

Successful Mulching Program

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The Santa Barbara County, California Public Works Department (the County) had been processing over 5,000 tons per year of green waste which was self hauled to its transfer station primarily by area landscapers. The material had been ground into a mulch product since 1991 which was used for various purposes by a small number of public and private entities. In July 1997, the County implemented a yard and garden waste collection program and required all franchised haulers to provide separate collection for what the State calls "green waste." This, overnight, tripled the size of the County's green waste management program. Their volume is expected to further increase when the City of Santa Barbara's green waste becomes the County's responsibility to process sometime in 1998.

Project Background

In order to assure diversion of the green waste, generate revenue to offset processing costs, and begin the process of long term market development, the County retained E&A Environmental Consultants, Inc. (E&A) to complete some preliminary market research and development specifically for their mulch product. This work would be used to follow-up market development efforts pursued by the California Integrated Waste Management Board over the past several years. The preliminary market research was to address several issues including:

- Do stable markets exist for the County's volume of green waste mulch?
- Do local agricultural markets absorb the full volume?
- What other potential local markets exist?
- What market value can be expected for the product?
- What are the desired product characteristics?

Data from various sources was obtained and utilized during the market research project. Specific market, product, and customer related data was obtained by interacting with potential product end users, area experts, County staff, and representatives from the University of California and its Cooperative Extension Service. As part of the project, a series of potential mulch end users were contacted within the agricultural industry, primarily lemon and avocado growers, as well as in the horticultural industry.

Santa Barbara County

Santa Barbara County is home to approximately 400,000 people and possesses a strong agricultural industry based mainly on its fruit, vegetable, and flower production. It also has a thriving landscape industry. The climate is hot and dry and local soils are typically low in organic matter and characterized as clay or clay loam where much of the tree crops are grown. Water costs are considered very high as compared to other parts of the Country. The County, like all counties within the State of California, has a 50% waste diversion goal to reach by the year 2000. To assist in meeting the goal, the County has developed a green waste mulching program which it expects will be processing 25,000 to 30,000 tons of green waste in 1998.

Market Research

The primary goal of the project was to determine if, with a properly developed marketing program, the County could market their increased volume of green waste mulch. Secondary goals were to obtain additional mulch customers for the County and to train County staff in managing the on-going marketing program. Although there had been limited success with the County's program, no coordinated marketing effort had been established. It was determined that the agricultural industry, primarily avocado and lemon growers, be considered the main market in which to focus research efforts. This decision was based on the County's past success in these markets and the University of California's mulch research. Research performed by Ben Faber and John Menge of the University of California, which was funded by the California Integrated Waste Management Board, was a basis for our confidence in approaching these markets. Other non-agricultural markets were also examined as a means to diversify the market and potentially increase the value of the County's product.

Agriculture

Based on 1996 figures, 8,748 acres of avocados and 1,695 acres of lemons were grown in Santa Barbara County, which equals a total acreage of 10,443. Lemons are typically grown on blocks of flat land, they have mild fertilization requirements, and require approximately two acre feet of water per year. Weeding is necessary on an on-going basis as is pruning, and snails are considered a problematic pest. The County is also a leading producer of the Haas variety of avocado. The avocados have similar nutrient and water requirements to lemons and are typically grown in sloped or hilly areas. Healthy avocado trees, once mature, are self mulching, and its shallow feeder roots feed in the upper layer of soil and mulch. The trees desire a highly organic soil, and its most challenging pest is phytophthora root rot which has dramatically reduced the yield of most avocado groves within the County.

For several years, the University of California's Extension Service has been researching the use of green waste mulches on avocados and lemons. When applied at a rate of 100 tons per acres, which equates to an approximately a six inch layer within the drip line of the tree, water savings have been documented at 25% per year. Mulch also provides excellent weed control, has been

found to deter snails, and can reduce yield loss related to phytophthora root rot. When properly applied, the mulch layer should persist for a two to three year period in the field and should improve the overall health of the trees.

Results

During the project, growers already utilizing the green waste mulch successfully were contacted in order to gather further technical and economic information. Once relevant information was gathered, a marketing strategy and sales approach was developed and implemented while further data collection ensued. During the project itself, on-going market related data was collected while an active marketing effort was actually made. Less than 20% of the growers contacted had ever used green waste mulch at the time of contact, but over 75% saw value in using mulch. Many were also familiar with the University of California's mulch research. A few growers had actually used green waste mulch in the past which was obtained from other manufacturers, but product quality was problematic, and technical assistance was not available. This was not the case with the County's program. It developed an excellent quality control program which has proven to be a key to the program's success. During the project itself, orders were placed for nearly the entire year's production of mulch. Currently, the County is backlogged with orders it is working to fill.

It was determined that the greatest barriers to market development are product quality issues, lack of technical assistance from manufacturers, and costs related to the product, its delivery, and application. Skepticism also exists with a large portion of growers related to the use of organic products as an alternative or in conjunction with current chemical methodologies.

Aside from economics, the efficient application of mulch products continues to be an area of needed research. Application of the product continues to be costly, especially on hillsides where hand labor is the primary means of application. Mulch application on flat land blocks has proven to be much easier because using mechanical equipment is possible. However, this method is also considered costly.

Many industry professionals consider economics to be the greatest potential barrier to long term, large scale utilization of green waste mulch in avocado and lemon production. However, national and international research related to mulch use and its potential affects on both fruit quality improvement and yield increases suggests that economics should not be considered a true barrier to mulch utilization. This is because it is apparent that cultural management costs related to avocado and lemon production will be reduced, and yield increases should be found which more than offset the cost of mulching. As such, an economic model which may be used as a marketing tool has been developed taking into account accepted research findings and field observations of several individuals. This model has been technically reviewed by the representatives of the University of California's Cooperative Extension Service and various avocado and lemon growers. The next step required to refine this tool is to further verify the economic and technical assumptions used in the model by developing and monitoring multiple field research sites around the County.