

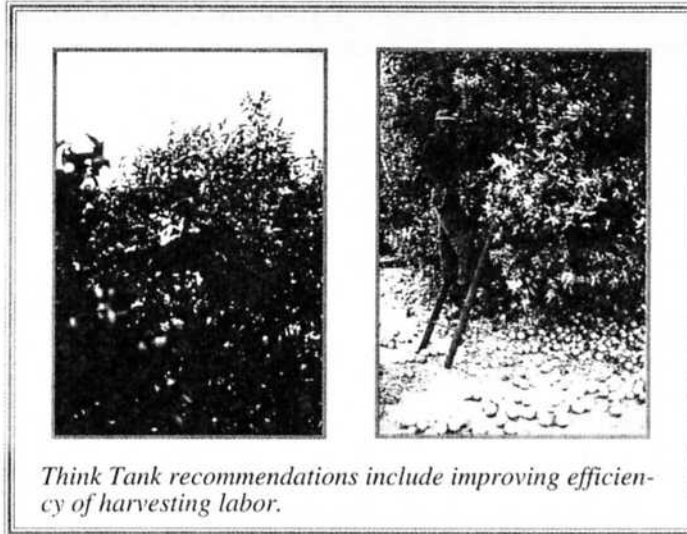
Think Tank searches for harvesting solutions

By Nancy Hardy

The Florida citrus industry is looking in two directions to assure that the grower can continue to make a profit. One is toward selling more product at more stable prices; the other is cutting costs — or at least, controlling costs.

The search to sustain grower profits comes in light of larger crops looming, accelerating labor costs, NAFTA assuring more competition from Mexico, where laborers make in a week what they make in Florida in a day, and the threat of Cuba ever present, because U.S. interests believe that restoration of trade with Cuba will happen when Castro's reign ends.

The Citrus Harvesting Research Council was formed to come up with ideas allowing growers to harvest



Think Tank recommendations include improving efficiency of harvesting labor.

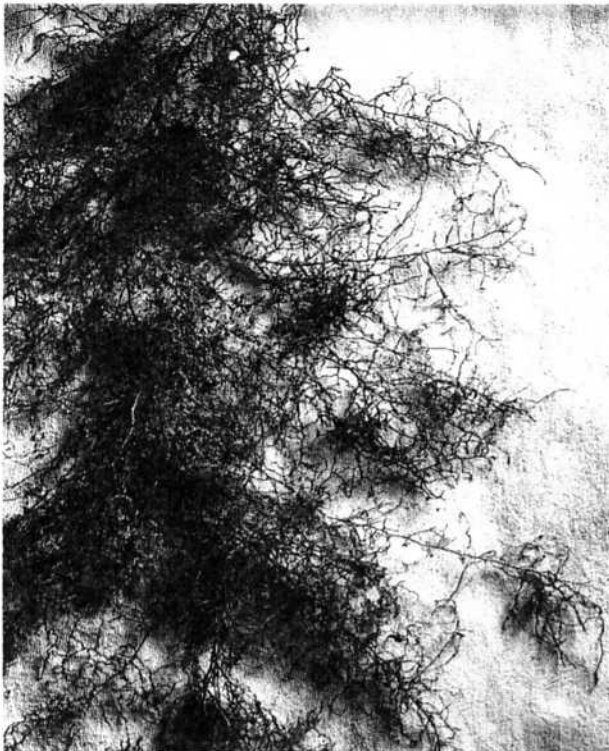
their crops in the most cost-efficient manner. This spring, the council staged a "Citrus Harvesting Think Tank," which examined and discussed a wide range of harvesting-

related issues and objectives, and identified several areas to make harvesting and roadsiding operations more efficient and cost effective.

Dr. John Attaway, director of scientific research for the Florida Department of Citrus, in reporting to the council and subsequently to the Florida Citrus Commission on the Think Tank, cited the following areas of interest:

- The development of technologically sound concepts for mechanical removal of fruit.
- Expanding the use of harvester aids.
 - Improving ladders, picksacks and other equipment used by citrus harvesters.
 - Using harvesting labor more

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effectively.

- Designing and modifying groves to facilitate harvesting by both conventional and mechanical means.

- And the development of chemical and other means to loosen fruit and make it easier to get off the tree.

Attaway outlined the following recommendations made by the Think Tank Core Team:

1) The Florida Department of Citrus should immediately hire a Harvesting Program Director, and budget funds from the Citrus Advertising Trust Fund to establish a Citrus Harvesting Research and Development Program.

2) Establish an Equipment/Idea Database at the Citrus Research and Education Center in Lake Alfred. This database would include publications, copies of patents, photographs, drawings, and videos of equipment in operation, ideas, concepts and other subjects related to the harvesting of citrus fruit.

3) Develop incentives to encourage companies and individual investors to direct their efforts toward development of new and improved harvesting aids, mechanical removal devices, and technologies for loosening fruit.

4) Pursue the more efficient use of

harvesting labor, and upgrade the position of citrus harvester by making the job easier, more productive and rewarding.

5) Modify existing groves by appropriate hedging, topping and adjustment of skirt height, and design future groves for more effective harvest by conventional and mechanical means.



