THE Salinas Valley in northern California is known as the “Salad Bowl of the World” for its preeminence in growing lettuce. In the past 20 years, the shift of consumers toward prepackaged salad and vegetable products has greatly increased the amount of vegetable residuals. Stems, cores and outer leaves—the rejects known as culls—are removed at the processing plants, leaving only the choicest portions to be packed into polyethylene bags for shipping to market.

Processors contract with haulers for a small tipping fee to pick up the culls from the plants. While culls can be used as cattle feed, there are a limited number of cattle operations within an easy haul of the Salinas Valley. California’s agricultural industries have tended to concentrate around geographical hubs, and animal industries are centered to the east in the Central Valley.

The volume of culls leaving the plants has quadrupled in the last few years, according to John Guzik of Salinas, California, who until recently had an agriculture and processing supply business in the valley. And with that increase in volume, Guzik saw cow pastures and feedlots turning into waste dumps. “I figured it would take 15 times as many cows as we have in the valley to eat the amount of vegetable material coming out of the plants,” he says.

Guzik believed it was possible to recycle the processing material back to the land via composting or direct application, but realized that for optimum operation the residuals would require special handling, and would need to be mixed with complementary feedstocks. Several years ago, he formed a company called The Good Humus Man and began experimenting with different methods on a one acre plot with a front-end loader. “The R&D phase was like being a compost chef, getting used to working with the different vegetables, combining them with other locally available materials, like wood fines, cardboard and manures, and figuring out some working recipes,” says Guzik. “I took my time, and developed a feel for the materials and how they break down in combination with other organics.”

The challenge in California’s prolific “Salad Bowl” is to keep soils productive and minimize disposal of residuals. A partnership between a small firm and the Dole Corporation is achieving those objectives.

Karin Grobe

PARTNERSHIP WITH PROCESSOR

Once Guzik developed a workable process, he approached the Dole Corporation, which had recently constructed a state-of-the-art processing facility on the 350 acre Dole Ranch in Soledad. (The plant began operating in March, 1994.) Gary Bettencourt, Dole’s Vice President of Operations, was enthusiastic. He introduced Guzik to Dave Gardoni, manager of the ranch, to see if compost would be a viable input for the company’s vegetable row crop operation. The upshot was a contract for Guzik to manage the facility’s culls on a 10 acre plot on the ranch, with Dole growers having the first opportunity to purchase the compost products.

Dole worked with Guzik to provide equipment for pressing the liquid out of the culls. “Eighty-five percent of the culls from the plant are lettuce leaves and cores, which are 90 percent liquid,” explains Guzik. “I knew I’d have to control the moisture in the residuals to keep the composting area dry and prevent windrows from going anaerobic. I’d seen the equipment pulp mills use to press water out of paper, so I believed we could find a press to squeeze the liquid out of the culls.” Dole had equipment customized to meet his specifications. Forty percent of the moisture is pressed out of the lettuce as it exits the plant, and the liquid is mixed with water, purified, and recycled to irrigate ranch crops.

After pressing, the material moves up a conveyor, then drops down a chute into a truck that takes it to the composting operation. About 250 pressed tons per day are generated (not all are composted). The plant operates six to seven days per week, seven months a year. Guzik had a windrow turner customized to his specifications. “I like to play around with windrow width and height, and I couldn’t find a ready-made machine on the market that allowed me the flexibility I needed.”

To further dry the culls before composting, Guzik put the Pacific wind that funnels through the valley to good use. “The Soledad area is nearly as famous for its wind as it is for its lettuce, so I pile the fresh lettuce culls on top of the windrows to let the wind dry them out,” he explains. When
Harvested lettuce is moved from field to the processing line. Eighty-five percent of culls from the plant (on the conveyor at lower right) are leaves and cores which are pressed to remove moisture.

The consumer shift to buying prepackaged salad and vegetable products has greatly increased the amount of organic residuals.

ture is the number one industry in Monterey County, grossing over a billion dollars per year, and the farmers are growing high market value crops," he points out. Typical gross for an acre of lettuce in the county is upwards of $4,000.

