

## Stewardship Profiles in California Agriculture Land Conservation through “Systems Management”

### SANO FARMS

Alan Sano co-owns Sano Farms, a 4000-acre farm in western Fresno County that primarily produces processing tomatoes. Mr. Sano and Jesse Sanchez, his Farm Manager, have developed a highly efficient, resource-conserving tomato production method over the past five years that uses conservation tillage, drip-irrigation, and cover crops to increase soil organic matter, improve soil tilth, and increase yields at lower cost. This revolutionary production system earned them the Conservation Tillage Workgroup’s 2009 CT Farmer Innovator Award. Mr. Sano and Mr. Sanchez have shared their methods through a series of farm tours, interviews, and public service activities.

#### A “SYSTEMS MANAGEMENT” APPROACH

Both Mr. Sano and Mr. Sanchez emphasize that their approach to tomato production is not merely a sequential combination of different processes, but instead, a management of the whole “system” that has grown out of considerable planning and very rigorous and detailed trial and error investigation. For example, they have found that leaving cover crops on the bed tops as a mulch instead of incorporating it as green manure has a positive effect on weed control, in both the summer and winter, and improves the overall soil tilth.



**Alan  
Sano**



**Jesse  
Sanchez**



### ACHIEVEMENTS

- Recipients of the Conservation Tillage Workgroup’s 2009 Conservation Tillage Farmer Innovator Award
- Creation of a revolutionary “systems management” approach to tomato production
- 12-15% increase in tomato production compared to industry standard practices
- 75-80% reduction in fuel usage
- 50% increase in soil organic matter
- \$80/acre reduction in production cost compared to conventional tillage systems

**“[Sano Farms has developed] nothing short of truly revolutionary tomato production systems based on conservation tillage, inclusion of off-season cover crops and highly efficient and innovative management.”**

**- Jeff Mitchell, Cropping Systems Specialist**

**Sano Farms “system management” has reduced fuel usage, improved the soil, and increased tomato yield.**

## CONSERVATION AGRICULTURAL SYSTEMS INNOVATION: CONSERVATION TILLAGE WORKGROUP

The Conservation Agricultural Systems Innovation (CASI) Conservation Tillage Workgroup is chaired by Jeff Mitchell who is the UC Davis Cooperative Extension Specialist. Mr. Sano and Mr. Sanchez consulted with Mr. Mitchell and the CASI organization in their development of their “systems management” tomato production approach. The CASI organization, along with Mr. Mitchell, are invaluable resources for anyone seeking to implement conservation tillage approaches to farming. Mr. Sano and Mr. Sanchez were recipients of the Conservation Tillage Workgroup’s 2009 Conservation Tillage Farmer Innovator Award and are now giving back to the organization by volunteering their time and expertise.

### PROJECT DETAILS

#### SYSTEM MANAGEMENT

Sano Farms’ integrated management approach begins around November with the planting of small grain cover crops, primarily triticale, but a recent switch to barley has been made - both were chosen for their high root biomass, quick growth rate, and low water demands. In early February, an herbicide is used to terminate the cover crop and it is allowed to “melt-down.” Only two tillage passes are then required to prepare the field for planting. These tillage passes rely on GPS guidance to preserve the undisturbed crop growth zones where long-term buried drip tape lies - “zone-tillage” approach. Finally, a conventional 5-row transplanter is used to transplant the tomato plants.

#### MEASURING SUCCESS

Mr. Sano and Mr. Sanchez have worked with Jeffrey Mitchell; University of California Kearney Agricultural Center; and Gene Miyao, University of California Cooperative Extension, to produce a report detailing the effects of the new “system management” tomato production method, as opposed to the industry standard practices that Sano Farms had previously been using. The new system has resulted in a 75-80% reduction in fuel usage. Soil preparation used to require seven or more field passes and 13 gallons of diesel per acre but now it has been reduced to three field passes and 3.36 gallons of diesel per acre.

“Before, we were moving the soil so much that we were losing CO<sub>2</sub> and microbial activity. Now we’re increasing microbial activity by using cover crops. The more microbial activity you have, the better soil you’re going to have.” – Mr. Sanchez

The use of cover-crop rotation results in lower weed populations in the tomato season and increases the friability and the organic matter in the soil; thus, allowing it to retain more moisture, nutrients, and minerals. The new system not only reduces the number of tractor operations, and improves the soil without the use of fertilizer, but has increased tomato yields by 12-15% compared to the industry standard practices that they previously were using.

#### FOSTERING SUCCESS

Mr. Sano and Mr. Sanchez have worked closely with the Conservation Tillage (CT) workgroup and have hosted international visitors on their farm. They have participated in numerous interviews and workshops, as well as having hosted the CT Workgroup’s Farm Tour Conference in 2005. They continue to spread their knowledge and share their insights to any and all who are interested.



**“Alan and Sanchez are true innovators. They are major conservation tillage leaders and pioneers who have created astonishing advances in conservation tillage systems for a new crop that previously has not had real reduced till practices available to it.”**

**- Jeff Mitchell,  
Cropping Systems Specialist**

### PROJECT PARTNERS

California Farm Bureau  
Federation

Conservation Tillage Workgroup

Sustainable Conservation

University of California,  
Agriculture and Natural  
Resources Conservation  
Agricultural Systems Innovation

University of California,  
Cooperative Extension

University of California,  
Kearney Agricultural Research  
and Extension Center