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# ORGANIC GARDENING RESEARCH AND EDUCATION PARK: A MANAGER'S PERSPECTIVE

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*Abstract.* **Managing the Organic Park at the University of Florida has been a multi-faceted operation. Cultural practices and techniques are discussed including: insect, disease, and weed control, as well as use of manures, fertilizers, composts, mulches, and cover crops. Variety evaluations and research projects were done. Record keeping and notebook writing were very important. Equipment was used and cared for. Machine work and materials such as manure had to be procured. Dealing with Master Gardeners, other volunteers, students, and paid labor helping with the project was part of the job. Relating with bosses, and family has been a crucial part of the picture. Public relation duties included news articles, television, tours, and informal talks. Balancing these different factors, working at them, and enjoying them has been essential to running the park for the benefit of all.**

Managing the Organic Park at the University of Florida was one of the great joys and privileges of my life, and lasted from January, 1990, to July, 1994.

*People aspects.* One of the most crucial aspects of management was working with people at various levels. My two supervisors were James M. Stephens and Dr. Steve R. Kostewicz, professors in the Horticultural Sciences Department at U.F. Mr. Stephens is known by many for his years of work as Vegetable Crops Extension specialist for the state of Florida and for helping to start the Florida Master Gardener program. Dr. Kostewicz teaches the Organic Gardening class in the fall as well as classes for commercial production of vegetables. He also does a lot of research.

My background included adult extension classes on organic gardening, book study, apprenticing on an organic farm, and years of working a lawn and landscape business organically. Our different backgrounds and personalities had to converge smoothly for the project to work.

Several other people have been crucial for the success of our project. Dr. Dan Cantliffe, chairman of the Horticultural Sciences Department, was behind the project from the start and continues to support it financially. Dr. Ken Smith, who works part of the time for Dr. Kostewicz, was my right-hand man for building and fixing things, and figuring out what was going on. For other labor we had some part-time or temporary help, some volunteers who worked in exchange for vegetables, and a few students who wanted to gain experience and first-hand training in organic culture. In general, the people that worked in the field seemed to enjoy and appreciate the privilege of learning organic methods by doing them.

It was my observation that more labor is involved in organic than ordinary culture. This has its good side in that people need work to do and organic growing provides plenty of it. The subject of labor cost is an important one but must be reserved for another time.

The family element is always a consideration in such a project, especially if it is of an organic nature. My wife spent hours preparing and cooking vegetables during the course of the project. We had an opportunity to try many new varieties and kinds of vegetables. Even the children were willing to shell the blackeye peas brought home (as long as their allowance reflected their effort). I have spent time on the people element and put it first because I believe it can make or break the organic enterprise even aside from monetary considerations. Now I want to discuss some of the cultural practices that are important also.

*Pest control.* I like to think of insect and disease control as beginning with planting the right variety, at the right season, in the right kind of soil (as fertile as possible), and taken care of in the right way (Stephens, 1990). This helps the plant to withstand or outgrow many problems. When we used sprays it was a matter of control, not annihilation. This was especially the case when using soap for aphids. The aphid population was reduced but never eliminated. Hopefully by knocking the aphid population back, the ladybug population, which was present, would have time to catch up.

One problem we struggled with was fire ants. They made tiny holes around the stem scar of tomatoes, and they would gird the cole crop transplants at the soil line. Fifty percent of transplants would wilt and die. By ringing the young transplants with Rotenone dust several times until the plant stems got thicker and tougher, the plants survived. How this problem could be more efficiently addressed on a larger scale is perhaps an area for further work. Hopefully, biologic ant controls will be out soon.

Rotation was used for disease control. Plant spacing and resistant variety selection were also used. One variety that sticks in my mind is the 'Luscious Plus' hybrid cantaloupe. It was resistant to powdery and downy mildew.

I remember another time when some kale and collard plants were getting black rot on the lower leaves. The plants had run out of sufficient fertilization and were growing too slowly. I removed the diseased leaves and manured the rows. The plants put on a whole new growth and did fine.

Plant viruses were a definite problem. In the fall, variety selection of green beans seemed to be a factor in avoiding this problem.

Weed control is said to be a greater problem than insects or diseases. I noticed it the most in the spring. With projects all over the field, the weeds are all growing at the same time. Mulch was sometimes used, like old hay, but there is the problem of obtaining it, obtaining enough of it, and spreading it. One approach that we used was cover-cropping. We could cover-crop a section. The weeds could be shaded or crowded out by choosing the right cover crop. We also had an area one fall covered by sweet potatoes and another by Seminole pumpkin. These both made quite a cover after the initial weeds were taken care of. Also a low-growing cover crop could have strips tilled through it and then plants grown in the strips. The competition of the cover had to be considered, so sometimes we chose a cover crop like rye grass or clover that would die out because of the season, as the planted crop was on the increase.

