Herd improvement program requires care

Two considerations are important in establishing a commericial herd improvement program.

1. Genetic desirability—This involves increasing the desirability of indivdual animals through heredity. This can be accomplished as long as superior bulls can be brought into the herd or until the environmental adaptability limits are reached.

2. Enconomic desirability—This is more related to management than heredity but may be affected by genetics. Some examples of economic desirability are calvling early in the season, dehorned calves, age of dam, cloudy eyes, etc. These things affect the pounds produced or the price per pound offered. In either case they translate into dollars received.

Herd improvement programs in commericial beef production must contribute to increase production of the total herd. The costs of the increased production must not be greater than the long-term gains.

Bulls should be purchased to improve the genetic merit of the offspring. In any herd bull battery, some bulls are superior to others. The superior bulls should be put with a group of cows to combine the most economic desirability with the most genetic desirability. Where possible, sorting cows into breeding groups to maximize genetic material has always been a sound practice.

Let's examine the possibilities of getting more out of genetics material under different management schemes. The simplest management system to operate would not be to divide the cow herd into any kind of breeding group. How then could you take advantage of the genetic potential of the animals involved? The line between what is genetically desirable and what is economicallly desirable is sometimes as thin as a razor's edge. In most herds, differences in animal preformance are influenced more by emvironmental factors than genetic factors. Say, for example, taht all calves are weaned October 27. One calf is born March 1 would be 240 days old at the weaning. Another calf born March 31 would be 210 days old. Weaning weights of these two calves probably would be 40 to 50 pounds different. This difference would be primarily due to the age difference. Time of birth is a part of the environment. How could we improve the genetic potential of the cow herd?

Program 1—Best Bulls First

Economically, the early calf is more valuable to the enterprise than the late calf. We need to concentrate on improving the genetic superior or proven bulls of the bull battery should be turned out first. This would give them first chance at the early calving cows. Generally, depending on the calving pattern of the cow herds and terrain, one-third of the bulls should be turned out 20 days ahead of the other two-thirds. Under good management, you would expect to about 80 percent of those early calvers to settle to the first service.

With this program, you concentrate the genetically superior bulls on the early acalvers to take advantage of genetics and environment. You now have the superior bulls siring the older calves from which the replacement heifers should come.

Program 2—Cow Breeding Groups

The next simplest thing to do without cow records would be to divide the cows into two or three breeding groups, depending on their time of calving and lengh of the calving season. These groups could be early, medium and late calvers. Put the best bulls with the early calving cows, the second best group witht the medium calvers. The third group of cows could be bred to the poorest bulls and used in a cross-breeding program if this were a desirable aalternative in the breeding scheme.

These are breeding programs that can be used to maximize genetic desirability and economic desirability without cow records.

Program 3—Cow Culling

You could go one step further as explained by the following. Nearly all cow culling is done after the first or second calf. Performanace testing during this period would provide an objective base for cullling low producers at an early age. This would greatly increase the overall performanace of the herd without further testing. Cows thereafter would be culled for reasons other than weaning weight of calf—open, lost calf, became crippled, ect. This procedure should work satisfactorily since young cows should be handled separately from the mature cows at all times.

Program 4—Cow Production Records

In a more complete program, all calves are identified at birth with their dam, and their birth date and sex recorded. At weaning, they would all be weighed and scored for condition. The information would be adjusted for such things as age, sex of calf, age of cow, etc. and the records would be used in the selection of replacements. This could be extended by obtaining yearling weights for all animals still on the farm or ranch and using the combinations of weaning and yearling weights in the final selections.

Program 5—Sire Progency Records

This program is the same as program 4 except the calf would also be known. Sire progency could be compared if all cattle were essentially under the same environment. If this were done annually, after the second year the commericial cattleman would have a comparison of the progency performance of all bulls used as well as the individual "produce-of-dam" records as a further guide in selecting replacements.

