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- It is administered by the land-grant university as designated by the state legislature through an Extension director.
- Extension programs are nonpolitical, objective, and research-based information.

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- It utilizes research from university, government, and other sources to help people make their own decisions.
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Cow-Calf Production Practices in Oklahoma – Part 2

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This is the second of two Extension Fact Sheets summarizing cow-calf production practices for Oklahoma producers who completed a survey distributed with the *Oklahoma Beef Cattle Manual*. As noted in the first fact sheet (AGEC-245, *Cow-Calf Production Practices in Oklahoma – Part 1*), the Oklahoma Master Cattleman program was launched in 2005. An *Oklahoma Beef Cattle Manual* (Lalman and Doye, 2005) was distributed through local Oklahoma Cooperative Extension offices, at producer meetings, and by e-mail request from an OSU Master Cattleman website (<http://agecon.okstate.edu/cattleman/>). Producers who received a copy of the manual were asked to complete a survey documenting their current beef production and management practices.

This fact sheet summarizes producer responses to questions related to quality assurance and animal health, marketing and risk management, and reproduction and genetics. The first fact sheet discussed demographics of people completing the survey, business planning and management, nutrition and management, and forages and introduced pastures. As with the first fact sheet, many tables and Microsoft PowerPoint slides resulted from this research (Vestal, 2007). These can be accessed at the Master Cattleman website noted above.

Beef Quality Assurance and Animal Health

Several questions were asked about overall health management, animal identification, and herd management. This section summarizes and discusses responses to those questions, noting statistically significant differences between responses by smaller and larger producers. Smaller producers are defined as those with fewer than 100 cows and whose cattle operation accounts for less than 40 percent of household income. Larger producers are defined as those with 100 or more cows and whose cattle operation accounts for more than 40 percent of household income.

Ticks transmit several disease-causing organisms in cattle and are a source of economic loss for cow-calf producers. Several alternatives are available to control ticks on cattle. Pesticide control (tag, spray, or pour-on) was the most fre-

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quently used (Table 1). Of all producers, 63 percent nearly always use a pesticide for tick control, whereas 24 percent controlled ticks via pasture rotation and 8 percent with a controlled pasture burn. Larger producers more frequently used a prescribed burn (19 percent) compared with smaller producers (5 percent).

Critical factors to having a profitable cow-calf operation are producing live calves and marketing those calves. Thus, calf health is extremely important. About a quarter of all producers (26 percent) and of both larger and smaller size groups (25 percent and 27 percent, respectively) dewormed calves between 60 and 120 days of age. Deworming is just one component of an effective animal health program.

Another essential component of an effective animal health program is calthood vaccinations. A lack of vaccinations contributes to a higher incidence of disease among purchased, commingled calves. As a result, buyers are willing to pay a price premium for vaccinated, healthy calves with a strong immune system (Donnell, 2007). However, 29 percent of all producers indicated they do not vaccinate calves prior to marketing them. Another 38 percent of respondents gave calves a single vaccination. Nearly a third (32 percent) administered multiple vaccinations two to six weeks prior to weaning, at weaning, and/or two to three weeks after weaning. A higher percentage of larger producers (45 percent) used a multiple vaccination program than did smaller producers (23 percent).

Cow-calf producers traditionally sell calves from the ranch and never know how those calves perform later in the feedlot, what their carcass characteristics are, and whether they provide satisfactory eating experiences for consumers. Information from carcass data can be used to assess cattle quality and can be useful in changing herd genetics. Thus, cow-calf producers are advised to learn the quality of their calves. One way of doing that is to regularly collect carcass data. Evidence suggests relatively few cow-calf producers have done that. Just 9 percent of producers said they had collected carcass data on their cattle. That percentage rose to nearly a quarter (23 percent) of larger producers, but was even smaller (4 percent) for smaller producers.

There are several reasons to maintain identification of individual animals, especially tracking reproductive performance of cows. Individual animal identification may be required for some marketing programs where certification of quality assurance is involved. A national animal identification program also will enable tracking animal diseases and enable effective

Table 1. Quality assurance and animal health questions, all producers and by groups.

