

## **1995 FINANCIAL AND PRODUCTION ANALYSIS OF HEIFER DEVELOPMENT - A PRELIMINARY REPORT**

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### **ABSTRACT**

Management of replacement heifers represents the foundation upon which productive and profitable cow herds are built. Furthermore, all beef production systems start with heifers. The management and handling of those heifers directly determines their subsequent calving time and for all practical purposes defines their life time calving season. The traditional cattle system in North Dakota produces calves in March/April, with considerable attention and cost given to keeping mature cows calving within those predefined limitations. This paper is the initial summary of the 1995 performance and costs for developing heifers.

### **INTRODUCTION**

In recognition of the importance of heifer development and selection, last fall the North Dakota Beef Cattle Improvement Association, in conjunction with the NDSU Extension Service and Dickinson Research Extension Center, initiated a Heifer Development Project. The project involves conducting a centralized heifer test; taking producer consigned heifers from weaning through breeding to demonstrate existing recommendations related to the feeding, breeding, health, and management of replacement heifers.

In 1994, three entry options were available to allow comparison and study of alternative development strategies.

Seven producers consigned 95 heifers to three development options differing in winter feeding systems.

Heifers consigned to Option 1 were developed through grouping and winter feeding a balanced bunk fed mixed ration utilizing silage, straw, hay grain, and supplements to achieve daily gains necessary to reach a target weight at breeding of 70% of the frame score projected mature weight. This option will be essentially the same as how last year's project was conducted (refer to 1994 Research Roundup publication).

Heifers consigned to Option 2 were developed using a winter feeding program based on free choice high quality hay supplemented with a free choice vitamin/mineral supplement and hand fed grain during critical receiving and prebreeding periods. This option provided a stair step pattern of heifer growth.

Consignors retained ownership of heifers in option 1 and 2 and were responsible for all incurred development costs including feed, yardage, veterinary, breeding, etc. Upon completion of the test, heifers were released to the consignors upon settlement of outstanding charges.

A third option, in which the Dickinson Research Extension Center purchased heifers from the consignors on delivery based on weight an appraised market price. This option provided a comparable group of heifers for in which the heifers were fed long hay all winter, and provided supplemental protein. The protein was provided in a free choice block form.

All heifers, regardless of entry option, were managed for a concise, consistent breeding season, and mated to calving ease selected sires. A single AI service using estrus synchronization was used along with a natural clean-up service.

Specific entry requirements and project guidelines are explained in the materials and methods.

## **MATERIALS AND METHODS**

The following are the entry requirements that were utilized for the 1994 project as presented to North Dakota producers. Producers processing records through the CHAPS program are eligible to enter groups of 5 or more home raised heifers born between 2/1/94 and 5/1/94.

Preregistration of entries were required by October 1, 1994 by submitting a completed Entry Preregistration Form along with payment of a \$50/head entry fee to CHAPS Heifer Project, attention Kris Ringwall, 470 State Avenue Suite 101 Dickinson, ND 58601.

The project was limited to 100 head accepted on a first entered basis. Consignors retained ownership of heifers entered and were responsible for all incurred development costs over the period of the test.

A suggested heifer for the project was a moderate framed crossbred of breeds strong in maternal traits, with a minimum in-herd weaning ratio of 95, out of a dam with a MPPA over 95, and free of any structural weakness. The heifers had the potential to make an excellent commercial beef replacement.

Consignors were required to deliver entered heifers to the Manning Ranch Unit of the Dickinson Research Extension Center the week of November 7-11, 1994. The Manning Ranch Unit is located 22 miles north and 2 miles west of Dickinson.

A signed and completed Entry Information Form accompanied the heifers on arrival providing information on animal identification, pre-delivery management and health history. In addition, a veterinarian signed health certificate was required.

**FEEDING:** On arrival all heifers were placed on a mixed receiving ration used to acclimate and bring heifers on feed over a several week period. Following acclimation, heifers were fed for appropriate average daily gains to achieve frame score projected mature weight according to research protocols defined by the North Dakota Agricultural Experiment Station. Weight gains were monitored and heifer groupings and rations evaluated and adjusted as necessary. Feed was delivered as a totally mixed ration in fence line bunks.

Heifers entered in Option 1 were split into high and low gain groups and fed for appropriate average daily gains to achieve 70% of their frame score projected mature weight at the start of breeding. Weight gains were monitored and heifer groupings and rations evaluated and adjusted as necessary.

