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Drinking Water Quality For Beef Cattle

An environment friendly and production management enhancement technique

by Gene Surber, Extension Natural Resource Specialist, Montana State University; Kent Williams, Custer County Extension Agent; and Mark Manoukian, Phillips County Extension Agent



Throughout the summer, most cattle in the West receive drinking water from earthen basins such as reservoirs, ponds and dugouts (referred to here as dam/pits). However, research is limited on the water quality of these earthen structures. Does the movement of the cattle degrade vegetation on the shoreline to the point where the filtering effect of the water is reduced? Do cattle that drink from earthen basins consume more sediment and fecal organisms than those that drink from a watering tank? If so, does water of better quality affect growth performance to a point that is economically significant?

Research shows that cattle will choose to drink from a tank rather than wade in mud or risk slipping on ice to get a drink of water. However, just because cattle *like* the tank is not enough reason to install one, particularly when cattle prices are barely keeping up with expenses.

We set up a demonstration project for beef cattle to observe their drinking water preference and the water quality of the sources. The study had several objectives:

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Louie Petrie Cattle Company

Sonny and Nellie Obrecht; Sam, Linda, Tyrel and Sydney Obrecht

By Mike Schuldt, Blaine County Extension agent

Describe your operation.

This family-owned cow-calf operation is located near Turner, Montana on the Saskatchewan border. The Louie Petrie Cattle Company is operated by Sam and Linda Obrecht in partnership with Sam's parents, Sonny and Nellie Obrecht. The ranch has been owned and operated by this family since 1901 and with Sam's son Tyrel helping out, it is in the fifth generation.

Headquartered in Mutton Hollow of Woody Island Coulee, the ranch began as a large sheep operation and was primarily stocked with sheep until the mid-1950s when Nellie's father took over half of the ranch and stocked it with cattle. The other half was stocked with both sheep and cattle until Sonny and Sam purchased it and brought the ranch back under one ownership.

Currently all of the sheep have been replaced with 850 black Angus cattle on this 45,000-acre ranch. The ranch includes both deeded and BLM leased pasture in conjunction with 220 acres of irrigated hay ground and up to 600 acres of dryland hay depending on the year. Sonny has had the cattle in an intensive A.I. program since the early 1960s, and the yearlings have been bred using synchronization techniques for 20 years. This has led to a herd with consistent premium genetics and has allowed the Obrechts to keep, feed and successfully market replacement heifers to increase their income opportunities.

The BLM has been a good partner in the operation, with the leased land working well into the rest-rotation pasture system. Each of the two BLM units is divided into seven pastures, with six pastures grazed each year and one rested. To optimize grazing potential, each rotation is timed so that the pastures are grazed at a different stage of the growing season each year. Water improvements and improved grass variety seeding have enhanced the grazing value of the deeded pastures.



Like most Montana producers, managers of the 45,000-acre Louie Petrie Cattle Company near Turner have had to take drastic measures to cope with the drought.

How does your ranch differ from others in the area?

One of the major differences is the lack of crop aftermath or stubble for fall pasture. The grazing rotation has had to provide for sufficient fall pasture while many local ranchers can take their stock to stubble after weaning to relieve pressure on the pasture land.

What has been your most effective management strategy in recent times?

This area is in the fourth year of one of the worst droughts in history. Currently our moisture is at 44% of normal for the year, and this has caused management to focus on drought survival strategies. In 2001, early weaning took the stress from the short pastures and allowed condition to be replaced on the cows. Other successful strategies include developing additional water sources and moving half the cows off the ranch to leased grass in Nebraska.

What is your biggest challenge?

DROUGHT!! Managing through the short-term drought crisis has forced Sonny and Sam to make decisions that normally wouldn't be considered. The decision to truck a portion of the herd 905 miles away has been difficult. But this strategy is designed to hold the genetics that have been developed through 40 years of A.I. breeding. When weather conditions change, the ranch will still be able to offer the high-quality replacement cattle that they have built a reputation around.

The grass condition on the ranch is critical with short moisture and one of the coldest springs on record. Supplemental feeding was necessary in mid-May, not a common practice for this area. The large dam that collects the irrigation water for the ranch has been dry and unable to supply sufficient livestock water since October 2001. The outlook for 2002 is

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Aggressive summer grilling promotion to push beef steaks



by Charlene Schuster, Executive Director,
Montana Beef Council

An integrated beef marketing and communications plan focusing on summer grilling has been developed to help move more steaks beginning in May. The \$2 million, checkoff-funded plan, is coordinated for the Cattlemen's Beef Board and state beef councils.