	All	Producer Group Larger ^b (Percent of total)	Smaller ^c
Control ticks with pesticides (tag, spray, pour-on) (nearly always)	63	64	63
Control ticks by pasture rotation (nearly always)	24	34	18
Control ticks using prescribed pasture burn (nearly always) ^a	8	19	5
Deworm calves between 60 and 120 days of age	26	25	27
Administer multiple vaccinations of calves (2 to 6 weeks prior to weaning and either at weaning or 2 to 3 weeks after weaning) ^a	32	45	23
Have collected carcass data from calves produced ^a	9	23	4
Identify cows with visible ear tag (nearly always) ^a	54	29	44
Identify calves with visible ear tag (nearly always) ^a	55	34	49
Administer injections in the neck (nearly always) ^a	72	88	67
Average body condition score 5 to 6 of first-calf heifers at calving	55	59	68
Average body condition score 5 to 6 of cows culled from the herd ^a	41	32	46

^a Statistically significant difference between larger and smaller groups

^b 100 or more breeding females and 40% or more of household income from the beef enterprise

^c Fewer than 100 breeding females and less than 40% of household income from the beef enterprise

containment strategies to limit potentially catastrophic losses. The most common method of individually identifying cows is with a visible ear tag. Of all producers, 54 percent nearly always use a visible ear tag to identify cows. More smaller producers than larger producers (44 percent vs. 29 percent, respectively) use a visible ear tag, but that finding alone is a bit misleading. Larger producers more frequently used a visible ear tag in conjunction with freeze or hot branding than did smaller producers.

Individual calf identification is becoming even more important, especially when as many marketing programs require verification of source and specific management practices. Just over half of all producers (55 percent), nearly always use a visible ear tag to identify individual calves, which is nearly the same percentage as for cows. A higher percentage of both smaller and larger producers individually identify calves with ear tags than was the case for cows. For calves, 49 percent of smaller producers and 34 percent of larger producers nearly always use visible ear tags for calves. This question was one of the few for which smaller producers followed a recommended practice more than larger producers.

For at least the past decade, the beef industry has been trying to reduce losses from injection site blemishes in beef products. Producers have been encouraged to administer vaccines in the neck rather than in the rump or hip which may result in lesion damage to a more valuable retail product. The lesion may extend up to 3 inches around the actual injection site. Almost three-fourths of producers (72 percent) nearly always administer injections in the neck region. The percentage was much higher for larger producers (88 percent) than for smaller producers (67 percent). Some producers continue to nearly always administer injections in the rump, hip, or leg; 17 percent of smaller producers and 9 percent of larger producers. Thus, the industry has further to go to eliminate all losses from injection site blemishes.

Effective cowherd management involves monitoring and managing a cow's body condition score (BCS). BCS at calving affects rebreeding performance. A BCS of 5 or 6 is recommended for cows at calving. Of all producers, 55 percent

indicated first calf heifers had a BCS of 5 to 6. Here, smaller producers out-performed larger producers in having a higher percentage following the recommended practice. More than two-thirds (68 percent) of smaller producers maintained a BCS of 5 to 6 for first calf heifers at calving, compared with 59 percent of larger producers.

Body condition is also very important for culling cows. Body condition affects dressing percentage and the U.S. Department of Agriculture quality grade for cull cows. A recommended BCS of 5 or 6 translates to a boner quality cow. For all producers, 41 percent of their cull cows had a BCS of 5 or 6. A higher percentage of smaller producers (46 percent) met this target compared with larger producers (32 percent). Larger producers tended to cull cows with lower a BCS.

Marketing and Risk Management

Marketing and risk management questions covered preconditioning, marketing practices, and use of various risk management tools. Preconditioning calves is becoming increasingly common among cow-calf producers. Preconditioned calves are worth more to buyers because they are healthier and have a stronger immune system than calves sold immediately at weaning. Preconditioning consists of several management practices. Responses regarding each are discussed here for producers who precondition calves.

Recommended length for preconditioning programs is typically 45 days (Table 2). Of all producer respondents, 54 percent nearly always precondition calves for that length of time. Three-fourths (75 percent) of larger producers nearly always precondition calves for 45 days compared with less than half (45 percent) for smaller producers.

