          31.45         0.00       100.00
VAR557XX  2002   176         8.55          17.73         0.00       100.00
VAR562XX  2002   176         7.42          19.64         0.00       100.00
VAR567XX  2002   176         8.62          19.19         0.00       100.00
VAR573XX  2002   176         0.71           6.43         0.00        75.00
```

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---------------------------------- opsize=3 ----------------------------------
VAR542XX   2002    14        22.86          21.19          0.00          60.00
VAR547XX   2002    14        43.57          30.72          0.00         100.00
VAR552XX   2002    14        35.71          29.60          0.00         100.00
VAR557XX   2002    14         8.57          13.36          0.00          45.00
VAR562XX   2002    14         7.50          11.56          0.00          30.00
VAR567XX   2002    14         6.43          14.99          0.00          50.00
VAR573XX   2002    14         0.00           0.00          0.00           0.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
             Changes Experienced in 2003 By Operation Size
---------------------------------- opsize=1 ----------------------------------
VAR543XX   2003   569        28.16          25.73          0.00         100.00
VAR548XX   2003   569        20.25          28.71          0.00         100.00
VAR553XX   2003   569        27.95          30.49          0.00         100.00
VAR558XX   2003   569         6.20          14.91          0.00         100.00
VAR563XX   2003   569         6.08          16.19          0.00         100.00
VAR568XX   2003   569         6.49          16.33          0.00         100.00
VAR574XX   2003   569         0.41           4.73          0.00         100.00
---------------------------------- opsize=2 ----------------------------------
VAR543XX   2003   176        28.26          23.12          0.00         100.00
VAR548XX   2003   176        22.47          30.07          0.00         100.00
VAR553XX   2003   176        29.27          31.06          0.00         100.00
VAR558XX   2003   176         8.20          18.69          0.00         100.00
VAR563XX   2003   176         6.51          18.16          0.00         100.00
VAR568XX   2003   176         7.43          18.04          0.00         100.00
VAR574XX   2003   176         0.91           6.17          0.00          50.00
---------------------------------- opsize=3 ----------------------------------
VAR543XX   2003    14        23.43          20.15          0.00          60.00
VAR548XX   2003    14        39.64          27.63          0.00         100.00
VAR553XX   2003    14        33.21          27.71          0.00         100.00
VAR558XX   2003    14         6.07           7.89          0.00          20.00
VAR563XX   2003    14         4.64           8.87          0.00          30.00
VAR568XX   2003    14         8.57          14.73          0.00          40.00
VAR574XX   2003    14         0.00           0.00          0.00           0.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
             Changes Experienced in 2004 By Operation Size
---------------------------------- opsize=1 ----------------------------------
VAR544XX   2004   569        31.66          27.88          0.00         100.00
VAR549XX   2004   569        20.60          30.63          0.00         100.00
VAR554XX   2004   569        34.21          36.17          0.00         100.00
VAR559XX   2004   569         5.95          14.61          0.00         100.00
VAR564XX   2004   569         6.41          16.49          0.00         100.00
VAR569XX   2004   569         7.01          16.94          0.00         100.00
VAR575XX   2004   569         0.75           7.00          0.00         100.00
---------------------------------- opsize=2 ----------------------------------
VAR544XX   2004   176        31.11          26.73          0.00         100.00
VAR549XX   2004   176        23.90          31.59          0.00         100.00
VAR554XX   2004   176        35.82          36.23          0.00         100.00
VAR559XX   2004   176         8.06          18.11          0.00         100.00
VAR564XX   2004   176         7.05          18.93          0.00         100.00
VAR569XX   2004   176         8.70          19.63          0.00         100.00
VAR575XX   2004   176         0.88           7.00          0.00          70.00
---------------------------------- opsize=3 ----------------------------------
VAR544XX   2004    14        22.71          18.50          0.00          60.00
VAR549XX   2004    14        36.43          31.95          0.00         100.00
VAR554XX   2004    14        33.93          30.14          0.00         100.00
VAR559XX   2004    14         4.29           7.56          0.00          20.00
VAR564XX   2004    14         2.79           4.58          0.00          10.00
VAR569XX   2004    14         5.36           8.43          0.00          20.00
VAR575XX   2004    14         0.00           0.00          0.00           0.00
```

Question 22

- Procedure: "including zeros" dataset.

- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.

- SAS Means procedure.

Output:

```
                    Strategies Used in 2000 All Ranches
VAR580XX   P Hrd Liq   759       0.28          0.45          0.00           1.00
VAR585XX   T Hrd Liq   759       0.01          0.12          0.00           1.00
VAR590XX   Sell Yrlg   759       0.06          0.23          0.00           1.00
```

```
VAR595XX   Add Graz     759         0.16            0.37            0.00            1.00
VAR600XX   Add Wnt F    759         0.35            0.48            0.00            1.00
VAR605XX   Erly Wean    759         0.11            0.31            0.00            1.00
VAR610XX   Gmt Feed     759         0.15            0.36            0.00            1.00
VAR615XX   Gmt Incom    759         0.04            0.20            0.00            1.00
VAR620XX   Off Farm     759         0.36            0.48            0.00            1.00
VAR625XX   Alt Lvsk     759         0.03            0.17            0.00            1.00
VAR630XX   Alt Crop     759         0.01            0.10            0.00            1.00
VAR635XX   Other        759         0.02            0.15            0.00            1.00
var635x1   # Strat 00   759         1.59            1.62            0.00            9.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                   Strategies Used in 2001 All Ranches
VAR581XX   P Hrd Liq    757         0.35            0.48            0.00            1.00
VAR586XX   T Hrd Liq    759         0.02            0.14            0.00            1.00
VAR591XX   Sell Yrlg    759         0.08            0.27            0.00            1.00
VAR596XX   Add Graz     759         0.21            0.41            0.00            1.00
VAR601XX   Add Wnt F    759         0.44            0.50            0.00            1.00
VAR606XX   Erly Wean    759         0.15            0.36            0.00            1.00
VAR611XX   Gmt Feed     759         0.23            0.42            0.00            1.00
VAR616XX   Gmt Incom    759         0.06            0.24            0.00            1.00
VAR621XX   Off Farm     759         0.40            0.49            0.00            1.00
VAR626XX   Alt Lvsk     759         0.03            0.17            0.00            1.00
VAR631XX   Alt Crop     759         0.01            0.11            0.00            1.00
VAR636XX   Other        759         0.03            0.18            0.00            1.00
var636x1   # Strat 01   757         2.03            1.73            0.00           10.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                   Strategies Used in 2002 All Ranches
VAR582XX   P Hrd Liq    759         0.50            0.50            0.00            1.00
VAR587XX   T Hrd Liq    759         0.02            0.14            0.00            1.00
VAR592XX   Sell Yrlg    759         0.12            0.32            0.00            1.00
VAR597XX   Add Graz     759         0.29            0.45            0.00            1.00
VAR602XX   Add Wnt F    759         0.59            0.49            0.00            1.00
VAR607XX   Erly Wean    759         0.29            0.45            0.00            1.00
VAR612XX   Gmt Feed     758         0.52            0.50            0.00            1.00
VAR617XX   Gmt Incom    759         0.10            0.30            0.00            1.00
VAR622XX   Off Farm     759         0.42            0.49            0.00            1.00
VAR627XX   Alt Lvsk     759         0.04            0.20            0.00            1.00
VAR632XX   Alt Crop     759         0.02            0.13            0.00            1.00
VAR637XX   Other        759         0.04            0.19            0.00            1.00
var637x1   # Strat 02   758         2.95            1.85            0.00           10.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                   Strategies Used in 2003 All Ranches
VAR583XX   P Hrd Liq    759         0.45            0.50            0.00            1.00
VAR588XX   T Hrd Liq    759         0.02            0.14            0.00            1.00
VAR593XX   Sell Yrlg    759         0.12            0.32            0.00            1.00
VAR598XX   Add Graz     759         0.31            0.46            0.00            1.00
VAR603XX   Add Wnt F    759         0.56            0.50            0.00            1.00
VAR608XX   Erly Wean    759         0.31            0.46            0.00            1.00
VAR613XX   Gmt Feed     759         0.55            0.50            0.00            1.00
VAR618XX   Gmt Incom    759         0.11            0.32            0.00            1.00
VAR623XX   Off Farm     759         0.44            0.50            0.00            1.00
VAR628XX   Alt Lvsk     759         0.06            0.23            0.00            1.00
VAR633XX   Alt Crop     759         0.02            0.15            0.00            1.00
VAR638XX   Other        759         0.04            0.19            0.00            1.00
var638x1   # Strat 03   759         2.55            1.62            0.00            8.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                   Strategies Used in 2004 All Ranches
VAR584XX   P Hrd Liq    759         0.44            0.50            0.00            1.00
VAR589XX   T Hrd Liq    759         0.03            0.17            0.00            1.00
VAR594XX   Sell Yrlg    758         0.13            0.33            0.00            1.00
VAR599XX   Add Graz     759         0.33            0.47            0.00            1.00
VAR604XX   Add Wnt F    759         0.59            0.49            0.00            1.00
VAR609XX   Erly Wean    759         0.34            0.47            0.00            1.00
VAR614XX   Gmt Feed     759         0.42            0.49            0.00            1.00
VAR619XX   Gmt Incom    759         0.10            0.30            0.00            1.00
VAR624XX   Off Farm     759         0.44            0.50            0.00            1.00
VAR629XX   Alt Lvsk     759         0.07            0.26            0.00            1.00
VAR634XX   Alt Crop     759         0.03            0.18            0.00            1.00
VAR639XX   Other        759         0.04            0.19            0.00            1.00
var639x1   # Strat 04   758         2.96            1.89            0.00            9.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                 Strategies Used in 2000 By Operation Size
------------------------------------ opsize=1 ------------------------------------
 VAR580XX   P Hrd Liq    569         0.27            0.45            0.00            1.00
 VAR585XX   T Hrd Liq    569         0.01            0.11            0.00            1.00
 VAR590XX   Sell Yrlg    569         0.05            0.23            0.00            1.00
 VAR595XX   Add Graz     569         0.15            0.36            0.00            1.00
 VAR600XX   Add Wnt F    569         0.34            0.47            0.00            1.00
 VAR605XX   Erly Wean    569         0.11            0.31            0.00            1.00
 VAR610XX   Gmt Feed     569         0.14            0.34            0.00            1.00
 VAR615XX   Gmt Incom    569         0.04            0.21            0.00            1.00
```

```
VAR620XX   Off Farm     569          0.41          0.49          0.00          1.00
VAR625XX   Alt Lvsk     569          0.04          0.19          0.00          1.00
VAR630XX   Alt Crop     569          0.01          0.10          0.00          1.00
VAR635XX   Other        569          0.03          0.16          0.00          1.00
------------------------------- opsize=2 -------------------------------
VAR580XX   P Hrd Liq    176          0.30          0.46          0.00          1.00
VAR585XX   T Hrd Liq    176          0.02          0.15          0.00          1.00
VAR590XX   Sell Yrlg    176          0.06          0.24          0.00          1.00
VAR595XX   Add Graz     176          0.19          0.40          0.00          1.00
VAR600XX   Add Wnt F    176          0.39          0.49          0.00          1.00
VAR605XX   Erly Wean    176          0.11          0.32          0.00          1.00
VAR610XX   Gmt Feed     176          0.20          0.40          0.00          1.00
VAR615XX   Gmt Incom    176          0.04          0.20          0.00          1.00
VAR620XX   Off Farm     176          0.22          0.42          0.00          1.00
VAR625XX   Alt Lvsk     176          0.01          0.08          0.00          1.00
VAR630XX   Alt Crop     176          0.01          0.08          0.00          1.00
VAR635XX   Other        176          0.02          0.13          0.00          1.00
------------------------------- opsize=3 -------------------------------
VAR580XX   P Hrd Liq    14           0.29          0.47          0.00          1.00
VAR585XX   T Hrd Liq    14           0.00          0.00          0.00          0.00
VAR590XX   Sell Yrlg    14           0.14          0.36          0.00          1.00
VAR595XX   Add Graz     14           0.14          0.36          0.00          1.00
VAR600XX   Add Wnt F    14           0.50          0.52          0.00          1.00
VAR605XX   Erly Wean    14           0.14          0.36          0.00          1.00
VAR610XX   Gmt Feed     14           0.07          0.27          0.00          1.00
VAR615XX   Gmt Incom    14           0.00          0.00          0.00          0.00
VAR620XX   Off Farm     14           0.14          0.36          0.00          1.00
VAR625XX   Alt Lvsk     14           0.00          0.00          0.00          0.00
VAR630XX   Alt Crop     14           0.00          0.00          0.00          0.00
VAR635XX   Other        14           0.00          0.00          0.00          0.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
            Strategies Used in 2001 By Operation Size
------------------------------- opsize=1 -------------------------------
VAR581XX   P Hrd Liq    568          0.33          0.47          0.00          1.00
VAR586XX   T Hrd Liq    569          0.02          0.14          0.00          1.00
VAR591XX   Sell Yrlg    569          0.07          0.26          0.00          1.00
VAR596XX   Add Graz     569          0.20          0.40          0.00          1.00
VAR601XX   Add Wnt F    569          0.41          0.49          0.00          1.00
VAR606XX   Erly Wean    569          0.14          0.35          0.00          1.00
VAR611XX   Gmt Feed     569          0.21          0.41          0.00          1.00
VAR616XX   Gmt Incom    569          0.06          0.24          0.00          1.00
VAR621XX   Off Farm     569          0.45          0.50          0.00          1.00
VAR626XX   Alt Lvsk     569          0.04          0.19          0.00          1.00
VAR631XX   Alt Crop     569          0.01          0.12          0.00          1.00
VAR636XX   Other        569          0.03          0.18          0.00          1.00
------------------------------- opsize=2 -------------------------------
VAR581XX   P Hrd Liq    175          0.42          0.50          0.00          1.00
VAR586XX   T Hrd Liq    176          0.03          0.17          0.00          1.00
VAR591XX   Sell Yrlg    176          0.10          0.30          0.00          1.00
VAR596XX   Add Graz     176          0.24          0.43          0.00          1.00
VAR601XX   Add Wnt F    176          0.51          0.50          0.00          1.00
VAR606XX   Erly Wean    176          0.18          0.39          0.00          1.00
VAR611XX   Gmt Feed     176          0.30          0.46          0.00          1.00
VAR616XX   Gmt Incom    176          0.07          0.26          0.00          1.00
VAR621XX   Off Farm     176          0.24          0.43          0.00          1.00
VAR626XX   Alt Lvsk     176          0.01          0.08          0.00          1.00
VAR631XX   Alt Crop     176          0.01          0.08          0.00          1.00
VAR636XX   Other        176          0.03          0.18          0.00          1.00
------------------------------- opsize=3 -------------------------------
VAR581XX   P Hrd Liq    14           0.36          0.50          0.00          1.00
VAR586XX   T Hrd Liq    14           0.00          0.00          0.00          0.00
VAR591XX   Sell Yrlg    14           0.14          0.36          0.00          1.00
VAR596XX   Add Graz     14           0.21          0.43          0.00          1.00
VAR601XX   Add Wnt F    14           0.64          0.50          0.00          1.00
VAR606XX   Erly Wean    14           0.14          0.36          0.00          1.00
VAR611XX   Gmt Feed     14           0.21          0.43          0.00          1.00
VAR616XX   Gmt Incom    14           0.00          0.00          0.00          0.00
VAR621XX   Off Farm     14           0.14          0.36          0.00          1.00
VAR626XX   Alt Lvsk     14           0.07          0.27          0.00          1.00
VAR631XX   Alt Crop     14           0.07          0.27          0.00          1.00
VAR636XX   Other        14           0.07          0.27          0.00          1.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
            Strategies Used in 2002 By Operation Size
------------------------------- opsize=1 -------------------------------
VAR582XX   P Hrd Liq    569          0.48          0.50          0.00          1.00
VAR587XX   T Hrd Liq    569          0.02          0.12          0.00          1.00
VAR592XX   Sell Yrlg    569          0.09          0.29          0.00          1.00
VAR597XX   Add Graz     569          0.27          0.45          0.00          1.00
VAR602XX   Add Wnt F    569          0.56          0.50          0.00          1.00
VAR607XX   Erly Wean    569          0.26          0.44          0.00          1.00
VAR612XX   Gmt Feed     568          0.49          0.50          0.00          1.00
```