In this complete performance testing program, bulls presently on service could be progency-tested by allotting them a similar group of cows and comparing their preformanace. As new bulls are brought in, they would b e compared to the best of the old bulls, and the poor-preforming ones should be culled after the first calf crop. As young bulls are found that sire calves with preformance superior to those of the older bulls, they should replace the older bulls and additional new bulls should be brought in. Maximum genetic charge can be made by keeping generation intervals as short as is practical. Most purebred operations would used this method of improving their herd.

OREGON STATE UNIVERSITY EXTENSION SERVICE

The Warm Springs Extension Service provides equal access to all its activities and programs.

Eraina Palmer Secretary
Joni David Program Aide
Arlene Boileau Extension Intern
Mollie Marsh Extension Agent
Clay Penhollow Extension Agent

Dry weather may create nutrient loss

The lack of rains this fall has produced little fall regrowth on rangeland grasses and subsequently a lower level of nutrition than in previous years for cattle. Producers need to be aware of this nutritional shortage, the current condition of their cattle and how close the cattle are to calving.

Studies at New Zealand, Wyoming and Nebraska have indicated that:

1. Inadequate pre-calving nutrition reduced birth weights, resulting in less resistance to calfhood disease.

2. Inadequate pre-calving nutrition did not reduce calving difficulty.

3. Inadequate pre-calving nutrition reduced weaning weights.

4. Inadequate pre-calving nutrition delayed return to estrus.

5. Inadequate pre-calving nutrition lowered percent calves weaned.

Research also indicated that cattle on poor nutrition diets given good nutritional levels 30 days prior to calving were able to respond nearly as well as cattle that received consistently adequate nutrition.

This year is unique and producers will want to closely watch their cattle herds and provide adequate nutritional levels for at least 30 days prior to calving. Failure to do so will lower dollar return in 1988.

Disease caused by deficiency

Research at Oregon State University reported, in 1958, a significant finding that the underlying cause of white muscle disease was a dietary deficiency of the trace element selenium. Since then, the incident of white muscle disease in livestock has greatly decreased as more and more producers began supplementing selenium in the diets of livestock.

But the question comes, are we feeding enough selenium? More recent reserach shows that diets low in selenium, but not low enough to produce white muscle disease, can contribute to low conception rate, retained fetal membranes, reduced ability to gain and general ill thrift. Borderline selenium deficient cattle herds or sheep flocks may not show any outward signs of deficiency, but will hit hard in the pocket book at the time of sale when the pounds of beef or lamb sold is reduced over what could have been produced.

In a survey of beef cows in Oregon during 1975-76, two-thirds of the blood samples tested were selenium deficient. The herds tested represented all major geographic areas in the state. The survey also showed cows grazing on native range had higher values than cows grazing on improved irrigated pastures. Cattle grazing out on native rangelands may be borderline deficient for most of the year and may not show the classic symptoms of white muscle disease but have production losses or lower reproductive efficiency.

What can be done to ensure adequate selenium levels? First, the only way to establish adequate selenium levels is through blood samples. By working with your veterinarian three to five blood samples can be collected from the cattle herd or sheep flock and actual selenium levels established. Second, producers need to know that over-the-counter salt mineral mixes may or may not provide enough selenium. Only by working with your vet can producers be assured that they are feeding adequate selenium levels.

Selenium is one of several nutrients that can e dangerous if given in excess. The problem is especially critical with selenium because the animal's requirement for it is extremely low. Selenium should be used only where a need is demonstrated and it should be used with ution.

Proper bull management a necessity

Winter a stressful time for cattle

The climatic conditions that exist in an area have a bearing on the competitive position of that area's individual feeders and beef producers producing beef. Stress factors that occur because of winter weather can be compensated for by one of the two management strategies.

One method is providing shelters that will create an environment to enable animals to maintain the same production with a given amount of energy intake. A second method is to increase the animal's energy intake to enable it to withstand stress conditions because of severe weather. Severe conditions may dictate which method, or possibly even that both management strategies should be used.

