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ECOLABELING FOR FLORIDA CITRUS

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Abstract. **Like other food labels that inform consumers about product ingredients and nutrition, ecolabels also provide information about production practices and related environmental and social issues. "Certified Organic", the most widely known USDA ecolabel with defined soil and crop management programs, has generated a broad emphasis on sustainable food production systems, healthful food, environmental and social justice issues, often described as the "Greening of the Food Market". A wide range of ecolabels, both in the US and twenty five other countries, has emerged, along with a Global Ecolabeling Network, promoting products based upon environmental impact assessments and often addressing issues dealt with only anecdotally in organic certification. Although multi-faceted ecolabeling programs may confuse consumers, efforts are underway to coordinate certification and marketing strategies. Florida citrus growers already committed to IPM and related sustainable practices but who may not seek organic certification, may qualify for established ecolabels programs, several of which are already active in Florida. Certification standards generally focus on avoiding the use of transgenic, genetically modified crops and livestock and on using other common best management practices including reduced pesticide use, equipment calibration, soil and water conservation, conserving and recycling nutrients, fair working conditions, and wildlife habitat conservation. Ecolabels therefore, offer the broad potential for transforming environmental concerns into a market advantage for Florida citrus and other crops.**

Within the past decade, organic farming and the overarching sustainable agriculture movement have gained greater recognition and acceptance. The recent USDA implementation of national organic standards in October, 2002 has energized farmers seeking new market niches and consumers who are increasingly using their purchasing power to express their concern about how food production and consumption impacts agricultural and rural sustainability, economic, social, and trade policy issues (Caldwell, 1998). In response, farmers, retailers, and certifying agencies have developed a new generation of "ecolabels" that share some organic farming standards while also addressing broader issues, all loosely aligned under the banner of the "Greening of the Food Market." Some ecolabels are self-declared by producers, retailers or marketers. Third-party independent claims like the USDA certified organic or the Food Alliance seal refer to evaluators independent of the producer or marketer who assess the environmental impacts of specific products. As a marketing tool, ecolabeling programs attempt to communicate and promote distinctions among similar products based on the relative impact of a product on the environment. Consequently, ecolabeling advocates claim the marketplace is playing a greater role in ushering sustainable agriculture into mainstream consumerism (Kane et al., 2000). My purpose here is to introduce the concept of ecolabeling, cite several examples, and suggest its market potential for Florida citrus growers.

"USDA Certified Organic" has become the most widely know ecolabel, including clearly defined soil and crop management programs, farm plans, harvesting, packing, processing, and retailing regulations (http://www.ams.usda.gov/nop/indexIE.htm). The most widely publicized and controversial elements of this program are the avoidance of synthetic pesticides and fertilizers, sewage sludge or biosolids, genetically-engineered organisms, and ionizing radiation. USDA approved certifying agencies charge growers a fee for initial and annual certification visits and procedures. The National Organic Standards Board advises the Secretary of Agriculture on the development of a National List of allowed and prohibited inputs and other aspects of program implementation. The Organic Materials Review Institute (http://www.omri.org/) provides a subscription-based catalogue containing recommended or prohibited materials in organic production, processing, and handling.

Although the International Organization for Standardization (http://www.iso.ch/iso/en/ISOOnline.openerpage) has defined rules for ecolabeling and the international Global Ecolabeling Network (http://www.gen.gr.jp/) and the US Green Seal (http://www.greenseal.org/) provide third party certification services, approximately 150 US ecolabels often have conflicting certifying standards and procedures. Recognizing the potential for consumer confusion about different ecolabel programs, the Greener Fields Project (Kane et al., 2000) is attempting to coordinate ecolabeling initiatives, measurable standards, and clear labeling and verification procedures. The Consumers Union has also created a searchable Web site (http://www.ecolabels.org/) about specific ecolabels currently found on food, wood, personal hygiene, and household cleaning products including links to regulatory agencies (The Environmental Protection Agency, The Federal Trade Commission, The Food and Drug Administration and the United States Department of Agriculture) involved in ecolabeling regulation.