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```
VAR617XX   Gmt Incom   569        0.10            0.30            0.00            1.00
VAR622XX   Off Farm    569        0.47            0.50            0.00            1.00
VAR627XX   Alt Lvsk    569        0.04            0.20            0.00            1.00
VAR632XX   Alt Crop    569        0.02            0.12            0.00            1.00
VAR637XX   Other       569        0.04            0.19            0.00            1.00
------------------------------- opsize=2 -------------------------------
VAR582XX   P Hrd Liq   176        0.57            0.50            0.00            1.00
VAR587XX   T Hrd Liq   176        0.03            0.18            0.00            1.00
VAR592XX   Sell Yrlg   176        0.18            0.39            0.00            1.00
VAR597XX   Add Graz    176        0.32            0.47            0.00            1.00
VAR602XX   Add Wnt F   176        0.66            0.48            0.00            1.00
VAR607XX   Erly Wean   176        0.35            0.48            0.00            1.00
VAR612XX   Gmt Feed    176        0.63            0.48            0.00            1.00
VAR617XX   Gmt Incom   176        0.13            0.33            0.00            1.00
VAR622XX   Off Farm    176        0.28            0.45            0.00            1.00
VAR627XX   Alt Lvsk    176        0.03            0.17            0.00            1.00
VAR632XX   Alt Crop    176        0.02            0.13            0.00            1.00
VAR637XX   Other       176        0.03            0.18            0.00            1.00
------------------------------- opsize=3 -------------------------------
VAR582XX   P Hrd Liq   14         0.57            0.51            0.00            1.00
VAR587XX   T Hrd Liq   14         0.00            0.00            0.00            0.00
VAR592XX   Sell Yrlg   14         0.21            0.43            0.00            1.00
VAR597XX   Add Graz    14         0.43            0.51            0.00            1.00
VAR602XX   Add Wnt F   14         0.79            0.43            0.00            1.00
VAR607XX   Erly Wean   14         0.36            0.50            0.00            1.00
VAR612XX   Gmt Feed    14         0.57            0.51            0.00            1.00
VAR617XX   Gmt Incom   14         0.07            0.27            0.00            1.00
VAR622XX   Off Farm    14         0.14            0.36            0.00            1.00
VAR627XX   Alt Lvsk    14         0.21            0.43            0.00            1.00
VAR632XX   Alt Crop    14         0.14            0.36            0.00            1.00
VAR637XX   Other       14         0.07            0.27            0.00            1.00
fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff
                Strategies Used in 2003 By Operation Size
------------------------------- opsize=1 -------------------------------
VAR583XX   P Hrd Liq   569        0.43            0.50            0.00            1.00
VAR588XX   T Hrd Liq   569        0.02            0.14            0.00            1.00
VAR593XX   Sell Yrlg   569        0.10            0.31            0.00            1.00
VAR598XX   Add Graz    569        0.29            0.45            0.00            1.00
VAR603XX   Add Wnt F   569        0.54            0.50            0.00            1.00
VAR608XX   Erly Wean   569        0.30            0.46            0.00            1.00
VAR613XX   Gmt Feed    569        0.52            0.50            0.00            1.00
VAR618XX   Gmt Incom   569        0.11            0.31            0.00            1.00
VAR623XX   Off Farm    569        0.49            0.50            0.00            1.00
VAR628XX   Alt Lvsk    569        0.06            0.24            0.00            1.00
VAR633XX   Alt Crop    569        0.02            0.14            0.00            1.00
VAR638XX   Other       569        0.04            0.18            0.00            1.00
------------------------------- opsize=2 -------------------------------
VAR583XX   P Hrd Liq   176        0.51            0.50            0.00            1.00
VAR588XX   T Hrd Liq   176        0.02            0.15            0.00            1.00
VAR593XX   Sell Yrlg   176        0.15            0.36            0.00            1.00
VAR598XX   Add Graz    176        0.37            0.48            0.00            1.00
VAR603XX   Add Wnt F   176        0.64            0.48            0.00            1.00
VAR608XX   Erly Wean   176        0.36            0.48            0.00            1.00
VAR613XX   Gmt Feed    176        0.64            0.48            0.00            1.00
VAR618XX   Gmt Incom   176        0.13            0.34            0.00            1.00
VAR623XX   Off Farm    176        0.31            0.46            0.00            1.00
VAR628XX   Alt Lvsk    176        0.04            0.20            0.00            1.00
VAR633XX   Alt Crop    176        0.02            0.15            0.00            1.00
VAR638XX   Other       176        0.05            0.21            0.00            1.00
------------------------------- opsize=3 -------------------------------
VAR583XX   P Hrd Liq   14         0.50            0.52            0.00            1.00
VAR588XX   T Hrd Liq   14         0.00            0.00            0.00            0.00
VAR593XX   Sell Yrlg   14         0.21            0.43            0.00            1.00
VAR598XX   Add Graz    14         0.36            0.50            0.00            1.00
VAR603XX   Add Wnt F   14         0.71            0.47            0.00            1.00
VAR608XX   Erly Wean   14         0.29            0.47            0.00            1.00
VAR613XX   Gmt Feed    14         0.93            0.27            0.00            1.00
VAR618XX   Gmt Incom   14         0.14            0.36            0.00            1.00
VAR623XX   Off Farm    14         0.14            0.36            0.00            1.00
VAR628XX   Alt Lvsk    14         0.21            0.43            0.00            1.00
VAR633XX   Alt Crop    14         0.14            0.36            0.00            1.00
VAR638XX   Other       14         0.07            0.27            0.00            1.00
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                Strategies Used in 2004 By Operation Size
------------------------------- opsize=1 -------------------------------
VAR584XX   P Hrd Liq   569        0.43            0.50            0.00            1.00
VAR589XX   T Hrd Liq   569        0.02            0.15            0.00            1.00
VAR594XX   Sell Yrlg   569        0.10            0.30            0.00            1.00
VAR599XX   Add Graz    569        0.32            0.47            0.00            1.00
VAR604XX   Add Wnt F   569        0.57            0.50            0.00            1.00
VAR609XX   Erly Wean   569        0.33            0.47            0.00            1.00
```

