

We conclude that ethylene acts as an abscission promoter, and the unknown factors causing regreening of the rind are antagonistic to ethylene.

In aged fully colored fruit or in frost injured fruit, we apparently have only minute amounts of the abscission inhibitors. Ethylene can negate the abscission retarding effect of naturally occurring substances in immature fruit or in regreened fruit, but the more of these substances we have, the more of the ethylene-producing abscission chemicals we have to use.

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## EXTENSION LOOKS TO THE FUTURE

FRED P. LAWRENCE

*Citriculturist,  
Department of Fruit Crops  
University of Florida  
Gainesville*

In order for us to look to the future with understanding, perhaps we should review some important dates in agricultural history. Although 1862 was a year of national crisis, the Congress passed three laws which had a profound impact upon the economic and social development of our nation.

On May 15th, President Lincoln signed the Act establishing the United States Department of Agriculture.

On May 20th, he signed the Homestead Act, which opened vast land areas to agricultural settlement—and development.

On July 2nd, the President signed the first Morrill Act. This law granted public lands to the States for the founding of at least one college or university for the teaching of agriculture and mechanical arts, but not to exclude other subjects. The Morrill Act was a victory for those who believed that publicly supported institutions of higher learning should be available for all who wished to learn—whatever their heredity, occupation, or economic status. (Such universities are known as Land-Grant Schools).

Shortly after the establishment of these Land-Grant schools, the acute need for additional knowledge became evident.

In 1887 the Hatch Act was passed. This Act provided Federal grants to states to support State Agricultural Experiment Stations.

It took the educators and research workers only a few more years to realize they had an awful lot of good information lying around unused, and that some way of getting this information translated into farm use was badly needed. So in 1914, Congress passed the Smith-Lever Act, establishing the Federal-State Cooperative Agricultural Extension Service—a system of adult education that has become a world model.

The University of Florida is the Land-Grant institution in our state and although it has all three divisions, Teaching, Research and Extension, our purpose today is to update the Extension Service for you.

The basic function of Extension is two-fold. First is the accumulating, interpreting, and extending of useful information to the people. The second is the taking of agricultural and related problems to the appropriate research faculty or individual to be solved.

Under the most capable administrative direction of Provost, E. T. York, Jr., the three separate divisions of agriculture at the University of Florida were consolidated into the Institute

of Food and Agricultural Sciences, commonly referred to as IFAS. Prior to 1965 the three divisions of our Land-Grant University formulated separate budgets, fought them through the University, the Board of Control, the Budget Director, and finally the Legislature. This procedure did not always stimulate harmony among the three divisions. Thus, the institute came into being as a distinct administrative unit through action by the 1965 Legislature. The Teaching, Research, and Extension programs are now completely coordinated. The departments at the University now include Teaching, Research and Extension people, with the department chairman having responsibilities for leadership in all three. All three divisions operate under a common budget and each man in a department may be assigned responsibilities in joint fields or can operate separately. This allows greater flexibility to serve the agricultural needs of our state.

We are living in an era of specialization and this trend will continue. Changes are taking place so rapidly it is difficult—almost impossible—to measure them. For example, we are told that 90% of all the scientists who ever lived are alive today.

"Time" magazine recently published an article which indicated that some professions now have half-life. By this they mean that 1/2 of what people know today in certain professions will be obsolete in 4 years (or by 1973), and only 1/2 of what we need to know today is available at this time.

We cannot rely on the past—one cannot use yesterday's methods and techniques to solve today's problems and be in business tomorrow. Many examples of this have already been pointed out in this meeting. For instance, let me refer to Dr. Phillip's talk on citrus tree density. Only five years ago hardly anyone thought of planting more than 70 trees per acre. Since 1962 there have been more and more trees planted per acre. It is not unrealistic to predict that soon the citrus grower may follow the American apple growers—that is reducing tree size and trellising his trees.

Yes, we are indeed living in an age of change and part of Extension's duty is to help you realize this and to utilize *all* the new research available to prepare for these changes. You face intensive competition from citrus produced in other states of the nation, and in other parts of the world. You face competition from synthetics,

and from other crops which can be substituted for citrus. Labor is also becoming more scarce and less skilled.