The objective of the program is to convince consumers to choose beef when grilling and to use their grills more often. Advertising, promotions, food communications and public relations will be used to carry the message to consumers. Markets included in the promotion were chosen for consumer inclination to grill and consume beef, as well as being large population centers. Targeted markets include Los Angeles, Dallas, Washington D.C./Baltimore, Boston, Detroit and the New York City area, as well as key markets identified by participating state beef councils.

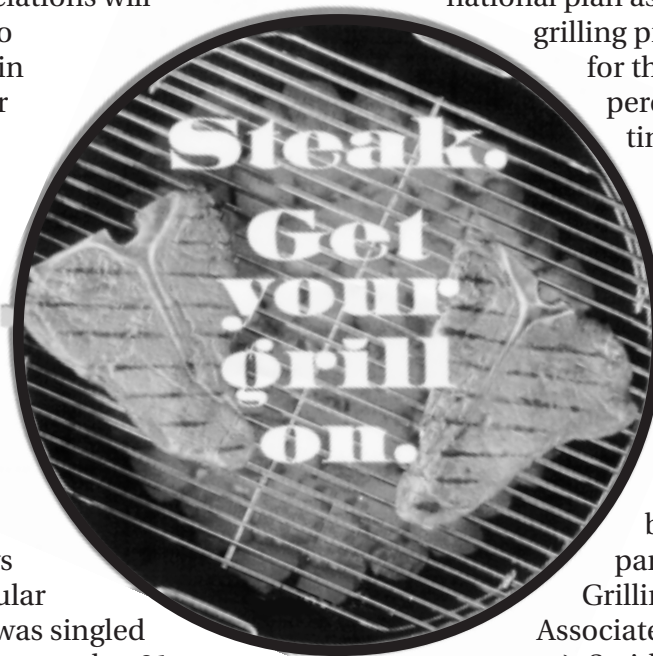
Steak was chosen as the program focus because surveys show it is one of the most popular items for grilling. And grilling was singled out because, while it's generally popular, 91 percent of consumers grill fewer than two times per week. While they are both already popular, steak and grilling are a natural combination that presents a huge benefit to beef.


Because they're the primary grilling enthusiasts, men ages 25-54 will be a key audience for the advertising in the new summer grilling promotion.

According to the Barbecue Industry Association, men are twice as likely as women to do the grilling.

The grilling program will run from May to September primarily during non-holiday periods to enhance previously scheduled holiday grilling promotions. It will include a coordinated radio advertising program with in-store promotions in the top grocery chains in the targeted markets beginning in late-June. The Montana Beef Council will use the national plan as a model for their summer grilling programs. The advertising alone for this promotion will reach 72 percent of the target audience six times during the summer.

The in-store component of the promotion will be used to generate consumer interest in grilling beef. Tactics for the in-store component include floor graphics, off-the-shelf information dispensers, cart signage, in-store radio and placement of recipe and grilling information brochures. The stores participating in this Summer Grilling Promotion in Montana are Associated (69 stores), Albertson's (31 stores), Smith's (8 stores) and Safeway (12 stores).



Beef: Questions & Answers is a joint project between MSU Extension and the Montana Beef Council. This column informs producers about current consumer education, promotion and research projects funded through the \$1 per head checkoff. For more information, contact the Montana Beef Council at (406) 442-5111 or at beefcnd@mt.net 

Drinking water, cont. from p. 1

- Determine if cattle show a preference for tank water versus water in a dam/pit
- Determine if availability of a nearby tank would affect shoreline vegetation near a dam/pit, compared to a dam/pit without a watering tank nearby
- Determine water quality differences between the tank water and the dam/pit from which the tank was filled.

Finally, we hoped to observe livestock behavior regarding use of the tank as well as performance data such as weight and cow/calf efficiency.

During the summer of 1996, cattle were given a choice of drinking from dam/pits or tanks located 50 to 150 feet from the dam/pits. Water in the tank was supplied via gravity flow or a solar pumping system from the same dam/pit. No fencing was used to limit access to any of the dam/pit water sources.

Nearly 80 percent of the cows and calves observed showed a preference for the tank water over dam/pit water. Cattle exhibited a learning curve, and began to look for the tank toward the end of the season. Calves demonstrated the most interest in the tank and were the most consistent users of the tank water.

More residue was left on the shorelines of the dam/pit with a nearby tank. Total suspended solids (TSS) were much lower (2mg/L) in the tank compared to the dam/pit (50mg/L) sources. However, other water quality parameters displayed little difference (electrical conductivity, pH, total dissolved solids, nitrate-nitrogen, calcium, potassium, magnesium, and sodium).

Is it worth it?