Guzik understands farm economics. "To be successful in the agricultural market, a product has to save the farmer money or increase the value of his crop yield, and that's a tall order when you're competing with commercial fertilizer." California farmers are making the transition to more sustainable production techniques due to increased regulation of pesticides, new farm policies and economic considerations. Organic matter management is recognized as an important part of the shift.

Varying soil and water considerations may affect demand for compost in the Salinas Valley. "Soils in the Salinas area are beautiful, but as you go further south [in the valley] the soils are decomposed granite — the farmers call it DG," Guzik says. "Ground rents are lower, because DG wears out discs like sand paper, and has little nutrient and water-holding capacity. Farmers have to put more money into fertilizer and water to get a good yield."

Valley farmers are under the gun to control water use. Due to overpumping of well water and a six-year drought, sea water from Monterey Bay has contaminated wells north and west of Salinas, and farmers are being asked to meter wells and pay fees to fund construction of water distribution systems and treatment facilities. Guzik hopes his compost will help farmers conserve water by increasing the water-holding capacity of the soil.

RANCH APPLICATION

Dole Ranch Manager Dave Gardoni is using the first 500 tons of compost produced at the facility. He will compare the performance of the product to dairy manure, applying both at five tons per acre before planting head lettuce, broccoli and carrots. The soil was tested prior to spreading the amendments to get baseline data on

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nutrient availability. Samples will be taken regularly to track nutrients over the cropping period. "Dave sees the value of organic materials, so he’ll give the compost a good try, and then we’ll see what happens," says Guzik. Gardoni is president of the Monterey County Farm Bureau.

If the agricultural market proves viable, Guzik will custom blend products using the compost, synthetic and mined fertilizers and amendments. "To be successful as a supplier of industry, you’ve got to work hard to meet the customers’ needs," he says. He also may develop a bagged product targeted to the garden market.

Culls that don’t go to the composting operation are applied to bare fields during the short period after harvesting one crop and before planting another. Culls are side dumped out of the truck and spread with a loader in a thin layer. They dry out in a week or two and can be discelled into the soil. Gardoni is enthusiastic about the landspreading. "Anytime you add organic material, there is a tremendous benefit to the soil."

REGULATORY SENSITIVITY

Working with the state compost permitting bureaucracy has not been an easy task for Guzik. This past March, when the plant was commencing operation, Guzik needed to purchase composting equipment in order to be ready to accept the culls. However the state composting facility permit regulations were not finalized. Kurt Hunter, Monterey County Recycling and Resource Specialist, recognized the value of Guzik’s idea and secured state approval to defer permitting until the regulations are finalized. Nonetheless, Guzik was forced to make important decisions on the scale of operation and feedstocks to be composted without knowing the permitting consequences. One of the key questions is whether the operation will be excluded from regulation as a solid waste facility.

Even without a permit, Guzik points out that a major part of his time is spent working with regulators. He emphasizes that regulators must be sensitive to the actual impacts and risks of each operation to avoid driving smaller composters like himself right out of business. "I support regulations to protect the environment, but people need to step back and look at the big picture," he says. "This operation has the potential to recycle food residuals back onto the land it was grown on. I could dump the stuff in the nearest cow pasture, and the regulators wouldn’t even take a look at me, because it would be business as usual."

The Dole Company has another salad packaging plant in Yuma, Arizona, and company officials are talking with Guzik about setting up a similar operation to recycle the culls from that plant. "I’m definitely interested," he says. "Right now I’m putting all my energy into making a quality compost product and meeting the challenges of starting a new business, but when all is running smoothly here in Soledad, it’ll be a natural to work with the same types of materials down in Yuma."

John Guzik stands in front of a windrow, where fresh culls are drying out in the Pacific wind.

Karin Grobe is an independent consultant in Santa Cruz, California.

CHANGES IN THE VEGETABLE PROCESSING INDUSTRY

The contract calls for Guzik to manage the facility’s culls on a 10 acre plot on the ranch, with Dole growers having first opportunity to purchase the compost products.