

FIELD DAY REPORT - 1992

**Texas A&M University Agricultural Research and
Extension Center
at Overton**

**Texas Agricultural Experiment Station
Texas Agricultural Extension Service**

Overton, Texas

April 30, 1992

Research Center Technical Report 92-1

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ADDED ECONOMIC BENEFITS OF ENERGY AND PROTEIN SUPPLEMENTS FOR CALVES GRAZING RYE-RYEGRASS PASTURES

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Background. Three basic economic principles guide farmers and ranchers as they confront problems of resource allocation and use: (1) increase the use of inputs as long as the value of the added output exceeds added costs; (2) substitute one input for another as long as costs are decreased for a given level of production or as long as additional costs are more than offset by revenue from additional production; (3) target the level of production to maximum economic return and not necessarily to maximum yield, due to diminishing marginal returns from most inputs used in agricultural production. These principles serve as the basis for evaluating energy and protein supplementation of calves (average weight of over 600 lbs/hd at weaning) grazing rye-ryegrass pastures (Rouquette et al.).

Research Findings. Added costs and returns were estimated for gain responses to grazing rye-ryegrass pastures and supplementation with a corn ration at four average daily consumption levels. Table 1 illustrates the cost per day of feed and added daily revenue from additional weight gain associated with four consumption levels of the corn ration. The corn ration was priced at \$0.10/lb and calf price was assumed to be \$80/cwt. Calves were assigned to one of four categories based on their average daily consumption of corn ration over the course of the study. Categories were defined as: LI (<1 lb/day), LII (<2 & >1 lb/day), LIII (>2 & <3 lb/day) and LIV (>4 lb/day). Estimated costs and returns at selected ration consumption levels suggested that net returns would be positive up to consumption of 2.5 lbs/hd/day under the prices assumed here and for the type of calves in the five-year study. This level would be near the maximum amount of supplement producers should plan to feed as beyond this level daily feed costs begin to outweigh returns from weight gains. Results showed that consumption at LIV was beyond the point of profitability as returns were clearly less than added costs.

A marginal analysis, which is a comparison of the cost and return generated as each additional unit of input is added, however, suggested that the profitability of feeding this corn ration would be maximized at a consumption level less than 2.0 lbs/hd/day, and likely nearer to 1.5 lbs/hd/day (Table 2). As consumption increased in a stepwise manner from level to level in the trial, daily ration cost increased due to increased pounds of ration utilized. However, the additional revenue from added weight gain increased only through level II. Feeding corn ration at a rate beyond LII resulted in additional costs while revenues decreased due to less weight gain response from calves. Similar results were observed as consumption increased from LIII to LIV.

Application. Feeding small quantities of energy and protein supplements, up to 2 lbs/hd/day of corn ration, to calves grazing winter annual pasture can be a profitable management tool. Such practices will increase producer profits if decisions are based on sound economic principles and if the relationship between input costs and market prices justify their use.

Table 1. Costs and benefits of energy supplements for calves grazing rye-ryegrass pastures

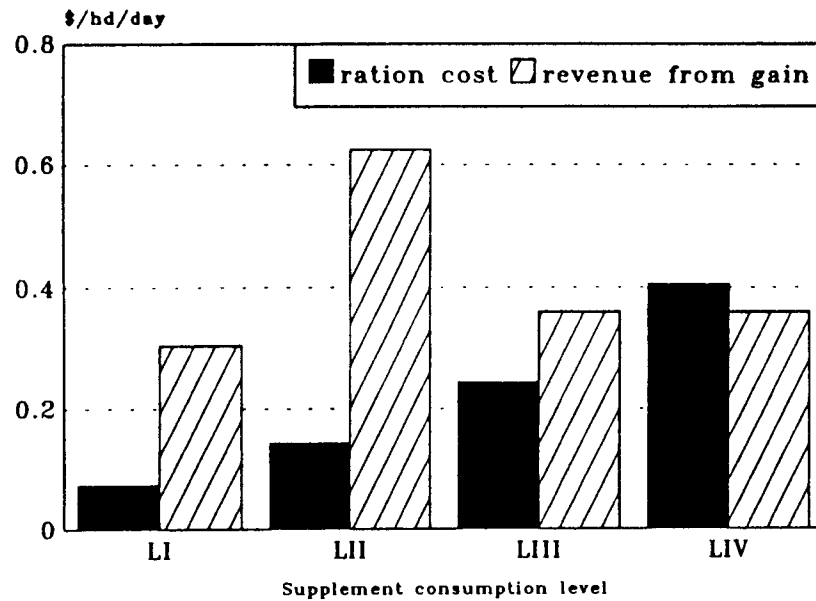


Table 2. Marginal analysis of energy supplements for calves grazing rye-ryegrass pastures

