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TO: VEGETABLE AND HORTICULTURE AGENTS
AND COUNTY EXTENSION DIRECTORS

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VEGETARIAN NEWSLETTER 82-6

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I. NOTES OF INTEREST

A. New Publications

The following publications are available from the Bradenton Agricultural Research and Education Center, 5007 60th St. E, Bradenton, FL 33508.


B. Vegetable Crops Calendar

August 25-27: Master Gardener Program In-Service Training, Gainesville

September 16: Tomato Institute, Marco Island (Maynard and Stall)
III. COMMERCIAL VEGETABLE PRODUCTION

A. Crop Injury Due To Herbicide-Nematicide Reactions

Identification of the cause of injury to crops usually is extremely difficult. Air pollution, such as sulfur dioxide and ozone as well as fertilizer nutrient excess and deficiencies will in many cases give symptoms that are mistaken for herbicide damage.

More information is coming from research and unfortunately from experience that crop injury can insue from the use of certain herbicides in combination with specific insecticide/nematicides.

The chemical reaction of the herbicide and nematicide make one or both more injurious than either alone. The phytotoxic effects are usually blamed however only on the herbicide used.

When combinations of herbicides-nematicides are known to cause injury, the information will be as a precautioary statement on the label(s) The most common example of herbicide-nematicide incompatibility is metribuzin (Sencore, Lexone) with organophosphate nematicides as Mocap, Dasanit, Counter or Nemacur. The Nemacur label also has a precautionary statement in reference to propanil (Prowl, etc.).

Specific crops also may be more susceptible to combinations. For example, cotton may be damaged from the use of dinitroaniline herbicides applied preplant incorporated and chemically reacting with nematicides already incorporated in the soil.

Phytotoxicity may also occur when urea herbicides-phosphate nem­aticides combinations are used.

When trying a new herbicide or nematicide in the production of a crop, it is wise to check these combinations on a small scale first.

It should be remembered that the materials do not have to be tank mixed to be injurious.
B. Extension Responsibility, Integrity and Hydroponics

Each year from February to May, County Extension Agents and Extension Specialists receive a great number of questions about hydroponic culture of vegetables. Many of these contacts are for school science projects, some are from serious hobbyists, and many are from people considering this challenging method as a full or part time enterprise. This third category deserves some frank and open discussion.

What is hydroponics from a modern point of view? Growing plants without soil at one time meant providing a continual, low concentration nutrient solution in a tank culture system by itself or may have included sand, gravel, cinders, etc. as a physical support. The nutrient solution in nearly all systems was recycled and used over and over again for as much as a week or ten days with careful monitoring of pH and nutrient content.

Modern hydroponics now includes the supply of the dilute nutrient solution in a thin film of water in a tube (nutrient film technique or NFT), misting of the suspended roots, and thirdly the supply of solution to small beds or individual bags of synthetic media (peat, vermiculite, etc) in which the plants are placed.

Hydroponics in theory is very sound. It is a system of culture used by scientists to study plant growth and nutrition. In many parts of the temperate world hydroponics is a stable, challenging, practical form of crop production.

This specialist has been involved with hydroponics in various forms and intensity for almost 30 years, 10 of which have been in Florida. What success ratio has been observed for hydroponic vegetable production in the Sunshine State? The success rate has been frankly very poor. Why? In a few words: disease, poor pH control, poor financial return, and nutritional imbalance. The cause of failure does not change the soundness of hydroponics in general, but it does raise some question about Florida as a place for this type of culture.

In Florida, the humidity, temperature, and appealing climate for micro-organisms seem to create an extraordinary pressure on enclosed hydroponic production. A few outdoor gravel culture systems have survived 10 to 12 years. Bag culture, in which little or no recycling of
solution and thus the chance of spore buildup is reduced has one of the highest longevity and success rates. The adjustment of pH of the solution and monitoring of the nutrients are technicalities which can be cured by more careful attention to detail.

Hydroponic growers often compete directly with field vegetable growers in the "natural greenhouse" of most of Florida in the spring and fall. The lower economic cost of field versus hydroponic culture places an added strain on the hydroponic enterprise. The culinary advantage of hydroponically produced products is often claimed but this may or may not be real in the market place.

What should we in Extension do when interested, prospective hydroponic growers come to us for guidance? I feel we should state clearly that we will help them all we can if they decide to enter this challenging area of horticulture. I feel we should also tell them that the $10,000 to $20,000 dollar investment has quite a bit of risk associated with this enterprise, and that a visit to existing or former hydroponic growers may help them make the best decision. I think to do less would be failing to serve the public with the openness and fairness they deserve from the State University System.

