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Ranch Management Practices of Beef Quality Assurance (BQA) and Non-BQA Certified Producers in Montana

Abstract

The beef cattle industry continues to provide a safe, quality, and consistent product to consumers while addressing animal health and food safety issues. The study reported here sought to determine Beef Quality Assurance educational needs for record keeping, health management, marketing strategies, and perceptions of industry issues to inform and prepare Montana beef producers for changes. BQA and non-BQA certified producers had varying management strategies for animal identification, record keeping, and vaccination programs, while implant programs and marketing strategies were similar. The results of the survey will be used to determine the BQA educational needs of Montana cattle producers.

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Introduction

The beef industry continues to evolve to meet the challenges of international trade requirements, food safety issues (E. coli O157:H7 and BSE), dietary trends (high protein diets), and consumer demand for a safe, consistent, and quality beef product. "Consumers are making beef, poultry, and pork purchasing decisions based upon nutrition, safety, price, and convenience" (Montana Beef Quality Assurance, 2003). One industry response to these challenges has been the voluntary beef quality assurance (BQA) educational programs for producers.

The National Cattlemen's Beef Association (NCBA) established the Quality Assurance program in 1987 to maximize consumer confidence in and acceptance of beef by focusing the industry's attention on beef quality assurance through the use of science, research, and educational initiatives. BQA programs are found in all 50 states and are an industry effort to encourage cattlemen to follow certain production practices and quality-control measures that exceed U.S. Department of Agriculture and Food and Drug Administration requirements. Through research and education efforts conducted by state university and Extension staff, the program educates cattlemen on the proper uses of pharmaceuticals, cattle handling, feed purchasing, testing, and other procedures aimed at improving the overall safety and quality of cattle and beef (NCBA, 1996).

The objectives of the survey reported here were to determine current management practices of Montana beef producers and where a new education focus may be necessary to inform producers of challenges facing the beef industry.

Materials and Methods

The survey instrument was grouped into five categories: records management, health management, marketing, perceptions on industry issues, and demographic information. The survey was peer reviewed by survey designers and the beef industry representatives in the state. The resulting 38-question survey was mailed to 1,000 beef producers.

The survey population was derived from two mailing lists kept by the Montana State University (MSU) beef Extension specialist. The first was a list of producers who had completed Beef Quality Assurance (BQA) training and were identified as the BQA certified group. The second list was producers who received the *Beef: Questions and Answers* newsletter published by the beef Extension specialist approximately five times a year, but who are not BQA certified. This group was identified as the non-BQA group. The lists were compared to eliminate any duplication. Surveys were color coded to maintain treatment identification.

Results and Discussion

Of the 500 surveys mailed to BQA certified producers, 231 were returned for a 46% response rate. Non-BQA certified producers returned 116 of the 500 surveys for a 23% response rate.

Respondents were asked to describe the type of operation they owned or managed and the size of their herd as defined by the number of producing beef cows greater than 2 years of age on hand on the day they completed the survey. The majority of producers (81.8% BQA, 69.8% non-BQA; Table 1) indicated they were cow-calf producers. Only 2.6% of BQA and 4.3% of non-BQA producers finished their weaned calves to harvest weights. The size of the ranch operations varied evenly across the options provided. The majority of BQA producers (55.7%) had operations with fewer than 200 head of cows, while 17.2% of non-BQA producers had over 500 cows.

The majority of the respondents for both groups were between the ages of 30 and 60 (79.2% BQA, 72.4% non-BQA). When asked about level of education, responses between the two populations were again similar ($P>0.05$). The only significant difference measured was that more BQA producers had Master's degrees than did non-BQA producers ($P<0.05$).

Table 1.
Selected Demographics of BQA Certified and non-BQA Certified Respondents

	BQA		Non-BQA		<i>t</i> value*
	<i>n</i>	%	<i>n</i>	%	
	Type of operation				
Cow-calf	189	81.8	81	69.8	2.55*
Cow-calf — Background	47	20.3	25	21.6	
Cow-calf — Background - Finish	6	2.6	5	4.3	
	Size of operation				
0-100	59	25.5	27	23.3	
101-200	68	29.4	25	21.6	
201-300	40	17.3	21	18.1	
301-400	28	12.1	9	7.8	
401-500	10	4.3	4	3.4	
Over 500	23	10.0	20	17.2	
	Age of respondents				
Under 30	9	3.9	5	4.3	
31-60	183	79.2	84	72.4	
Over 60	36	15.6	19	16.4	
	Education of respondents				
High school graduate	47	20.3	27	23.3	
Some college	70	30.3	24	20.7	
College graduate	96	41.6	50	43.1	
Masters degree	19	8.2	2	1.7	2.41*
Doctorate degree	2	0.9	3	2.6	

Records Management

Significant differences were found between BQA certified producers and non-BQA certified producers regarding the types of records maintained on the ranch (Table 2).

