No significant differences were found in total yield of tomatoes or in the number of fruits harvested. In order to determine whether or not method of nitrogen application had any effect on date of maturity, the harvest was divided into early and late periods. No significant differences in date of maturity were found between the treatments.

Application of urea sprays and sodium nitrate side-dressing were started on May 7, 1951. On May 16 analysis showed that the nitrate nitrogen level of the plants was more or less proportional to the quantity of nitrogen applied at planting time. On June 7 further analysis showed that the nitrate nitrogen level of plants receiving urea sprays dropped considerably more than plants receiving sodium nitrate side-dressings.

Determinations of the average total nitrogen content of tomato plants were made twice after starting applications of supplemental nitrogen. The average total nitrogen content of urea sprayed plants dropped from 4.72 percent on May 22 to 3.88 on June 11, while plants receiving sodium nitrate side-dressings dropped from 4.75 per cent to 4.20 per cent.

**GROWER PRACTICE INFLUENCED BY RESEARCH?**

Forrest E. Myers  
Agricultural Extension Service  
University of Florida  
Gainesville

In respect to a learned audience, this is not an attempt to solve the problems of the vegetable industry in fifteen minutes, but to bring together a series of observations which, in the writer's opinion only, seem to have a bearing today on getting the results of vegetable research into practice. It is hoped that you will add your own interpretation to the title question, especially if there is a possibility of a narrow margin between production costs and returns.

Is grower practice influenced by research? We won't analyze it statistically on-the-spot, but many of this group would probably answer 'obviously yes,' some might say 'at times doubt it,' others 'it should be,' and still others just plain 'don't know.' Let's go a few steps further.

It may be time to pause and evaluate some very basic tendencies. Here are some everyday observations you may be subjected to depending on the topic at hand and just who's doing the talking:

"Research is too slow. Too much checking this, testing that, if, and, or but. We want results this season. Now!" Ever hear that one? Many vegetable growers today know better, and have a keen appreciation for sound research.

"But, Doc, you said it looked good last time and to go to it. What happened?" All of which is just slang for expressing a known fact that a quick way to get boomeranged is to move out on the basis of inconsistent results, single tests, skewed data and over-enthusiasm. Cite your own examples, I'm too young.

"Growers should step lightly on that one. Wish them luck, but looks like someone picked up the ball and ran with it." And that one has been uttered by many a research worker, or could have been.

"Looks like the research is there and points in only one direction. Why haven't the changes been made in practice?" Now, that one hits home.

Then there are times when both research and grower feel that the other, and all between, goes just right. For the moment I am at a loss for words to express this not necessarily rare, but delicately balanced, situation.

During all these situations industry and Extension are attempting to keep an eye on both research and growers so their actions can be in the right direction. Growers and research, of course, at the same time, watch the progress, and slips, of Extension and industry.

One further observation. It must be a healthy situation. Witness the multi-million dollar value of Florida vegetables, one of the finest of vegetable research programs, and an especially cooperative and alert industry group. As for the Florida Agricultural Extension Service, might as well serve notice that there's a move afoot in certain quarters to develop a vegetable program not right along with the best but, at least, a few steps ahead of other states claiming same.

Having paused, evaluated, observed, and
downright philosophized, I can’t stop without passing on some suggestions on state- or area-wide practices which can and should be influenced by the research available. Some of the most pertinent possibilities, again in my opinion, follow:

1. We’re all familiar with the trend in several areas to farm on a one-year-and-move basis. Certainly it is justified in a great many cases, however, there may come a time when these same interests want to place their efforts toward a more intensive type of production. Growers and research are taking a farsighted view in some of these areas where second year farming is prohibitive and attempting to explore the best rotations allowing systematic production of vegetables at intervals. In others, let’s not overlook the basic points on reuse of land such as ways of replacing and maintaining organic matter, destruction of weed and old-crop hosts for diseases and insects, insuring adequate drainage where possible, and considering a succession of crops.

2. Early soil preparation seems to be worth becoming a part of many management programs. Many look at it as of value for the incorporation of organic matter, and a possible means of reducing certain insect pests. It may play another very important role, that of the reduction in incidence of certain seedling diseases. If the chance is there, it’s worth considering.

3. Proper pH has obviously been taken for granted in certain instances. However, it’s even more obvious that this principle will continue to come into the picture, and for reasons well established and known. It has been established that quite an acreage of soils needed pH adjustment mainly for the proper functioning of organisms in converting ammonia over to nitrates. Maybe not for this specific reason, but it would seem that many areas have their own particular pH problems. We can’t over-emphasize the importance of taking all known steps to soundly establish the lime needs before going into a wide-scale program of application. Over-liming is just short of catastrophe.

4. And if you want to dwell on the importance of not over-looking some of the old-timers in production, consider some of the source studies in fertilizers. It’s fairly well indicated that under current conditions there may be some wise preferences in sources, for example, decreased ammoniacal in favor of some nitrate nitrogen on potatoes, reduced amounts of chlorides particularly on cucumbers, using sulfate of potash on tomatoes, or using muriate of potash on cabbage. It’s interesting to note that certain changes may influence yields, while others may improve carrying quality.

