

PRODUCTION AND MARKETING PRACTICES OF NORTHERN GREAT PLAINS LIVESTOCK PRODUCERS

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Ruminant livestock production in North Dakota, South Dakota, Montana, and Wyoming is critical to the region's economy. Producers in the four-state area are continually looking for opportunities to increase income and improve the viability of their farm and ranch operation. This study identified factors that influence and perhaps constrain producers' ability or willingness to background feeder cattle. Study objectives were to identify and document producers' current production and marketing practices as well as identify stock growers' perceptions of opportunities for and impediments to expansion of the ruminant livestock industry in the study area. The potential for growth in the livestock sector through expanded backgrounding and retained ownership appears to be substantial.

Introduction

Ruminant livestock production in North Dakota, South Dakota, Montana, and Wyoming is critical to the region's economy. For example in 2002, 59 percent of farms and ranches in the four-state study area raised beef cattle, while more than 8 percent raised sheep and lambs (USDA 2004). Producers in the four-state area are continually looking for opportunities to increase income and improve the viability of their farm and ranch operation. Accordingly, the Four-state Ruminant Consortium, an integrated research and extension program, was created to do just that. Specifically, the purpose of the four-state ruminant consortium is to enhance economic development in the target study area of southwestern North Dakota, northwestern South Dakota, southeastern Montana, and northeastern Wyoming by strengthening and capturing value from the ruminant livestock industry.

One of the more widely applicable possibilities for adding value through the regions' ruminant livestock sector appears to be backgrounding feeder calves. However, while economic analysis has indicated that stockgrowers in the study area could typically increase their net returns by backgrounding feeder calves, relatively few producers are presently backgrounding feeder calves. A more thorough understanding of current livestock production, management, and marketing practices would facilitate research and extension programs as well as serve as a baseline for future evaluation of the impact of the four-state ruminant consortium program.

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To identify the socioeconomic impediments inhibiting producers from backgrounding feeder cattle, this study sought to identify managerial, social, and institutional factors that influence and perhaps constrain producers' ability or willingness to background feeder cattle. Study objectives were to identify and document producers' current production and marketing practices as well as identify stock growers' perception of opportunities for and impediment to expansion of the ruminant livestock industry in the study area.

Methods

A mail questionnaire was delivered to 5,971 livestock producers in 37 counties in the four-state study area (Figure 1). The questionnaire was designed to solicit a wide variety of information about operators' current production practices, including marketing, backgrounding, retained ownership, herd management, and feed and forage practices. The questionnaire also solicited operators' attitudes on a wide variety of issues related to opportunities for and impediments to the expansion of the ruminant livestock industry in the study area as well as asking respondents to identify what types of information would be of most interest to them and in what form they would prefer that information be delivered. Overall response rate was just below 20 percent with by-state response rates of 17 percent in North Dakota, 20 percent in Montana, 21 percent in South Dakota, and 22 percent in Wyoming. This report summarizes selected findings from the survey of livestock operators in the four-state area. Complete survey results pending publication early in 2006.

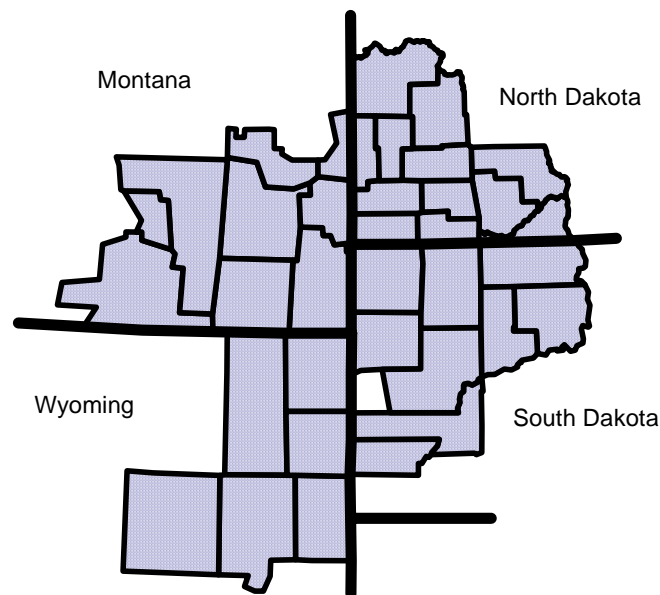


Figure 1. Study Area

Results

Current Production Practices

Producers in the four-state study area had on average 215 commercial beef cows, 36 commercial beef replacement heifers, and 61 feeder calves (Table 1) on their ranch as of January 1, 2005. Respondents most frequently (34 percent) reported 1 to 100 head of cows, while a large majority of producers, 80 percent, reported from 1 to 300 head of cows, ranging from 75 percent in Wyoming to 87 percent in North Dakota. Twelve percent of respondents in North Dakota reported more than 300 head of cows compared to 21 percent in South Dakota, 22 percent in Wyoming and 25 percent in Wyoming.