```
VAR614XX  Gmt Feed   569        0.39          0.49          0.00          1.00
VAR619XX  Gmt Incom  569        0.09          0.29          0.00          1.00
VAR624XX  Off Farm   569        0.49          0.50          0.00          1.00
VAR629XX  Alt Lvsk   569        0.07          0.26          0.00          1.00
VAR634XX  Alt Crop   569        0.03          0.17          0.00          1.00
VAR639XX  Other      569        0.04          0.19          0.00          1.00
-------------------------------- opsize=2 ----------------------------------
VAR584XX  P Hrd Liq  176        0.49          0.50          0.00          1.00
VAR589XX  T Hrd Liq  176        0.05          0.22          0.00          1.00
VAR594XX  Sell Yrlg  175        0.19          0.40          0.00          1.00
VAR599XX  Add Graz   176        0.36          0.48          0.00          1.00
VAR604XX  Add Wnt F  176        0.64          0.48          0.00          1.00
VAR609XX  Erly Wean  176        0.36          0.48          0.00          1.00
VAR614XX  Gmt Feed   176        0.52          0.50          0.00          1.00
VAR619XX  Gmt Incom  176        0.13          0.33          0.00          1.00
VAR624XX  Off Farm   176        0.32          0.47          0.00          1.00
VAR629XX  Alt Lvsk   176        0.05          0.22          0.00          1.00
VAR634XX  Alt Crop   176        0.05          0.21          0.00          1.00
VAR639XX  Other      176        0.04          0.20          0.00          1.00
-------------------------------- opsize=3 ----------------------------------
VAR584XX  P Hrd Liq   14        0.36          0.50          0.00          1.00
VAR589XX  T Hrd Liq   14        0.00          0.00          0.00          0.00
VAR594XX  Sell Yrlg   14        0.21          0.43          0.00          1.00
VAR599XX  Add Graz    14        0.50          0.52          0.00          1.00
VAR604XX  Add Wnt F   14        0.64          0.50          0.00          1.00
VAR609XX  Erly Wean   14        0.36          0.50          0.00          1.00
VAR614XX  Gmt Feed    14        0.43          0.51          0.00          1.00
VAR619XX  Gmt Incom   14        0.07          0.27          0.00          1.00
VAR624XX  Off Farm    14        0.14          0.36          0.00          1.00
VAR629XX  Alt Lvsk    14        0.21          0.43          0.00          1.00
VAR634XX  Alt Crop    14        0.07          0.27          0.00          1.00
VAR639XX  Other       14        0.07          0.27          0.00          1.00
```

Question 23

- Procedure: "including zeros" dataset.

- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.

- Excluded respondents who did not answer "yes" or "no".

- SAS Means procedure.

Code:

```
*forces either a yes or no answer;
var651x1 = var650xx + var651xx;
if var651x1 = 0 then delete;
if var651x1 = 2 then delete;
```

Output:

```
                    Income Averaging- All Ranches
VAR650XX  NO     592        0.73          0.45          0.00          1.00
VAR651XX  YES    593        0.27          0.45          0.00          1.00
var651x1         592        1.00          0.00          1.00          1.00
                  Income Averaging- By Operation Size
-------------------------------- opsize=1 ----------------------------------
VAR650XX  NO     438        0.76          0.43          0.00          1.00
VAR651XX  YES    439        0.24          0.43          0.00          1.00
-------------------------------- opsize=2 ----------------------------------
VAR650XX  NO     144        0.62          0.49          0.00          1.00
VAR651XX  YES    144        0.38          0.49          0.00          1.00
-------------------------------- opsize=3 ----------------------------------
VAR650XX  NO      10        0.80          0.42          0.00          1.00
VAR651XX  YES     10        0.20          0.42          0.00          1.00
```

Question 24

- Procedure: "including zeros" dataset.

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- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.

- Excluded respondents who did not answer "yes" or "no".

- SAS Means procedure.

Code:

```
*forces either a yes or no answer;
var653x1 = var652xx + var653xx;
if var653x1 ne 1 then delete;
```

Output:

```
 Variable  Label     N         Mean       Std Dev      Minimum      Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                        Replaced Herd- All Ranches
 VAR652XX   NO       571        0.89        0.31         0.00         1.00
 VAR653XX   YES      571        0.11        0.31         0.00         1.00
 var653x1            571        1.00        0.00         1.00         1.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                     Replaced Herd- By Operation Size
------------------------------ opsize=1 ------------------------------
 VAR652XX   NO       418        0.91        0.29         0.00         1.00
 VAR653XX   YES      418        0.09        0.29         0.00         1.00
 var653x1            418        1.00        0.00         1.00         1.00
------------------------------ opsize=2 ------------------------------
 VAR652XX   NO       144        0.87        0.34         0.00         1.00
 VAR653XX   YES      144        0.13        0.34         0.00         1.00
 var653x1            144        1.00        0.00         1.00         1.00
------------------------------ opsize=3 ------------------------------
 VAR652XX   NO         9        0.67        0.50         0.00         1.00
 VAR653XX   YES        9        0.33        0.50         0.00         1.00
 var653x1              9        1.00        0.00         1.00         1.00
```

Question 25

- Procedure: "including zeros" dataset.

- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.

- Excluded respondents who did not report replacing their herd in question 24.

- Excluded respondents with answers not summing to 100%.

- SAS Means procedure.

Code:

```
*limited to respondents who replaced their herd;
if var652xx = 1 then delete;
*excludes respondents with responses that did not sum to 100;
var663x1 = var660xx + var661xx + var662xx + var663xx;
if var663x1 ne 100 then delete;
```

Output:

```
 Variable  Label     N         Mean       Std Dev      Minimum      Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                breakdown of herd replacement- All Ranches
 VAR660XX   Hfr       56       18.86       36.65         0.00       100.00
 VAR661XX   Brd Hfr   56       23.39       38.42         0.00       100.00
 VAR662XX   Mat Cow   56       13.93       32.51         0.00       100.00
 VAR663XX   Brd Cow   56       43.82       45.79         0.00       100.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                breakdown of herd replacement- By Operation Size
 VAR660XX   Hfr       34       16.47       34.74         0.00       100.00
```

```
VAR661XX  Brd Hfr  34        22.65         38.38          0.00         100.00
VAR662XX  Mat Cow  34        21.18         38.98          0.00         100.00
VAR663XX  Brd Cow  34        39.71         45.89          0.00         100.00
----------------------------------- opsize=2 -----------------------------------
VAR660XX  Hfr      18        19.78         39.18          0.00         100.00
VAR661XX  Brd Hfr  18        27.22         41.98          0.00         100.00
VAR662XX  Mat Cow  18         0.00          0.00          0.00           0.00
VAR663XX  Brd Cow  18        53.00         46.45          0.00         100.00
----------------------------------- opsize=3 -----------------------------------
VAR660XX  Hfr       4        35.00         47.26          0.00         100.00
VAR661XX  Brd Hfr   4        12.50         25.00          0.00          50.00
VAR662XX  Mat Cow   4        15.00         30.00          0.00          60.00
VAR663XX  Brd Cow   4        37.50         47.87          0.00         100.00
```

Question 26

- Procedure: "including zeros" dataset.

- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.

- Excluded respondents who did not respond to any sagebrush question.

- SAS Means procedure.

Code:

```
*excludes respondents who did not respond at all to any sagebrush
question;
var693x1 =
var670xx + var671xx + var672xx + var673xx + var674xx +
var675xx + var676xx + var677xx + var678xx + var679xx +
var680xx + var681xx + var683xx +
var690xx + var691xx + var692xx + var693xx;
if var693x1 = 0 then delete;
```

Output:

```
Variable   Label    N        Mean        Std Dev       Minimum       Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
              Abundance of Sagebrush on Private Lands- All Ranches
VAR670XX   None    698       1450.02       8297.69        0.00      170000.00
VAR671XX   Light   698       1061.60       5518.33        0.00      100000.00
VAR672XX   Modrt   698       1578.28       6434.97        0.00      100000.00
VAR673XX   Abund   698        450.44       2022.39        0.00       35000.00
VAR674XX   Heavy   698        298.93       2228.63        0.00       50000.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
              Abundance of Sagebrush on Private Lands- By Operation Size
----------------------------------- opsize=1 -----------------------------------
VAR670XX   None    521        621.30       1865.85        0.00       19300.00
VAR671XX   Light   521        424.16       1818.87        0.00       22000.00
VAR672XX   Modrt   521        752.60       2410.36        0.00       29000.00
VAR673XX   Abund   521        208.07        817.27        0.00       10000.00
VAR674XX   Heavy   521         83.89        456.47        0.00        5500.00
----------------------------------- opsize=2 -----------------------------------
VAR670XX   None    162       3014.92      10022.70        0.00      110000.00
VAR671XX   Light   162       1757.00       4285.02        0.00       24000.00
VAR672XX   Modrt   162       3012.87       7569.84        0.00       65000.00
VAR673XX   Abund   162       1128.16       3781.37        0.00       35000.00
VAR674XX   Heavy   162        979.29       4479.61        0.00       50000.00
----------------------------------- opsize=3 -----------------------------------
VAR670XX   None     15      13333.33      44023.80        0.00      170000.00
VAR671XX   Light    15      15692.00      30528.36        0.00      100000.00
VAR672XX   Modrt    15      14763.13      30843.99        0.00      100000.00
VAR673XX   Abund    15       1549.33       2363.88        0.00        8000.00
VAR674XX   Heavy    15        420.00       1294.05        0.00        5000.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
              Abundance of Sagebrush on Public Lands- All Ranches
VAR675XX   None    698        290.87       3431.44        0.00       82939.00
VAR676XX   Light   698        793.91       9731.79        0.00      230000.00
VAR677XX   Modrt   698       1270.15      15577.31        0.00      400000.00
VAR678XX   Abund   698       1093.25      12333.83        0.00      300000.00
```