Dr. John Attaway reported recommendations made by the Harvesting Think Tank Core Team.

6) Resume testing of fruit loosening chemicals, with emphasis on materials already registered on food crops, to minimize registration and regulatory problems.

7) Enlist help from outside the cit-

rus industry, including technical personnel from other commodity groups, and from the aerospace industry.

8) Investigate long-range research options, including new technologies developed both within and outside the citrus industry — for example, genetic manipulation and robotics.

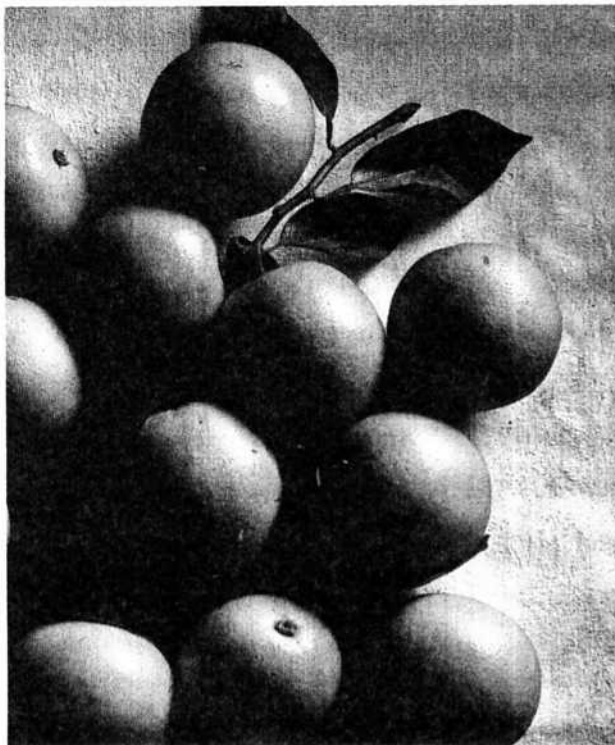
Tracing the history of the current effort to develop better and more cost-efficient harvesting methods, Attaway noted that the Florida citrus industry is now competing in a global market with areas such as Brazil and Mexico that have lower costs.

He stresses, "We can no longer assume supremacy, even in our own domestic market."

To remain competitive, Attaway emphasizes, Florida must make very effort to lower its overall costs. The cost of harvesting and roadside operations is an obvious place to start because they now exceed the cost of production in many areas. It was for this reason that the Florida Citrus Commission created the Advisory Council at the beginning of the 1993 fiscal year.

Attaway said that at the conclusion of the symposium, participants were asked to indicate the relative importance of harvesting among all industry problems, and to suggest how best

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to reduce harvesting costs.

"The group rated harvesting as very important to most important," he said, "and suggested that the best approaches were in the areas of mechanical harvesting, worker training and abscission chemicals."

A reduction in harvesting costs of 10 to 15 percent was generally seen as a significant goal.

The first step was the Think Tank. Before and after it, a Core Team met with representatives of Synectics, Inc., of Cambridge, Mass., the firm chosen to supply facilitators for the Think Tank. This Core Team was made up of Rex McPherson II, member of the FCC; Cesar Martinez, chairman of the Citrus Harvesting Research Advisory Council; Ed Smoak, Smoak Groves, Lake Placid; John Kennedy, Golden Gem Growers, Inc., Umatilla; Jack Norris, Turner Foods, Avon Park; researcher Glenn Coppock; Dan Santangelo, executive director, FDOC; and Attaway.

The immediate recommendations from the Think Tank were headed by the creation of a key staff position — hiring a Harvesting Program director who would direct "with urgency" the development of citrus harvesting technologies.

The Core Team felt this director should have project management experience, be aggressive and action-oriented, either have a mechanical and engineering background, or have the ability and experience to work with engineers and scientists, and a background in private business, with five to 10 years experience, considered essential.

This director would report to the DOC's scientific research director and act as staff liaison to the Council, which will continue to report to the FCC's Scientific Research Committee. The director would be in charge of implementing projects — short-term, medium-term and long-term.

Note: Such a position has to be approved by the FCC, but Santangelo does have "room" on his staff — the DOC is down by about 10 or 11 positions at the moment — without seeking legislative approval.

The Core Team feels harvesting research and development must assume a higher priority within the citrus industry. The Harvesting Program director would be responsible for working with growers, harvesters and equipment manufacturers, to specify performance criteria and to organize and carry out research and development projects. These projects would then be presented to the FDOC executive director and the commis-

sion for dissemination to the industry, equipment manufacturers and other interested parties.

Key benefits of the research and development program, Attaway said, would include:

- Centralized development.
- Potential for increased industry productivity, profitability and cost-competitiveness in the global market.
- A clearer focus on the needs of the citrus industry.
- A signal to the marketplace that harvesting technology is a priority.
- Long-term insurance policy for the industry.
- Financial stability.
- Pilot programs conducive to manufacturers.
- And a common perspective for comprehensive evaluation.

Regarding the structure of the research and development program, the Core Team recommends, Attaway said, that the FCC provide leadership and direction, while private industry involvement will come through a system of grants or contracts, or by voluntary cooperation.