The average number of feeder calves on the ranch as of January 1, 2005 was reported to be 61 head, ranging from 46 head in South Dakota to 74 head in Montana. Because many producers sell part or all of their calves before January 1, respondents were also asked how many calves they typically raise annually from their own cows. Overall, respondents reported an average of 204 feeder calves raised, ranging from 163 in North Dakota to 245 in Wyoming (Table 1). Respondents most frequently reported raising from 1 to 100 head of calves (35 percent) with about three-fourths reporting 1 to 300 head of calves from their own cows.

Roughly two thirds (65 percent) of feeder calves in the study area were weaned in October with most of the remaining feeder calves weaned in November (data not shown). Only 8 percent of feeder calves were weaned in months other than October and November. Per state results were consistent with overall results. Weaning weights were most frequently in the 500 to 600 pound range (64 percent) with an average weaning weight of 562 pounds (Table 2). There was very little variation in average weaning weights by state. Weaning weights for the remaining calves were fairly evenly divided. Seventeen percent were weaned between 400 and 500 pounds, and 16 percent were weaned between 600 and 700 pounds with very few weaned at over 700 pounds or under 400 pounds (less than 3 percent). Results in North Dakota, South Dakota, and Montana were consistent with overall results; however, Wyoming ranchers reported weaning slightly more feeder calves in the 400 to 500 pound range (26 percent) and slightly fewer feeder calves in the 600 to 700 pound range (9 percent) (Table 2).

Marketing of Weaned Calves

About three-fourths of respondents reported marketing at least some of their calves at weaning, right off the cow (Table 3). Statewide averages ranged from 63 percent of respondents in North Dakota to 81 percent of respondents in Montana that marketed at least some of their calves at weaning. Across the four states, few respondents (6 percent) indicated marketing at least some of their calves 15 to 45 days after weaning while a third indicated marketing at least some of their calves 46 to 120 days after weaning. North Dakota producers more frequently (49 percent) marketed at least some of their calves 46 to 120 days after weaning, and Wyoming producers less frequently (15 percent) marketed at least some of their calves 46 to 120 days after weaning.

Table 1. Number of Commercial Beef Cows, Commercial Beef Replacement Heifers, and Feeder Calves on Ranch as of January 1, 2005. Rancher Survey, 2005

Item	Total	North Dakota	South Dakota	Montana	Wyoming
	-----percent-----				
Commercial Beef Cows					
None	1.6	1.9	.6	2.1	2.4
1 to 100	34.4	37.6	31.1	33.5	37.4
101 to 200	27.7	33.7	27.7	26.1	21.1
201 to 300	16.5	14.0	19.5	16.6	14.5
301 to 400	8.4	6.6	9.1	9.9	7.2
401 to 500	3.5	3.1	3.1	3.9	4.2
more than 500	7.9	3.1	8.8	8.1	13.2
(n)	(1036)	(258)	(328)	(284)	(166)
Average	215	173	228	218	249
(n)	(1038)	(258)	(328)	(284)	(166)
Commercial Beef Replacement Heifers					
None	30.7	36.8	26.5	31.7	27.7
1 to 100	62.3	60.5	66.2	58.8	63.2
101 to 200	5.1	1.9	5.5	6.3	7.2
201 to 300	1.1	0.8	1.2	1.1	1.2
301 to 400	0.3	0.0	0.0	1.1	0.0
401 to 500	0.3	0.0	0.0	1.1	0.0
more than 500	0.6	0.0	0.6	0.0	0.6
(n)	(1036)	(258)	(328)	(284)	(166)
Average	36	22	38	43	40
(n)	(1038)	(258)	(328)	(284)	(166)
Feeder Calves					
None	58.7	46.9	60.4	66.9	59.6
1 to 100	27.5	37.2	27.1	21.5	23.5
101 to 200	5.6	7.7	4.6	4.9	5.4
201 to 300	3.4	4.7	3.7	1.4	4.2
301 to 400	1.2	0.8	2.1	0.3	1.2
401 to 500	1.2	0.8	0.6	1.1	3.0
more than 500	2.5	1.9	1.5	3.9	3.1
(n)	(1036)	(258)	(328)	(284)	(166)
Average	61	64	46	74	64
(n)	(1038)	(258)	(328)	(284)	(166)
Calves Raised from Own Cows					
none	4.5	3.8	2.1	8.0	4.2
1 to 100	35.8	38.6	32.3	35.7	38.0
101 to 200	25.6	32.6	25.8	22.1	19.7
201 to 300	14.7	12.3	18.9	12.1	14.8
301 to 400	7.6	7.2	8.6	8.4	4.9
401 to 500	4.4	2.5	4.8	4.8	5.6
501 to 1000	6.4	2.5	6.9	7.2	10.6
more than 1000	1.0	0.4	0.3	1.6	2.1
(n)	(918)	(236)	(291)	(249)	(142)
Average	204	163	215	207	245
(n)	(920)	(236)	(291)	(249)	(142)