```
VAR679XX  Heavy  698     673.14     6691.29        0.00    130000.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
           Abundance of Sagebrush on Public Lands- By Operation Size
-------------------------------- opsize=1 ----------------------------------
VAR675XX  None   521     237.41     3657.15        0.00     82939.00
VAR676XX  Light  521     422.36     4791.61        0.00    102400.00
VAR677XX  Modrt  521     356.02     2866.95        0.00     60000.00
VAR678XX  Abund  521     269.13     2853.78        0.00     50000.00
VAR679XX  Heavy  521     321.09     4527.11        0.00     90000.00
-------------------------------- opsize=2 ----------------------------------
VAR675XX  None   162     489.75     2778.57        0.00     30000.00
VAR676XX  Light  162     622.10     2996.51        0.00     27583.00
VAR677XX  Modrt  162    4136.29    31788.53        0.00    400000.00
VAR678XX  Abund  162    3239.93    24464.07        0.00    300000.00
VAR679XX  Heavy  162    1855.34    11215.19        0.00    130000.00
-------------------------------- opsize=3 ----------------------------------
VAR675XX  None    15       0.00        0.00        0.00         0.00
VAR676XX  Light   15   15554.67    59330.68        0.00    230000.00
VAR677XX  Modrt   15    2066.67     5257.19        0.00     15000.00
VAR678XX  Abund   15    6533.40    16677.02        0.00     60000.00
VAR679XX  Heavy   15     133.40      516.38        0.00      2000.00
```

Question 27

- Procedure: "including zeros" dataset.

- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.

- Excluded respondents who did respond to any sagebrush question.

- SAS Means procedure.

Code:

```
*excludes respondents who did not respond at all to any sagebrush
question;
var683x1 =
var670xx + var671xx + var672xx + var673xx + var674xx +
var675xx + var676xx + var677xx + var678xx + var679xx +
var680xx + var681xx + var683xx +
var690xx + var691xx + var692xx + var693xx;
if var683x1 = 0 then delete;
```

Output:

```
Variable  Label      N      Mean     Std Dev    Minimum     Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
            Sagebrush Control Methods- All Ranches
VAR680XX  Burning    698    0.16      0.37       0.00        1.00
VAR681XX  Herbicide  698    0.19      0.40       0.00        1.00
VAR683XX  Other      698    0.12      0.33       0.00        1.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
            Sagebrush Control Methods- By Operation Size
-------------------------------- opsize=1 ----------------------------------
VAR680XX  Burning    521    0.11      0.32       0.00        1.00
VAR681XX  Herbicide  521    0.15      0.35       0.00        1.00
VAR683XX  Other      521    0.12      0.32       0.00        1.00
-------------------------------- opsize=2 ----------------------------------
VAR680XX  Burning    162    0.31      0.46       0.00        1.00
VAR681XX  Herbicide  162    0.35      0.48       0.00        1.00
VAR683XX  Other      162    0.14      0.34       0.00        1.00
-------------------------------- opsize=3 ----------------------------------
VAR680XX  Burning     15    0.33      0.49       0.00        1.00
VAR681XX  Herbicide   15    0.27      0.46       0.00        1.00
VAR683XX  Other       15    0.13      0.35       0.00        1.00
```

Question 28

- Procedure: "including zeros" dataset.

- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.

- Excluded respondents who did not respond to any sagebrush question.

- SAS Means procedure.

Code:

```
*excludes respondents who did not respond at all to any sagebrush
question;
var683x1 =
var670xx + var671xx + var672xx + var673xx + var674xx +
var675xx + var676xx + var677xx + var678xx + var679xx +
var680xx + var681xx + var683xx +
var690xx + var691xx + var692xx + var693xx;
if var683x1 = 0 then delete;
```

Output:

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
ƒƒ
	Years Before Replacing Cattle on Burn- All Ranches
VAR690XX	Private	698	0.20	0.81	0.00	12.00
VAR691XX		698	0.13	0.59	0.00	7.00
ƒƒ
	Years Before Replacing Cattle on Burn- By Operation Size
------------------------------ opsize=1 ----------------------------
VAR690XX	Private	521	0.10	0.38	0.00	4.00
VAR691XX		521	0.07	0.37	0.00	3.00
------------------------------ opsize=2 ----------------------------
VAR690XX	Private	162	0.54	1.48	0.00	12.00
VAR691XX		162	0.34	0.97	0.00	7.00
------------------------------ opsize=3 ----------------------------
VAR690XX	Private	15	0.33	0.82	0.00	3.00
VAR691XX		15	0.27	0.80	0.00	3.00
ƒƒ
	Typical Burn Size- All Ranches
VAR692XX	Private	698	28.73	172.77	0.00	2000.00
VAR693XX	Public	698	30.03	397.53	0.00	10000.00
ƒƒ
	Typical Burn Size- By Operation Size
------------------------------ opsize=1 ----------------------------
VAR692XX	Private	521	6.64	45.23	0.00	750.00
VAR693XX	Public	521	3.09	29.72	0.00	400.00
------------------------------ opsize=2 ----------------------------
VAR692XX	Private	162	94.41	332.14	0.00	2000.00
VAR693XX	Public	162	108.91	811.80	0.00	10000.00
------------------------------ opsize=3 ----------------------------
VAR692XX	Private	15	86.67	264.21	0.00	1000.00
VAR693XX	Public	15	114.00	386.85	0.00	1500.00

Question 18-Extra

- Procedure: "no zeros" dataset.

- SAS Frequency procedure.

Code:

```
data q18x; set dat.nozero051106;
*Includes only phone responses;
if phone = . then delete;
```

Output:

```
                    Sagebrush Statements
                          prvt yld
                                     Cumulative    Cumulative
        VAR496XX    Frequency    Percent    Frequency    Percent
        ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
```

```
              1        39       18.14         39        18.14
              2        16        7.44         55        25.58
              3        38       17.67         93        43.26
              4        60       27.91        153        71.16
              5        62       28.84        215       100.00
                  Frequency Missing = 109
```

```
                              pub yld
                                          Cumulative   Cumulative
      VAR500XX    Frequency     Percent    Frequency     Percent
      ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
              1        35       17.68         35        17.68
              2        13        6.57         48        24.24
              3        47       23.74         95        47.98
              4        48       24.24        143        72.22
              5        55       27.78        198       100.00
                  Frequency Missing = 126
```

```
                              wildlife
                                          Cumulative   Cumulative
      VAR504XX    Frequency     Percent    Frequency     Percent
      ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
              1        69       32.24         69        32.24
              2        39       18.22        108        50.47
              3        52       24.30        160        74.77
              4        29       13.55        189        88.32
              5        25       11.68        214       100.00
                  Frequency Missing = 110
```

```
                              cheat
                                          Cumulative   Cumulative
      VAR508XX    Frequency     Percent    Frequency     Percent
      ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
              1        65       31.40         65        31.40
              2        44       21.26        109        52.66
              3        55       26.57        164        79.23
              4        24       11.59        188        90.82
              5        19        9.18        207       100.00
                  Frequency Missing = 117
```

Part D: Demographic Information

Question 29

- Procedure: "including zeros" dataset.
- Excluded producers with less than 20 bred cattle.
- Sorted data into three operation sizes based on number of bred cows.
- GIS mapping from Excel spreadsheet.

Question 30

- Procedure: "including zeros" dataset.
- Excluded producers with less than 20 bred cattle.
- Sorted data into three operation sizes based on number of bred cows.
- Limited responses to a range of actual Wyoming elevations.
- SAS Means procedure.

Code:

```
*Limit to 2,000 - 13,000 feet;
if var901xx le 2000 then delete;
if var901xx > 13000 then delete;
```

Output:

111

```
    N          Mean         Std Dev        Minimum        Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                   Elevation- All Ranches
               Analysis Variable : VAR901XX elev
   770        5365.90        1216.16        3000.00       10000.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                Ranch Elevation- By Operation Size
-------------------------------- opsize=1 ------------------------------------
   572        5268.12        1164.05        3100.00       10000.00
-------------------------------- opsize=2 ------------------------------------
   183        5610.27        1326.28        3000.00        9650.00
-------------------------------- opsize=3 ------------------------------------
    15        6113.33        1157.66        4300.00        8100.00
```

Question 31

- Procedure: "including zeros" dataset.

- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.

- SAS Means procedure.

Output:

```
Variable  Label    N          Mean         Std Dev        Minimum        Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                       Primary Operator Gender
VAR902XX  M       814        0.88           0.33           0.00           1.00
VAR903XX  F       814        0.11           0.31           0.00           1.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                  Primary Operator Gender- By Operation Size
-------------------------------- opsize=1 ------------------------------------
VAR902XX  M       610        0.87           0.34           0.00           1.00
VAR903XX  F       610        0.11           0.32           0.00           1.00
-------------------------------- opsize=2 ------------------------------------
VAR902XX  M       189        0.89           0.31           0.00           1.00
VAR903XX  F       189        0.10           0.29           0.00           1.00
-------------------------------- opsize=3 ------------------------------------
VAR902XX  M        15        0.87           0.35           0.00           1.00
VAR903XX  F        15        0.13           0.35           0.00           1.00
```

Question 32

- Procedure: "including zeros" dataset.

- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.

- Eliminated respondents who did not indicate any age category.

- SAS Means procedure.

Code:

```
*Excludes respondents who did not respond to any age category;
var917x1 = var910xx + var911xx + var912xx + var913xx +
var914xx + var915xx + var916xx + var917xx;
if var917x1 = 0 then delete;
```

Output:

```
Variable  Label    N          Mean         Std Dev        Minimum        Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                         Primary Operator Age
VAR910XX  25-34   792        0.03           0.16           0.00           1.00
VAR914XX  35-44   792        0.11           0.31           0.00           1.00
VAR911XX  45-49   792        0.16           0.37           0.00           1.00
VAR915XX  50-54   792        0.20           0.40           0.00           1.00
```

```
VAR912XX  55-59  792          0.15           0.36          0.00          1.00
VAR916XX  60-64  792          0.13           0.34          0.00          1.00
VAR913XX  65-69  792          0.10           0.30          0.00          1.00
VAR917XX  70 +   792          0.14           0.35          0.00          1.00
ffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff
                  Primary Operator Age- By Operation Size
------------------------------ opsize=1 ---------------------------------
VAR910XX  25-34  593          0.03           0.17          0.00          1.00
VAR914XX  35-44  593          0.12           0.33          0.00          1.00
VAR911XX  45-49  593          0.15           0.36          0.00          1.00
VAR915XX  50-54  593          0.19           0.39          0.00          1.00
VAR912XX  55-59  593          0.16           0.37          0.00          1.00
VAR916XX  60-64  593          0.12           0.32          0.00          1.00
VAR913XX  65-69  593          0.11           0.31          0.00          1.00
VAR917XX  70 +   593          0.13           0.34          0.00          1.00
------------------------------ opsize=2 ---------------------------------
VAR910XX  25-34  185          0.01           0.10          0.00          1.00
VAR914XX  35-44  185          0.08           0.27          0.00          1.00
VAR911XX  45-49  185          0.19           0.39          0.00          1.00
VAR915XX  50-54  185          0.22           0.42          0.00          1.00
VAR912XX  55-59  185          0.11           0.32          0.00          1.00
VAR916XX  60-64  185          0.19           0.40          0.00          1.00
VAR913XX  65-69  185          0.08           0.27          0.00          1.00
VAR917XX  70 +   185          0.15           0.36          0.00          1.00
------------------------------ opsize=3 ---------------------------------
VAR910XX  25-34  14           0.07           0.27          0.00          1.00
VAR914XX  35-44  14           0.07           0.27          0.00          1.00
VAR911XX  45-49  14           0.14           0.36          0.00          1.00
VAR915XX  50-54  14           0.29           0.47          0.00          1.00
VAR912XX  55-59  14           0.21           0.43          0.00          1.00
VAR916XX  60-64  14           0.00           0.00          0.00          0.00
VAR913XX  65-69  14           0.07           0.27          0.00          1.00
VAR917XX  70 +   14           0.14           0.36          0.00          1.00
```

Question 33

- Procedure: "including zeros" dataset.

- Excluded producers with less than 20 bred cattle.

- Sorted data into three operation sizes based on number of bred cows.

- Excluded respondents who did not indicate any education category.

- SAS Means procedure.

Code:

