# Irrigation system requires good planning

NEWARK, Del. – Irrigation probably has the greatest potential of any technology available today for increasing yields and improving farm income on the Delmarva peninsula. More and more farmers are putting in systems as they realize that water is their main yield limiting factor. As a result, irrigation acreage has expanded rapidly over the past 10 years.

In Delaware, for example, irrigated acreage more than doubled between 1974 and 1982, going from 19,978 acres on 154 farms to 44,668 acres on 323 farms.

Since then, according to University of Delaware extension agricultural engineer Tom Williams, approximately 10,000 more acres have been added, bringing the total to about 55,000 acres, or more than 10 percent of the state's total cropland.

Many of these newly irrigated acres are growing corn, which has become Delaware's most irrigated crop – for a good reason. Studies at the University of Delaware Agricultural Experiment Station in the 1970s showed that average corn yields more than doubled with irrigation on sandy, low water-holding capacity soils in the lower part of the state. At the same time, profits increased a whopping 639 percent. On the other hand, the studies showed that farmers growing corn without irrigation suffered a net loss one year out of every three.

Irrigation has also allowed local producers to diversify their cropping systems by growing vegetables under contract for processing.

The economics of irrigating corn have changed somewhat since then, says Williams, but not a great deal, as evidenced by the ever increasing amount of irrigated cropland.

Many farmers feel that their crop water problems will be solved just by installing a system. But successful irrigation involves more than just turning on the water. "For top yields and profits," Williams says, "you have to apply the right amount of water at the right time, without any excess to leach valuable plant nutrients, run off the field and waste energy. To maximize yields and profits you must find, develop and distribute suitable water to supplement rainfall. And this calls for proper planning."

Planning starts with the crop's water requirement and use rates, the soil's water-holding capacity, and rainfall possibilities. This makes it possible to determine maximum irrigation water needs.

Next, a water source must be found and developed to meet that peak demand. "Too many farmers order an irrigation system before developing their water source, and then end up with a system that's inadequate because sufficient water can't be found," Williams says. "Or the system they're bought is too small because more water is available than expected."

Choosing an economical irrigation system involves considering more than the initial cost. It's also necessary to match water application rates to soil intake rates, size pipe to reduce friction losses, minimize labor and maintenance requirements, and provide for peak water demands.

Drainage, if needed, comes before irrigation. Before installing a system, make sure low areas in the field drain properly or they'll become places to drown out crops or get stuck in the mud. Also clear the land first. "Too many center pivots have lost their boom ends on the first pass because a tree was closer than it should have been," says Williams.

He says farmers should be prepared to change cultural practices when they switch from dry land to irrigated farming. Varieties, plant populations, fertilizer rates, chemical application methods and pest management all will be different. This takes planning, as do harvesting and marketing the increased yields. And, of course, financing must be arranged.

"Planning for irrigation and developing a water source takes time, so start the process early," Williams concludes. "If you wait until the crop begins to wilt, you'll be about a year too late. Those who don't plan properly may find irrigating irritating. But successful irrigators will smile all the way to the bank."

# Potato production up

HARRISBURG – Pennsylvania's 1984 potato production is estimated at 5,160,000 hundredweight (cwt.), a 20 percent increase from 1983, according to the Pennsylvania Crop and Livestock Reporting Service. Acreage harvested is estimated at 21,500 acres, unchanged from 1983. The average yield of 240 cwt. per acre is 40 cwt. above last year.

Total stocks of potatoes stored in Pennsylvania on December 1, 1984 were 4,050,000 cwt., 19 percent more than a year ago. Of this amount, 1,160,000 cwt., 29 percent of total stocks, were stored in processors' facilities.

Stocks are the quantity remaining in storage for all purposes and uses, including shrinkage and waste and other losses that occur after the date of each report. Stocks may also include potatoes produced in their states. Sales of fall potatoes for all purposes generally account for about 90 percent of the total fall production. Shrinkage and loss and home use account for the remaining 10 percent.

U.S. production of fall potatoes is estimated at 312 million cwt., up six percent from last and one percent above two years ago. Harvested area totaled 1.09 million acres, up four percent from last year and two percent above 1982. The average yield was 286 cwt. per acre, up six cwt. from last year's level, but two cwt. short of the 1982 record high. December 1, 1984 potato stocks totaled an estimated 201 million cwt., for the 15 states in the stocks program. This is up five percent from last year but three percent below 1982. Of the total stocks in the 11 objective yield states, 72 percent were russets, 25 percent whites and three percent reds.