Table 2. Weaning Weights, Rancher Survey, 2005

	Total	North Dakota	South Dakota	Montana	Wyoming
	-----percent-----				
Weaning Weights					
300 to 400 pounds	1.6	2.1	1.6	0.0	3.9
401 to 500 pounds	17.3	16.5	14.0	16.7	26.0
501 to 600 pounds	64.3	63.2	64.3	67.3	61.0
601 to 700 pounds	16.1	16.9	19.4	15.6	9.1
701 to 800 pounds	0.6	1.2	0.6	0.4	0.0
(n)	(979)	(242)	(314)	(269)	(154)
	-----pounds-----				
Average	562	567	568	563	539
Median	560	570	575	560	550

Respondents also indicated they market a majority of their calves at weaning. Overall, respondents indicated they market 61 percent of their calves at weaning, 17 percent of their calves at 46 to 120 days after weaning, 5 percent retain ownership or partial ownership through backgrounding, 4 percent retain ownership or partial ownership through finishing and slaughter, and only 3 percent are marketed 15 to 45 days after weaning. A slightly smaller percentage of calves in North Dakota are marketed at weaning (51 percent) compared to the other states (63 to 67 percent) and a slightly larger percentage (29 percent) of North Dakota calves are marketed at 46 to 120 days compared to 9 percent in Wyoming, 13 percent in Montana and 15 percent in South Dakota. Average weight of steer calves marketed at weaning was 587 pounds with little variation between the state averages. Average weight of heifer calves marketed at weaning was 548 pounds.

Changes in Cow/Calf Pairs and Changes in Calves Backgrounded, Fed, or Finished

Across the four state area, nearly 50 percent of respondents indicated the number of cow/calf pairs in their herd had declined, on average by one-third (Table 4). There was some variability between states as 64 percent of respondents in Wyoming indicated the number of cow/calf pairs in their herd had declined in the last five years, while only 35 percent of respondents in North Dakota indicated the number of cow/calf pairs in their herd had declined in the last five years. The average percentage decline was smallest in Montana with an average reduction of 28 percent and largest in Wyoming with an average reduction of 38 percent.

Alternately, on average 24 percent of respondents indicated the number of cow/calf pairs in their herd had increased by an average of 39 percent (Table 4). Thirty-two percent of respondents in North Dakota reported an increase in cow/calf pairs in the past five years of on average 31 percent, compared to only 15 percent of Wyoming respondents that indicated an increase of on average 35 percent. Respondents in Montana that indicated an increase in the number of cow/calf pairs reported an average increase of 50 percent.

Roughly half of all respondents indicated the number of calves backgrounded, fed, or finished either partially or totally on their own ranch or elsewhere had not changed in the last five years (Table 4). Thirty percent indicated the number of calves backgrounded, fed or finished has decreased in the last five years by on average 45 percent. Variability between states ranged from 53 percent of respondents in Wyoming that indicated an average decline of 48

percent to 30 percent of respondents in North Dakota that indicated an average decline of 51 percent.

