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Nebraska Integrated Reproductive Management Project: An Update and Results

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A major problem and expense for the beef enterprise is identifying nonproductive and low producing cows that reduce percent calf crop weaned and lower net dollars returned to the producer. Improvement or incorporation of management techniques that optimize reproductive rate will maximize potential profits of the cow-calf enterprise.

In Nebraska, with almost 2.0 million beef cows and replacement heifers, it is estimated that only 80 percent of the breeding age females wean a calf annually. This 20 percent loss in calf crop is the result of many factors, including low conception rate, abortion, dystocia, calf diseases, and other management factors. Increasing the number of females weaning a calf by 5 percent could return up to 30 million dollars annually to Nebraska producers. Use of management practices that improve reproductive performance will enable producers to increase production efficiency and profit potential for the cow-calf enterprise.

Program Overview

The Integrated Reproductive Management (IRM) program was designed as a five-year demonstration project. Nine herds were selected in 1984 from about 80 nominated by Extension agents and veterinarians across Nebraska. During the first year, an IRM team composed of the extension agent, the veterinarian used by the operation manager, an area beef producer, the district Extension beef specialist, a computer technician and other university specialists evaluated each herd. They recommended modifications of management practices. Data collected the first year were used to establish a baseline in production. An enterprise analysis package is now used in each operation to measure the financial inputs for the cow-calf enterprise. By using these data, the impact of management changes can be measured over the next four years.

Benefits to Nebraska Beef Producers

1. The project will identify and demonstrate management practices that are economically feasible in beef cow herds.
2. The economic efficiency of cow-calf management practices can be evaluated by combining the knowledge base from several disciplines within the University.
3. Herd records are being compiled for cow production and the economic inputs associated with the cow herd. The program goal is to develop computer models using the records from these selected herds to evaluate the production and economics of other cow-calf operations in the state.

A system will be developed whereby a producer can analyze cow-calf production records and costs and identify areas where profit can be enhanced by management changes.
Cooperating herds are located throughout the state (Figure 1). Each operation has different land, feed, labor, and financial resources to manage. Some cooperating herds in the IRM program have changed since the program was organized. Two herds withdrew from the program because of economic problems that existed before the IRM program began. Following is a description of the herds cooperating in the program and some changes recommended by the IRM teams.

Bruce Troester (Marsland). — Bruce and Vickie Troester ranch near Marsland in Dawes County and receive most of their income from the cow-calf enterprise. They have a 250-head commercial cow-calf operation and usually sell the calves after backgrounding or finishing, depending on marketing opportunities. The cow herd is basically Hereford x Angus cross with a few Hereford cows. Gelbvieh bulls have been used for the last three to four years. Several Gelbvieh cross replacement heifers have been retained and will be the nucleus of their Gelbvieh breed up program. Presently, a portion of the heifers and cows are bred using artificial insemination. Enough hay is harvested for the cow herd and wintering calves. Cows calve in the spring during a short calving season.

Troesters are excellent managers and observers of details, and consequently, ranching practices are conducted on a timely basis. The alfalfa hay is produced on non-irrigated land, so every effort is made to put up top quality hay. Calves are started on creep two to three weeks before weaning to reduce weaning stress. Because of the type of cattle, most calves are ready for a finishing ration in February. Light calves are retained for summer grazing. Cows have maintained a high conception rate, even though milk production in the herd is relatively high, as indicated by above average weaning weights.

Plans are to improve the cattle handling facilities and to consider adding a small irrigation system for alfalfa production. The financial enterprise analysis package will help in deciding long-term production goals.

Dick Ballard Ranch (Valentine) — The Ballard ranch is operated by Dick and Jeri Ballard and is located southwest of Valentine in Cherry County. The ranch is a Sandhills operation with good native range and subirrigated hay meadows. The Ballard ranch entered the IRM program in the fall of 1986 by replacing another Sandhills operation. The 400 cows are under a lease agreement with an absentee owner. Cows are Angus, Hereford x Angus, and Simmental cross and are mated to Simmental bulls. The calves are usually sold in the fall. The cows are wintered on hay and protein supplement.