```
*Excludes respondents who did not respond to any education category;
var925x1 = var920xx + var921xx + var922xx + var923xx + var924xx +
var925xx;
if var925x1 = 0 then delete;
```

Output:

```
Variable  Label    N       Mean      Std Dev     Minimum       Maximum
ffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff
                      Primary Operator Education
VAR920XX  HS       814      0.34       0.47        0.00          1.00
VAR923XX  Sm Clg   814      0.27       0.45        0.00          1.00
VAR921XX  Tech     814      0.08       0.30        0.00          4.00
VAR924XX  BA       814      0.19       0.39        0.00          1.00
VAR922XX  Sm Grd   814      0.04       0.20        0.00          1.00
VAR925XX  Grd Dg   814      0.08       0.27        0.00          1.00
ffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff

                 Primary Operator Education- By Operation Size
------------------------------ opsize=1 ---------------------------------
VAR920XX  HS       610      0.35       0.48        0.00          1.00
VAR923XX  Sm Clg   610      0.26       0.44        0.00          1.00
VAR921XX  Tech     610      0.11       0.34        0.00          4.00
VAR924XX  BA       610      0.17       0.37        0.00          1.00
VAR922XX  Sm Grd   610      0.04       0.19        0.00          1.00
VAR925XX  Grd Dg   610      0.08       0.26        0.00          1.00
------------------------------ opsize=2 ---------------------------------
VAR920XX  HS       189      0.32       0.47        0.00          1.00
```

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```
VAR923XX  Sm Clg  189       0.33          0.47          0.00          1.00
VAR921XX  Tech    189       0.01          0.10          0.00          1.00
VAR924XX  BA      189       0.22          0.41          0.00          1.00
VAR922XX  Sm Grd  189       0.05          0.22          0.00          1.00
VAR925XX  Grd Dg  189       0.09          0.29          0.00          1.00
------------------------------- opsize=3 -------------------------------
VAR920XX  HS       15       0.13          0.35          0.00          1.00
VAR923XX  Sm Clg   15       0.13          0.35          0.00          1.00
VAR921XX  Tech     15       0.00          0.00          0.00          0.00
VAR924XX  BA       15       0.60          0.51          0.00          1.00
VAR922XX  Sm Grd   15       0.07          0.26          0.00          1.00
VAR925XX  Grd Dg   15       0.07          0.26          0.00          1.00
```

Question 34

- ▪ Procedure: "including zeros" dataset.

- ▪ Excluded producers with less than 20 bred cattle.

- ▪ Sorted data into three operation sizes based on number of bred cows.

- ▪ Limited responses to 100 years of experience.

- ▪ SAS Means procedure.

Code:

```
*maximum years of experience set at 100;
if var926xx gt 100 then var926xx = .;
```

Output:

```
        N         Mean        Std Dev       Minimum       Maximum
       ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
             Years Experience Raising Beef Cattle- All Ranches
       813      34.89        17.05          0.00         75.00
       ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
             Years Experience Raising Beef Cattle- By Operation Size
------------------------------- opsize=1 -------------------------------
       610      34.17        17.46          0.00         72.00
------------------------------- opsize=2 -------------------------------
       188      36.93        15.71          0.00         75.00
------------------------------- opsize=3 -------------------------------
        15      38.67        13.83         10.00         70.00
```

Question 35

- ▪ Procedure: "including zeros" dataset.

- ▪ Excluded producers with less than 20 bred cattle.

- ▪ Sorted data into three operation sizes based on number of bred cows.

- ▪ SAS Means procedure.

Output:

```
Variable  Label    N        Mean        Std Dev       Minimum       Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                  Off-Farm Employment- All Ranches
VAR930XX  Self    814       0.42          0.49          0.00          1.00
VAR931XX  Spouse  814       0.46          0.50          0.00          1.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                  Off-Farm Employment- By Operation Size
------------------------------- opsize=1 -------------------------------
VAR930XX  Self    610       0.50          0.50          0.00          1.00
VAR931XX  Spouse  610       0.50          0.50          0.00          1.00
------------------------------- opsize=2 -------------------------------
VAR930XX  Self    189       0.18          0.39          0.00          1.00
VAR931XX  Spouse  189       0.34          0.47          0.00          1.00
------------------------------- opsize=3 -------------------------------
VAR930XX  Self     15       0.13          0.35          0.00          1.00
VAR931XX  Spouse   15       0.20          0.41          0.00          1.00
```

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Question 36

- Procedure: "including zeros" dataset.
- Excluded producers with less than 20 bred cattle.
- Sorted data into three operation sizes based on number of bred cows.
- Eliminated income percentages of 0%.
- SAS Means procedure.

Code:

```
*eliminates income percentages of 0;
if var932xx = 0 then var932xx = .;
```

Output:

```
        N              Mean          Std Dev         Minimum         Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
              Percent of Income from Ranching- All Ranches
       704            64.50           32.78            1.00          100.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
           Percent of Income from Ranching- By Operation Size
-------------------------------- opsize=1 --------------------------------
       519            58.65           32.96            1.00          100.00
-------------------------------- opsize=2 --------------------------------
       171            80.87           25.66            5.00          100.00
-------------------------------- opsize=3 --------------------------------
        14            81.21           31.80            1.00          100.00
```

Question 37

- Procedure: "including zeros" dataset.
- Excluded producers with less than 20 bred cattle.
- Sorted data into three operation sizes based on number of bred cows.
- Eliminated respondents who did not indicate any income category.
- SAS Means procedure.

Code:

```
*eliminates non-response to every category;
var948x1 = var940xx + var941xx + var942xx + var943xx + var944xx
+ var945xx + var946xx + var947xx + var948xx;
if var948x1 = 0 then delete;
```

Output:

```
Variable  Label      N         Mean         Std Dev       Minimum        Maximum
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                      Gross Ranch Sales--All Ranches
VAR940XX  < 1K       745        0.00          0.06          0.00           1.00
VAR941XX  1-5K       745        0.02          0.13          0.00           1.00
VAR942XX  5-10K      745        0.03          0.18          0.00           1.00
VAR943XX  10-25K     745        0.15          0.35          0.00           1.00
VAR944XX  25-50K     745        0.20          0.40          0.00           1.00
VAR945XX  50-100K    745        0.20          0.40          0.00           1.00
VAR946XX  100-250K   745        0.24          0.43          0.00           1.00
VAR947XX  250-500K   745        0.12          0.33          0.00           1.00
VAR948XX  > 500K     745        0.04          0.20          0.00           1.00
ƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒƒ
                      Gross Ranch Sales- By Operation Size
-------------------------------- opsize=1 --------------------------------
VAR940XX  < 1K       555        0.01          0.07          0.00           1.00
VAR941XX  1-5K       555        0.02          0.15          0.00           1.00
```

VAR942XX	5-10K	555	0.04	0.20	0.00	1.00
VAR943XX	10-25K	555	0.19	0.39	0.00	1.00
VAR944XX	25-50K	555	0.26	0.44	0.00	1.00
VAR945XX	50-100K	555	0.25	0.43	0.00	1.00
VAR946XX	100-250K	555	0.19	0.39	0.00	1.00
VAR947XX	250-500K	555	0.04	0.20	0.00	1.00
VAR948XX	> 500K	555	0.01	0.07	0.00	1.00

--------------------------------- opsi ze=2 ---------------------------------

VAR940XX	< 1K	176	0.00	0.00	0.00	0.00
VAR941XX	1-5K	176	0.00	0.00	0.00	0.00
VAR942XX	5-10K	176	0.01	0.08	0.00	1.00
VAR943XX	10-25K	176	0.01	0.11	0.00	1.00
VAR944XX	25-50K	176	0.04	0.20	0.00	1.00
VAR945XX	50-100K	176	0.09	0.28	0.00	1.00
VAR946XX	100-250K	176	0.41	0.49	0.00	1.00
VAR947XX	250-500K	176	0.36	0.48	0.00	1.00
VAR948XX	> 500K	176	0.09	0.28	0.00	1.00

--------------------------------- opsi ze=3 ---------------------------------

VAR940XX	< 1K	14	0.00	0.00	0.00	0.00
VAR941XX	1-5K	14	0.00	0.00	0.00	0.00
VAR942XX	5-10K	14	0.00	0.00	0.00	0.00
VAR943XX	10-25K	14	0.00	0.00	0.00	0.00
VAR944XX	25-50K	14	0.00	0.00	0.00	0.00
VAR945XX	50-100K	14	0.00	0.00	0.00	0.00
VAR946XX	100-250K	14	0.00	0.00	0.00	0.00
VAR947XX	250-500K	14	0.14	0.36	0.00	1.00
VAR948XX	> 500K	14	0.86	0.36	0.00	1.00

Appendix D: Responses to "Other, Specify"

Section A: General Ranch Description

Question 1, Variable 125: Other types of private land.

"illegible" (2)
5 acres
alfalfa
alfalfa circle
AUM
Beans (4)
bldg/house
corrals, house, buildings
CRP (11)
CRP grass
Deeded (2)
dry land grass
fallow - farm yard
fallow lands
farm stead, "illegible," hay land

farmstead
grazing "illegible"
grazing assoc.
haylage
home site
home site, roads, ditches, dry ground
homestead (2)
house
house and building (2)
irrigated and sub-irrigated pasture
irrigated grass
irrigated pasture (6)
oat hay
oats
owned acres

pasture
pasture irrigation
pasture with corral
private forest
reservation land
riparian, willows, sage   benches
river and creek bottom
row crops, bad lands, drought fallow
sold cows in 2003
sugar beet (2)
summer fallow (2)
tribal
wheat
winter wheat
W.I.R.

Question 2, Variable 152: Other ranch enterprises / activities.

