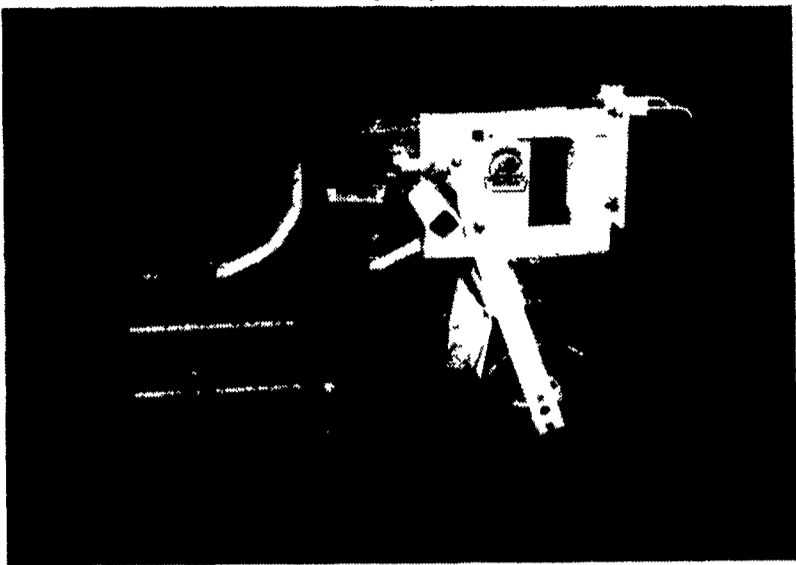


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As Lancaster County's livestock numbers continue to increase, nutrient management practices combined with no-till farming becomes vital to every farming operation.

No-Till And Nutrient Management May Increase Yields, Decrease Costs

HARRISBURG — "Last year my corn yields averaged 180 to 240 bushels per acre. With less manure and only trace minerals, my goal is to increase yields." added Aaron Stauffer of Ephrata. "We are only putting on what the corn plant needs." Soil erosion control is given equal credit by Stauffer for the outstanding protection that he is achieving. In addition to the terrace system, corn is planted no-till into a 10-inch high ryegrass cover crop.

"They use to tell me how many tons per acre of soil was eroding," remarked Aaron. "Now they tell me in pounds per acre."

Stauffer's farm is part of a Lancaster County multi-agency project to provide information on the effects of excessive manure and fertilizer application on surface and groundwater quality. This project will show how nutrients move through the soil profile. And it will determine if proper use of manure and other nutrients along with soil conservation practices can improve water quality.

It may also show that good yields can be obtained with more efficient use of manure and fertilizer. The result would be increased profits for the farmer.

As one farmer put it, "Soil, manure, and fertilizer washing into a stream doesn't do any good."

Concern has been increasing in Lancaster County about the growing livestock population. What happens when the number of farm animals in an area becomes too high? What are the effects and who looks out for the public's health? What are the farmers' responsibilities? The answers to these questions have never been clearly defined.

A study by the Lancaster Area Land and Water Resources found that from 1960 to 1980, total animal units in the county had increased from 200,000 to 600,000. Greatest increases were in poultry and swine. The study, conducted by the USDA Soil Conservation Service in cooperation with the Lancaster County Commissioners and the Lancaster Conservation District, found that annual manure production amounted to

4.1 million tons. This equals 11.2 tons of manure for every acre of cropland in the county.

As a result, the multiagency water quality monitoring effort began in the headwaters of the Conestoga River in 1982. The purpose of the monitoring was to determine the effects of agricultural best management practices (BMPs) on surface and ground water quality. BMPs included both soil conservation utilizing no till practices and nutrient management practices.

Less Manure, Same Yields
Stauffer is the farmer at site #2 and he is enthused about the benefits from the project.

"For my own consideration, I've taken a portion of a field and only applied manure. I wanted to see what happened to yields," said Aaron. "There was no difference."

Aaron added another thought, "If I had it my way, every soil test report would have written across the top front in big red letters, 'INCLUDE NUTRIENTS APPLIED IN MANURE AS A PART OF YOUR CROP NUTRIENT NEEDS.' Too many farmers are throwing away a valuable resource and causing water quality problems to the water that he and his family drink."

Testing Drinking Water
In the early part of this study, many domestic wells were sampled to determine water quality. A total of 67 percent of the wells in the limestone area compared to 27 percent in the non-limestone areas. In addition, 33 percent of the wells tested contained some type of farm chemical such as atrazine.

A small 5.8 square mile watershed was selected for intensive monitoring of the effects of nutrient management on surface and ground water quality. This watershed is a portion of the Little Conestoga Creek.

How The Tests Were Conducted
Two farms were selected for high intensity water quality monitoring. Site #1 is a 22-acre field which was farmed predominantly in corn up and down slope. Erosion