**Benefit – Cost Analysis for Conservation Systems**

**Kyle Olson, Farm Management Education Instructor, Bismarck State College**

Discussions with farmers and ranchers over the past months have opened up a direction of thought that ag producers and landowners in the Dakota’s may not be familiar with.

Producers have recognized an increase in the number of conservation program options and conservation funding. Not only cost shares from the Natural Resources Conservation Service (NRCS) but also non-governmental organizations.

A question that eventually comes up is what monetary benefits will be received after the cost share period ends. The answer is specific to each farming or ranching operation and specific to the conservation system being adopted.

In each case a projection of benefits and costs must be completed. The most accurate projection will be based on several years of history for each farm and each conservation practice. The system history would be considered an enterprise within the whole farm operation.

An example would be a rancher who plants an annual forage like forage barley. The forage barely is cut and baled for hay. The rancher then plants a cover crop on those same acres and grazes the cover crop in late fall.

In this scenario, the hay crop and the cover crop grazing are considered two separate crops. The hay crop would be considered the base crop. Expenses like seed, chemical, and machinery costs for the forage barley would be in the forage barley enterprise. The forage barley crop should be charged 100% of land taxes and interest on long term debt.

Revenue would be the tons of hay harvested times the market value for that geographic region.

Revenue for cover crop grazing is measured with Animal Unit Month (AUM) times a price per AUM. Assuming that grazing on the cover crop only occurs in the fall and no grazing occurs the following spring, the AUMs are calculated by the number of head, the size of the animals in pounds, and the number of days grazed in the fall. Many grazing calculators are accessible at no cost, but the head number, size of the animals, and the number of grazing days will be required.

The two main costs put in the cover crop enterprise are seed and machine cost of seeding. If fertilizer is applied between the hay harvest and the cover crop seeding, that fertilizer cost would go with the cover crop enterprise.

Accurate record keeping of cash ins and outs, production, and grazing are vital to splitting benefits and costs between these two enterprises.

Another topic is rotational grazing on improved pasture. Many different situations exist for rotational grazing from rotating in 30 to 60-day cycles to rotating every 7 to 14 days. Cost share programs usually require detailed grazing records, but native pasture grazing records are also very useful when enterprising and analyzing returns.

An example is a rancher that has two different types of pastures to track. One is more traditional with a seasonal rotation and the other is intense short-term grazing.

For enterprising purposes, pasture is a crop and the animals harvest the crop by grazing. Just like in the cover crop scenario, the number of head, the weight of the animal, and the number of days grazed is required to calculate the AUMs harvested.

In this example, the rancher has a spring pasture, a summer pasture, and a fall pasture that are grazed more traditionally.

The rancher also has pasture acres that are split in 25 different cells and animals are rotated every 7 to 14 days. The rancher participated in a 60% cost share program to construct the extra fence and water lines.

On the cost side, the largest difference between these systems will be in depreciation, labor and repairs. More fence means more depreciation and repairs. Moving animals often will increase labor even if it is unpaid owner labor.

Splitting these costs between these two systems will be a bit of art and science mixed. Close attention to dollars and hours spent in each enterprise will be very important.

On the revenue side, accurate grazing records are essential. How many head, of what size, for how many days in each one of these pastures. This will provide how many AUMs these pastures produced. AUMs times market value per AUM for that geographic region will provide the revenue calculation.

Building enterprise history in both these scenarios will provide the base for making projections for the future for each producer and each system. Producers should consider five years of history as a goal, but the more years the better.

The North Dakota Farm Management Education Program provides lifelong learning opportunities in economic and financial management for persons involved in the farming and ranching business. Visit ndfarmmanagement.com, Facebook @NDFarmManagementEducation, or contact Nikki Fideldy-Doll, State Supervisor for Agricultural Education, at nfideldy-doll@nd.gov or 701-328-3179 for more information. The ND Farm Management Education Program is sponsored by the North Dakota Department of Career and Technical Education.