Research in Alberta, Canada (1995) showed a 23 percent increase in weight gains over 71 days for

yearling steers drinking well water versus those drinking from a dam/pit. A 1993 study showed a 20 percent weight increase in cattle that drank water pumped from a dugout into a tank compared to those that drank directly out of a dugout. A 1994 study confirmed the impact on cows, with a lesser impact on calves.

Producers would find it profitable to install tanks as an alternative drinking water source if significant weight gains or cow/calf efficiency can be shown. For example, if calf weights increased just five percent, 100 calves would pay for one gravity system (approximately \$1,300-\$1,400) even at .60 calf prices, or would pay for a solar system at .80 calf prices.

Example

500-pound calf x .05 = 25 pounds

25 pounds x .60 = \$15

\$15 x 100 calves = \$1,500

Herd health may also benefit from the alternative water source, thereby minimizing disease transmission. This is more difficult to measure monetarily, but may be part of the weight increase, because improved health does enhance cow performance.

Conclusion

Ranchers who are reconstructing dams or building new water sources should consider installing a siphon tube or pump system to a tank away from the edge of the dam/pit and out of the riparian area. We believe ranchers could avoid fencing water sources to enhance water quality if a tank water source was available. Water quality, wildlife habitat and livestock performance should be enhanced if ranchers use limited economic resources to provide tank water systems without the expense of additional fence.

For more information, contact Gene Surber at (406) 994-3414

Research results: Montana Nutrition Conference

Evaluation of melengestrol acetate prostaglandin (Mga/Pgf), Select Synch, and 7 D Mga/Select Synch estrous synchronization protocols in beef heifers

by R. N. Funston and R. P. Ansotegui, Montana State University, R. J. Lipsey, American Simmental Association; and T. W. Geary, USDA-ARS, Fort Keogh Livestock and Range Research Laboratory, Miles City

The objective of this study was to evaluate synchronization, conception and pregnancy rates of heifers synchronized with MGA/PGF, Select Synch or Select Synch preceded by MGA (MGA/Select Synch).

Heifers in the MGA/PGF group received MGA (0.5mg-hd-1-d-1) for 14 days and an injection of PGF (25 mg) 19 days later.

Select Synch heifers received an injection of GnRH (100 ug) followed by PGF (25 mg) 7 days later.

The MGA/Select Synch heifers were fed MGA (0.5mg-hd-1-d-1) for 7 days, received GnRH (100 ug) the day following the last MGA feeding and PGF (25 mg) 7 days after GnRH. All heifers received PGF on the same day.

We observed heifers for estrus continuously during daylight from four days before through five days after PGF and bred by AI approximately 12 hours after onset of estrus. We determined pregnancy status by ultrasound approximately 50 days after AI.

More heifers were observed in estrus before PGF injection in both the Select Synch (20%) and MGA/Select Synch (24%) groups than the MGA/PGF (4%) group. Pregnancy rates for heifers in estrus early were higher for both Select Synch (55%) and MGA/Select Synch (63%) compared to MGA/PGF heifers (18%). Synchronization rate (after PGF) was higher for MGA/PGF heifers (86%) compared to Select Synch (66%) and MGA/Select Synch (68%). However, conception rate did not differ for MGA/PGF, Select Synch and MGA/Select Synch, (72, 63, and 62% respectively).

Overall estrous response was higher for MGA/Select Synch (92%) than Select Synch (85%) but did not differ from the MGA/PGF (89%). The Select Synch (53%) and MGA/Select Synch (57%) protocols provided similar overall pregnancy rates compared to the MGA/PGF protocol (62%). However, considerably more heifers were in estrus before the PGF injection in the protocols using GnRH.

Estrous synchronization programs must be inexpensive, effective and easy to administer. The

MGA/PGF protocol provided the highest pregnancy rates and least variability in estrous response. However, the Select Synch protocol provided acceptable pregnancy rates. Producers who want a shorter synchronization program or when MGA can not be fed or uniformly consumed may consider it. Feeding MGA before the Select Synch program did not provide any benefit in the present study.

For more information, contact Rick Funston at (406) 232-8223

Effect of age and grain processing method on diet digestibility of beef cattle

by B.M. Rainey, J.A. Paterson, R.J. Lipsey, R.N. Funston, G.W. Brester, and W.T. Choat; Department of Animal and Range Sciences, Department of Agriculture Economics

We studied the effects of animal age (cows vs. calves) and barley processing method (whole vs. rolled) when fed as a supplement to medium-quality grass hay (10.8% crude protein) on diet digestibility.

