Flannery tells how to squeeze more corn off an acre

NEW BRUNSWICK, N.J. — Roy Flannery of Rutgers University knows that farmers can squeeze more corn out of an acre of ground. He proved it in 1980 with a world record yield from his sandy loam research fields in central New Jersey.

Flannery achieved the highest yields ever recorded for shelled field corn when his maximum-yield experiments in 1980 concluded with corn production figures of 312 bushels per acre, still a world record for research plots.

For comparison, the 1980 national average for field corn production was 91 bushels per acre, less than a third of what Flannery achieved.

His soybeans did well, too—94 bushels per acre, compared with the 1980 national average of 27.

"There is no secret formula to high crop yields," he said. "One must be meticulous in planting, meticulous in growing and meticulous in harvesting so that each plant can achieve its optimum yield. This means proper balance of all controllable soil-crop management factors."

Flannery, a specialist in soils with the New Jersey Cooperative Extension Service, is assisted in his work by Howard T. Woodard, a graduate student in the soil and crop department at the State University of New Jersey's Cook College.

Sponsored by the Potash and Phosphate Institute, the maximum-yield research is conducted at the State Agricultural Experiment Station's facility in Adelphia in Monmouth County.

The testing was done simultaneously on four small plots of land, each measuring 352 square feet, with the results extrapolated to a per-acre figure.

Flannery attributes his success in the 1980 growing season to a number of factors including plentiful sunlight and the use of trickle irrigation techniques, pioneered at New Jersey's State University, which get water directly to the root system of plants.

Also, he started out with a robust corn variety and had uniform spacing between plants, although the plant population on the test plots was high. He took appropriate control measures for weeds, insects and plant diseases and put a lot of cow manure and fertilizers on the plots.

The results of the 1981 growing season aren't in yet. It appears that less sunlight and an insect problem may have prevented the setting of another record corn yield, but Flannery says he feels that the average two-year yield will still be a record.

"This year's soybean yield may not be affected as much as the corn because soybeans use lower levels of sunlight more efficiently," Flannery explained.

He feels that the techniques he used successfully on the sandy loam soils of Adelphia can increase food production elsewhere in the United States. "They can help increase food and fiber crops, optimize our natural resources and contain food production costs," he stated.

Yet, some of the things he was able to do on the test plots aren't practical for large-scale farming operations at this time. "For example," he said, "irrigation was an essential part of the experiment. Also, the smallness of our plots permitted a higher level of maintenance. Many large farms don't have these advantages."

Flannery is currently back at work in the fields of Adelphia, trying to make an agricultural version of "Jersey Lightning" strike again.

Soil depth on mine spoil influences forage growth

PEORIA, Ill. — Forty inches of soil, returned to cover high-sodium strip mine spoil in the Northern Great Plains, allowed grass to use soil-water and nitrogen at deeper depths than did 10 inches, according to Stephen D. Merrill, USDA soil scientist.

The researchers grew crested wheatgrass on soil spread over mine spoil at four depths: 10, 20, 30 and 40 inches. They evaluated water availability, nitrogen uptake and yields in three years of experiments on plots near Stanton, N.D.

Forage yields were 2 to 3 times greater from the 40-inch plots than from the 10-inch plots. Merrill, stationed at the Northern Great Plains Research Laboratory, Mandan, N.D., worked with other Agricultural Research Service soil scientists James F. Power, University of Nebraska, Lincoln, Neb., and Samuel J. Smith, Southern Plains Watershed and Water Quality Laboratory, Durant, Okla.

When the amount of soil available to hold precipitation is limited in this low rainfall climate, the resulting reduction in the soil-water supply greatly affects yields, he added.