Trickle irrigation shows promise for field corn

GEORGETOWN, Del. — Trickle irrigation is a rapidly developing technology with high potential for water and energy conservation. But because trickle tubes are usually placed on the surface and thus interfere with cultivation, the system is now used primarily on high-value crops.

Results of a six-year study at the University of Delaware's Agricultural Experiment Station suggest that deeply placed trickle tubes can effectively deliver water and anhydrous ammonia to the root zone of field corn without interfering with tillage practices.

What's more, feeding plants this way increased nitrogen efficiency by as much as 100 percent compared to broadcast ammonium nitrate, which is a standard nitrogen treatment.

Delaware extension agronomist and researcher William H. Mitchell undertook the project because he feels that in the years ahead farmers will need a more efficient way to feed and water their field crops as water and the energy used to deliver it and to produce nitrogen become increasingly scarce and costly.

He reports that besides doubling nitrogen efficiency, the system also increases organic matter levels in the soil at the 14-inch depth surrounding the trickle tubes.

Corn roots concentrate close to these lines and in time, he says, considerable organic matter could accumulate from this source.

Eventually the roots form an organic envelope which serves to stabilize the channel in which the irrigation tubing lies and thereby improves its flow characteristics.

It's also conceivable that plant nutrients may be released from this organic matter as it decomposes or is broken down by microorganisms.

Another big advantage of trickle irrigation, on or below the ground, is that you have greater control of your water supply. There's no interference from the wind, and surface runoff is avoided. The water "stays put."

Mitchell has found that trickle lines are best placed in alternate rows for field corn. Assuming 30-inch rows, this means lateral lines are five feet apart. The porous tubing provides uniform wetting as long as lines are no more than 300 to 400 feet long.

Flow rates can be controlled to some extent by adjusting water pressure. A pressure of five psi has been found to give a more uniform distribution of water than higher pressures. A 30 percent nitrogen solution, being water soluble, can easily be applied through the system.

Subsurface tubing can be laid during a subsoiling operation, using a four-inch, hollow subsoiling chisel. Care should be taken not to drive equipment across installed lines before they have been filled with water.

The feasibility of subsurface irrigation for production of an extensive crop like field corn depends on a long functional life for trickle lines. Tubing removed from the soil after five years of use had a flow rate similar to the stabilized rates for new tubing.

Franklin County Honey Queen Sharon Barr of Waynesboro was promoting her product recently at the 16th annual ASCS banquet sponsored by the Franklin County ASC Committee.

Pennay

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the future are: land use planning; acid rain; and waging biological warfare on insects rather than relying on pesticides.

Pennay also told the group that more produce is coming from less land therefore increasing the value of that land.

D. Merle Baughman, county executive director of ASCS, presented the annual report. In his report, Baughman stated that "the programs assigned to the ASCS are farm programs that are passed by Congress and administered locally by our three-man elected county ASC Committee and 27 community committeemen.

"In ASCS we deal directly with farmers and indirectly with consumers. An increased farm income means a better economy for our manufacturers, businessmen and laborers throughout the county, state and nation" he said.

Dorlin W. Hay, district director, presented ASCS service awards to four committeemen.

Receiving service certificates were: J. Harold Kershner, Greencastle, 20 years; Clarence C. Allison, Chambersburg, 10 years; Walter W. Grove, Shippensburg, 10 years; and Lyle Umbrell, Doylesburg, 10 years.

Franklin County Dairy Princess Carolyn Meyers, Honey Queen Sharon Barr and Apple Queen Sherri Carlin also addressed the group.

Entertainment was provided by the "Harmony Legends," an area barbershop quartet.

Franklin County ASC committe members are: Kenneth S. Doyle, chairman; J. Wilbur Burkholder, and Walter W. Grove.