The implications of this for Extension, its personnel and its programs, are immediately evident. The Extension Service is responsible for the practical application of new knowledge, new facts, to the problems we face in agriculture, and in your case, the citrus industry. We in the Extension Service are a part of the broad field of education. Ours is the off-campus educational job of the University of Florida in agricultural and related fields. It is up to us to get information to you in such a form and in such a manner that it will help you to solve your own particular problems in the citrus industry. It is a part of our job to help Florida agriculture and agribusiness to continue its growth that is so vital to the future of the state's economy. It is our job to help you to compete successfully, and in doing this we must be able to help you to become more efficient in both your production and marketing operations. To do this, we must be tuned in to the most important problems which you face and which you recognize.

At this point one could logically ask, "What is Extension Service doing to make sure that its programs are up to date and won't fall behind—that it, too, does not use yesterday's techniques to try to help you solve tomorrow's problems."

To answer this question, I would like to first comment on the changes we have made within recent months, and the changes now in the mill, on the organization of IFAS and, of course, Extension Service. Recently, steps have been taken to coordinate the work of the department with that of the branch stations and field laboratories. Plans are now under way to establish at certain of these stations, research and education centers. It is envisioned that Extension specialists, as appropriate, will be found at these centers and that the centers will also be used by the teaching staff in offering courses to county agents and others within the area served by the station. In case of the citrus station steps in this direction have already been taken. For the past several years an official class (with residence credit) has been taught at Lake Alfred. In addition, the Extension Service assigned Dr. David Tucker, Area Extension Citrus Specialist, to the Citrus Station some three years ago. More recently Mr. Anderson and Dr. Wardowski have

been placed there for Extension duties in citrus record work and fresh fruit handling. These specialists at the branch stations or research centers will be tied to the Department of Fruit Crops at Gainesville as well as the branch station. It is also planned that the work of the research scientist at the branch stations would be even more closely coordinated with our Extension people throughout the state, to the end that each would strengthen the other in whatever activity undertaken.

In the early days of Extension the county agent had to be a generalist—he had to know a little about all agriculture from frog farming to daffodil culture. This may have been what was needed in the beginning, but not so anymore. Agriculture has become more specialized and so have county agents—contrary to the TV program “Green Acres” the County Extension worker is not “a country bumpkin.” Far from it! With but few exceptions, he is a highly trained specialist operating in a specialized field of agriculture. We have progressed rapidly towards the objective of having our Extension agents specialize in a single commodity or closely related commodities. In citrus, for example, there are 17 county citrus specialists, 4 cross-line specialists (agents working two adjacent counties), 1 multi-county, 3 area specialists, and two state specialists. Most of these men now have Masters Degree and some have a Ph.D. Degree. We no longer employ an agent who has not passed the Graduate Record Examination and been entered into the Graduate School at the University of Florida.

The mere fact that an agent (or specialist) has a Master's or Doctor's Degree does not insure that he is constantly up-to-date in the subject matter he is responsible for. To insure that he is up-to-date, we carry on a constant program of in-service training. For example, just recently we completed a week-long course for the Citrus Agents in the highly technical area of growth regulators. We studied the basic as well as the applied aspects of this very rapidly developing field. Topics such as the basic physiological mechanism affected by growth regulators, the

basic physiology of abscission and chemical growth retardants were covered.

Now finally, what is Extension doing under these new organizational arrangements and with these better trained people in both county and area work? First of all, we make certain that we are working on the most important problems affecting you in the citrus industry. The best way to find out what these problems are is by working with you through organized committees. Individually, each of you would have a slightly different concept of what was the most important problem that needed to be worked on. Consequently, we strive for an active Citrus Extension Advisory Committee in every major citrus county. This committee is made up of progressive growers, production managers and leaders who know their needs and can help us define their problems.

In the past, the Extension program consisted of 4 state-wide institutes, county schools, individual problem solving and demonstrations. However, due to tremendous expansion in recent years, the Extension Service has begun to move from its old concept to alternative methods that seem more appropriate for the immediate and foreseeable future. We propose to set forth a suggested total production program which will maximize returns to all citrus growers utilizing the program. Each facet of the program is documented by research or recognized grower practices and has been shown to increase net returns by either reducing costs, increasing yields, or both. This program will be known as “*The IFAS Program for Economical Citrus Production*,” and is being developed jointly by Research and Extension. The format includes initial development by State Extension Specialists in cooperation with the appropriate research personnel. The recommendation and substantiating evidence is then reviewed in meetings with county workers and the unified program thereby developed. It is a program upon which both research and Extension units of IFAS can agree with enthusiasm, and we are looking forward to bringing it to you.