IRM team recommendations included: 1) for a high percent open cows, improve winter nutrition and herd health programs; 2) for an inadequate protein supplementation before and after calving season, change from a protein cake with urea to an all-natural protein or feed alfalfa hay as the protein supplement; 3) for high early calf losses, change the vaccination program; 4) for low protein content in hay, plan to harvest hay earlier to increase protein level and seed some clover in meadows.

LeRoy and Georgia Dobrovolny (Atkinson) — LeRoy and Georgia Dobrovolny own and operate a 600-head crossbred herd on 7,500 acres of native range and meadow hay land in Holt County. The herd is comprised of predominantly Simmental cross cows. Meadow and range grasses and forages consist of mixed species of average quality on mostly sandy soils. The combination of subirrigated pastures and wet meadow
lands intermingled among moderately rough and rolling hills tends to limit pasture and meadow management in this operation. The lack of high quality forage resources, primarily during winter, tends to result in nutritional and health problems as a result of the severe winters of the early 1980s.

The IRM team recommended an integrated nutritional program using native pasture, meadow hay, and protein supplementation. The herd health program was redesigned to better fit the needs of the operation. Other IRM efforts include establishing a sound record-keeping program (both performance and accounting) and developing financial strategies compatible with existing management and labor limitations.

Cedar Lane, Inc. Ranch (Arnold) — The Cedar Lane Inc. operation located in northeast Lincoln County is owned by the Witthuhn family and managed by Maud Witthuhn and her son, Bill. The cropland is part of the Garfield Table, with most of the pasture located in the Sandhills. The operation has both irrigated and dryland corn, wheat, and alfalfa in addition to a cow herd, yearling grazing program, and finishing feedlot.

The cow herd consists of 250 Hereford and Hereford x Angus cross cows that graze native range in the summer and cornstalks and hay in the winter. Replacement heifers and the Hereford cows are bred to Angus bulls and the crossbred cows are bred to Charolais and Simmental bulls in a terminal crossbreeding program. At weaning, heavy calves are placed in a growing and finishing feedlot program. Light calves are backgrounded in the winter, then entered into a grazing program in the summer.

IRM team recommendations included: 1) change from a straightbreeding to a crossbreeding program using terminal-breed bulls to better fit the feedlot program and to increase calf growth rate and yearling weights, 2) shorten the breeding and calving seasons to 45 days for heifers and 60 days for cows, 3) improve herd health program, 4) discontinue feeding protein cake along with alfalfa hay to the cows in winter to help reduce feed costs, and 5) improve feedlot design by adding mounds and fenceline bunk.

Dale Littell (Maywood) — The Littell operation is owned and managed by Dale and Mary Littell. It is located southwest of Maywood in Frontier County. The land is a dissected plain with cropland on the ridges and pastures in the canyons.

This operation includes both irrigated and dryland corn, wheat, milo, cane for winter forage, and corn silage, in addition to the cow herd. The 300 cows are black Angus or Angus x Amerifax cross and graze on native pastures during the summer and cornstalks and hay in the winter. The cows are mated to Amerifax and Simmental bulls and calve in February and March. Steer calves are sold at weaning and the heifers are backgrounded and sold in the spring.

Problems and recommended changes were: 1) for severe calf losses during calving due to coyotes, a government trapper helped reduce the coyote population in the area; 2) protein lick tanks used in the winter feeding program were replaced with alfalfa hay as the protein supplement; 3) pregnancy checked all cows and fertility checked bulls to improve herd fertility; 4) debt load and financial stress was decreased by selling a portion of the cow herd.

Melvin Meierhenry, (Hoskins) — Melvin and Pat Meierhenry own and operate a 700-acre farm consisting of pasture, alfalfa, and corn in Wayne County. The 200 head of cows are mostly Simmental and are an outstanding set of high milk-producing cows. Nutritional requirements for these high producing cows may be more than is feasible in northeast Nebraska. Along with the nutritional problems, stress due to muddy and damp conditions was a primary factor causing secondary health problems. The main IRM emphasis in this herd was to fine tune the breeding and nutritional programs to more effectively manage larger cows with the available feed resources. Also, a pasture management program is being developed.

Max McLean (Stromsburg) — Max and Jenette McLean manage 140 head of Hereford-Angus cross cows on 440 acres of native range in Polk County. Other farm enterprises include alfalfa hay, row crops, and a feedlot in which calves generated in the cow-calf enterprise are finished. Specific concerns were: 1) calf losses due to calving heifers and cows in a muddy lot, 2) a calving season that extended over a four-month period and, 3) an increasing mature size of the cow herd causing an increase in feed costs.