Ecolabeling Programs for Florida Citrus

In addition to at least two USDA certified organic farming groups, Oregon Tilth and Quality Certification Services, The Food Alliance (The Food Alliance, 2001) and "Grown and Picked in the USA by Workers Paid a Living Wage" (Nogaj and Nogaj, 2002) are apparently the only citrus ecolabeling programs now active in Florida (Table 1). As with most other similar programs, specific practices are either prohibited or positive points given for reducing or avoiding specific inputs. The Food Alliance citrus production program and evaluation criteria are generally summarized below as an example of an ecolabeling program. Note that labeled pesticides are allowed but higher ratings are given for low toxicity pesticides and biological and cultural control methods. Synthetic fertilizers are also allowed with higher ratings given for low application rates. Compare the above with USDA certified organic farm-

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Table 1. Selected ecolabeling programs.

Program	Mission	Crops
Rainforest Alliance (http://www.rainforest-alliance.org/)	Conserve natural resources by helping industry and small business move toward sustainability by working together toward a common goal	7,082 citrus acres in Costa Rica (http://www.rainforest-alliance.org/programs/cap/program~description4.html) ECO-OK Certified Juice Del Oro, S.A. (arnoldos@racsa.co.cr)
Forest Stewardship Council certifies "Smart Wood" for Home Depot and Loews (http://www.fscoax.org/)	Improve sustainable forestry, conserve bio-diversity, providing equity for local communities, fair treatment to workers, and creating incentives for businesses so that they can benefit economically from responsible forestry practices.	55 million forestry acres worldwide
World Wildlife Fund, the University of Wisconsin and the Wisconsin Potato and Vegetable Growers support "Protected Harvest" (http://www.protectedharvest.org/)	Advance and certify environmentally and economically sustainable agriculture practices: stringent, transparent and quantifiable standards, incentive-based eco-labeling and public education	Protected Harvest markets "Healthy Grown" potatoes produced under a bio-IPM management system that measures and restricts pesticide use. 10,000 acres of Wisconsin potatoes
The Food Alliance, based in Oregon, Washington State and the Midwest, also certifies a southern Florida grapefruit grower (IMG Citrus, Vero Beach) (http://www.thefoodalliance.org/)	Promotes sustainable agriculture practices through market-based incentives; develops promotional strategies, and establishes and maintains third-party verifiable standards for producers and processors	ca. 60 US certified farms
Grown and Picked in the USA by Workers Paid a Living Wage" based in Immokalee, Florida (http://www.nutrition.tufts.edu/pdf/conted/ecolabels/nogaj.pdf)	Increase the value of farm products through a cause-related label that incorporates key sustainability issues, including safely grown, local origin, and social justice	Valencia oranges—26 acres Blueberries—12 acres Peaches and Plums—2 acres Row Crops
National Organic Program (NOP) (http://www.ams.usda.gov/nop/indexIE.htm)	The NOP, a marketing program housed within the USDA Agricultural Marketing Service, develops national organic standards, establishes an organic certification program, and reviews state, private and foreign organic certification programs	All crops
Quality Certification Services (http://www.qcsinfo.org/)	USDA ISO Guide 65 and USDA National Organic Program accredited. Certifies farming, livestock, processing, packing, and handling operations.	Certifies ca. 90 farms and other operations in Florida
Oregon Tilth, based in Oregon (http://www.tilth.org/)	USDA ISO Guide 65 and USDA National Organic Program accredited	Certifies ca. 6 farms in Florida

ing standards which generally prohibit synthetic pesticides and fertilizers. Since many of these management practices and strategies are already commonly recommended and used in Florida, inspection and certification by an ecolabeling program like The Food Alliance may not drastically alter current production programs. Furthermore, growers could be certified much sooner than the three-year transition program required for USDA organic certification.

In general, labeled but low toxicity pesticides can be applied, based on scouting, pest identification, symptom diagnosis, threshold levels, grove history, and intended market (fresh or processed) but higher ratings are given for avoidance of synthetic pesticides. Pesticides should also be rotated to prevent the development of resistance and selected to minimize impact on biological control organisms. Only alternate rows should be hedged and topped to sustain high populations of beneficial organisms in the unpruned branches and foliage. Cultural, mechanical, and biological controls are also recommended.