Sixteen, 31-month-old, Angus crossbred cows and 16 newly weaned steer calves were allotted to treatments. We provided light test weight barley (42 lb/bu) at 5.5 lb/cow/day and 2.53 lb/calf/day. Cows received grass hay at 17.5 lb/hd/day and calves at 11.2 lb/hd/day. All animals received .4 pounds of a 37% protein supplement. All animals were adapted to the diet over a 10-day period prior to beginning the experiment.

Processing the light barley did not influence organic matter, protein or fiber digestibilities. No age x processing interactions were detected for organic matter, protein or fiber digestibilities. Organic matter and protein digestibilities were greater for calves than cows, but fiber digestibilities were similar.

Processing did not affect starch digestibility when fed to calves, but rolling the barley dramatically improved starch digestibility when fed to cows (71.4% vs. 23.3% for rolled vs. whole). We saw no differences in starch digestibilities between cows and calves consuming rolled barley.

When whole barley was fed, starch digestibility was reduced by 68.4% in cows compared to calves (23.3 % vs 73.7 %).

These results suggest processing of barley is necessary more for mature cows than younger calves.

For more information, contact John Paterson (406) 994-3414

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The effects of ranch and backgrounding management on feedyard performance of calves: A survey from Colorado

by D. J. Fennewald, J. A. Paterson, R.J. Lipsey and G. W. Brester, Department of Animal and Range Sciences, Department of Agriculture Economics, Montana State University

We analyzed 70 pens of feedlot cattle (averaging 202 head per group) from seven states to determine how various ranch management practices affected performance, health and carcass traits in the feedlot.

Age at weaning averaged 220 days and ranged from 148 to 290 days. After weaning, calves were backgrounded an average of 69 days with a range of zero to 135 days. The weight of the calves entering the feedlot (In WT) averaged 719 pounds and ranged from 456 to 891 pounds. As In WT increased, percent morbidity (sickness) and mortality decreased while ADG and hot carcass weight increased.

The groups were fed an average of 167 days in the feedlot and had an ADG of 2.95 pounds; steers gained 0.31 pounds more per day than heifers. Calves with heavier In Wt and calves with faster ADG had heavier hot carcass weights, which contributed to more carcasses receiving the USDA Choice grade. Morbidity averaged 11% and ranged from 0 to 39%. Of the calves removed from pens for medical treatment, 36.6% were pulled in the first 30 days and 40.2% were pulled between days 30 and 60. Morbidity increased about 7% when the calves were commingled in the feedlot. The percent that died in the feedlot averaged 1.29% and ranged from 0-5.1%. The morbidity and mortality rate for Montana calves was comparable to those from surrounding states, but Montana calves were faster gaining, had heavier hot carcass weights and more Choice carcasses. Commingling calves in the feedlot resulted in more morbidity and calves that entered the feedlot at heavier weights had less mortality, higher ADG and HCW, and more Choice carcasses. These data indicate In WT and commingling were critical to health, performance and carcass quality.

For more information, contact John Paterson (406) 994-3414

Effects of prairie dogs on vegetation

by C. Johnson and B. Sowell, Department of Animal and Range Sciences, Montana State University

At the turn of the 20th century, the prairie dog was seen as an agricultural pest, and widespread eradication programs began as early as the 1920's throughout the home range of the black-tailed prairie dog. The public's view of the prairie dog has shifted in recent years, as preservation of the grassland ecosystem has gained importance. In 1998,

the U.S. Fish and Wildlife Service received a petition requesting immediate consideration of the prairie dog as a threatened species. Supporters of this petition claimed that prairie dogs enhance rangelands by increasing productivity, biodiversity and nutritional content of vegetation on prairie dog colonies.

In June 2000, we began to evaluate the impact of prairie dog colonies on the mixed-grass prairie of eastern Montana. The objectives were to compare total plant biomass, plant species richness, cover, nutritional differences, and shrub dynamics between prairie dog colonies and adjacent uncolonized sites.

Total biomass comparisons indicated that standing crop biomass is greater off the prairie dog colonies. Aboveground biomass for cool-season (C3) grasses (dominated by western wheatgrass, needle-and-thread, and Sandberg bluegrass) was nearly three times greater off the prairie dog town than on. Warm season grasses (primarily blue grama) were also greater off the prairie dog town. Nearly seven times the amount of standing dead grass was present off the prairie dog town than on, because prairie dogs constantly clip vegetation to increase visibility and facilitate movement, greatly decreasing the amount of grasses that reach maturity. Dwarf shrub standing crop biomass, dominated by fringed sagewort, was significantly greater on the prairie dog town, which is consistent with any disturbed or overgrazed site.