Table 3. Marketing Feeder Calves, Time of Marketing, Rancher Survey, 2005

Activity	Total	North Dakota	South Dakota	Montana	Wyoming
-----percent-----					
Respondents that:					
Market at least some calves at weaning, right off the cow	73.8	63.3	76.9	80.7	71.9
Market at least some calves 46 to 120 days after weaning	33.1	48.8	31.3	31.5	15.1
Other ¹	31.1	24.6	35.1	31.7	32.1
Retain ownership or percentage ownership through backgrounding	10.5	10.1	12.7	7.4	12.0
Retain ownership or percentage ownership through finishing and slaughter	9.3	9.7	9.5	8.5	9.4
Market at least some calves 15 to 45 days after weaning	6.2	6.9	2.8	8.2	8.8
(n)	(993)	(248)	(316)	(270)	(159)
-----percent-----					
Average percent of calves marketed at each of the following:					
At weaning, right off the cow	61.2	51.3	63.3	67.0	62.6
46 to 120 days after weaning	17.2	29.2	15.1	13.4	9.4
Other ¹	8.7	5.8	10.3	9.0	9.6
Retain ownership or percentage ownership through backgrounding	5.2	5.3	6.1	3.6	5.9
Retain ownership or percentage ownership through finishing and slaughter	4.2	4.6	3.8	3.5	5.7
15 to 45 days after weaning	3.4	3.8	1.4	3.5	6.4
(n)	(730)	(248)	(316)	(270)	(159)
-----pounds-----					
Weight of steer calves marketed at weaning	587	598	596	580	560
(n)	(742)	(164)	(238)	(224)	(114)
Weight of heifer calves marketed at weaning	548	557	552	550	530
(n)	(730)	(149)	(224)	(207)	(106)

¹Other: replacement heifers, sold for breeding stock, production sales, market grass fed stock wholesale, sell as yearlings, culled summer heifers, bull sales, 120 days after weaning

Table 4. Percentage Change in the Number of Cow/Calf Pairs and the Number of Calves Backgrounded, Fed, or Finished Either Partially or Totally on Own Ranch or Elsewhere in the Last Five Years, Rancher Survey, 2005

Change	Total	North	South	Montana	Wyoming
		Dakota	Dakota		
-----percent-----					
Cow Calf Pairs					
Decreased	47.7	35.5	48.9	47.3	64.1
Stayed the Same	28.1	32.3	28.8	28.0	20.4
Increased	23.8	31.8	21.6	24.7	15.0
(n)	(1011)	(248)	(319)	(275)	(167)
Average Decrease	33.0	30.6	35.1	28.3	38.0
(n)	(468)	(87)	(151)	(129)	(101)
Average Increase	39.2	30.8	40.1	50.0	35.2
(n)	(228)	(77)	(65)	(62)	(24)
Calves Backgrounded, Fed, or Finished					
Stayed the Same	46.1	47.3	42.0	55.3	36.4
Decreased	30.5	30.5	44.1	29.9	52.7
Increased	15.7	22.3	13.9	14.7	10.9
(n)	(796)	(203)	(245)	(217)	(129)
Average Decrease	45.5	50.6	43.9	40.6	48.5
(n)	(247)	(51)	(88)	(55)	(53)
Average Increase	58.9	61.4	53.5	68.5	40.4
(n)	(108)	(41)	(27)	(28)	(12)

Alternately, 16 percent of respondents indicated the number of calves backgrounded, fed, or finished had increased on average 59 percent in the last five years. While the percentages of respondents reporting increases were moderate, average increases were quite substantial. Eleven percent of respondents in Wyoming reported an average increase of 40 percent, 14 percent of respondents in South Dakota reported a 68 percent increase, 15 percent of respondents in Montana reported a 68 percent increase, and 22 percent of respondents in North Dakota reported an increase of 61 percent.

Respondents most frequently indicated drought conditions and inadequate feed supply as the reason why the number of calves they backgrounded, fed, or finished had declined in the past five years (Table 5). Ninety-one percent of respondents indicated drought conditions forced herd reductions while 54 percent indicated an inadequate feed supply contributed to the decline. Other factors that influenced a decline were cited by respondents far less frequently.

Increased cattle prices and increased access to pasture land were cited by one-third of respondents as issues that influenced their decision to increase the number of calves backgrounded, fed, or finished either totally or partially in the last five years (Table 5). Roughly 25 percent indicated better marketing and risk management skills influenced their decision, while 23 percent indicated expanded feedlot capacity and adequate winter feed were issues that influenced their decision to increase the number of backgrounded, fed, or finished feeder calves.

