

1973 - 1974

Success Story

TRICKLE IRRIGATION FOR APPLES

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Probably the hottest item in the field of irrigation for 1974 is trickle or drip irrigation. The concept of daily or at least very frequent applications of a small volume of water is not new. Variations of the "trickle," "drip," or "daily flow" irrigation technique for the production of greenhouse and nursery crops have been used since the late 1940's when it was introduced in England. It was not until the late 1950's that work was begun in Israel with trickle irrigation for field crops. However it has only been in very recent years that trickle irrigation has attracted worldwide attention for use in large scale irrigation of vegetables, tree crops, and fruit crops.

Work on trickle irrigation in North Carolina was begun in 1969 with several experiments in the western district on trellised tomatoes. Some of these experiments were continued for several years. In 1972 some work was begun at the Horticultural Crops Research Station at Clinton on trickle irrigation for greenhouse tomatoes. In 1973, work was begun in Piedmont North Carolina on trickle irrigation for apples. Equipment was installed on newly transplanted trees and also on 17-18 year old high production trees. The results of this initial work was enough to convince several growers that they should investigate the feasibility of installing such a system on a commercial basis. The irrigation specialist in cooperation with irrigation equipment manufacturers and distributors prepared designs for two producers. One system was installed in a nine-acre orchard with 8 and 9 year old trees with plans to expand to another 15 acres. The other system was installed in a 15-acre orchard of 7 and 8 year old trees. Both systems are using wells as a water supply. In addition to the systems that were installed, another

system was designed, and several growers have expressed interest in installing systems before the 1975 crop year.

The two systems that were installed are designed with two one-gallon per hour emitters per tree. Due to the low volume of water that is being applied and the fact that the area between tree rows is not irrigated, a small water supply can be used to irrigate a fairly large orchard. Also these systems operate at pressures between 7 and 15 pounds per square inch pressure. This combination of low pressure and low volume means that a large area can be irrigated with a small pump and power unit.

In addition to the two apple orchard systems that were installed, a grape grower in Halifax County will install a trickle system on 25 acres of grapes for the 1975 crop year.

Trickle irrigation has most application on tree and vine crops. A limited water supply can be used to irrigate a fairly large acreage. Labor requirements are minimal once the system is installed. The system can be automated at a reasonably low cost. Soil moisture can be maintained at a fairly constant level by irrigating daily or several times a week. System cost is reasonable, varying from \$400 to \$600 per acre including the supply line, pump and power unit. The only word of caution is that clean water is required, and even this water must be filtered to prevent the clogging of emitters.

Trickle irrigation does present another method of irrigation for North Carolina growers. Systems must be designed for each field on which they are installed. In addition to fruit and vine crops, they can be used in greenhouses, around the home for trees and shrubbery, and on some plantings of high value crops such as strawberries.