

# AMERICAN FARMS

Salinas, CA



MINIMUM TILLAGE  
PERMANENT PLANTING BEDS  
PERMANENT SET SPRINKLERS  
VEGETABLE TRANSPLANTS

**Israel Morales**

Israel Morales has been farming in California for almost forty years. He has worked for American Farms for nearly twenty of those years, where he currently holds the position of Ranch Manager.

American Farms grows approximately 7,500 crop acres of vegetables, including broccoli, spinach, specialty lettuce, and salad mix on approximately 1,800 acres of leased land in the Salinas Valley. More than 60 percent of their crops are organically grown.

Drawing from his experience growing asparagus in permanent beds during the 1960s and early 1970s, Israel decided to apply the same approach to other crops to minimize input costs while improving crop quality. In addition to cutting costs, Israel is able to reduce water use with wider permanent beds and a system of minimum tillage and solid set – or permanently placed – sprinkler pipe. As Israel explains, “In order to economize, it made sense to make the beds wider and use a solid set.”

## WATER-SAVING PRACTICES

- Permanent 80-inch beds sit lower and have less exposed surface area between beds than the standard 40-inch beds, which reduces evaporative losses due to wind and sunlight. The wider beds also retain soil moisture more evenly and require less irrigation to achieve proper distribution uniformity.
- Minimum tillage reduces soil compaction, which impairs water infiltration and deep root development. It also increases soil organic matter and maintains a healthy environment for microbes and other organisms that are essential to soil nutrient cycling.
- The permanent solid set system allows Israel to irrigate based on plant moisture needs, rather than set scheduling or the availability of labor. It also provides the flexibility to water less and for shorter periods, which reduces runoff. “If you have a system where you have to move your mainline, you can’t afford to come back. You have to go on a schedule and can’t follow soil moisture levels. A lot of people overwater because of that. We have the luxury of watering based on soil moisture levels and can irrigate multiple fields at one time,” explains Israel.



Minimum tillage at American Farms

- The solid set sprinklers reduce mainline leaks common with mobile systems, a major cause of water losses.
- American Farms also uses vegetable transplants to reduce the amount of water necessary to establish a crop from seed.

## BENEFITS

- Minimum tillage increases soil organic matter, protects microbes essential for disease suppression, and reduces soil compaction, nutrient depletion, and sedimentation. “I try to work the ground as fast as I can and then irrigate so I don’t lose all of the moisture and the microbes have a chance to eat up the disease in the soil,” notes Israel.
- Solid set sprinklers reduce crop damage caused by walking on the beds to move irrigation pipes.
- With the solid set system, it is possible to plant multiple crops per year –as many as 3 to 4 crops per field per year for American Farms. Israel explains, “I can plant 10 acres in a hurry. I can harvest today, knock it down, prepare it, irrigate it, and come back next week and plant the field, whereas it takes 3 or 4 weeks to plant for somebody else.”
- Transplants save time in between crops and help establish the plant early without weed pressure and related herbicide expenses.
- Minimum tillage practices and permanent sprinklers reduce labor costs, fuel use and time, and help improve air quality.

## COSTS

- The solid set sprinkler system requires extra pipes for permanent installation – it takes up to twice as many pipes per acre.
- Tractor drivers use a GPS system for minimum tillage (to maintain the permanent beds), solid set sprinkler placement and planting vegetable transplants. The guidance technology reduces the amount of time and exhausting concentration it takes for tractor drivers to cultivate and place the solid set sprinklers.
- Israel builds his own cultivation equipment with a modified design to accommodate his minimum tillage and permanent bed planting system.

## LESSONS LEARNED

- **There are some tradeoffs.** According to Israel, “You lose a little ground because you are not farming it – 8 percent of the ground is dedicated to the solid set - but I can come back pretty fast and plant it. I do triple crops because of the solid set system.”
- **Focus on the long term savings.** “You have to pay more money upfront for the additional pipes, but once you do it, you are done,” explains Israel.
- **Control the water.** “With minimum till and solid set sprinklers, you control the water. That is the key. The key is to not leach all of the nutrients out with too much water.”



Frisee with beneficial plants