In addition, there was no difference in total biomass of forbs between treatments, forbs account for twice the amount of percent total biomass on a prairie dog town (7.4% vs 3.2%) compared to off-colony sites. The shift of C3 :C4 grasses, forbs, and dwarf shrubs suggest that long term occupation (30-50 years) of prairie dogs shift the rangeland toward a lower successional stage. Results of total species richness indicate fewer total plant species on prairie dog colonies. Bare ground was also greater on colonized rangeland compared to uncolonized sites. Crude protein concentration of all vegetative classes was higher on colonized rangeland, with the exception of forbs, which contained similar concentrations of crude protein in both treatments. Total standing crop nitrogen was lower on a prairie dog town compared to off prairie dog towns. Sagebrush biomass, cover and density was greater on uncolonized rangeland compared to on a prairie dog colony.

The findings indicate that prairie dogs decrease standing crop biomass, plant species richness and total crude protein biomass on their colonies when grazed with cattle. These results are contradictory to those stated in the petition to list the prairie dog as a threatened species.

For more information, contact Bok Sowell (406) 994-3721

Effects of spring elk grazing on summer cattle forage

by Tracy K. Brewer and Jeffrey C. Mosley, Department of Animal and Range Sciences, Montana State University; Daniel L. Lucas, Montana State University Extension Service, Phillipsburg; and Lisa R. Schmidt, Montana Farmer-Stockman, Whitehall

Foothill rangeland is extremely valuable seasonal habitat for both cattle and Rocky Mountain elk. Elk consume nearly 80% graminoids in spring on foothill rangeland, while cattle consume 75-85% graminoids in summer on foothill rangeland. The existing spatial and dietary overlap of these species on foothill rangelands warrants an elevated level of attention. Increasing elk populations, urban sprawl, conversion of native rangeland to cropland, and increased recreational activity exacerbate the impacts of spatial and dietary overlap among wild and domestic ungulates. Bluebunch wheatgrass is an important forage species on foothill range throughout the Pacific Northwest and the Rocky Mountain West for cattle in summer and for elk in spring. Spring elk grazing of bluebunch wheatgrass could delay cattle turn-out dates onto summer range, increasing annual feeding costs, lowering summer cattle stocking rates, and/or lowering summer livestock performance. Ultimately, excessive levels of grazing may threaten the sustainability of the existing resources.

The objectives of this study were to compare the effects of early and late spring defoliation at various

levels for a single year on plant yield and plant vigor of bluebunch wheatgrass in the summer on foothill rangeland in Montana, and to compare the cumulative effects of early and late spring defoliation at various levels on plant yield and plant vigor of bluebunch wheatgrass in the summer on foothill rangeland in Montana.

Our results indicate that elk grazing of bluebunch wheatgrass plants in April will not decrease their yield or vigor in June or July. Therefore, cattle grazing management (e.g., turn-out date, stocking rate, etc.) in June or July need not be adjusted to compensate for elk use in April. Elk grazing of bluebunch wheatgrass plants for more than two successive years in May to less than 2-inch stubble heights will decrease plant yield and vigor in June. Therefore, in areas that receive May use by elk that are to be grazed by cattle in June, grazing management needs to be altered in order to sustain the forage resource.

One option is to encourage elk to use the site earlier in spring or to delay cattle use until later in summer. Another option is to reduce stocking rates of either elk in spring or cattle in summer. Resource managers, wildlife biologists and ranchers should carefully monitor bluebunch wheatgrass vigor in foothill areas that receive elk use in May, especially sites that are subsequently grazed by cattle in June or July, in order to sustain the resource for both species.

For more information, contact Jeff Mosley (406) 994-3415



Rancher profile, continued


bleak, even with just 420 pairs left at home.

The greatest management challenge is to make the right decisions to hold the genetics that grandpa and dad developed without “sacrificing the farm.” The ranch must remain financially sound so when the drought breaks, the ranch can rebound and resume business as usual. It is very difficult to pay debt on land that is not producing while having to pay for the pasture to replace that production.

What do you think are the biggest challenges to the livestock industry?

One of the greatest challenges that we face is the increasing role that radical environmentalists play in the development of livestock management policy, especially when it relates to public lands grazing. Public policy changes are increasingly more costly for livestock operators. Conservation

easements purchased by public agencies are one such policy that in the long run will work against the production agriculture business. Sam feels selling an easement is selling off part of the ranch, reducing the asset value of the property. This decreases the overall health of the ranch business.

Another challenge that all production agriculture businesses face is increasing overhead costs without a proportionate increase in income. Over the years, agriculture as a whole has seen increased efficiency— bigger machines, more automated forage harvesting and better feeding systems— to make up for this discrepancy. We have efficiently reduced our communities to a skeleton of what they used to be. Ranches no longer need the hired help and the families that come with them, and farms are larger and have displaced the small family farm that sent kids to the Turner school. The challenge is to balance production so that we keep our community healthy. 