5. The advantages of proper fertilizer placement are rapidly making the equipment for same standard. However, it’s not improbable that a close inspection might reveal placement equipment under the shed while the same old application methods are followed in the fields. In short, it looks like band placement shows a generally more efficient use of the materials applied and is even indicated that it may offer a solution to many of the seedling ‘diseases’ found initially to be fertilizer burn.

6. Rates and amounts of fertilizers used warrant definite consideration. In some established areas the trend has been in the direction of over-fertilization. It would not be out of order, however, to say that some of the general farming areas have a try now and then without enough fertilizer. It may be a good idea for many growers to throw away the key to the fertilizer shed, or at least have someone hide it, before going to the field. Witness the preliminary answers to blackheart of celery. And how about putting in a little of every minor element in the book, just because it does a lot for the conscience? Might pay to look at the research on the established deficiencies.

7. Standard varieties occupy their particular places through performing satisfactorily through not just one season, but through the accumulation of events over the years. They go out by the same route. Look on a trial basis before going into wide scale usage of a new variety. Could just any sweet corn with resistance to leaf blight move Ioana and other standards out of the picture tomorrow? I grant you the reception would be warm but not revolutionary.

8. Good seed, from a reputable concern, is one of the best purchases the grower can make. But it can’t just stop there. Seed treatment is not yet in as standard practice as the protection can warrant. To begin with it
is well to recognize the reduction of damping-off and seed decay, but with some crops it goes even further. Consider the reduced incidence of anthracnose on watermelons through adoption of seed treatment, or the value of hot water treatment in practical elimination of black rot and black leg of crucifers.

9. There was a trend to do away with cultivation through use of chemical weed killers. A few lawsuits, with teeth, and organized research showed chemicals aren't the whole answer just yet. Instead, growers could just downright get by with less cultivation in a great many cases; the primary purpose remains to control weeds.

10. Then there's this matter of pesticides. Figured it out one time. Currently recommended to control 46 major vegetable insects are a total of 18 dusts, 20 sprays, 3 baits, 2 drenches and 4 soil-insecticide mixes. To control 22 major diseases we recommend 7 dusts, 14 sprays, 8 special seed treatments and 6 dust seed treatments. These materials may be purchased under any number of trade names, and include materials general and specific in action. Sometimes it has seemed popular practice to put a little of each in every tankful plus a few very personal concoctions, providing there were no violent reactions. On the other side of the ledger are areas in which there is a new effort every year to grow vegetables. Annually it's a new crop of vegetables, and personnel. These areas have not yet recognized what it will take in the way of good equipment, materials, application, and personal attention in the proper use of pesticides. Sad have been those attempting sweet corn without worm control!

What I'm getting around to is this; take a recommended material or materials to do the job and spend extra attention toward such steps as proper measuring and mixing, timeliness, thoroughness, and efficiency.

11. Many growers penalize themselves with improper harvesting and handling methods after going 'all-out' making an excellent yield of quality produce. Correcting same is one of the most difficult jobs he faces today with indifferent labor, emphasis on speed or in some cases, yes, lack of speed. However, there seem to be several shifts which may be worked in regardless of many of the difficulties. For example, use of rubberized or padded picking containers, elimination of unnecessary handling, reduction of sun exposure on harvested vegetables, proper precooling of sweet corn, proper filling of containers, and many other specific and general measures.

12. To make it an even dozen, we'll consider a final rather wide statement. Certainly this vegetable business is a fast-moving deal. We're all in position to recognize that. I suggest there's one logical rule we can all give some thought to. Don't throw-over your time-tested practices for something else just because it happens to be new; yet, when the proof is there don't hesitate to make the change. I believe we can learn to look at new methods with a keen appreciation of that newness, proceed on a trial basis, and cull out or accept that which fits into the production and handling picture. And without any ill effects on adapting individual initiative and well-grounded research, too.

Now, how about it? Is grower practice influenced by research? I believe that whatever answer you choose to give, it will be relative in inference. Yes, we all know that the basis for any practice has been established, directly or indirectly, by research. But it's the degree of that influence in which we are all interested, whether grower, research, industry or Extension. Obviously, anything we can do to get applicable results of research incorporated into practice, the greater will be our service to Florida vegetable production and handling. The end results won't come overnight, but while efforts are underway, the road will begin to smooth out.

In closing, I'd like to say that the excellent cooperation of the groups mentioned above, all represented here today, has produced some very gratifying results as our program develops in getting new or better practices to the grower. From those of us in the Extension vegetable program, with the deal extending from Pensacola to Homestead, with around 30 different crops in every conceivable set of variables, research conducted in at least 10 major areas on a minimum of two seasons each, by well over 30 different individuals, we're interested in YOUR ideas on how we can more nearly approach an affirmative answer to our title question—Grower Practice Influenced by Research?