"illegible"
160 goats just purchased
4 cows
75% from crop sales
all other come from other sources
all summer is pasture for other
ranchers
barley, hay
brand
bucking bulls
bulls (7)
calf crop share
CBM, hay
chickens
coal miner
contract work for coal mine
cow calf stocker
crops (3)
crops (dry land wheat)
CRP (2)
CRP, wheat
cull cows and bulls
custom hay stacking
direct marketing "natural beef" to
consumers
direct meat sales
drought conditions
dry land wheat
dude ranch (2)
equipment, custom haying
farming (2)
finish steers to slaughter
govt. programs
grain sale
grain, hay, leases cropland for winter
pasture
grain, row crop

grass sales, hay
ground is leased out
guiding, ditch rider
hay (26)
hay sales
hay, cash crops
hay, custom work
hay, grazing
hay, horse boarding
hay, hunt
hay, misc.
hay, pasture
hay, pasture, misc.
honey
horse boarding
horses
hunting (3)
irrigated crops
lease pasture
lease pasture for cattle grazing
lease pasture for yearling steers
leases grazing acres to someone else
logging
long horns for roping
malt barley, grass seed, fed ag
program, etc.
market steers
minerals
miniature Hereford cattle
mules
my farming/ranch is a hobby
operation we have accepted no govt.
funding for anything
off farm work
old roping cattle
outfittin', other
outside the ranch work

pasture
pasture cattle, hentiy
pasture lease
pasture yearlings
pasture yearlings during summer for
feedlot
pasturing cattle for others, hay
purchased black angus
ranch leased to a neighbor
registered bulls
rent pasture, hay
rented out land (both pasture and
cropland
rodeo livestock
roping cattle
roping steers - rental
roping steers and heifers
roping steers, purchased calves
roping, team penning, horse nutrition
clinics
run a truck
running others cows and graze
S.S.
seed stock
seed stock (bulls and heifers)
seed, hay, grain
sell bulls (2)
sell pairs
sell pasture
sheep
short of water - won't take in stock
slaughter steers, hay
steers
steers, heifers
summer grazing
takes in cattle for others winter
months till calving

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takes in cattle for summer grazing
teacher salary
team penning steers
team roping and rodeo cattle
tourism
wages and custom hire

we sold our cows no grass/drought
wheat
wheat, land rent
wheat, millet, hay, pasture lease
works off-farm
yearling bulls

yearlings
yearlings - buy spring sell in fall.
take cattle in for grazing for 4 or 5 mo.

Question 5, Variable 202: Other herd management techniques.

baud calves
baugs ID
branding (9)
buck
bugs

ID tag
ivomec
pour on
preg. test
scour guard

scour guard, viti A
tatoo
taxes, heat, power, leases, registrations, misc.
vira shield 5

Question 6, Variable 222: Other ranch expenses.

"illegible" feed
after math and feed
AI (3)
all other expense categories
background, feed lot
balance of schedule F-IRS
B.L.M., forest
breeding expense, utilities, electricity
breeding fees, replacement heifer development, utilities
cake (5)
cake, cubes
capital purchase
certified hay
contract haying
contract services, food, housing, supplies, etc
crystal lick
custom feeding, pasture lease, trucking, insurance
custom feeding, taxes, insurance, other
depreciation, grazing lease, insurance, utilities, taxes
depreciation, insurance, rent, supply, taxes, utilities, vehicle
electric power for irrigation, etc.
electric, taxes
electricity (4)
equipment
equipment purchase, estate purchase of ranch, private lease, public lease
equipment purchased, taxes, supplies, insurance, living expenses
equipment rent, ranch lease
everything else
fair, horse shows, recreation
family, fence, pasture, etc.
farm/ranch supplies, repairs
feedlot
fence repair
fencing (2)
fencing and corral maintenance
fencing, repairs (2)
fencing, repairs to buildings
filler hog
fixed leases, utilities, legal acct, depreciation
freight
freight, grazing fees, dues, insurance, leases, supplies, property taxes, depreciation, water

freight, insurance, taxes, rent, supplies, utilities
general supplies
grain hay
grass
grass hay (4)
grass hay (drought related buying)
grass hay, leases
grass, alfalfa
grass, hay
grass/al-mix
grass/grass alfalfa, mixed hay
grazing range
hay (2)
hay cubes, grass, grass/alfalfa
hay, alfalfa cubes, pasture lease

hay, misc.
hay, silage
haying, weed control, vehicle/machine repairs
horse feed
horse purchases
horses, fence cost
house payment
idle
improvement
insurance (6)
insurance health, education, property
insurance, family living, utilities, supplies
insurance, farm repairs, supplies, other fuel, phone, taxes, lease payments
insurance, just trying to live
insurance, misc.
insurance, rent, grazing fees, taxes, supplies
insurance, supplies, misc.
insurance, taxes
insurance, taxes, grazing fees (state and fed), freight, trucking, brand inspect, beef check off, utilities (phone, power, etc), commissary, postage, office expense
insurance, taxes, supplies, "illegible," depreciation, "illegible insurance, trucking, brand inspection, pasture rent
insurance, trucking, dues, taxes, supplies, lease
insurance, utilities
insurance: crop, property, health

irrigation water
irrigation (3)
irrigation, electricity
irrigation, labor
irrigation, leased
irrigation, property tax, pasture rent, feedlot, hay, feed, misc., supplies, services
irrigation, sales comm, brand inspection, truck, expenses, depreciation, supplies, taxes, insurance, utilities
irrigation, taxes, living
land
land lease
land lease, insurance, ranch/shop supplies
land payment (2)
land rental
lease (9)
lease bulls, insurance
lease, misc., insurance
leased
leased cattle
leased grass
leases (4)
leases, permits
leases, supplies, utilities, taxes
leases, utilities, misc.
living expenses/home maintenance
living, food, clothes, etc.
living, rent: land, machinery
loan
loan, living
machinery
machinery purchase
machinery replacement, taxes, insurance, licenses, supplies
marketing, sales, trucking, office admin, depreciation
mat
mgt. lee. Rent
misc. (16)
misc. (lease, insurance)
misc., insurance
misc., supplies
misc., taxes
misc. supplies
mortgage
new machinery, ditch work, fencing, buildings, repair

niche market product development,
water development, other
parts, materials
pasture (8)
pasture cost
pasture lease (5)
pasture lease, equipment
pasture rent (8)
payments, living
power, pasture
profit, work
prom, show expense
protein supplements
purchasing land
ranch insurance, state lease, utilities,
living
ranch supplies
registration, misc.
rent (3)
rent, insurance
rent, machinery, misc.
rent, share crop
rent, taxes, insurance, electricity
stuff
summer pasture
sunflower
supplement
supplies (2)

supplies, B.L.M. lease, Forest
service lease, trucking, insurance,
taxes, depreciation, etc
supplies, equipment
supplies, machine payments
supplies, new equipment
supplies, repairs
taxes, utilities, insurance, repair,
maintenance, supplies
tax, insurance
taxes (3)
taxes, electricity
taxes, insurance
taxes, insurance, utilities, leases, etc
taxes, leases, maintenance,
insurance, trucking
taxes, licenses, office supplies, work
clothes, utilities, machinery
purchases, insurance, irrigation
taxes, rent, seeds, insurance, utilities,
office
taxes, utilities, insurance, misc.,
irrigation, etc
taxes, water
tools, etc.
truck and trailer payments
trucking (3)

trucking, misc., property taxes,
utilities, leases, insurance
utilities equipment
utilities, general maintenance
utilities, insurance, taxes, license
plates, commissions, employee
benefits, health insurance, care,
employee wages
utilities, insurance, taxes, water
charges, equipment purchases, parts
utilities, lease
utilities, misc.
utilities, misc., etc.
utilities, repairs, tax, insurance
utilities, rentals
vehicle license, insurance, taxes
vehicle, equipment purchases
vehicle, insurance, utilities, water,
misc., food, clothes
wages, "illegible," fence, gas, post
water (3)
water rights
water, fence, food, feedlot
water, parts, supplies
weed control, taxes, telephone,
leases, groceries, trucking
wheat hay

Question 8, Variable 318: Other on- and off-farm feed sources.

"illegible"
alfalfa, sheep
all hay bought
beet pulp
breeder sales, bulls
cake (13)
corn
corn balls
corn silage (8)
crystal lick
custom hay/shapes
ear corn (2)
fall tritcare
go to feed lot
grass (3)

grass grazing (2)
grass hay
hay meadows
hay stubble
horse feed
irrigate grass
leased pasture
minerals (3)
minerals and salts (5)
molasses tubs
nutralix
oat pellets
pasture (2)
pasture bought MT
pellets

protein supplement, cake, lick barrels
protein tubs
range land
rent pasture
rough pasture
salt
salt, minerals
silage (3)
trade hay for summer pasture with a
friend
triticale
use pastured grass
winter pasture
yearling bought in spring sold in
Dec.

Question 9, Variable 354: Other livestock (peak number owned, months owned, and months fed).

"illegible"
2 lamas, 2 goats
4-h
bull calf, open cows
bull calves (10)
bull calves for sale, Holstein heifers
bull yearlings
bulls (2)
bulls breeding
calves, bulls (bucking)
chickens (2)
dairy cow

daughter owns ewes and lambs
dog (2)
ewes, bucks
ewes, lambs, bucks
fat cattle
hogs
llamas
llamas, emu, alpacas
mules
purchased steer calves
purchased yearling
roping cattle

roping steers, purchased calves
shared cattle
sheep (20)
sheep on feed
sheep, goats
short term breed cows
steers
summer st
working dogs
yearling bulls (2)
yearlings

Question 10, Variable 369: Other methods for selling calves.

1) only sell late/undesirable calf at
weaning=100% 2) Retain ownership
of yearling steers through feedlot

process sold "illegible"=100% 3)
Replacement yearling heifers sold to
feedlot private treaty=100%

breeding bulls
bucking bulls
bull test auction

bulls
cattle buyer
consignment
cull cows
depending on prices
don't sell just furnish kids with
slaughtered beef
kept replacement
kids meat
leased animals

meat "illegible"
none retained
purchased yearlings
purchased yearlings finished sold in
meat
ranch auction
replacement heifers, breeding bulls
retained and fed out some steers,
heifers; sold directly to consumers

retained open - sold directly to
consumers
retained steers/heifers sold directly to
customers as fed beef
retained steers/heifers sold to
consumers as good eating
sale barn
sell bulls for people to eat
sold as yearling "illegible
sold to feedlots (2)

Question 11, Variable 398: Other Cattle Classes for Sale Weights and Months

bred heifers (2)
breeding cattle
buffalo
bull calves (2)
bull calves 1 yr
bull calves, yearlings
bulls (3)
calves born after May 1
canners
cull cows (9)
cull cows and calves

culls (3)
dry cows (3)
dry cows and bulls
drys
goat
Holstein springers
lambs (4)
lambs, llama
market steers
old cows (2)
open and cull cows and bulls

open cows (4)
open replacement heifers
pairs
roping steers
roping steers, purchased calves
slaughter steers
yearling breading bulls
yearling bulls (2)
yearling steers

Question 12, Variable 413: Other methods for purchasing cattle.