Carcass characteristics of steers sired by high marbling or high percent retail product bulls

by K. C. Davis, Research Associate, Animal and Range Sciences, Montana State University, Bozeman

Today's beef producer faces challenges on many different fronts. Producing a quality carcass to meet market demands is one. The presence or absence of fat, or marbling, in the carcass meets different consumer demands.

However, the same trait in the cowherd may have different effects on production. Because of this, Mike Tess, professor of animal science at Montana State University, initiated a study to document carcass traits and monitor production of dams sired by different types of sires.

Bulls with favorable EPD for different carcass traits were selected and bred to commercial Angus dams at a cooperator ranch. Heifer calves will be kept as replacement females and their performance as dams will be monitored. Carcass data from the steer calves will be collected and analyzed. The first calf crop was born in 2000 and this year's calves will be the final group of progeny from these matings. The first calving season for the heifers is this year.

As with all large animal research, data collection and analysis is a slow process. The carcass data from the first crop of steer calves has been collected and analyzed. Those results are presented here.

Data from these steer calves was collected during May of 2001. The calves are progeny of sires with high EPD for marbling or high EPD for percent retail product. There was also one sire with both high marbling and high percent retail product EPD. Additionally, some calves received implants of Revolar® while others were not implanted.

Calves were born at the Bair Ranch with an average calving date of March 25, 2000. Weaning was on Oct. 18, 2000 at an average age of 207 days. After weaning, calves were fed at the ranch for 45 days, and then moved to a feedlot for finishing. The animals were slaughtered at about 14 months of age. Measurements being reported are: birth weight, weaning weight, hot carcass weight, rib eye area, marbling score, back fat, calculated yield grade, and

quality grade. The data were analyzed to detect differences due to the age of the calf, type of sire, and whether or not they received an implant.

The age of the calf at the time the data was collected did not account for any differences. The cows were bred by AI during a fairly short breeding season, so age differences should be minimal. There

was no difference in birth weight among these calves. Average birth weight was 77 pounds. There were differences in weaning weight depending on the type of sire. Calves sired by high percent retail product bulls were heaviest at 550 pounds. Those sired by high marbling bulls averaged 538 pounds, which was not statistically different from those sired by retail product bulls. The calves from the bull identified as having high EPD for both traits were lightest (478

pounds) and this is where the difference was apparent.

Averages for the carcass traits are shown in the accompanying tables. The main differences in these carcasses were in the marbling scores and the quality grade. We looked at whether or not the combination of sire type and implant made a difference, but did not find this to be the case. Calves that received implants had heavier carcass weights, less marbling and lower quality grades.

Sires also had an effect on marbling scores and quality grade. Calves from percent retail product bulls had less marbling, with an average score of 4.4. The other sires averaged 5.3 to 5.9. As for quality grade, there were no prime carcasses from percent retail product bulls, while those sires identified as marbling bulls had an average of 16% prime carcasses. Half of the carcasses from percent retail product bulls graded select compared to 16% of the marbling carcasses. Choice+, choice and choice- percentages were similar, but the marbling sires produced better quality grades overall.

The use of EPS for carcass traits can be useful for meeting specific market goals, and sire selection using EPD could prove to be a valuable production tool.

continued on next page

Because there were no differences in back fat and rib eye area, and little difference in hot carcass weight, the calculated yield grades showed no differences.

Continued collection and analysis of data will add to the information being reported here. The first year's data appears to show the use of EPD for carcass traits can be useful for meeting specific market goals. Using percent retail product sires showed results that were similar to the use of implants. Marbling was achieved without excessive waste fat and low yield grades. Sire selection using carcass EPD could prove to be a valuable production tool.

Carcass Trait Averages by Sire Type

Trait	Sire Type		
	Marbling and %RP	Marbling	% RP
Carcass wt.	665	683	689
Ribeye, in	10.6	10.5	10.8
Marbling	5.9	5.3	4.4
Backfat, in	.49	.51	.48
Yield grade	3.2	3.4	3.2

Quality Grade by Sire Type (percent)

Qual. grade	Sire Type		
	Marbling and %RP	Marbling	% RP
PRIME	20%	16%	-
CHOICE+	40%	11%	9%
CHOICE	-	19%	15%
CHOICE-	40%	38%	27%
SELECT	-	16%	49%

Carcass Trait Averages by Implant Status

Trait	Implant Treatment	
	Yes	No
Carcass wt., lb	693	659
Ribeye area, in	10.7	10.6
Marbling	4.7	5.7
Backfat, in	.49	.48
Yield grade	3.3	3.2

Quality Grade by Implant Status

Quality Grade	Implant Treatment	
	Yes	No
PRIME	3%	13%
CHOICE+	5%	16%
CHOICE	8%	26%
CHOICE-	38%	26%
SELECT	48%	19%



USDA provides cost-share assistance for livestock watering facilities

By James B. Johnson,
MSU-Bozeman Extension Service Economist

Producers in 31 drought-stricken Montana counties may qualify for cost-share assistance for livestock watering facilities, says Jim Johnson, an economist with the Montana State University Extension Service.

