

# Research provides guidelines for Delmarva soybean irrigation

NEWARK, Del. — Many Delmarva soils are sandy with very low moisture-holding capacity, so successful crop production depends on frequent rainfall or irrigation. For area farmers, irrigation is often a form of yield insurance.

Delaware irrigated crop acreage has more than doubled since 1974, will most new sprinkler systems being installed for field corn. Since many farmers use a corn/soybean rotation, some with center pivot systems or traveling guns have begun irrigating their soybeans as well. Until recently producers lacked information on how much water to apply, and when, what soybean varieties respond best to

irrigation, and what yields to expect.

Research has shown that water is often the primary factor limiting soybean yield and that plants are most sensitive to drought during reproductive development—particularly pod fill. It is also known that irrigating soybeans too soon in their development can reduce rather than increase yields by promoting early vegetative growth which induces lodging.

To determine the effects of irrigation on soybeans produced on Delmarva, Dr. William F. Ritter, an engineer specializing in soil and water interactions at the University of Delaware Agricultural Experiment Station,

conducted a long-term study of yields and evapotranspiration rates (total moisture loss from soil by evaporation and plant transpiration) for both irrigated and nonirrigated full-season soybeans.

Plants were grown for four years on a sandy loam soil at the university's Georgetown sub-station, and for one year on a silt loam at the Newark research farm. Ritter measured rainfall and irrigation water application rates at both sites at regular intervals from planting to maturity. Some plots were irrigated over the entire growing season; others received water only from flowering to maturity. Some received no irrigation water at all.

Ritter found a significant difference in yield between irrigated and nonirrigated treatments all

four years at Georgetown and for the one year at Newark. In only (Turn to Page 6)

## SCS repairs flood-damaged streams

LANCASTER — One-half million dollars has been approved by the USDA Soil Conservation Service (SCS) to restore streams damaged by Hurricane Gloria in Luzerne, Lackawanna, and Wayne Counties.

According to John Mank, assistant state conservationist, SCS will be clearing debris and other blockages in stream channels and stabilizing eroded streambanks as authorized under section 216 of the 1950 Flood Control Act. The law permits the restoration of the stream to a stable pre-flood condition.

SCS emergency teams are looking at damaged sites in the three counties. "We've looked at over 100 sites in Lackawanna County alone," declared Mank. "However, we are beginning to award contracts for the restoration work."

Emergency headquarters for SCS has been established at the SCS office in Clarks Summit, Lackawanna County. Damage evaluation teams, engineers, and contracting specialists will work out of the Clarks Summit office until the cleanup and stabilization is completed.

Mank noted that the damage to streams occurred on the smaller

tributaries. He added that the work would be on streams such as Roaring Brook and Wildcat Creek, Lackawanna County, and Mill Creek, Luzerne County. "It is streams of this size and smaller where the damage occurred and where we will be working," said Mank.

Under the rules of Section 216 Stream Restoration Work, SCS assesses damage, plans the restoration work, awards contracts, and pays and supervises the fieldwork. Landowners must agree to have the work done on their property. Local government is responsible for contacting landowners and obtaining permission for the work. All of the work will be completed within two months of the storm.

"Every effort will be made to protect the environment during the construction period," said Mank. "Work will be conducted from the streambank wherever possible; however, it is necessary to work in the channel to remove debris and blockages. The contractors will be working under rigid guidelines to minimize pollution and sedimentation, and SCS will see that they are followed," promised Mank.



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