Factors that create stress during the winter months are cold weather, wind, snow,rain and mud.

An understanding of these climatic factors and their magnetude can aid livestock producers and feeders in making management decisions that will reduce additional costs due to stress.

Cold is an obvious stress factor that increases an animal's demand for energy. The basis questions for which researchers have attempted to find the answers are: 1. At what tempature are cattle of various types and clases affected by the cold? 2. How much energy (feed) is wasted in over-coming the effects of cold stress?

They found that there are a number of physiological factors which affect how much energy that is required to warm the animal body. These factors including the following:

Animal type (beef or dairy)
Age of the animal
Amount of fat animal has
How long has the animal been exposed to sub-freezing temperatures
Amount of hair coat
How much wind exists with a given temperature.

Critical temperature is the point at which the energy provided will no longer allow the animal to maintain the same level of productivity. In other words energy must be drawn from body stores to provide for warming the aniaml body unless additional energy is provided.

Not only do researchers show that cold causes a reduction in productivity which increases maintainance requirements but in addition prolonged exposure of animals to cold reduces the dry matter digestibility. This means less nutrients available to the animal.

Researchers at the California Agricultural Experiment Station conducted environmental studies to determine the effect of wind, rain and mud on fed efficiency of yearling cattle in the feedlot. The data indicates that these stress conditions can be very expensive to the cattleman if they exist for any period of time. Therefore, one can see why adequate feed supply during the winter months is so important to the well being of livestock.

What is Brucellosis?

We talk alot about vaccinating for brucellosis (Bang's Disease) but what kind of disease is it? Brucellosis is a seroius disease of cattle that can also affect swine, sheep, goats, horses and man. It is a costly disease, costing the cattle industry about $100 million in economic losses each year. Brucellosis can reduce calving percentage by 20 percent or more and cause a corresponding drop in milk production, which affects the weaning weight of beef calves. Brucellosis is a public health hazard and may be transmitted to man in raw milk and by contact with aborted calves or their afterbirth.

The disease mainly affects sexually mature cows. Commonly, it causes abortion of late-term calves, retention of the afterbirth and resulting poor-doing cows. The organism lodges in the udder and the lymph glands. From there it invades the womb when a cow becomes pregnant. The organism causes gradual death of those parts of the fetus membranes which are responsible for maintaining the blood supply to the fetus. The viability of the fetus is progressively lowered until the calf is aborted. Should the fetus survive until full term, it may be stillborn or born very weak.

The source of brucellosis is usually the purchase of infected cattle. Cows may pick up the disease from contaminated pastures and water or by licking discharge from infected cows.

Most cows that have aborted become carriers of the disease. Although they do not exhibit symptoms of the disease they continue to shed large numbers of the organism at later calving, thereby contaminating the pastures. They may also excrete the orgamism in the milk.

Bulls can become infected but rarely transmit the disease. If infected they may develop arthritis or an inflammation of the testicles leading to infertility. Bulls should be blood tested before being bought for breeding purposes. Vaccination is not recommmended for young bulls because some may become infertile. Vaccination also interferes with diagnosis of the disease.

Pine needles may cause cows to abort

Abortion diseases of cattle cause a great amount of ecominic loss to livestock producers in the United States each year. Abortion is caused by a wide variety of infectious and non-infectious diseases, including many that we know little about. One cause reported frequently in the West is pine needle abortion disease.

This disease can result when cattle feed on needles or buds of the ponderosa pine. It is characterized by abortion or birth of premature weak, nonviable calves, retained fetal membranes and subsequent severe illness in the dam. Not all pregnant cattle will abort after eating pine needles, but the disease has been known to affect as many as 50 percent of a cow herd.

Pine needle abortion is widespread wherever ponderosa pine trees are found.

Pine needles were first suspected as a cause of abortion as early as 1920. Since then, research has confirmed the association between ingestion of ponderosa pine needles and abortion or birth of weak calves.

