Beef Cattle Production on Reclaimed Surface Mined Land
Funding Year 2008-2009

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Proposal Summary

The focus of this proposal is to demonstrate efficient and profitable production of beef cattle on surface mined land in southwestern Virginia. A herd of forty-four beef cows and seven replacement heifers owned by Pen -Virginia Coal will be maintained at the PRP demonstration site in Wise County. The owners will provide pasture, day to day care and management, supplemental feed as needed, and labor to care for the cattle. Virginia Tech, through the co-investigators, will provide advice and assistance with breeding and health management, marketing, maintenance of pasture productivity, record keeping, selection of sires as needed and strategies for obtaining replacements over time. The project, begun in 1996, is intended to have a twenty year projected life. Income from the sale of cattle will go to Penn Virginia Coal. Virginia Tech will expect to use the information obtained in published reports, demonstrations, field days and in other ways to inform beef cattle produces in the region and elsewhere of the results on a regular basis. The overriding goal is sustainable beef cattle production with minimum inputs so that costs can be kept low enough to generate profit.

Funding:
Requested from Powell River Project - $5,000
Matching resources provided by Penn Virginia Coal. Land, forage, labor, equipment, capital investment in cattle (approx. $60,000) and other inputs as needed.
Matching from Virginia Tech. Faculty service and expertise.

SCOPE OF WORK

Introduction:
The Powell River Project has successfully demonstrated that reclaimed mine land pastures are well suited to beef cattle production. Data collected between 1980 and 1991 showed that the land and forage resource could be used by beef cows to produce feeder calves at a profit and that this type of use was sustainable with minimal inputs of seed, fertilizer, lime and harvested feeds. Practices defined by Powell River Project programs are now widely used by producers in the region and feeder calf production is increasing in the region.

A second phase of cattle production, growing and distribution of bred replacement heifers was conducted from 1991-1995. Each year from 1992 through 1995, forty-five to sixty yearling heifers were grazed at the project site. These heifers were selected from herds outside the region, brought to the site, bred to selected bulls and sold as bred females at auction at the end of the grazing season

In 1995 a decision was made to return to the cow/calf program conducted during the first eleven years of the project. In 1996 steps were taken to purchase sixty good quality beef cows with calves at side. These cattle grazed the existing pastures at the demonstration site in 1996 and early 1997. Because of the decreased availability of pastures due to increased mining activities approximately one half of the cows were sold in the fall of 1997. The current inventory of about 45 cows has become a sustainable size group with improved pasture management.

It is intended that steps be taken to make full use of the forage resources available on site for year round feeding of the cowherd. Fencing, handling facilities, water supplies and other essential inputs are available on site or have been enhanced as needed.

Justification and Objectives:
Livestock production has been demonstrated to be a productive use of reclaimed land. In recent years, more operators have obtained use of reclaimed land by lease or other means and the number of beef cattle in the coal producing counties has increased as more operators have recognized economic opportunity. The bred heifer project of the PRP has aided in this expansion and many of the heifers have gone into herds in Wise, Dickenson and Scott counties. However, it appears that there are opportunities to enhance profitability of these operations by making greater use of the basic forage resource and by employing the best management practices available to beef producers. A primary example of such strategies would be the reduced use of harvested feed such as hay by better management of the forage resource to provide near year-round grazing. Also, the quality of the animals could be enhanced by use of improved genetics, marketing procedures could be improved and greater use of proven management practices and record keeping would be beneficial. The employment of most or all of these strategies and procedures is the objective of this demonstration project. The project has the additional benefit to the coal industry and

region by showing that reclaimed land can make an important contribution to the economic life of the community. It is especially appropriate in this time of low cattle prices to emphasize strategies for reducing the cost of production.

Methods and Procedures:
Currently a herd of about 45 beef cows and their calves exist at the project site. Co-investigators working with Penn-Virginia Coal personnel have developed a management and breeding plan for the herd, which is being implemented. The cows and calves are grazed on the property throughout the spring, summer and fall. Calves are sold about November 1 and the cows are wintered on accumulated forage to the greatest extent possible. Calving commences in late February each year.