Most recommended vaccination programs call for two rounds of vaccinations, especially for BVD (Bovine Respiratory Disease), one leading cause of death among feeder cattle and calves. Just 37 percent of all producers administer two rounds of vaccinations in a preconditioning program. The percentage was higher (56 percent) for larger producers than smaller ones (26 percent).

to adopt or use recommended management practices than are smaller producers who are less dependent on cattle for household income. The need to generate profit may drive larger producers to adopt "best management practices." Also, larger producers may have become larger by doing what was recommended and earning more profit, thereby enabling their operations to grow and expand. Thus, smaller producers who want to grow and expand must consider which management practices are most effective in controlling costs and generating income to increase cowherd profitability.

References

- Donnell, Jeri D. "Age and Source Verified Preconditioned Feeder Cattle: Costs and Value." Unpublished M.S. thesis, Oklahoma State University, 2007.
- Lalman, David and Damona Doye. *Beef Cattle Manual*, 5th ed. Oklahoma Cooperative Extension Service, Oklahoma State University. 2005.
- Vestal, Mallory K. "Production Practices and Management Intensity of Oklahoma Cow-Calf Producers across Income and Herd Size." Unpublished M.S. thesis, Oklahoma State University, 2007.

Table 2. Marketing and risk management questions, all producers and by groups.

	All	Producer Group Larger ^b (Percent of total)	Smaller ^c
Practices considered part of preconditioning			
Wean calves 45 days or more (nearly always) ^a	54	75	45
Administer two rounds of respiratory vaccinations (nearly always) ^a	37	56	26
Treat for internal and external parasites (nearly always) ^a	66	91	54
Castrate bull calves (healed prior to marketing) (nearly always) ^a	73	96	67
Dehorn horned calves (nearly always) ^a	61	83	49
Familiarity with feed bunks (nearly always) ^a	67	85	63
76 to 100 percent of steer/bull calves sold as stocker or feeder animals ^a	81	72	87
76 to 100 percent of steer/bull calves retained as stocker or feeder animals	34	41	29
Member of a beef marketing cooperative, alliance, or similar marketing program ^a	6	8	3
Typically market calves seasonally (1 to 3 times per year)	76	84	74
Typically market calves in truckload size lots (more than 50 head) ^a	12	47	3
Typically market calves in uniform lots ^a	56	82	51
76 to 100 percent of calves typically marketed through a local/regional market within 50 miles of the ranch	79	44	86
Lock in expected price with feeder cattle futures contract (rarely if ever) ^a	83	80	88

^a Statistically significant difference between larger and smaller groups

^b 100 or more breeding females and 40% or more of household income from the beef enterprise

^c Fewer than 100 breeding females and less than 40% of household income from the beef enterprise

Calves are vulnerable to parasites until they acquire a full, natural immunity well past weaning age. A higher percentage of producers apparently recognize the value and importance of treating for parasites. Two-thirds (66 percent) of all producers nearly always treated calves for internal and external parasites. For larger producers, the percentage was 91 percent, well above the percentage for smaller producers, 54 percent.

Most preconditioning programs require bull calves to be castrated, and there is an economic reason for doing so. Research consistently shows buyers pay premiums for steer calves vs. bull calves (Donnell, 2007). The price premium typically more than offsets the cost of castrating bull calves. Yet some producers fail to castrate. For all producer respondents who preconditioned calves, almost three-fourths (73 percent) reported nearly always castrating bull calves. Just about all larger producers nearly always castrate (96 percent), but considerably fewer smaller producers do, just two-thirds of that group (67 percent).

There is a trend away from producing horned cattle. For the industry as a whole, that is positive in that horned cattle cost the industry in terms of bruised carcasses as well as human injuries. Most preconditioning programs require calves with horns to be dehorned and healed at marketing time. Of producers who precondition calves, just under two-thirds (61 percent) nearly always dehorn calves. Larger producers nearly always dehorn calves more frequently (83 percent), nearly twice as frequently as smaller producers (49 percent).