Crop Nutrition. Fertilizer rates and nutrient sprays should be based on annual leaf and soil analysis as well as deficiency symptoms, with the lowest possible rates timed to optimize effectiveness and minimize nutrient leaching and runoff. Soil organic matter should be sampled at planting and maintained at optimum levels to reduce fertilizer rates. Soil and water pH should also be monitored and adjusted as needed.

Weed Management. Adjacent grove areas should be managed to reduce pest immigration and fertilizer/pesticide movement off-site and planted with hedgerows or windbreaks to encourage population buildup of beneficial organisms. Ground covers or mulch can be used between tree rows to minimize soil erosion, improve water infiltration, suppress weeds, encourage beneficials, and moderate temperatures. Ground cover within tree rows should be selected to maintain soil microbial activity, organic matter levels, and nutrient cycling. Bare soil within the tree row can be maintained by cultivation during the growing season and alternate strip mowing should be used to maintain refuge for beneficials. Scouting for early weed treatment, developing weed maps to guide herbicide selection, spot rather than block treatments, and monitoring for invasive weeds are also emphasized.

Pest Management. Labeled pesticides can be applied to control fire ants only when appropriate seasonal and locational sampling indicates threshold levels for ants and associated pests like aphids, mealybugs, and scales. Tree skirts should be pruned to avoid ground contact with ant colonies and sticky barriers applied to tree trunks to restrict ants. Citrus leafminers should be controlled only on young trees less than 4 years old and seasonal hedging, fertilization, and irrigation scheduled, given favorable temperatures, to stimulate flushes before leaf miner populations peak. Hedging to maintain space between trees can also reduce movement of mealybugs. Miticides should be applied only when sampling indicates effective populations of biological control organisms are too low to control pest mites. Furthermore pesticides used to control other pests should be selected to minimize impact on mite predators. Water stress and buildup of dust on foliage should also be avoided. Root weevil control strategies

include sanitation, optimal nutritional and irrigation programs and management of adjacent grove areas to reduce weevil hosts. Degree-days, and crawler monitoring can establish the need for scale control.

Disease Management. Tree skirts can be pruned to 24 inches or higher above ground level to reduce brown rot of low-hanging fruit. Application of fungicides to control scab should depend on the intended market, as for fresh 'Temples' and 'Murcotts', with no control generally necessary for processed fruit. When possible, sites with a past history of foot and root rot should be avoided, irrigation and drainage improved and resistant cultivars used. Melanose fungicide programs should be restricted to fresh fruit cultivars and spray applications reduced when fruit becomes resistant. Sampling for infected blossoms, especially in groves with a history of post-bloom fruit drop (PFD) and utilizing a weather forecasting model to schedule fungicide applications can reduce incidence of PFD.

Implications for Florida Growers

Surveys conducted in the late 1990s of groups with an expressed interest in ecolabels indicated approximately 60% of respondents ranked fresh fruit and vegetables as foods most in need of ecolabels, with only 10% ranking juice products as most in need (Hartman Group, 1997), suggesting a greater market potential for fresh than processed citrus. Conventional growers who are already committed to sustainable practices and who are already managing a range of production, harvesting, packing, processing, labor and environmental regulations but who do not seek organic certification might also market crops under ecolabeling programs that are less restrictive than organic programs. Since the fresh fruit export market frequently requires detailed documentation of production and related practices, growers may have an opportunity with ecolabeling programs to develop a more distinctive marketing label and to establish a more preferred status, especially with European and Japanese buyers.

Innovative partnering between the University of Wisconsin, the USDA, the World Wildlife Fund, and Wisconsin fruit and vegetable growers associations could also be duplicated in Florida, creating novel funding, research, and marketing opportunities for Florida citrus and other horticultural crops. However, those in the ecolabeling movement stress that in the near future, synergy rather than competition among the various ecolabeling programs is needed, especially in terms of clear labeling, measurable standards, verification, and public education (Kane et al., 2000).

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