

TOMATO IRRIGATION PROJECT

FINAL REPORT

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EXECUTIVE SUMMARY

The Capacitance probe (C-probe), when properly placed, shows soil moisture patterns sufficiently to make accurate irrigation decisions. This year, there appeared to be sufficient moisture with some supplemental irrigation to carry the crop throughout the entire season. Seldom did any of the four grower cooperators allow the soil moisture to reach moisture stress conditions where in fact the opposite situation occurred where there were lower areas in their fields that remained saturated for longer periods than was desirable. In weather conditions of continuous dry periods it is often easier to schedule irrigation across the entire farm however when the weather conditions have several significant rains the soil moisture remains high especially in the low areas which might contrast to the drier areas on the sand hills making decisions more difficult. Under these latter conditions, such as this past year, it required more attention, more hours walking fields. This is where properly placed C-probes in high and lower ground locations would have provided valuable information, a more cost effective method for monitoring soil moisture.

In other studies where we have studied rainfall efficiencies it has been determined that only 60% of the moisture from a rainfall event was captured in the soil profile. The use of a C-probe with its capacity to graph the actual moisture available to plant roots has been valuable to growers who might otherwise have thought far more of the rainfall was available for crop production.

As this study was to look at irrigation scheduling to maximize tomato solids, the rain that came after fruit ripening negated the grower's effort to practice a deficit irrigation regime at time of early fruit ripening. The soil moisture patterns of many of the cooperators however clearly indicated that there was a strategy in place to "dry down" the soil at this time to increase solids however as stated, nature did not cooperate this season on solids but the abundance of rainfall certainly improved total tomato yields.

It was also postulated the benefits of a soil probe that could monitor soil conductivity which could reveal the positioning of plant nutrients (fertilizer). Knowing the movement of the added fertilizer could allow a grower to add more if necessary or move the nutrients more closely to the majority of the root system. This could also be used to improve soluble solids.