Table 5. Reasons that Influenced Decision to Increase or Decrease the Number of Calves Backgrounded, Fed, or Finished Either Partially or Totally on Own Ranch or Elsewhere in the Last Five Years, Rancher Survey, 2005

Item	Total ---percent---
Influences to Decrease	
Drought conditions forced herd reduction	91.5
Inadequate feed supply	53.7
Cash flow restrictions	11.9
Loss of leased or rented land	10.5
Retired, retiring, or semi-retired	5.8
Inadequate labor/labor restrictions	5.8
Sold ranch and/or liquidated stock	2.7
Inadequate or loss of local markets	0.7
Transferring the operation to a family member or relative	1.0
(n)	(294)
Influences to Increase	
Increase in cattle price	33.9
Increased access to pasture land	33.9
Developed better marketing and risk management skills	25.6
Expanded feedlot capacity	23.1
Now have adequate winter feed	23.1
Family member or other relative(s) joined farm/ranch operation	16.5
(n)	(121)

Changes Under Consideration in the Next Five Years

Respondents most frequently indicated that increasing their cow/calf herd was under consideration in the next five years (Table 6). Overall, 57 percent of respondents indicated they were considering increasing their cow/calf herd. Statewide averages ranged from a low of 51 percent of respondents in Wyoming considering expanding their cow/calf herd in the next five years to a high of 59 percent in both South Dakota and Montana. Few respondents (16 percent) indicated decreasing their cow/calf herd was under consideration. Nineteen percent of all respondents indicated they were considering increasing the number of feeder calves backgrounded while 14 percent indicated they were considering increasing the number of feeder calves retained through backgrounding and /or finishing. Respondents in North Dakota and South Dakota more frequently were considering increasing the number of feeder calves backgrounded, 27 and 22 percent respectively, compared to 14 percent in Montana and 13 percent in Wyoming. Respondents next most frequently indicated they were considering liquidating their herd. Overall 12 percent of respondents indicated they were considering liquidating their herd in the next 5 years. Statewide responses ranged from a low of 9 percent in South Dakota to 17 percent in North Dakota.

Table 6. Types of Changes Under Consideration in the Next 5 Years, Rancher Survey 2005

Change	Total	North	South	Montana	Wyoming
		Dakota	Dakota		
	-----percent-----				
Increasing my cow/calf herd	57.3	54.5	59.5	59.5	51.3
Increasing the number of feeder calves that I background	19.5	27.3	22.4	13.8	13.2
Decreasing my cow/calf herd	16.4	16.7	13.4	16.6	21.0
Increasing the number of feeder calves that I retain ownership in through backgrounding and /or finishing	14.5	15.8	14.1	15.4	11.8
Liquidating my herd	12.4	16.7	9.4	11.0	14.6
Expanding my feedlot capacity	7.3	15.3	6.1	5.7	1.3
Decreasing the number of feeder calves that I background	3.6	4.8	2.2	2.4	6.6
Switching to or adding other ruminant livestock production	1.9	1.9	1.8	0.8	4.0
Decreasing the number of feeder calves that I retain ownership in through backgrounding and /or finishing	1.8	2.9	1.8	1.2	1.3
(n)	(885)	(209)	(277)	(247)	(152)

Demographics

Most respondents' operations were focused on livestock sales. Overall, 82 percent of respondents' gross farm income was from livestock sales (Table 7). Averages were slightly lower in North Dakota with 72 percent of gross farm income from livestock sales and slightly higher in Wyoming with 92 percent of gross farm income from livestock sales. Net farm/ranch income was very important to household income. On average, two-thirds of household income was from net farm and ranch income with state averages ranging from 59 percent of household income from farm and ranch income in Wyoming to 72 percent of household income from farm/ranch income in South Dakota. Sole proprietorships were the most frequently reported type of farm/ranch business structure (71 percent) with more sole proprietorships in North Dakota (83 percent) and fewer in Wyoming (56 percent). Alternately, there were more corporations in Montana and Wyoming, 21 percent and 15 percent respectively, than in South or North Dakota, 8 percent and 1 percent, respectively. Variations in state laws likely explain the difference. Respondents' average age was 54 with an average of 28 years in operation with little variation between states (data not shown).

