

**Grazing Conservation Tillage Corn with Steers in an Agroforestry Environment:
Advantages for Land Owners, Wildlife and Timber Producers.**

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Abstract: A pilot project designed for the small landowner was conducted at the Leveck Animal Research Center from April through October, 2002, has shown that grazing conservation tillage corn with steers can be a very profitable venture. Gross returns per acre were \$290 with room for improvement. Direct costs per acre were \$120-\$140. There were no detectable negative effects on the steers due to this grazing system. No yellow fat (an undesirable product for consumers) was found and taste panel analysis of the resulting beef has found it to be highly acceptable with no off flavors or tenderness problems. This is a system that was designed for the small producer that has land that would normally not be considered arable due to erosion potential or is too small to justify expensive harvest equipment. The majority of the "hill" area in Mississippi fits this description.

Many other potential advantages were "discovered". First this system eliminates endophyte infected tall fescue without removing the land from production. It feeds cattle to finish or near finish condition without using any of the stored corn crop. It provides ideal habitat for turkeys, quail, rabbits, deer, mourning dove, raptors and other wildlife species. Mechanical harvesting of corn is efficient with little wastage or dropped grain for wildlife. This system has shown to have at least 10% wastage or 500-600 lbs of dropped corn per acre, 100 bu/acre yield. Since animal grazing is over an extended period, dropped grain is available for 3 to 4 months, the amount varying with the corn yield.

A more appealing thrust for this project would be to use this system in an agroforestry context. Doing so would have many advantages for both timber production and wildlife habitat and ultimately the landowner. Improvements to the land or trees, such as pruning, become deductible expenses. A dominant advantage to this system is that the landowner has a significant annual income from the land during timber establishment and early growth. The income, while quite high for the grazing alone, can be supplemented by fee hunting for upland game or deer and turkeys. This system has the potential to move turkey nesting sites from high predation bottomland locations to upland areas. The cropland component of this system provides a clean open area ideal for quail chick survival.

Most of the nutrients applied for corn production remain on site. Conservation tillage requires a fairly high level of N. The N not utilized by the animals will be left for the trees. This should accelerate growth of the pine trees and improve timber yields. This project will utilize two different age classes, 3 and 10-year-old trees at initiation to evaluate the effect of cattle feeding around young trees. Pruning of the trees is expected to produce better quality sawtimber than is usual in unthinned plantations. Economic returns, including tax analysis, will be compared to traditional forest plantation systems.