

Branch's work helps save North Mississippi soil

By Bob Ratliff

When the North Mississippi Branch Experiment Station was established near Holly Springs in 1904, it was much like other farmland in the hill areas of the state: severely eroded from years of cotton production.

A section of the 1913 North Mississippi Branch Station report headed "SOIL EROSION" states: "The desire to ascertain a practical and satisfactory method of controlling soil erosion in the northern section of Mississippi no doubt had more to do with the location of this Branch Agricultural Experiment Station in this section of the state than any one thing. Soil erosion is the curse of the land surrounding the station." As a result, erosion control became an important part of the branch's work.

Almost a century later, soil loss from north Mississippi fields has been greatly reduced by the use of terraces, conservation tillage and other practices introduced to the region through research at the branch.

The study of new conservation tillage and other soil erosion management practices suitable for the area's brown loam soils remains a major emphasis at the branch, according to MAFES agronomist Joe Johnson.

"In 1983, we began collecting data on soybean yields in conventional versus no-tillage situations," he said. "Yields were

better with conventional tillage the first two years, but no-till yields have been better than conventional ever since."

Johnson and MAFES research associate James Saunders also study erosion control methods for corn and cotton.

In 2000 they modified the project, comparing soybean yields in no-till plots with those in long-term tillage plots using a cover crop in combination with conventional tillage.



Agronomist Joe Johnson compares erosion from conventional and no-till research plots.

"Cover crops are a vital tool in conservation tillage," Johnson said. "In addition to helping prevent erosion, they can be used to help manage nutrients in the soil."

In the project, crimson clover and wheat are used as cover crops in the conventional tillage and no-till plots during the winter and spring. In addition to reducing erosion, the clover adds nitrogen to the soil.

Henbit, chickweed, and other winter plants native to north Mississippi are allowed to grow in the no-till plots.

"Plots having a no-till history produced better yields the first two years after modifying the study," Johnson said. "The no-till plots have 20 years of built-up organic matter and that appears to be the deciding factor in the better yields."

Johnson and Saunders are continuing to evaluate the no-till versus conventional tillage plus a cover crop for soybeans and for cotton. Their erosion control studies with corn also are ongoing at the North Mississippi Branch.

