

Perspectives of a 21st Century Vegetable Farmer

Tom Ikeda – Ikeda Bros.

Back in the sixties when I was a child in San Luis Obispo County, California, the local economy lived and died with agriculture. Fifty years later, tourism and hospitality are the number one industries in the area while the open agricultural areas, vineyards, and wine industry provide direct and indirect benefits to the entire community. The population has increased dramatically in recent decades, and the water supply is now regulated by reservoir releases.

Demands on the local watershed have changed as a result of three major factors: environmental concerns, a burgeoning metropolitan population, and agricultural changes. Population sprawl has increased the conversion of land from passive agriculture (dryland farming and grazing) to more intensive agriculture (vineyards, orchards, vegetables), with higher water requirements. This is because as land prices increase, farm returns must increase to justify the effort.

How has local agriculture adapted to these

changes over time? Principally through increases in efficiency, such as improved irrigation techniques. However, although irrigation has become more efficient and land has been lost to urbanization, overall agricultural use of water has probably increased due to changes in crops made to offset the higher land values.

Improved Irrigation Efficiency

Advances in irrigation technology have allowed the evolution from furrow or flood irrigation to sprinkler systems, then to drip (on or below the ground) or micro-sprinkler irrigation (many, low-volume sprinklers close to the ground). Each method has its advantages and disadvantages:

• Furrow or flood irrigation

Advantages: inexpensive and easy to set up, leaches salts from soil. Surge irrigation allows more uniform furrow/flood irrigation with less water through the use of wetting and drying cycles.

Disadvantages: uneven application; moist environment can increase disease

potential; uses a relatively high volume of water per acre.

• Sprinklers

Advantages: good application uniformity; easy to control the amount of water; can leach salts from soil.

Disadvantages: high initial capital costs; increased disease/rot potential; more water loss due to evaporation.

• Micro-sprinkler/drip irrigation

Advantages: can irrigate uneven fields uniformly and cover many acres at once; puts water at the root zone where it is needed; improved efficiency of fertilizer and pesticide application; lowered humidity under plant canopy reduces disease pressure; can irrigate in any weather condition, including wind; general increase in production; flexibility of field operation since the whole field is not wet; can use less water.

Disadvantages: salt build-up in soil; costly water filtration systems may be needed; high set-up costs; high maintenance costs.



Higher Value Crops Planted

Sprinkler and micro-sprinkler/drip irrigation have also allowed high-value crops to be raised on rolling hills. Crops such as grapes, citrus, avocados, and even vegetables and strawberries have changed the look of what was previously hillside grazing land. Technological advances in many areas (including irrigation) have allowed farmers to maintain or increase production while reducing the amount of prime agricultural ground farmed, and increasing production in marginal and existing cropland. Urbanization has claimed most of the lost farmland, but environmental mitigation efforts have also reclaimed a significant percentage of the lost land.

Environmental Regulations Require Attention

In recent years, environmental regulations and policies have had the greatest impact on agriculture and agricultural water use. A prime example is in the Klamath Basin in Northern California, where water has been withheld from farmers to protect endangered or threatened fish habitat.

New environmental regulations have also been enacted, such as the Irrigated Agricultural Conditional Discharge Waiver for storm runoff of irrigated agricultural lands. This program started out seven years ago as a water quality project

initiated by local agricultural interests, but has been subsumed into a mandatory regional program through the Regional Water Quality Control Board. The program requires all irrigated agricultural producers to attend a 15-hour workshop, formulate a farm water management plan, and privately or cooperatively monitor water quality of all streams running onto and off farms.

Private testing can be very expensive, especially if multiple sites have to be monitored, as all streams entering and leaving the property must be analyzed on a schedule that requires monthly testing of nitrate, ammonia, orthophosphate, total dissolved solids, pH, temperature, turbidity, and flow; four times yearly testing for water toxicity; and annual testing for sediment toxicity and benthic invertebrate assessment. Therefore, the preferred method in the central coast region is cooperative monitoring, whereby monitoring locations are rotated among the participating farms.

What is the Future of Agriculture?

What all these changes have created, both in my community and hundreds of others, is a situation where growth, environmental regulators and requirements, and agricultural needs have put such high demand on the water supply that any increase in use from one interest takes water from the others. So where does

that leave the future of agriculture? In an industry where prices had been stable for years, costs keep rising and regulations keep increasing, but returns are based on open market prices. Increased costs consequently cannot be passed on, and every extra cost is another nail in the coffin.

In other areas of the state and elsewhere, farmers have sold their water to metropolitan users. This seems to be a good deal at first, but what becomes of the agricultural support industries that rely on the purchase of seed, fertilizers, and chemicals? How will it affect those loyal employees who are no longer needed? What does the farmer do when his entire lifestyle has changed? In the Imperial Valley alone, water transfers cost the local economy an estimated \$1 billion.

Agriculture in the West is now at a critical crossroads. Our resources are stretched thin, but supplying food for a growing population is essential. Food is cheap and readily available from a number of foreign as well as domestic sources. My feeling is that agriculture will lose out to other water interests unless we put a greater value on a safe domestic food supply.

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