- More ($P < 0.05$) BQA producers (86.1%) kept track of animal numbers and descriptions than did non-BQA producers (69.0%).
- The BQA producers (73.6%) kept more ($P < 0.05$) cowherd records than non-BQA producers (49.1%).
- In addition, the BQA producers (84.0%) maintained more ($P < 0.05$) vaccination records than non-BQA producers (59.5%).
- Records on purchase and sale of animals were maintained by 77.1% of BQA and 66.4% of non-BQA respondents ($P < 0.05$).
- Only 43.3% of BQA respondents and 29.3% of non-BQA respondents reported maintaining records of suppliers and buyers of their cattle ($P < 0.05$).

The respondents were asked how they identified their animals (Table 2). Respondents were allowed to choose all answers that applied to their management situation.

- More ($P < 0.05$) BQA producers (91.8%) used plastic ear tags for animal identification than did non-BQA producers (77.6%).
- The BQA producers (80.1%) were more likely ($P < 0.05$) to use a hot iron brand than were the non-BQA producers (64.7%). Even though Montana is a brand-law state, it does not mandate that animals be branded.

With an expedited implementation of a national animal identification program that will likely use radio frequency electronic tags in combination with both a visual and(or) hot iron brand, an educational need becomes evident as only 10.8% of BQA and 1.7% of non-BQA respondents reported using electronic ear tags.

Most of the respondents use some form of paper-based record-keeping system.

- There were differences between BQA producers (20.3%) and non-BQA producers (8.6%) who used on-farm electronic record keeping system, such as Excel, Quattro Pro, or similar program.
- The majority of the respondents kept records for more than 2 years, although there was a difference ($P < 0.05$) between BQA producers (84.4%) and non-BQA producers (69.8%).
- The low percentage of producers using electronic record keeping systems, either on-farm or off-farm programs (BQA, 22.5%; non-BQA, 12%), suggests a need for educational programming, especially in light of government and industry responses to the recently determined animal health and food safety risks.

Table 2.
Types and Format of Records Maintained by BQA Certified and non- BQA Certified Producers

	BQA		Non-BQA		<i>t</i> value*
	<i>n</i>	%	<i>n</i>	%	
	Type of records maintained				
Animal number and description	199	86.1	80	69.0	3.87*
Vaccination records	194	84.0	69	59.5	5.20*
Calf birth records	180	77.9	75	64.7	2.66*
Animal purchases and sales	178	77.1	77	66.4	2.13*
Cowherd records	170	73.6	57	49.1	4.64*
BQA records	104	45.0	5	4.3	8.44*
Names of suppliers and buyers	100	43.3	34	29.3	2.54*
Feed records	89	38.5	29	25.0	2.53*
Where animal was born	78	33.8	27	23.3	2.01*

No records kept	8	3.5	9	7.8	
	Animal identification methods				
Plastic Tag	212	91.8	90	77.6	3.78*
Hot Iron	185	80.1	75	64.7	3.17*
Ear Tattoo	48	20.8	14	12.1	2.00*
Ear notch	31	13.4	18	15.5	
Electronic Tag	25	10.8	2	1.7	3.02*
Freeze Brand	22	9.5	11	9.5	
Metal Tag	19	8.2	8	6.9	
No Identification	0	0	0	0	
* $P < 0.05$.					

Health Management

When asked about vaccination preferences to prevent disease, the majority of producers indicated they purchased a modified live vaccine product (Table 3). More ($P < 0.05$) BQA producers used the modified live vaccine (62.8%) than the non-BQA producers (50.0%). Although a majority of ranchers from both groups administered vaccinations in the neck ($P < 0.05$), more BQA producers (96.5%) used the neck than did the non-BQA producers (87.1%). The majority of producers indicated that they give vaccination injections in the neck, suggesting that BQA educational programming has positively affected the management practices.

More ($P < 0.05$) non-BQA producers (9.5%) did not vaccinate their calves prior to selling than did BQA producers (2.2%). This finding does suggest that more educational programs should be undertaken to inform producers that calves perform better when they have received viral vaccinations prior to shipment to the feedlots. In general, most of the producers from both populations did give some form of vaccination at least once before sale.

When asked how soon calves are transported off the ranch after weaning, the most common response for both populations was within 15 days (BQA, 61%; non-BQA, 49.1%). Continuing education may be needed to inform producers about the potential advantages of background calves to reduce sickness and improve gains. Traditionally, ranchers have not wanted to background calves after weaning because they believe that they did not receive added value for the practice or facilities on the ranch were not conducive for backgrounding.