Currently only 2-year-old heifers are calved in the lot; cows are calved in native pastures. In late March, cool season grasses in the canyons of the calving pastures begin to green and native hay is fed until adequate grass is available. Alfalfa hay is used as the protein supplement in the winter feeding program as long as the price remains competitive with other protein supplements. Through the use of a defined breeding season and having cows in good body condition at calving, 93 percent of the cows calve in a 55-day period. Hereford x Angus replacement heifers are purchased and bulls with low birth weight are used to minimize calving problems.

Larry Novak (Lawrence) — Larry and Barb Novak operate a farm in Webster County. They currently have 28 head of purebred Angus cows on native range. In the last few years, the Novaks have reduced cow numbers and the number of acres farmed. Pink eye was a problem in this herd and was apparently remedied by feeding antibiotic in the mineral for cows on pasture and in the feed for cattle in drylot. Practices imposed in this operation included a controlled burn of a switchgrass pasture that was not well used the previous year, installation of an electric fence that allowed for rotational grazing, improved winter feed resources and the feeding value of
wheat straw (wheat straw bales were ammoniated). These practices resulted in greater use of feed resources.

Paul and Nancy Hoelting (Lawrence) — Paul and Nancy Hoelting own or operate 720 acres in Nuckolls County. They entered the IRM program in 1987 and will compliment the other cooperator herd in this area. Farm enterprises include dryland milo, wheat, cane, a small feeder pig operation, and a cow herd. The 100 head of cows are Hereford and are bred to either Hereford, Angus, or Limousin bulls. Calves are weaned in October and are backgrounded and sold in late January or early February. The cow-calf enterprise is very important to this operation's financial status so the owners are interested in management changes to improve its profitability. The IRM team will investigate the following management areas: 1) a crossbreeding system to increase weaning weight of calves, 2) a reduction in the length of the calving season, 3) selection of replacement heifers, 4) winter feeding program, and 5) herd health program, concentrating on a summer pinkeye problem and a winter lump jaw problem. Paul and Nancy are also interested in a financial enterprise analysis of their cow-calf enterprise to aid in making management decisions.

Vernon Beran (Odell) — Vernon and Dale Beran own 80 head of Polled Hereford females and manage 230 acres that include pasture, dryland corn, soybeans, milo, alfalfa, and wheat in Gage County. Cows are managed during the summer months in groups of 25 or less in four to five different pastures. During the breeding season, one bull is used per pasture. Managing single sire pasture poses problems if a bull is injured, either physically or reproductively; therefore, monitoring the herd frequently during the breeding season is a must. The two primary areas of emphasis in the cow-calf enterprise are on increased weaning weight of calves and pasture management. The owners have purchased Hereford bulls that have the potential to increase weaning weights of the calves. Larger breeding pastures may be developed to avoid problems that single-sired pastures pose. Excellent records have been kept on the cows and the owners are interested in the financial enterprise analysis program.

Three-Year Summary of Production Data

A summary of the first three years of data from all the IRM herds indicates about a 7 percent increase in the number of cows weaning a calf (Figure 2). In 1984, on the average, 79 percent of the cows weaned a calf and in 1986, 86 percent of the cows weaned a calf. This indicates an increase in reproductive efficiency in the herds involved in the IRM program. In addition, the data indicates about a 32-pound increase in calf weaning weight (Figure 3).

Many factors influence weaning weights and the number of cows weaning a calf. Weather is a major factor that influences animal production. Weather conditions since the beginning of the IRM program have been favorable to the cow-calf producer. However, evaluation of management practices used at the beginning of the program and those used now indicates that most managers have changed or modified practices to better fit their resources.

The 7 percent increase in reproductive efficiency resulted from: 1) a 2 percent decrease in the number of cows open at pregnancy check, 2) a 2 percent decrease in fetal losses between pregnancy check and calving, and 3) a 3 percent decrease in calf losses between calving and weaning.

Information gained from the IRM program will be shared through meetings, field days, and the news media. Public field days are held each year at the cooperating herd locations.

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