"illegible" only bulls
AI
all purchased are ET calves raised by
someone else
breeder producer private sale
bull sales (8)
buy bulls only - bull sale
don't purchase any cattle
fence post
home bred

home raised line breeding
internal replacement
keep our own replacements
newspaper ads, fliers, word of mouth
order buyer
packing horse
private auction (2)
private auction, not sale barn
private auctions
raise all our own

raised (4)
raised sheep and bulls
ranch auction
ranch raised
replacements
sell as pairs
we sell cattle an do not purchase any
other than the head bulls

Section B: Other Production and Marketing Practices

Question 18, Variable 512: Other general farm / ranch practices.

burning sage brush
cactus is more prevalent and needs to
be addressed
cactus spraying
Canadian thistle
chop the sage brush
club calves
don't worry about the wildlife, the
wolves will take care of it all
(including people)
elk feed ground on ranch, no
problems
feeder association
field threatens our B.L.M. aums gas
fighting prairie dogs, spray cactus
flower
have a lot of soap weed growing
"illegible"

have no sage brush
have no sagebrush on my land
have sprayed formadog for prickly
pear and larkspur
have to have career off farm, not
enough work on ranch - all
successful ranches do
improve fishery in stream
larkspur
natural fires controls sagebrush
no sage brush on land owned
no sage brush on our operation
prairie dog control (2)
rabbit brush infestation control
retired
sage brush is not a problem but cheat
grass is

sagebrush control does not endanger
wildlife or cattle. It increases grass,
nothing eats sagebrush unless there
is no grass
sell organic beef and reg. show stock
spraying buck brush and cactus
spring sprayed 10 years ago
too many deer!
we are an irrigated place - water
availability is our main factor.
weed control
wolves and grizzly bears are the
biggest detriment to private property
rights and ranch operations and wild
life preservation

Section C: Drought and Sagebrush Management

Question 21, Variable 570: Other changes experienced as a result of recent drought.

"illegible"
% increase in weeds

200 no hay put up
acre left fallow

bought fed and sold cattle so weight and breeding stayed up.
bought more outside hay supplements
calving earlier - feeding more
cattle, hay
compared to feed cost increase % a normal year.
cow reduction
cows never bred up because "illegible" of "illegible"
develop stock water
don't know all grass leased out
drought killed much of the meadow grass. Had to reseed
got our butt kicked
grass hoppers
grazing cost increase
had to haul water to B.L.M./hauling currently
hauling water
have not run cattle
heat stress reduced crops
I no longer know what a normal year is! I'm down 50% in numbers
land rent to run cows on

light calves bring more $.Co-Op feed program pays excellent program for calves "illegible" $
Mom and Dad sold their herd so it is hard to compare.
money
no grazing land
no hay put up - grazed
note: I buy feed to compensate
pasture grazing fees
pasture water
pregnancy and calving rates
production was actually up
sold 20% of cows
water
we cut our number of cattle to keep weight up
we leased other pasture
we've been trying to plow and rework our hay fields since 1998 - haven't been able do to drought
what is a normal year
would want some one to go through this with me
yearling operation

Question 22, Variable 640: Other strategies used for each drought year (2000-2004).

alternative on-farm enterprise
author and publisher of book and other materials
bought less
bought less heifers
cattle moved around pasture (pasture rotation)
commercial weed spraying
continue to lower cattle numbers and praise god. He got you out of debt before it hit and continued to get worse each year
corn silage made the difference in getting cows bred up
couldn't purchase needed heifers/no grass
custom machinery repair work
did not hay as much because they did have the moisture that would make it flourish
don't keep any replacement heifers
don't believe in government welfare
drought did not affect my herd size
everything is affected
fed calves did not bring back to grass. Moved cows off premire to additional feed source
fed hay all summer 2 yrs ago to all but 80 head trucked out to pasture
found more pasture land and reduced herd size
go in debt further
going to have to have trees logged because of beetles in trees. The beetles are swarming because of drought and no heavy snow and cold weather to kill off larvae
grazed CRP
Grazed more of the hay fields and bought hay to replace the loss of production.
ground ahs been leased and is owned by 5 in a partnership - no livestock in produced
had 530 head cows 2001 - reduced to 180 in 2003 same has today
hauling water
hauling water for cattle - no runoff
Held hay over to cover loss of 2nd cutting.
herd capacity is down
I am a "illegible" operator. With water in short supply, my (#'s and risk) are kept down. We do lambs also. I'd raise more cows if enough water to grow enough pasture
I cut the grass and alfalfa along the highway in a 10 mile radius of our place put it up as loose hay for the winter.
I grow my own feed, so I'll feed them
I had sold my cattle prior to the drought. The land has easily supported the few horses I own
I have received all my allocated water for my hay operation.

I have substantial savings and retirement benefits since 1999
install water lines, tanks, crossfence, haul water
installed center pivot irrigation
Jack Daniels
just because
just spread them out, less cattle in each pasture
leasing pasture preachers mule
limit the number of cattle we take each summer
liquidated sheep enterprise
methane gas development
moved cows onto meadow early and fed longer
moved to Iowa
no operational changes
only graze yearlings 6-7 months
pasture rotation
pastured CRP put up CRP hay
purchased irrigated hay land
put cows out on share
put in irrigation system - little water
put on share
reduce purchase of number of heifers
reduce steers by 15%
reduced # of yearlings custom pastured
reduced leasing out pastures
reduced number of mouthe I took in "illegible"
reduced number of pasture cattle we take in.
reduced numbers grazing grass
reduced the number of cattle taken in for others
reduced the number of pasture cattle reduced the amount of hay sold
reduced the number of steers bought
reduced total number of A.U.M.s we took in for grazing June - October
rented summer range and bought hay
retained land in old hay fields that might get 1 or 2 irrigations rather than cropping to maintain feed supply
rodeo co. makes saddles
sell less hay
sent pasture cattle home early
served on a board $4-6000 per year
sold cows bought horses
sold larger ranch and bought a smaller one
sold less hay, used one hay meadow for summer pasture
sold off cattle 2001 (estimated year)
sold older cows
sold timber

stop leasing
summer feed (hay and corn)
switched to selling at weaning - no backgrounding
trapping on our own ranch in 03 and 04
traveled 60 miles away - leased land because none in near area to lease
water projects

we didn't have much change
we have always grazed below capacity. 100% irrigation reduction - late water rights - none available, reservoir empty except for spring runoff
we custom swath, rake and bale hay telone to work all winter hauling beets or loading beets to sugar factory

Question 27, Variable 686: Other methods used to control sagebrush.

"illegible" (2)
2-4-D with diesel
air way
antelope
backhoe
beating (2)
blade
bladeing, mowing
brush aerator
brush beater (5)
brush beating and aerator
brush hog (16)
brush hog, rotary mower
brush mower
cattle
chipping
chop, brush hog
chopping (4)
chops
clearing with tractor
continuous spring cropping (oats) 3 years
control in fields only
controlled grazing
cutting
deer herd
dig up and reseed
drag harrow
dragging
dragline
dug up

equipment and heavy short term
grazing impact
farming up
feed hay in sage
feed on it
feed on it in winter
feeding on it
feeding on sage area
flood irrigate
forage interseed grass and kochia
goats
grade off in winter
grassing rotation
graze cattle
grazing
grazing and feeding
grazing goats
grazing management
grubbing
hand chopping
I don't
I have a lot of sage chickens
I have no sagebrush
impact
irrigation (4)
leave in natural state
let it "illegible"
mechanical
mechanical
mow (8)
mow, reseed with grass

mowing
my mountain burned up, 2002
NA
nature
no control (30)
our sage brush is vital to calving
over grazing
past years of sheep
planned grazing
plowing (3)
removal
rotate grazing
rotary mowed
scraped with blade and piled to burn later
sheep and goats
sheep grazing
shovel
some tillage
spike (3)
spray
tillage
tilled
tilled up
watering kills the sage brush
we like to have some
winter feeding
winter graze
winter feeding on sage brush

Appendix E: Survey Instrument

Wyoming Beef Cattle Producers Survey

We would prefer the primary ranch operator complete this survey. Your voluntary and confidential participation in this survey is much appreciated. Please answer the following questions to the best of your ability. If you do not feel comfortable answering a question, please omit it and continue with the rest of the survey. No individual information will be released. Thank you.

Part A. General Ranch Description - The first part of this survey asks questions about your operation. Each farm/ranch has its own unique characteristics and production practices. We would like to know the characteristics and production practices used on your operation.

1. How much land in your ranch fits into the following categories, and is the land owned or leased?

Types of Land	Acres	Percent Owned	Percent Leased
Pastureland, Rangeland	110	111	112
Harvested Cropland for Grain	113	114	115
Harvested Cropland for Silage	116	117	118
Irrigated & Sub Irrigated Hay	119	120	121
Dry Land Hay	122	123	124
Other (specify) 125	126	127	128
Forest Service	129		
BLM	130		
State Lands	131		

2. What percentage of your annual gross sales comes from each type of ranch enterprise/practice? (Percentages must total to 100%).

	Percent		Percent		Percent		Percent
Cow/Calf	140	Back-grounding	141	Feedlot	142	Sheep	143
Cow-Yearling	144	Club-calves	145	Replacement Heifers	146	Horses	147
Buffalo	148	Goats	149	Dairy Cattle	150	Hogs	151
Other (specify)						152	153

3. What percentage of calving occurs during each month? (Percentages must total 100%)

	Percent		Percent		Percent		Percent
Jan.	160	April	161	July	162	Oct.	163
Feb.	164	May	165	Aug.	166	Nov.	167
March	168	June	169	Sept.	170	Dec.	171

4. What percentage of weaning occurs during each month? (Percentages must total 100%)

	Percent		**Percent**		**Percent**		**Percent**
Jan.	172	April	173	July	174	Oct.	175
Feb.	176	May	177	Aug.	178	Nov.	179
March	180	June	181	Sept.	182	Dec.	183

5. Which herd management techniques do you practice for most of the herd each year
(Please check all that apply)?

Practice		**Practice**	
Vaccinate	190	Animal ID System	191
Deworm	192	Body Condition Scoring	193
Insect Control	194	Pregnancy Check	195
Implant	196	Breeding Soundness Exam	197
Dehorn	198	Artificial Insemination	199
Castrate	200	Veterinarian Consultation	201
Other (specify) 202	203		

6. In a typical year what percentage of the total ranch expenses are due to the following?
(Percentages must total 100%)

Expenses	**Percent**	**Expenses**	**Percent**
Purchased Livestock	210	Veterinarian/Health Supplies	211
Alfalfa Hay	212	Labor-hired/Contract labor	213
Grain (corn, barley, oats)	214	Diesel, Gasoline, Natural Gas Fuels	215
Feed Concentrates	216	Interest Expense	217
Salt & Mineral	218	Professional Services	219
Fertilizer, Chemicals, Seeds	220	Machinery Repair Services	221
Other (specify) 222	223		

7. In a typical year how many of the following family and non-family workers does this operation
employ and in which months? (Please include both paid and non-paid employees)

Family	**Number Employed**	**Circle the Months the Part-time/Seasonal Labor are Employed**												
		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	All
Year – round	230	231	232	233	234	235	236	237	238	239	240	241	242	243
Part-Time or seasonal	244	Jan. 245	Feb. 246	Mar. 247	Apr. 248	May 249	Jun. 250	Jul. 251	Aug. 252	Sept. 253	Oct. 254	Nov. 255	Dec. 256	All 257

Non-Family	**Number Employed**	**Circle the Months the Part-time/Seasonal Labor are Employed**												
		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	All
Year – round	260	261	262	263	264	265	266	267	268	269	270	271	272	273
Part-Time or seasonal	274	Jan. 275	Feb. 276	Mar. 277	Apr. 278	May 279	Jun. 280	Jul. 281	Aug. 282	Sept. 283	Oct. 284	Nov. 285	Dec. 286	All 287