The following counties have been approved for the USDA's Emergency Conservation Program: In central Montana: **Fergus, Garfield, Golden Valley, Judith Basin, Meagher, Musselshell, Petroleum, Stillwater, Sweetgrass, Wheatland, and Yellowstone**; and in southeast Montana: **Big Horn, Carbon, Carter, Custer, Dawson, Powder River, Rosebud and Treasure**.


Along Montana's northern border **Blaine, Glacier, Hill, Liberty and Toole** counties were approved. Elsewhere in the state, **Broadwater, Cascade, Jefferson, Pondera, Teton, Sheridan and Valley** counties obtained approval. Producers in those counties may apply for cost-share funds for permanent and temporary solutions to livestock watering problems.

Producers in the approved counties could receive up to 50 percent of the allowable costs for permanent practices such as well-deepening, spring development and piping of water; and up to 64 percent of the allowable costs for temporary practices like the purchase of small, moveable watering tanks.

County Farm Service Agency committees determine producers' eligibility for assistance and approve the cost-share requests. These committees will also determine the levels of cost-share assistance each producer can receive. The Natural Resources Conservation Service may offer needed technical assistance for the emergency conservation practices.

Producers seeking cost-share assistance must meet several conditions:

- A drought-related problem must exist.
- Any practice approved must be initiated primarily to deal with the drought-related problem.
- Only farms and ranches that had adequate livestock watering systems before the drought are eligible.
- There must be adequate range and pasture residue for livestock in the area served by the proposed water facility at the time of the request for assistance.

For more information, contact the Farm Service Agency in your county. 

Broadcaster Taylor Brown addresses MSU ag graduates

Taylor Brown graduated from Montana State University 23 years ago. With perhaps the most recognized voice in the intermountain west, Taylor has played a huge role as an advocate for western agriculture since he joined the Northern Broadcasting System as a regional farm broadcaster in 1979. Today, as its owner, he heads up a team that every market day produces nearly two dozen news, market, weather and sports information programs for over 80 affiliated radio stations in six states, plus two daily ag television programs seen on eight Montana TV stations.

In addressing the College of Agriculture Class of 2002, Taylor offered optimism about job opportunities in agriculture while encouraging graduates to set goals, maintain ties to MSU, get involved in their communities and professional associations, and make career choices based on personal interests, not money. Above all, Taylor told graduates, keep your priorities straight and put family, faith and community before business and profit.

Here are some excerpts from Taylor's commencement address to

the Class of 2002.

"...I'm here to tell you there are amazing opportunities in agriculture. We have a hungry planet to feed! I've been fortunate to travel some—to China, Egypt, Morocco, around the globe—and as developing economies improve and nations move away from communism and socialism and more toward freedom and free enterprise, as they become more affluent, people immediately want to eat better. Don't let anyone tell you there are limited opportunities in the industry of food and fiber production.

As our world accepts technology and demands more quality food with added health benefits, the opportunity for you is unfathomable.

But this industry will change. Farming will not be the same as what you grew up with.

So embrace change. And base your decisions on real science and the truth, not on social pressures,

or political correctness or the hidden agenda of some who have a whole different vision of how and where they think people should live.

There is perhaps more opportunity today in your profession than any other I can think of!

Taylor, who urged grads to give back to their profession, their community and to the organizations that helped them on their journey, closed with educator Guy Doud's ten secrets to happiness:

1) Go find someone you can help and do something totally for them, with NO benefit to yourself.

2) Then, do that nine more times.

Thank you, Taylor, for all your contributions to the MSU College of Agriculture!



Dean Sharron Quisenberry shares a smile with Taylor Brown of the Northern Broadcasting system, who spoke to the Class of 2002.



*Graduation scenes, from left: 1) Kari Berg Marks of Martinsdale won the Animal, Range and Natural Resources Outstanding Scholar Award
2) Jeff Mosley and John Paterson
3) Mike Tess and Ray Ansotegui*

Popular MSU animal science professor honored with teaching awards

Ray Ansotegui, a well-known animal science professor at Montana State University, was recently honored with two teaching awards. One, the James and Mary Ross Provost's Award for Excellence, is given annually to one MSU faculty member by the MSU provost. The other is the Distinguished Teacher Award from the Western Section of the American Society of Animal Science. Both recognize excellence in teaching and scholarship.