Cattle have been observed eating pine needles and buds by perference, even though they has access to good quality feed. This is probably rare, however. Generally, cattle will eat pine needles or buds only when they are "encouraged" by situations such as these:

- Sudden weather changes cause animals to seek shelter under ponderosa pine where they will eat the needles.
- Severe wind or snowstorms place large quanities of needles or tree limbs on the ground.
- Animals are concentrated in a small grazing area near pine trees.
- Animals become hungry because more preferred feed supplies are scarce, perhaps in fall when the grass is gone or in the spring before green-up.
- Hay is fed on the ground beneath pine trees.
- Animals are changed to unfamiliar or poor quality feed.
- Animals are grazed near slashings from lumber operations.
- Animals become bored.

Pine needle abortion usually appears one to three days after pregnant cattle have eaten the needles or buds. Abortion will contoinue for up to two weeks even though cattle are withdrawn from the feed. Abortion or premature calving occurs suddenly and is occasionally preceded by a bloody vaginal discharge. Aborted fetuses usually have not undergone much decomposition. Living calves from affected dams, whether born prematurely or full term, appear very weak. They are reluctant to nurse and usually die within three or four days, despite treatment.

Many affected cows wil retain the fetal membranes. Unless treated, they will become ill and may die. To treat affected cows, veterinarians will attempt to remove the retained membranes and will use antibodics and supportive fluid therapy.

Affected cows usually rebreed, though severe or chronic infection apparently can result in permanent infertility. There is no evidence to suggest that the disease causes sterility, nor is there clear evidence to determine if a cow is likely to abort a second time after losing one pregnancy to pine needle abortion.

These and other unanswered questions about pine needle abortion are currently being studied by a number of research scientists. Included are studies to determine the the exact chemical composition of the toxin or toxins that cause the disease and the manner in which the material works in the animal's system to cause abortion.

Laboratory studies with mice have shown that, in addition to causing abortions, feeding pine needles extract in early pregnancy will result in resorption of the fetus. Such fetal resorption may also be a complication of the disease in cattle and may explain why some cows become barren.

No treatment or antitoxins are now available to prevent or control pine needle abortion once cattle have eaten pine needles and buds.

Mature bulls in good condition can exist very well on an essentially all-roughage diet. While the amount will vary some wtih the size of the cattle, a good rule to remember is about two percent of their body weight in dry feed per day. Protein needs will parallel closely those of a dry pregnant mature cow in the middle-third of gestation, so it can be supplemented as needed.

Yearling bulls should be left with the cow herd for 60 days or less. Beyond that time their condition will fall off to such a degree that it may have long-range effects upon their growth. After removal from the cow herd, yearlings should be kept separate from the older bulls at least through their second winter.

Yearlilngs should be placed in the best available roughage such as regrowth from hay fields or high-quality hay. Their supplemental feeding regime can be equated to the program for bred-yearling heifers. These cattle still are growing rapidly, in addition to replacing all the condition they lost in the breeding pasture. Extra care and feed of yearling bulls after the breeding season will result in stronger, more attractive mature bulls with a much higher salvage value.

Often bulls that have completed their productive life because of age or injury can be marketed to advantage after a brief period on a higher feed program.

Most bulls will gain very rapidly and efficiently after the breeding season if they are provided with the necessary nutritional level. These bulls should be placed on excellent pasture or free-choice hay of high quality.

It is a good idea to have a bull pasture that is somewhat isolated. Bulls kept away from cows will remain quieter and will fight less. A pasture with adequate area also will encourage exercise and will reduce confrontations between bulls.

One additional consideration is to make sure that bulls have ample protection from extreme weather stress. Spring blizzards can cause frost bite of bulls' scrotums affecting the normal function of the testes and epididymis. Since development and maturation of sperm takes about 60 days, stress in March and April can cause poor semen quality in May and June.

Bulls should be included in the normal herd-health program. They appear to be especially vulnerable to external parasites, so preventative steps need to be taken to avoid flies in the summer and grubs and lice in the winter.