8. How much of the following feed sources come from on-farm, how much from off-farm, and how long do you feed them in a typical year? (Please include the month you start and finish feeding)

Feed Sources	On-Farm Sources	Off-Farm Sources	Month Usually Start Feeding (1 – 12)	Month Usually Finish Feeding (1 – 12)
Grass Hay, Other Hay (tons)	290	291	292	293
Alfalfa (tons)	294	295	296	297
Protein Supplement (tons)	298	299	300	301
Concentrates (tons)	302	303	304	305
Corn Stalks/Stubble (acres)	306	307	308	309
Other Crop Aftermath (acres)	310	311	312	313
All Grain (bushels)	314	315	316	317
Other (specify) 318	319	320	321	322

9. Please indicate the peak number of livestock typically owned, and the months they are fed on raised or purchased feed other than pasture grass during a typical year.
(If owned all year, please indicate with a 12)

Classes	# Owned	# Months Owned	# Months on Feed (hay, alfalfa, grain)
Bred Cows	330	331	332
Steer Calves	333	334	335
Heifer Calves	336	337	338
Replacement Heifers	339	340	341
Retained Yearlings	342	343	344
Fattened Cows	345	346	347
Herd Bulls	348	349	350
Horses	351	352	353
Other (specify) 354	355	356	357

10. What percentage of your calves are sold using the following methods?
(Percentages must total 100%)

Methods	Percent	Methods	Percent
Sale Barn	360	Retained slaughter steers/heifers – Sold as live animals	361
Video Auction	362	Retained slaughter steers/heifers – Sold on grid/in the meat	363
Private Sale/Treaty to Buyer	364	Retained steers/heifers – Sold directly to consumers as grass fed beef or natural beef	365
Forward Cash Contracts	366	Retained steers/heifers – Sold directly to consumers as certified organic beef	367
Futures & Options	368	Other (specify) 369	370
Website listing	371		

11. What are the typical sale weights/maintenance weights of each class of cattle on your operation, and in what month(s) are they most typically sold? (Please indicate the weight and month)

Classes	Weights (lbs)	Month Typically Sold (1-12)
Weaned Steer Calves	380	381
Weaned Heifer Calves	382	383
Backgrounded Calves	384	385
Long Yearlings	386	387
Finished Cattle	388	389
Replacement Heifers	390	391
Bred Cows	392	393
Fattened Cows	394	395
Herd Bulls	396	397
Other (specify) 398	399	400

12. What percentage of purchased cattle are acquired using the following methods?
(Percentages must total 100%)

Methods	Percent	Methods	Percent
Sale Barn	410	Website listing	411
Video Auction	412	Other (Specify) 413	414
Private Sale/Treaty	415		
Forward Cash Contracts	416		

Part B. Other Production and Marketing Practices

The following questions are designed to understand your use of and opinions about a number of different practices. We would like to know if you have considered the following:

13. Do you currently retain ownership of your calves into an off-farm feedlot?
(Check appropriate response)

420 Yes   421 No (Skip to 15.)

14. If you checked "yes" to question 13, where are the retained calves fed, and how far away from home are they?   (Check appropriate response and fill in number of miles)

422 In State   423 Out of State
424 Miles Away from Home   425 Miles Away from Home

15. If you checked "no" to question 13, would you consider retaining calves into an off-farm feedlot?
(Check appropriate response)

430 Yes   431 No

16. If you checked "yes" to question 15, where would you prefer to feed these calves, and how far away from home would you prefer they be? (Check appropriate response and fill in number of miles)

440 In State   441 Out of State
442 Miles Away from Home   443 Miles Away from Home

4

17. How many head would you direct market to consumers across state lines if a USDA inspected processor was available? (Enter the number of head)

450

18. Have you considered or are you currently doing any of the following practices?
(Check the most appropriate response for each practice)

Practice	Currently Doing	Have Considered	Have Not Considered	Will Not Do
Organic Beef (USDA Certified)	460	461	462	463
Grass Fed/Natural Beef	464	465	466	467
Direct Customer Marketing	468	469	470	471
Joining a Beef Cooperative/Alliance	472	473	474	475
National Individual Animal Identification System	476	477	478	479
Changing to Different Calving Season	480	481	482	483
Starting an Additional Enterprise	484	485	486	487
Selling Recreation (fishing, hunting, camping, etc.)	488	489	490	491
Working off-farm/ranch	492	493	494	495
Sagebrush cover reduces forage yields on the privately owned lands that you ranch.	496	497	498	499
Sagebrush cover reduces forage yields on the public lands that you ranch.	500	501	502	503
Endangered wildlife and possible habitat destruction are a concern for you in controlling sagebrush on your ranch.	504	505	506	507
The presence of cheat grass affects your sagebrush management decisions.	508	509	510	511
Other (describe) 512	513	514	515	516

19. Please circle the answer that best indicates your level of agreement/disagreement with the following statements about future changes that may occur in the beef industry or your operation.

	Strongly Disgree (1)	–			Strongly Agree (5)
A mandated cattle identification system is needed.	1	2	3	4	5 517
Government restrictions on the use of antibiotics, growth implants, and vaccinations are necessary.	1	2	3	4	5 518
Beef consumers are willing to pay a price premium for organic, grass fed, and origin identified beef.	1	2	3	4	5 519
A drought contingency plan is important for beef producers in Wyoming.	1	2	3	4	5 520
BSE (mad cow disease) will have a big impact on the beef industry in the future.	1	2	3	4	5 521
Brucellosis will have a big impact on the beef industry in the future.	1	2	3	4	5 522
I need to consider alternative enterprises to stay in business.	1	2	3	4	5 523
I need to learn more about marketing alternatives to stay in business.	1	2	3	4	5 524
I need assistance in approaching/assessing alternative markets for my cattle.	1	2	3	4	5 525

I need to learn more about retained ownership, alliances, and forward pricing to become more competitive.	1 2 3 4 5 526
I need to learn more about alternative production practices and alternative risk management strategies for my current enterprises to stay in business.	1 2 3 4 5 527
Government subsidies to ranchers/farmers will be reduced or eliminated in the future.	1 2 3 4 5 528
Livestock grazing on federal land will be reduced or eliminated in the future.	1 2 3 4 5 529

Part C. Drought and Sagebrush Management

20. How many consecutive years was/has your operation been negatively impacted by the most recent drought?   [530] Years

21. Please indicate changes experienced each year as a result of the most recent drought compared to normal year. (Please indicate percent impact for the appropriate year for each area affected in your operation; indicate no impact by entering 0)

YEAR

Changes Experienced	2000	2001	2002	2003	2004
Grazing capacity % reduction compared to a normal year.	540	541	542	543	544
Irrigation water supplies % reduction compared to a normal year.	545	546	547	548	549
Winter feed production % reduction compared to a normal year.	550	551	552	553	554
Average sale weights % reduction compared to a normal year.	555	556	557	558	559
Percent weaned % reduction compared to a normal year.	560	561	562	563	564
Owner equity % reduction in compared to a normal year.	565	566	567	568	569
Other (specify and list by year) 570	571	572	573	574	575

22. What strategies did you use to deal with drought during each year it affected your operation (Check all that apply in every year)?

YEAR

Strategy	2000	2001	2002	2003	2004
Partial herd liquidation	580	581	582	583	584
Total herd liquidation	585	586	587	588	589
Selling retained yearlings	590	591	592	593	594
Lease/purchase additional grazing	595	596	597	598	599
Purchase additional winter feed	600	601	602	603	604
Early weaning of calves to reduce feed needs	605	606	607	608	609
Participated in government feed assistance program	610	611	612	613	614
Participated in government income assistance program	615	616	617	618	619
Earn off-farm income	620	621	622	623	624
Added alternative livestock enterprise	625	626	627	628	629
Added alternative crop enterprise	630	631	632	633	634
Other	635	636	637	638	639
If you checked other, please describe:					640

6

23. If you liquidated part, or all, of your herd did you use income averaging to reduce income tax liability associated with increased income from liquidation sale with the hope of replacements being purchased within 24 months? (Check appropriate response)

650	No	651	Yes

24. If you liquidated part, or all of your herd, have you replaced them with purchased breeding livestock to pre-drought levels? (Check appropriate response)

652	No	653	Yes

(skip to Q. 26)

25. If you answered yes to question 24, what was the breakdown of the type of breeding livestock purchased? (Percentages must total 100%)

Type of Breeding Livestock	Percent of Total Purchased
Heifers	660
Bred Heifers	661
Mature Cows	662
Bred Cows	663

26. Please indicate the total number of acres on your ranch that have the following abundance of sagebrush. (Please write number of acres within each box)

	None	Light	Moderate	Abundant	Heavy
Privately owned lands	670	671	672	673	674
Public lands	675	676	677	678	679

27. Please check which methods you use to control sagebrush on your ranch.

Burning	680	Herbicide	681	Other (please indicate method)	682	683

28. If you control sagebrush using burning, please answer the following.

	Private Lands	Public Lands
How long after burning do you wait to put cattle back on the burned area? (years)	690	691
What is the typical size of your burn? (acres)	692	693

Part D. Demographic Information

For the final part of the survey we would like to ask some questions about you. These questions help to ensure that our sample survey is representative of the population. All the information you provide is completely confidential.

29. What is your mailing zip code?

900

30. At what elevation is your ranch located (approximately)? (Feet above sea level)

901

31. Please indicate the gender of the primary operator. (Check the most appropriate response)

Male [902]   Female [903]

32. Please indicate primary operator's current age (Check appropriate category):

25-34	[910]	45-49	[911]	55-59	[912]	65-69	[913]
35-44	[914]	50-54	[915]	60-64	[916]	70 or older	[917]

33. Please indicate primary operator's highest level of education (Check most appropriate category):

High School	[920]	Technical/Vocational Degree	[921]	Some Graduate Education	[922]
Some College	[923]	Bachelors Degree	[924]	Graduate Degree	[925]

34. How many years of experience do you have raising beef cattle?
   (Please indicate # of years)   [926]

35. Are you or your spouse employed off farm?
   (Check if employed off farm, even if only part time)   [930] Self   [931] Spouse

36. What percentage of your household income comes from ranching or farming? [932]

37. Please indicate last year's annual gross ranch sales. (Please check most appropriate category)

Less than $1,000	[940]	$1,000 – 4,999	[941]	$5,000 – 9,999	[942]
$10,000 – 24,999	[943]	$25,000 – 49,999	[944]	$50,000 – 99,999	[945]
$100,000 – 249,999	[946]	$250,000 – 500,000	[947]	over $500,000	[948]

38. Producer input is crucial to interpreting the data from this survey.
Would you be willing to be contacted by the University of Wyoming Department of Agriculture and Applied Economics to verify the findings of the survey?
If yes, please sign and date below. Thank you.

Signature_____ Date_____

[990]

39. Are there any other comments or suggestions you would like to share with us for this survey?
   (Please write your comments below)   [991]