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# A SYSTEMATIC APPROACH TO YOUNG CITRUS TREE CARE PROBLEMS IN FLORIDA

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## ABSTRACT

Over 10 million young citrus trees have been planted each year for the past several years in Florida, largely as a result of disease and several serious freezes. These young trees require intensive management and labor inputs for survival, resulting in a plea from growers for assistance in dealing with the many problems associated with young tree care. Grower problems have been delineated by using an extension survey document. The information generated from this survey has then been used in determining research priorities. Areas currently under investigation include (among others) cold protection, weed and sprout control, irrigation, and fertilization. Technology transfer of the research is accomplished through local grower meetings and research demonstrations. The result of this program has been to successfully weld the research-extension components and provide sound production information to Florida citrus producers.

## RESUMEN

Se ha sembrado mas de 10 millones de arboles jovenes de cítrico en los últimos años en la Florida, mayormente como resultado de enfermedad y varias heladas serias. Estos arboles jovenes requieren manejo y labor intensivo para sobrevivir, resultando en una petición de los cultivadores para asistencia en tratar con los muchos problemas asociados con el cuidado de arboles jovenes. Estos problemas han sido delineados por un documento de encuesta. Se ha usado la información generada por esta encuesta en determinar las prioridades de investigación. Las areas bajo investigación activa incluyen protección del frío, control de malezas y brotes, riego, abonamiento, y otras. La transferencia de la tecnología de investigación se logra a través de reuniones de cultivadores y demostraciones. El resultado de este programa ha sido unir exitosamente los componentes de investigación y extensión y proveer información práctica para productores de cítricos en Florida.

Young citrus tree planting in Florida is taking place at an unprecedented rate. Several freezes in recent years, problems with citrus blight and most recently, citrus canker, have resulted in widespread planting activity. Prior to the canker outbreak, 10 million young citrus trees were being planted per year according to the Florida Department of Agriculture, Budwood Registration Bureau.

Not only have many hundreds of acres of new groves been planted in the southern (warmer) portions of the state, but many groves are being replanted elsewhere in Florida. Even groves largely undamaged by cold have been losing a larger than normal number of trees due to other adversities.

Therefore, planting and care of young citrus trees has become a major portion of most Florida growers' production programs. Once relegated as a miscellaneous task, young tree care has become a very important, expensive and time-consuming job for most citrus producers. This increase in importance has caused growers to seek information on all aspects of young tree care.

Considerable knowledge exists in most areas of production technology for bearing citrus trees, but little was known about the most efficient procedures for growing nonbearing trees. Some work had been done on nutrition (2), weed control (5) and other aspects of young tree care, but there had not been an organized effort to programmatically deal with the various aspects of the problem.

### Identifying Major Problems

Extension faculty in the Fruit Crops Department meet quarterly with Extension Agents working with citrus in Florida. These are meetings designed to provide opportunities for groups to work closely with each other on major goals. Agents received so many requests for information on young tree care in 1983 that it was decided to make this area a major program for the next several years.

A new section was written for the 1984 Extension Plan of Work on citrus young tree care and the program submitted to the Federal Extension service for consideration as a major program. These steps insured that the program would be properly evaluated on a regular basis to determine its efficacy.

The first step in developing such a major program is establishing benchmark data. A survey document was prepared which was used to determine the current status of young tree care in Florida, indicate research and extension needs and provide benchmark data against which the program could be judged to determine its success.

Space limitations will not permit full details of the survey document but in summary the form requests information about the following:

- (a) What are the major problems in young tree care and how serious are they?
- (b) What are the major causes of tree loss?
- (c) What are the costs of young tree care?
- (d) How widely used are some of the newer and more innovative young tree care practices?
- (e) In what areas of young tree care would additional information be helpful?

Answers to these questions help establish research priorities and provide benchmark data which can later be used to determine the cost-effectiveness and impact of the extension/research program.

### Research and Extension Program

Results from the survey of citrus growers were used to identify and prioritize research efforts. More information was needed on weed control, soil moisture conservation, use of slow-release fertilizers and cold protection. As a result, research work was initiated on the use of mulches and slow-release fertilizers (4), tree wraps (3) and microsprinklers plus wraps for cold protection (1). Results from this research have been presented at meetings of the Florida State Horticult-

tural Society and published in the Proceedings. Several magazine articles have been prepared to further enhance distribution of research results.

The Extension phase of the program involves providing detailed research information to Extension Agents so they can further disseminate the results by way of newsletters and through word of mouth. Once each year, usually in October and November, there is a concerted effort by all Extension Agents and specialists to saturate the industry with young tree care information. This is done through magazine articles, newsletters, radio and television programs. This intensive extension educational approach produces an impact far greater than by scattering the same resources over a longer period of time.

As the research generates information, demonstration plots are set up with growers in various locations in the state. Adoption of new practices by growers is often best accomplished by the classical Extension demonstration methods. Cooperators are selected by local Extension Agents to assist in demonstrating new technology. These people are usually recognized leaders within the industry, so their adoption of new practices almost ensures that others will follow their example. A field day or other type of grower meeting is scheduled about the time data is collected from the demonstration to further spread the information. Growers can then see for themselves and form opinions based upon observation and not have to depend on reading about other people's experience with the practice.

#### **Evaluation**

No program should be judged without sound evaluation. This is difficult to do in most Extension endeavors but not if one plans ahead. Evaluation of our program can be made by seeing how far growers have come since the earlier benchmark survey was made. A re-survey using the same or similar survey document will test the effectiveness of the extension program by determining level of acceptance by growers, checking if costs are reduced and testing if problems have been solved.

Accurate evaluations cannot be made unless good benchmark data were established before the program commenced. This pre-program evaluation will return many benefits to program coordinators when held accountable for results.

#### **Summary and Conclusions**

Extensive planting of millions of young citrus trees in Florida for the past several years has created problems for growers which are seen as opportunities for a comprehensive research/extension program. Pre-program surveys establish benchmark data for later program evaluation and provide direct grower input into determining critical research priorities.

Research results are disseminated through publications, grower meetings and other classical Extension methods. Field demonstrations and field days for growers are an important part of the adoption process. A subsequent evaluation is used to evaluate efficacy of the total program.

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