The preconditioning period typically involves having weaned calves become used to eating from a feed bunk in preparation for them adjusting quickly and with less stress to a feedlot environment. Two-thirds of all producers that precondition calves (67 percent) nearly always expose calves to feed bunks during the preconditioning program. Larger producers do so more frequently than smaller producers, 85 percent and 63 percent, respectively.

Producers have several marketing alternatives. Among them are to sell calves at weaning, market them after preconditioning, retain ownership through a stocker program (often a winter small grains or spring pasture program), or continue retaining ownership through finishing. A large percentage of cow-calf producers market calves after weaning or after a preconditioning program. For 81 percent of all respondents, between 76 and 100 percent of their calves are sold into a stocker program or go to the feedlot. A smaller percentage of larger producers market calves in this manner (72 percent) compared with smaller producers (87 percent).

Beef industry alliances grew rapidly in the 1990s and have been a means of better coordinating the quality of cattle from cow-calf producers through cattle feeding, harvesting, and retailing. It was thought alliances would lead to considerably more retail brand programs for beef and result in more consistent, higher quality retail beef products. Few respondents to the survey, regardless of size, participate in alliance programs. Just 6 percent of all producers and 8 percent of larger producers belong to a cattle alliance, cooperative, or similar marketing program.

Cow-calf producers responding to the survey indicated how they market calves throughout the year. Of all producers, three fourths (76 percent) market calves seasonally, meaning one to three times per year compared with marketing them regularly throughout the year or only sporadically. This seasonal marketing pattern was more apparent with larger producers (84 percent) than smaller ones (74 percent). Smaller producers were more apt to market calves sporadically throughout the year.

Research consistently shows buyers pay higher prices for larger sale lots of calves and feeder cattle (Donnell). Premiums are paid even for marketing in 5- or 10-head lots rather than as single-head lots. Premiums typically exist for lot sizes up

to full truckloads of uniform calves or feeder cattle. Only 12 percent of all producers indicated marketing calves in truckload lots (more than 50 head). That finding is not surprising in that many more, smaller producers completed the survey than did larger producers. And there is an obvious limit as to how many uniform calves smaller producers can market in a single lot. For smaller producers, 51 percent marketed calves in small lots (less than 10 head) and another 46 percent in medium size lots (10 to 50 head). For larger producers, 49 percent marketed calves in medium size lots and 47 percent in truckload lots.

Also important to buyers is the uniformity of sale lots. Uniformity can be defined in several ways, but often refers to single-sex and similar frame and weight calves. Ideally, buyers purchase uniform lots of calves that will finish in the feedlot at about the same time. A majority of all producers (56 percent) reported marketing calves in uniform rather than mixed lots. One cannot determine the actual degree of uniformity from this question but producers, large and small (82 percent and 51 percent, respectively) believe they market in uniform lots.

Marketing alternatives also apply to livestock markets. Alternatives include local sales, regional sales, direct to buyers, satellite auctions, regular sales, or special sales (such as certified preconditioned sales). A high percentage of all producers (79 percent) market 76 to 100 percent of their calves at a local/regional market (within 50 miles of the ranch) at its regular sale. For larger producers, 44 percent use a local/regional market within 50 miles of the ranch but another 36 percent only market 1 to 25 percent of their calves through the same market. Larger producers were more apt to market calves through a regional market more than 50 miles from the ranch. Most smaller producers (86 percent) marketed 76 to 100 percent of their calves in a nearby local/regional market.

Many factors cause calf prices to fluctuate widely. Producers have alternatives to manage price risk; including futures

market contracts, options on futures contracts, and forward price cash contracts. Use of all three risk management alternatives was very limited by producer-respondents. Of all producers, 83 percent rarely if ever hedge expected prices with feeder cattle futures market contracts; 85 percent rarely if ever hedge expected minimum prices with feeder cattle option contracts; and 84 percent rarely if ever forward price for later delivery. Larger producers tend to occasionally use these risk management tools, but still most said they rarely if ever use them (80 percent, 84 percent, and 80 percent, respectively). Not surprising, even larger percentages of smaller producers do not use these risk management tools.