Table 7. Respondent Demographics, by State, Rancher Survey, 2005

Change	Total	North	South	Montana	Wyoming
		Dakota	Dakota		
-----percent-----					
Percentage gross farm income from each of the following:					
Livestock sales	82.1	71.8	85.3	81.8	91.7
Crop sales	11.9	20.4	9.7	11.9	3.2
Custom hire	2.0	2.5	2.1	2.0	1.3
Other ¹	2.6	3.6	2.0	1.9	3.2
(n)	(996)	(244)	(313)	(275)	(164)
Percentage of Household Income from each of the following:					
Net farm/ranch income	66.1	61.4	72.3	67.5	58.7
Off-farm employment income (spouse's off-farm job, non-farm business)	25.5	30.4	21.4	24.2	28.1
Other farm/ranch related business (leased hunting rights, guided hunting, agri-tourism, bed and breakfast, etc.)	2.3	1.7	1.6	2.5	4.3
Other ²	2.3	1.1	2.6	3.0	2.9
Energy leases, mineral rights	1.6	2.4	0.1	0.6	4.8
(n)	(969)	(242)	(300)	(269)	(157)
Farm/Ranch Business Structure					
Sole proprietor	71.0	82.9	76.8	62.7	56.4
Partnership	13.8	14.2	12.9	12.3	17.8
Corporation	11.0	1.2	8.1	20.6	15.3
LLC	2.7	0.8	1.6	2.2	8.0
Other ³	1.4	0.8	0.6	2.2	2.4
(n)	(997)	(246)	(310)	(276)	(163)

¹Other: off-farm rent, tourism, government payments, CRP, spouse off-farm income, rodeo, commercial hunting, USDA/crop insurance, outfitting, pasturing cattle, labor, milk, investments, hay sales

²Other: Social Security/retirement, investments, rent, hire out, dirt moving, CRP, estate settlement, trucking, timber, spouse off-farm income, interest income, stocks

³Other: living trust, joint venture, family agreement, sub S corporation, limited partnership, lease, owned by boss

Key Finding, Implications, and Conclusions

Herd sizes for a large majority of ranch operations in the four state study area fall into the 100 to 300 head range. Respondents reported on average 36 replacement heifers, about a 15 percent replacement rate and reported raising about 200 calves from their own cows annually. Calves are weaned throughout the study area in October and November with weaning weights in the 500 to 600 pound range. While weaning weights are fairly consistent throughout the study area, Wyoming producers reported weaning slightly more calves in the 400 to 500 pound range and slightly fewer in the 600 to 700 pound range. Most respondents market a majority of their

calves at weaning at an average weight of 587 pounds. Roughly half of respondents indicated a reduction in the number of cow/calf pairs in the last five years, citing drought and an inadequate feed supply as reasons. More operators in Wyoming reported reductions in cow/calf pairs than the overall average and fewer operators in North Dakota reported reductions in cow/calf pairs in the last five years. While only roughly 20 percent of respondents reported an increase in their cow/calf herd, increases were substantial, ranging from 31 percent in North Dakota to 50 percent in Montana.

While respondents most frequently reported a decline in the number of cow/calf pairs, respondents most frequently reported 'no change' in the number of calves backgrounded, fed, or finished in the last five years, and roughly a third reported a decline in the number of calves backgrounded, fed, or finished in the last five years. While only 16 percent reported an increase in the number of calves backgrounded, fed, or finished in the last five years, the increases, like the increases in respondents' cow/calf herds, were fairly substantial. Increases in the number of calves backgrounded, fed, or finished ranged from an average increase of 41 percent in Montana to 51 percent in North Dakota. Increased cattle prices and increased access to pasture land were cited as reasons that influenced the decision to increase the number of calves backgrounded, fed or finished in the last five years.

Half of the respondents in the study area reported they were considering increasing their cow/calf herd in the next five years. About 20 percent indicated they were considering increasing the number of feeder calves backgrounded, and 14 percent indicated they were considering increasing the number of calves retained through backgrounding and/or finishing. Far fewer respondents (16 percent) were considering decreasing their cow calf herd. A very small number of respondents were considering reducing the number of feeder calves backgrounded (4 percent) and fewer yet reported considering decreasing the number of feeder calves retained through backgrounding and/or finishing (2 percent). Finally, livestock sales are the largest component of respondent gross farm income, and net farm/ranch income is the largest component of household income.

Currently most ranchers in the study area market a majority of their calves at weaning. Considering that a minority of ranchers in the study area currently background or retain ownership or a percentage ownership, the potential for growth in the livestock sector through expanded backgrounding and retained ownership appears to be substantial. Because the questionnaire effectively targeted those operations in the four state area that are primarily livestock production operations, additional findings from this survey of ranchers in the four-state area should provide valuable insight to research and extension personnel as they look to find ways to expand the livestock sector and improve the profitability and viability of livestock operations in the region.

References

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