The large piles of manure or compost also provided a haven for weed growth. Covering with black plastic or turning frequently enough were ways of dealing with this problem.

*Soil amending.* Manure use and handling was an experience in itself. We started with the manure from the University chicken farm behind us. At the time they were paying 60 dollars a dumpster-load to get rid of it. We provided a balance for this waste product and gained some valuable fertilizer material.

Some considerations of the chicken manure were how "hot" it was, how much bedding it had in it, and how it altered our soil pH and fertility. The bedding (sawdust) percentage ranged all the way from 0 to nearly 100 percent. This had a drastic effect on how immediately the crop could benefit from the manure application. I used one batch too soon with too much bedding and it turned the plants yellow. The chicken manure with a high percentage of bedding worked best after it was stacked and allowed to rot. The chicken manure we used had a high calcium content and raised our soil pH, which was already a bit too high. The raised pH did seem to have a negative effect on some acid-loving plants like blackberries. However, most of our crops benefitted from the chicken manure as a nitrogen source.

Sheep manure/hay from the sheep barns was a wonderful manure and soil conditioner for us. It worked best after it was stacked for six months to a year. If it was used uncomposted, it seemed to add some new weeds to our flora in the field. When the manure was applied to the field, there was a period of break-down required. We used the sheep manure/hay under hills for winter squash. At first the seedlings were too pale. Several small applications of commercial organic fertilizer were made to "green-up" the plants. They then did very well the rest of the season in the manure.

As just referred to, commercial organic fertilizers were at times used as a supplement to manure application. The main ones we used on a regular basis in the field were the ones studied in the grow-boxes (Stephens and Kostewicz, 1992), Fertrell (an organic blend including chicken manure), Red Rooster (composted chicken manure) and Sustane (composted turkey manure). These all worked well and had certain definite advantages over raw manures: (1) less volume to haul and apply, using pounds instead of tons, (2) uniform and known analysis, and (3) a finished product, composted and ready to use. The economics of using the pre-packaged fertilizer as compared to bulk manure would be worthy of careful consideration.

Composts were made making full use of vegetable waste from the field as well as weeds. Care had to be taken to ensure proper heating in order to combat diseases, weed seeds, and even insects that were present. We used the chicken manure as our nitrogen source. Sometimes the heat went down before the pile was decomposed fully enough. More manure then had to be added. This was especially true when wood chips were mixed with the manure. We were fortunate to have had such a good source of manure. Many organic growers could not as easily get the manure or enough of it to do their task.

We worked through the years with green manures (cover crops). By increasing the organic matter percent and adding some nitrogen (especially from legumes), it allowed less animal manure to be required. In the winter time the winter rye (cereal), Crimson clover, or Austrian winter pea were some of our main cover crops. In the summer we used mainly millet (Brown top), and Iron and Clay cowpeas. Some of the experiments included others like sorghum and pearl millet. One interesting facet was to cover crop the fruit tree section in an effort to help with weed control and management.

*Variety selection.* One of the phases that interested me the most was evaluating varieties. Back in 1992 we looked at several snapbean, sweet corn, cucumber, and muskmelon varieties (Kostewicz, 1992). This spring (1994) we grew and evaluated 60 varieties of winter squash. Many of the seeds were obtained originally from the southwestern United States and northern Mexico, where it is hot and dry. We wanted to see how they would fare in our humid climate. Because we did not spray some of the vines were knocked out by fungus and virus disease. Others grew very vigorously with obvious resistance. The squash were separated by variety, counted, weighed, photographed, and taste-tested.

*Mulching.* Research projects have included a study of different kinds of mulch (Kostewicz and Stephens, 1993). The newspaper mulch seemed to help preserve nutrients underneath it like plastic mulch. We also used a lot of material such as spoiled hay and yard waste compost for mulching our crops on a regular basis.

*Tools/equipment.* The basis of good equipment selection was to match the tool with the job. We used a variety of methods ranging from hands to hand-hoes, wheel hoes, tillers, and tractors. The wheel hoe proved to be quite useful in many of the situations. The help of other departments of the university especially Facilities Operations, greatly aided our progress especially in providing large equipment. The help of their front-end loader in turning the manure piles gave my back much needed relief.

*Educational.* We always were glad to have visitors at the Park, particularly in groups. Tours were an enjoyable and important part of the project for me. We had Master Gardeners, garden clubbers, farmers, special-ed classes, vocational tech students, 4-Hers, home schoolers, and students from all levels. Some of the students and visitors from other countries felt more at home with the organic style of growing because it was more like their style at home. Master Gardeners had a demonstration area set aside just for their vegetable garden study. I fondly recall this comment from one of them: "You've made me feel like I can do it." I also enjoyed helping with other ed-