Reproduction and Genetics

Questions in this section dealt with a variety of topics related to reproduction management and genetic selection. Nothing is more important to a cow-calf producer than getting a calf born alive. Thus, proper reproduction management is essential to success of the cow-calf operation.

Sires contribute 50 percent of the heritable traits for each calf, making sire selection a priority management decision. Sire selection represents the fastest means of making genetic changes in offspring from a cowherd. An important tool in sire selection is use of expected progeny differences (EPDs). In fact, until DNA testing becomes economical, EPDs are the most accurate tool producers have to assist in bull selection. Overall for all producer respondents, just over a third (37 percent) nearly always use EPDs in bull selection (Table 3). Larger producers use EPDs more frequently, as 59 percent nearly always use them. For smaller producers, 31 percent nearly always use EPDs; but at the other extreme, nearly as many (28 percent) rarely if ever use them. Thus, several producers are not using a readily available, important tool in reproduction management.

Breeding soundness of bulls is also critically important to reproduction management. Again, getting a calf born is the most important objective for cow-calf producers, so quality and fertility of bulls is vitally important. For all producers, 42 percent nearly always evaluate the soundness of young breeding bulls (less than two years old) and 31 percent nearly always evaluate mature bulls (two years or more old). Typically, larger producers more regularly evaluate bulls. Two-thirds (67 percent) nearly always evaluate young breeding bulls and 52 percent evaluate mature bulls. Those percentages compare to 36 and 27 percent, respectively, for smaller producers.

Bull quality is important to producing high quality calves. The marketplace generally values better bulls more highly than poorer ones. Thus, purchase price is a good proxy for the quality of bulls purchased by commercial cow-calf producers. Two-thirds of all producers (66 percent) paid \$1,001 to \$2,000 per breeding bull and another 16 percent paid between \$2,001 and \$3,000. The average purchase price for larger producers was \$2,095 with a third (32 percent) paying \$2,001 to \$3,000. Smaller producers invested less in bulls. The average purchase price for a breeding bull by smaller producers was \$1,579 and with just 10 percent paying between \$2,001 and \$3,000. Cowherd owners need to consider the importance of bulls to their cow-calf program. An extra \$500 or \$1,000 per bull should be evaluated in terms of its performance effect on 20 to 50 calves per year for three to five years.

Where bulls are purchased is also important and may be as important as price paid. There can be a huge difference between purchasing bulls from a reputable seedstock producer vs. bulls of unknown genetics from a local market or producer. Of all producers, 44 percent nearly always purchased most bulls from a purebred breeder sale. Next most common was from a neighbor. More than half of larger producers (54 percent) nearly always purchased most of their bulls from a purebred breeder sale. Next most common from this group was purchasing from a bull test station. Of smaller producers, 37 percent said they nearly always purchased most bulls from purebred breeder sales. Next most common was purchasing breeding bulls from a neighbor.

Regulating the time bulls are left with cows affects the uniformity of the calf crop and facilitates improved herd health and nutrition management. Shorter, defined breeding seasons and calving seasons can increase uniformity while reducing annual costs for raising a calf. More than half of all producers (55 percent) have a defined breeding season as opposed to year-round breeding. Just half of smaller producers (50 percent) have a defined breeding season compared with two-thirds of larger producers (67 percent). A defined breeding season may be in the fall, spring, or both. The most common defined breeding period is 60 to 90 days both for smaller and larger producers.

Keeping open cows is expensive. Thus, a cost-effective management tool is pregnancy checking mature cows and heifers. However, pregnancy checking was not a common practice for most producers. Pregnancy checking raised heifers was more common than for mature cows. For all producers, 44 percent nearly always pregnancy checked purchased heifers and cows, 31 percent nearly always pregnancy checked raised heifers, and 20 percent pregnancy checked mature cows. For larger producers, the percentages were 49, 54, and 34 percent, respectively; while for smaller producers they were 42, 22, and 13 percent, respectively. A likely limitation to pregnancy

checking for smaller producers is labor and time, as well as possibly facilities for gathering and penning cows to palpate each animal. However, knowing which cows and heifers are not bred is important in making timely and economical culling decisions.