Heifers entered in Option 2 were provided free choice access to quality ground hay and hand fed grain in initial and

prebreeding periods to produce a stair step pattern of growth and achieved the minimum of 70% of frame score projected mature weight at the start of breeding.

Heifers entered in Option 3 were placed on quality long hay and supplemented protein in a self fed block form, following an initial two week receiving program. These heifers were fed a commercial receiving diets for two weeks.

All heifers were fed an ionophore and provided supplemental vitamins and minerals to balance needs to those provided in base feeds. Rations were balanced using NRC guidelines and made up of available feeds and least cost supplements. Pasture were utilized following breeding.

**HEALTH:** It was required that heifers be dehorned and pre-vaccinated at least two weeks prior to delivery with IBR, BVD, BRSV, PI<sub>3</sub>, Haemophilus Somnus, and 7-way clostridial with a history of pre-delivery health treatments and vaccinations provided on the Entry Information Form. Heifers suspected of being bred were aborted prior to delivery by administration of prostaglandin.

On arrival all heifers received booster vaccinations and treatment for internal and external parasites. Heifers not bangs vaccinated prior to arrival were bangs vaccinated once on feed. Prior to breeding, heifers were vaccinated with 5-way Lepto, Vibrio, IBR, PI<sub>3</sub> and BVD. As sickness was diagnosed, veterinary recommended treatments were administered.

**BREEDING:** Heifers were estrus synchronized to facilitate a single AI service followed by natural clean-up service for calving to begin March 1, 1994. Service of experienced AI technicians were utilized for breeding. Consignors were given the choice of high accuracy calving ease bulls for AI service selection. Following a 10 day lag period after the last AI breeding, calving ease selected bulls were run for a 30 day clean-up breeding period. Pregnancy examinations by use of ultrasound were conducted to determine pregnancy status, and if possible, project the sex of the fetus.

**DATA:** Heifers were weighed, frame scored, body condition scored (1-9) and disposition scored (1-5) throughout the project to monitor development. In addition, prebreeding pelvic measurements were obtained. Periodic reports were issued to consignors providing growth, health, feed, and reproductive performance.

**CULLING:** The right was reserved to remove any heifers from the project in which problems arose or were deemed unsuitable for replacement stock. Culled heifers could have been claimed by the consignor within one week of notification and payment of incurred development costs. No heifers were culled. In the case of a heifer identified as being pregnant through service prior to entry, arrangements were made to calve the heifer out at the owner's risk by the Dickinson Research Extension Center.

**COMPLETION:** The 1994 Heifer Development Project test is scheduled to terminate November 1, 1995 at which time consignors will be required to pay outstanding charges, or given the option to sell heifers.

Arrangements will be available to assist consignors in holding heifers at the Research Center for consignment to November bred heifer sales sponsored by local Dickinson auction markets.

**COSTS:** Consignors were/will be responsible for all costs associated with developing heifers entered into the development project. Cost items include: feed, yardage, transportation, veterinary products and services, and breeding fees, and supplies.

Actual feed costs were/will be determined by feed consumption records and market price of feeds.

Yardage was/will be accrued on a per head per day basis to cover labor, facilities, equipment, utilities, fuel, repairs, and management. Yardage costs were \$.20/day in the drylot and \$.10/day on pasture.

The actual cost of veterinary supplies and professional services were added to consignor bills. Veterinary costs included both preventative measures and treatments. Cost of bulls were shared by all heifers on test during the breeding period.

In the event a heifer died, the death loss was borne by the consignor. When arrangements are made to hold heifers after project completion for consignment to a fall sale, the additional feeding, yardage, and trucking costs will be borne by the consignor.

Consignors were required to sign the Entry Information form due on delivery conveying the consigned heifers as security against incurred charges. Consignors were billed on a quarterly basis for the periods of: delivery through

December, January through March, April through June, and July through project completion and heifer pick-up. Entry fees were credited to the final period charges with all charges to be paid in full prior to heifer pick-up.

MANAGEMENT: Heifers were developed under the management and supervision of the NDSU Dickinson Research and Extension Center personnel. Consignors were welcome to stop by and view the heifers on test by contacting the project coordinator, Kris Ringwall, at (701)227-2348 or herdsman, Garry Ottmar at (701)573-4553.

## **RESULTS AND DISCUSSION**

As of this writing the results of this years test are not complete. This year's results will be summarized and combined with the 1993-1994 results and be written up for the 1996 Research Roundup. Preliminary results are provided and will be discussed at field day.

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