An experimental design to compare different pasture management strategies will be implemented. Emphasis of this design is to maximize use of grazing forages and minimize the use of harvested feeds. There are currently 8 paddocks through which the cattle are grazed. Little fertilization has been done recently and no lime has been applied to pastures. The investigation plan is as follows:

Treatment 1 – Control. One half of paddocks will be kept as controls. No pasture improvement procedures will be applied to these pastures. Soil fertility will be measured and pasture production and animal growth will be monitored on these pastures.

Treatment 2 – Pasture improvement techniques applied. Potential management will include:

- Soil testing
- Lime application and limited fertilization
- Overseeding of ladino clover
- Other steps to provide for legume dilution of endophyte toxins in fescue grass
- Nitrogen application in the fall for fescue stockpiling

Soil fertility will be measured and pasture production and animal growth will be monitored on these pastures.

- Costs for pasture improvement will be assessed so that a cost/benefit can be calculated.

Cows will be artificially inseminated to sires of different breeds to assess the fitness and productivity of the various breeds for this region and these environmental situation.

A herd health program to minimize disease losses will be continued. This program will also utilize production management medicine procedures to enhance production while maintaining health.

Other major management items for the herd include:
- By use of natural service, cows will be bred to sires that have the potential to maximize growth and marketability of the end product - weaned steer and heifer calves.
- Periodic field days will be held to present results to area producers.

- A written report of the operation summarizing production and economic conclusions will be prepared and distributed annually.
- A major priority during this year needs to be improvement of water sources so as to more efficiently utilize the forages that grow on the project lands. Steps must be taken to ensure the availability of water to every paddock. Although there are several ponds on the property, they are located somewhat inconveniently and have tended to fill in and be less dependable during dry weather. In somet paddocks the cows must travel long distances to get to a water source and in some paddocks there is no readily available water source. This has been partially resolved through the use of several water tanks and water hauling equipment. While this allowed the use of pastures it is labor intensive and probably not sustainable. In 2002 a pump and tank system was installed to retrieve water from an underground source. A permanent trough was also constructed adjacent to the well. Recently the electrical supply to this pump has ceased to be available. This requires the use of a portable generator to supply water. Work is being done to secure approval for the drilling of a well near the working pens to provide a consistent source of high quality water.

Electronic identification technology for cattle has been developed in the last few years. It will be a major part of the National Animal Identification System (NAIS) that is being implemented for animal health security in the US. Another project that will be implemented in 2008-9 will be to apply Electronic Identification (EID) to all cows in the herd. This will be demonstrated at the field day and will begin to acquaint local producers with this technology.

Benefits:
This demonstration will be a highly visible example to area producers of what can be accomplished using available information in the most effective manner. It is expected this will lead other producers to adopt techniques to enhance the productivity of their operations.

Schedule:

July-October 2008- Maintain herd on demonstration site pastures, institute health and management practices, collect performance data, fertilize fescue pastures for stockpiling for winter grazing, pregnancy check cows.
October 2008 - Hold spring field day to report full year's result.
November 2003 - Wean and market 2003 calves. Calves will be certified Virginia Quality Assured and sold cooperatively with other producers in the area (Coalfields Cattleman's Assoc.).
December 2008-March 2009 -Maintain pregnant cows on stockpiled forage to maximum extent possible.
February-April 2009 - Calve out cows, collect records on calving performance.
May 2009 - A. I. Cows with semen from selected bulls.

Deliverables:

1. In July 2008, deliver progress report of year's operation to include economic analysis of program to date.
   Special emphasis will be placed on cow maintenance cost for one year.
2. Written report for inclusion in 2008 PRP Research and Education Report.

Budget $5,000

Budget and Matching Support:

	VA Tech
Faculty Time	
W. D. Whittier	15 days
John Hall	3 days

Travel	$ 700
Supplies & Materials	1700
Field Day Expense	300
Publications	300
Miscellaneous & Student Labor	1800
Lab Fees	200
Total Requested	$5,000