Other Core Team recommendations include: a balance between short, medium and long-term projects; that the program director work with the council; a clear consensus on priorities before investments are made; the program must be goal-oriented and use strategic alliances with existing organizations, to optimize resources and results; program must not be attached to a university, but must use their expertise, must concentrate on development, using applied research, and rely on the research community for basic knowledge; and that the work of other commodity groups be used to generate ideas.

Concerning revenue for these activities, the Core Team suggested that, while the Council would look to the industry for guidance, funding should be considered from several sources: reprioritization of existing DOC funds, federal grants, revenues generated by alliances and patents, and private donations. At this time, it is expected that funds will come from the Citrus Advertising Trust Fund, by reprioritizing existing DOC programs.

The Core Team wants to develop a system of incentives to encourage inventors to direct their efforts toward the development of new and improved harvester aids and mechanical removal devices. Among the ideas offered was the sponsorship of a three-party machinery development program, involving the inventor or manufacturer, an interested grower or harvesting contractor, and the DOC. The parties would have to agree on

the concept and funding to carry the program to completion.

Then, if the program was successful, the grower/contractor would be the benefactor of having a satisfactory harvesting system, the manufacturer would have development equipment to sell to other grower/contractors, and the DOC would have taken a step toward solving the industry's harvesting problem.

Of course, if the concept was not successful, each of the three parties would have to take his respective losses.

Individual programs could be worked out between the three parties with the help of outside experts, such as engineers and lawyers. All programs would be subject to approval by the Citrus Commission. Details regarding payment schedule and patent rights would be defined in a contract between the partners.

Another approach would be to implement an industry-designed and financed harvesting system development procedure, and contract with a company specializing in job shop work to develop a prototype model.

Yet another suggestion was to advertise for new harvesting system designs in Machine Design, a trade magazine devoted to applying new technology to design engineering. For example, the ad could offer monetary prizes to the 10 best designs — perhaps \$10,000 to the one judged to be the most promising, and \$5,000 to each of nine runners-up. (This was viewed by the Core Team as more equitable, and likely to achieve results than a winner-take-all arrangement, where one designer gets all the money and the runners-up, none.)

The first prize might be made still more attractive, Attaway explained, by offering to pay the costs of patenting the machine, with the industry participating in the patent royalties to an appropriate level.

Another recommendation of the Core Team is the establishment of a database library, to be staffed by the DOC at the Lake Alfred CREC. The library would function as a clearinghouse for ideas and concepts relating to mechanical harvesting devices, harvester aid devices, and harvester equipment such as clothes, bags, ladders, etc. This library would serve as an interface between those wishing to inform the industry of current or proposed innovations in citrus fruit harvesting, and those wishing to utilize these innovations.

The database library would come under the auspices of the FCC, and utilization would be promoted by DOC newsletters, Florida Citrus

Mutual's "Triangle," various industry organization notices, and citrus and engineering industry magazines.

Under the direction of the Harvesting Program Director, the DOC staff would assemble the library from existing information, by cataloging and filing current in-house information. The staff would also encourage, through publications and notices, the accumulation of additional information, directly from manufacturers, producers, and owners of mechanical harvesters, harvester aids, and harvester equipment. This additional information would be in the form of written papers, brochures, videotapes, etc., to include in the library. Potential users of these services would be encouraged to visit the library to view current and proposed innovations in harvesting.

EDITOR'S NOTE: Because this is a lengthy report, we are going to bring you the second half in the July issue of the magazine. There is also a possibility that the Council or the Commission, after reviewing the report, will make some changes or amendments, and that information will be included in the July article. ■

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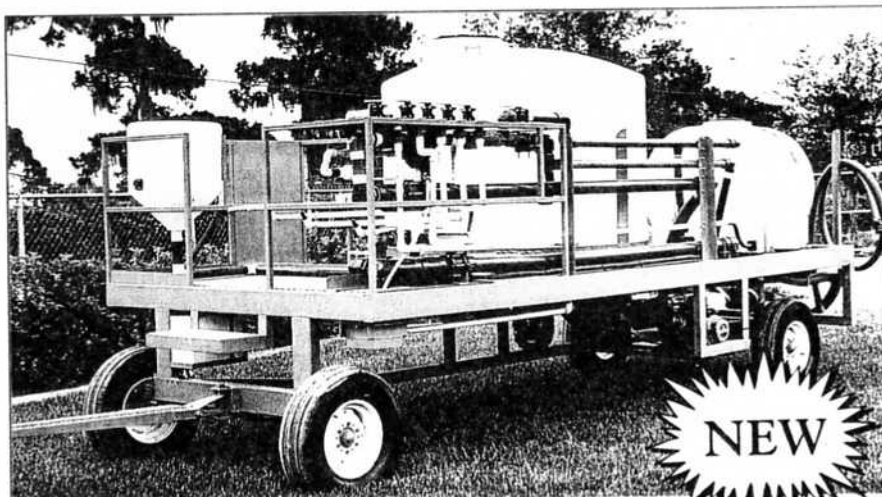


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