Ray Ansotegui

Ansotegui has taught in the College of Agriculture at MSU in Bozeman since 1976, when he accepted a one-time, one-year teaching contract with animal and range sciences. That contract is now in its 26th year. Ansotegui teaches five courses and conducts research on trace mineral supplementation and estrous synchronization. Over the years, he has taught over 30 different courses to more than 7,000 students. Most of his classes are hands-on, or "hands-in," as was the case with a particularly realistic calving management class.

Ansotegui has also served as coordinator for animal and range sciences student internships, matching students with companies, agencies and producers that will offer them real-life experience.

"Students line up at his door each semester, wishing to take his classes," wrote Harv Van Wagoner, a ranch manager in **Powderville** and former student of Ansotegui's.

"By making the material fun and relating to real world situations, I was able to soak up the material and actually retain it," wrote Will Malcom, another former student, now with Trans Ova Genetics of **Belgrade**.

Ansotegui is also well-known for his research, especially in the areas of cow/calf nutrition, range forages, estrous synchronization and trace mineral nutrition. Students are often involved in his research projects.

Born in Winnemucca, Nev., Ansotegui was raised on his family's ranches in southern Oregon and northern Nevada. His wife, Linda, and children, Denise and Raymond, are all MSU graduates. Ansotegui earned his bachelor's degree in animal

science and a master's in range nutrition from the University of Nevada-Reno; and earned his PhD in ruminant nutrition with a minor in reproductive physiology from New Mexico State University.

"Some people were born to be in the classroom," wrote Mike Tess, interim department head of the MSU Animal and Range Sciences Department. "Ray is of that breed."

Free MSU Extension publication helps ranchers avoid nitrate toxicity

Acreage of annual forage crops such as barley, oat, wheat, millet and sudangrass has risen dramatically since 1999 due to drought conditions. These crops can provide good emergency forage to replace limited hay or range production. Unfortunately, many annual forage crops, particularly those grown under drought stress, can accumulate high levels of nitrate. If livestock eat high-nitrate forages, they can get sick or even die.

A new free publication, "Nitrate Toxicity in Montana Forages," from the Montana State University Extension Service helps producers avoid nitrate toxicity by using management strategies, feeding programs and forage testing.

Nitrate occurs naturally in plants as the product of nitrogen uptake from the soil. Nitrate itself is not toxic to animals, but at elevated levels it can cause a noninfectious disease called nitrite poisoning, in which the animal's blood is unable to carry adequate amounts of oxygen from the lungs to the body tissues, thus causing suffocation.

Many forage crops and common weeds are likely to contain high nitrate levels, and the time of day or weather conditions when the forages are cut will affect the amount of nitrate present in the plant.

The publication was written by Dennis Cash and Rick Funston, Extension specialists in the MSU Animal and Range Science department; Marc King, Sweet Grass County Extension agent, **Big Timber**; and Dave Wichman; superintendent of the Central Agricultural Experiment Station at **Moccasin**.

The publication is available on-line at www.montana.edu/publications or through county and reservation Extension offices in Montana. The publication can also be ordered from MSU Extension Publications for a \$1 handling charge. Call (406) 994-3273 and ask for MT200205 AG.

Beef: Questions & Answers is published every winter through the Montana State University Extension Service. To subscribe, change your address, suggest article ideas, or for more information, call (406) 994-3414.

This is the last issue for the season. We will resume again in December 2002. Have a great summer! Pray for rain.



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Upcoming events

Montana Stockgrowers Association Mid-year Meeting. June 5-7, Lewistown, Yogo Inn. Call (406) 442-3420 for more information.

Woman's Week. June 13-15. MSU campus-Bozeman. Short classes for women of all ages and stages.

Sponsored by the MSU Extension Service, the classes range from do-it-yourself home repair to personal finance to leadership skills. Women can also sign up for two different river trips, practice computer skills or learn healthy cooking. A special package for FCE members includes meals, lodging and all classes, plus the FCE annual business meeting, banquet and social activities. For more information, contact the MSU Extension Service at (406) 994-2795 or visit www.montana.edu/wwwpb/classes/WW2002.html

The programs of the MSU Extension Service are available to all people regardless of race, creed, color, sex, disability or national origin. Issued in furtherance of cooperative extension work in agriculture and home economics, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, David A. Bryant, Vice Provost and Director, Extension Service, Montana State University, Bozeman, MT 59717.

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