(Marlowe)

C. Samples Submitted to Florida Plant Disease Clinic

Accurate diagnosis of plant diseases is prerequisite for economical and effective plant disease control. The "fresher" the sample the "shorter" the turn around time for a given disease. Most samples we receive are in adequate condition to work on but a few are---. Row crop (vegetables and agronomic) samples are best sent by submitting the entire plant (roots and shoots) regardless of the dysfunction. With thick leafed plants like cabbage or tobacco, leaves arrive in good condition without submitting the entire plant assuming the problem is related to leaves only. Single leaves and leaflets of less turgid plants sent to the clinic take up an excessive amount of time and may not be representative of the problem at hand. Sometimes the answer for such samples upsets the sender but the sendee has no choice.

When sending entire plants, wrap the root system only in wet paper and place the entire plant in a plastic bag. This allows us to
examine the root system if leaf symptoms are indicative of a root problem and/or allows the foliage to maintain turgidity if a leaf or stem problem exists. Remember, early diagnosis and control(s) for plant disease are in the growers' best "interest."

(Kucharek)

IV. HOME VEGETABLE GARDENING

A. Know Your Minor Vegetables - Adzuki Bean

Adzuki beans, *Phaseolus angularis* (Willd.) W. F. Wight, also known as azuki (Japan) and adanka beans, are not at all common in Florida gardens, but are sometimes grown. They originated in Japan where they are the second most important pulse (dry bean) crop, and in China, where they are still very popular. Anyone wishing to purchase seeds to eat have to pay a fancy price in the food stores, so consideration for growing at home should be given.

The seeds are used primarily as a dry bean, for sprouts, whole, or ground into bean meal. However, many use them green. Since they have a sweeter taste than most beans, they are used in desserts.

The plant is erect, 1 to 2 feet high, although some gardeners have reported them to be "indeterminate, growing and producing until frost." The yellow flowers are followed by the smooth, short, small, cylindrical pods borne several to a cluster.

The seeds are smaller than common beans, but are 2 to 3 times larger than mung beans. They are variously colored, most often dark red. Types with green, straw-colored, black-orange, and mottled seeds are known. The round seeds have a hilum (seed scar) with a protruding ridge on the long side.

**Climatic Response**

Adzuki beans need about 120 days from sowing to the time the seeds and pods are dry. They need cool nights for best production, but will not tolerate frosts and freezes. They should be planted in
the Florida garden during the traditional frost-free periods. September through February in south Florida is the best planting period, and February through March in the rest of the state.

Growing adzukis

Prepare the soil and plant very much as for green snapbeans. Sow seeds 1/2 to 1 inch deep, then thin the plants to stand about 2 to 3 inches apart in the row. Space rows 12 to 18 inches apart. Give ordinary care (no trellis is needed). Adzuki is said to be fairly drought resistant, although the soil moisture should be maintained at a consistent level.

Harvesting and Using

The young tender pods may be harvested for use as snap beans. However, they are very small at this stage (when the seeds are just beginning to show up inside the pods). Pick every 5 or 6 days.

They are most useful as a dry bean. When ripe the seed contains 25% protein so is highly nutritious. The dry pods will eventually split open and scatter the seeds, so harvest the pods after the seeds are ripe but before they shatter. The entire plant with dry pods still hanging on may be pulled and stacked in a dry, well-ventilated place to dry completely (a week or two after harvest is sufficient usually). Then, shell the dry beans and put the shelled beans in a tightly sealed jar in the refrigerator.

Bean sprouts from adzuki beans are particularly nutty and tasty. Sprout as you would other beans such as mung and soy.

Dried adzuki beans are said to require only a short soaking (1 hour) before cooking.

Seed Sources

Seeds may be purchased from such garden seed companies as: Johnny's Selected Seeds, Albion, Maine 04910, and Thompson & Morgan, Inc. P. O. Box 24, 401 Kennedy Blvd., Somerdale, N.J. 08083.

(Stephens)
B. Florida 4-H Congress

The State 4-H Congress is rapidly approaching. It will be held Tuesday, July 27. Two horticultural events will be taking place at that time. The Horticultural Demonstration Contest and the Horticultural Identification and Judging Contest. Both events will be held at the Horticultural Science/Plant Pathology Building.

Eight district champion demonstrations are scheduled for the demonstration contest, and each county may enter a team in the identification and judging event. I encourage all of you to participate. Resource material for training is available through the department and Editorial Department.

C. Florida Master Gardener Advanced Training Program

Florida Master Gardeners from throughout the State will be traveling to Gainesville on August 4-5, to participate in the Advanced Training and Recognition Program.

Representatives from 13 counties, Brevard, Hillsborough, Polk, Volusia, Osceola, Orange, Lake, Palm Beach, Pinellas, Pasco, Broward, Dade and Leon are invited to attend the 2 day program.

The program will include: Hands-on insect identification, Pesticide spray equipment demonstrations, Tour of soils lab., Plant disease clinic service, Turfgrass problem solving and demonstrations. Hands-on vegetable identification and Concepts of landscape design. Pre-registration material will be mailed to appropriate agents in the near future.

(McDonald)

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