Table 3.
Vaccination Protocols of BQA Certified and non- BQA Certified Producers

	BQA		Non-BQA		t value
	n	%	n	%	
Preferred Vaccine Type					
Killed	85	36.8	39	33.6	
Modified Live	145	62.8	58	50	2.29*
Chemical	2	0.9	0	0	
No Preference	12	5.2	8	6.9	
Killed Booster	80	94†	34	87†	
Vaccination Location					
Neck	223	96.5	101	87.1	3.39*
Armpit	16	6.9	14	12.1	
Shoulder	3	1.3	5	4.3	
Upper rear leg	0	0	1	0.9	
Side or ribs	2	0.9	0	0	
Lower rear leg	0	0	0	0	
†N for this category is the number of respondents that indicated they preferred the killed vaccine. * $P < 0.05$					

Marketing

The marketing methods that were used by respondents are presented in Table 4.

- The most common method to market weaned calves was to sell them to an order buyer (BQA, 44.6%; non-BQA, 48.3%), followed by taking the calves to an auction market (BQA, 24.7%; non-BQA, 27.6%).
- BQA producers (95.2%) were more ($P < 0.05$) likely to use the auction market to market cull cows than non-BQA producers (84.5%).

Although there were no differences between the two populations regarding the number of years that the producers have sold calves to the same buyer, the data indicate that a majority of producers have developed relationships with buyers and have marketed to the same buyer for 3 or more years. Results indicated that buyers required producers to provide information on the calves they purchased. Vaccination records were requested most frequently (BQA, 39%; non-BQA, 31%).

As the various sectors of the beef industry react to BSE, national animal identification, and country of origin labeling legislation, it is obvious that producers will be asked to provide more source and process verification documentation. Future educational programming will be necessary to meet this need.

One element of BQA training is explaining carcass data and how it can be used to improve herd genetics. As more producers receive carcass data on calves, more training will be necessary to educate producers about using carcass data in their management decisions. More ($P < 0.05$) BQA producers (64%) have received carcass data on their calves compared with non-BQA producers (38%). However, there were significant differences between the two populations in regard to how they used the information in their ranch management. For example, there was a difference ($P < 0.05$) between the BQA producers who used the carcass data for information only (33.8%) compared to the non-BQA producers (23.3%).

Table 4.
Marketing Preferences of BQA Certified and non- BQA Certified Producers

Marketing Options	BQA		Non-BQA		t value
	n	%	n	%	
Calf Marketing Preference					
Auction Market	57	24.7	32	27.6	
Order Buyer	103	44.6	56	48.3	
Video Auction	39	16.9	13	11.2	
Forward Contract	29	12.6	8	6.9	
Private Treaty	45	19.5	29	25.0	
Retained Ownership	19	8.2	7	6.0	
Cull Cow Marketing Preference					
Auction Market	220	95.2	98	84.5	3.46*
Order Buyer	26	11.3	12	10.3	
Retained Ownership	6	2.6	3	2.6	
* $P < 0.05$.					

Perceptions on Industry Issues

When asked about food safety issues, most of the respondents indicated they were somewhat concerned (BQA, 32.5%; non-BQA, 30.2%) to very concerned (BQA, 64.9%; non-BQA, 59.9%; Table 5). This high level of concern suggests that respondents should be receptive to educational programming on food safety issues. As the government and the beef industry responds to the BSE case in Washington State and to the national testing project, it will be necessary to educate producers about the steps proposed and required to address animal health risks. More ($P < 0.05$) BQA producers (59.3%) believed that there should be a national animal identification program compared to the non-BQA producers (46.6%).

Table 5.
Perception of Issues Facing the Beef Industry by BQA Certified and non-BQA Certified Producers

Issues	BQA		Non-BQA		t value
	n	%	n	%	
Food Safety					

Very Concerned	150	64.9	66	59.9	
Somewhat Concerned	75	32.5	35	30.2	
Not Concerned	2	0.9	5	4.3	
National Animal ID Program					
Yes	137	59.3	54	46.6	2.26*
No	35	15.2	24	20.7	
Don't Know	50	21.6	28	24.1	
* $P < 0.05$.					

Implications

Beef quality assurance education has had an impact on the management strategies of producers. For example, injection-site lesions caused economic loss to the U.S. beef industry and were a serious quality assurance problem, (Roeber et al., 2001). However, due to BQA educational efforts, the incidence of injection-site lesions in top sirloin butts declined from 11.4% in November 1995 to 2.1% in July 2000. As indicated previously, however, there remain a number of issues that require further education to help producers fully realize the potential value of their cattle herd.

The landscape of the beef cattle industry has changed with country of origin labeling and the discovery of BSE in the United States. As government and industry adjust and take steps to reassure the consumer, beef cattle producers must prepare for changes in their production practices, beginning with, but not limited to, increased recordkeeping and animal identification. Preparing producers for this step will be best served by a comprehensive and dynamic Extension education program.

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