Producers were asked about the assistance required by heifers and cows in calving. Results suggest cowherd owners select for and keep cows that calve without assistance. For all producers, 97 percent indicated that 76 percent or more of their cows do not require calving assistance. Not surprisingly, a smaller percentage (83 percent) indicated that 76 to 100 percent of their heifers did not need calving assistance. For larger and smaller producers, the percentages were identical, 99 percent for cows and 86 percent for heifers.

An on-going debate is whether raised heifers are better and more economical than purchased replacement heifers. Results depend on many factors with no clear advantage toward either alternative in all cases. For producers responding to our survey, raising replacement heifers was much more common than purchasing replacement heifers. Among all producers, 64 percent nearly always raised most of their replacement heifers. That percentage was higher for larger producers (69 percent) compared with smaller producers (59 percent).

Breed preference of bulls and cows is a highly personal decision. There are more differences within a breed than between breeds. In the past decade, the Angus breed has gained in familiarity with consumers as an actual or presumed indicator of quality beef. As a result, calves with Angus breeding and/or black hides often receive premium prices relative to other breeds or hide colors. These price premiums may or may not be justified by better feedlot and carcass performance or eating quality. Regardless, Angus or Red Angus was the most common breed of bulls across all producer-respondents (55 percent) as well as for more than half of larger (64 percent) and smaller (54 percent) producers. Similarly, Angus, Red Angus, or Angus-Hereford cows were the most common breed of cows for half of all producers (51 percent) and for larger and smaller producers (54 and 50 percent, respectively).

Commercial breeding programs differ, depending in part on the objectives and resources of the producer. A rotational crossbreeding program takes advantage of hybrid vigor from two or more breeds. However, breed complementarity is sacrificed and it can be more expensive for smaller producers who raise replacement breeding stock. Many producers use a bull that is the same breed as their cows. For those following another type of breeding program, most use a rotational crossbreeding program. Overall, 49 percent of producer respondents indicated their breeding program involved rotational crossbreeding. The percentage was higher for larger producers (61 percent) compared with smaller producers (47 percent). A much smaller percentage of producers have a terminal crossbreeding program or use composite bulls to capitalize on the hybrid vigor from crossbreeding.

Summary and Conclusions

Oklahoma cow-calf producers who received a *Beef Cattle Manual* provided information on their current production practices. This Extension Fact Sheet summarized practices in three areas; beef quality assurance and animal health, marketing and risk management, and reproduction and genetics.

In most cases, larger producers who rely on cattle for a higher percentage of their household income are more apt

Table 3. Reproduction and genetics questions, all producers and by groups.

	All	Producer Group	
		Larger ^b	Smaller ^c
		(Percent of total)	
Use EPDs (expected progeny differences) in bull selection (nearly always) ^a	37	59	31
Have a defined breeding season compared with year-round breeding ^a	55	67	50
Pregnancy check mature cows (nearly always) ^a	20	34	13
Pregnancy check raised heifers (nearly always) ^a	31	54	22
Pregnancy check purchased heifers and cows (nearly always)	44	49	42
Evaluate breeding soundness of mature bulls (2 yrs old or more) (nearly always) ^a	31	52	27
Evaluate breeding soundness of young bulls (less than 2 yrs old) (nearly always) ^a	42	67	36
76 to 100 percent of heifers do not require assistance in calving	83	86	86
76 to 100 percent of cows do not require assistance in calving	97	99	99
Typical purchase price for breeding bulls between \$2,001 and \$3,000 ^a	16	32	10
Purchase most breeding bulls from purebred breeder sales (nearly always) ^a	44	54	37
Raise most replacement heifers (nearly always)	64	69	59
Predominant breed of bulls is Angus or Red Angus	55	64	54
Predominant breed of cows is Angus, Red Angus, Angus-Hereford cross	51	54	50
Commercial breeding program consists of a rotational cross	49	61	47

^a Statistically significant difference between larger and smaller groups

^b 100 or more breeding females and 40% or more of household income from the beef enterprise

^c Fewer than 100 breeding females and less than 40% of household income from the beef enterprise