



Marketing cull cows under uncertainty
by William Albert Yager

A thesis submitted in partial fulfillment of the requirements for the degree of MASTER OF SCIENCE
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Abstract:

This research is an investigation of alternative policies for cull cow disposal. The alternatives considered are selling cows immediately after they are culled or holding and feeding for various rates of gain. It is hypothesized that Montana ranchers could increase their expected returns by holding and feeding cull cows.

An analysis of Montana cow prices indicates that seasonal variation is statistically significant. Prices are seasonally low in November and December. Sales of cows are seasonally high in these months.

Dynamic programming is used to compare alternative disposal policies. State variables in the dynamic programming model are cow prices and weights. Price transitions are stochastic. Transition probabilities are calculated from a single-equation price prediction model. Independent variables for the prediction equation are one lagged price, a trend variable, and dummy variables that account for seasonal variation. Expected immediate costs for holding cows include feed costs. Linear programming is used to calculate least cost rations for six rates of gain for six weights of cows in three weather periods.

Results of the dynamic programming model indicate that Montana ranchers can increase expected returns by holding and feeding cull cows. Returns are increased most for cows that are culled in November when prices are seasonally low. Returns are relatively larger if grade increases are possible and relatively smaller if the cost of capital is high. However, grade changes are not necessary for cow feeding to increase returns and even with a high capital cost cow feeding can increase expected returns.

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Signature William A. Yager

Date 21 March 77

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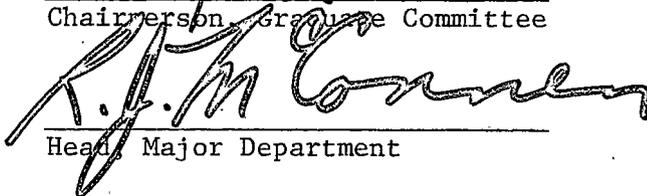
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Applied Economics

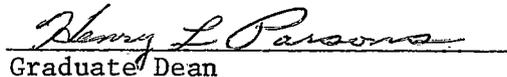
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