Texas Agricultural Extension Service

Vegetable Production & Marketing NEWS

VOLUME 6, NUMBER 9 SEPTEMBER 1996

Have You Registered Yet?

Texas Produce Convention & Trade Show

September 18-21, 1996
South Padre Island, Texas

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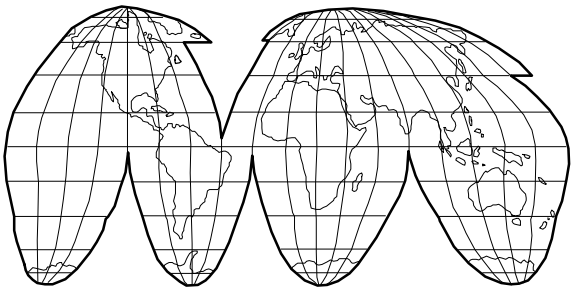

Commodity Price Quotes on the Internet

The University of Florida's Market Information System has posted on the Internet current market prices for fruits and vegetables at more than 50 cities around the world. The Internet address is:

http://gnv.ifas.ufl.edu/ ~ MARKETING/MARKET.HTML

From this site, the following market information can be obtained:

AMS F&V Terminal Market Prices (by city)
AMS F&V Shipping Point Prices FOB (by city)
NASS Crop Production Reports
AMS Cotton Reports
AMS Dairy Reports
AMS Fruit & Vegetable Reports
AMS Grain Reports
AMS Livestock Reports
AMS Crop & Weather Reports
AMS Poultry Reports
Expanded list of some AMS F&V ***abbreviated words***
List of Internet address ***country abbreviations***

General Management Practices to Improve Efficiency of Pest Control

Many different types of practices are useful for managing pest problems. Some -- like the application of pesticides, hoeing for weeds, or release of natural enemies -- are applied specifically for the control of a particular pest, usually after it has begun to cause a problem. However, the cheapest and often most reliable way to avoid many pest problems is to provide an environment that discourages pest activities or reduces the plant's susceptibility to damage. These types of methods often include adjustments in cultural practices, such as planting time, soil or bed preparation, water management, choice of crops or varieties, and management of areas adjacent to the farm.

Soil type and nutrient content affect crop growth. A vigorously growing crop can often tolerate more pest damage or better compete with weeds than a less healthy one. In some cases, the abundance of the pests themselves can be influenced by soil factors, particularly the presence of organic matter and the ability of the soil to drain or retain water.

Although you cannot change your soil type, there are some practices that greatly improve growing conditions for plants. The most important is proper preplant soil preparation. Well prepared seedbeds are easier to irrigate and hoe or cultivate. As a result, weed control is more effective and efficient, and there is less chance of root diseases and other disorders associated with waterlogging of the soil. If furrow irrigation is to be used, grade the beds slightly so water will flow evenly to the tail end and not accumulate along the way. Break up compacted layers. Plant most vegetable crops on raised beds or hills between furrows. If you have serious drainage problems, consider making beds up to 9 inches high.

The addition of a moderate amount of organic matter in the soil is desirable. Organic matter added to clay soils will help improve water drainage and penetration, and make them easier to work. In sandy soils, organic matter improves the soil's ability to hold water and nutrients. In all soils, organic matter improves structure and aeration. It also provides a substrate for beneficial organisms and microbes in the soil. As these organisms break down the organic matter, they help maintain soil tilth, and release nutrients from the organic matter into the soil. Some of these microorganisms are also important in the biological control of soil-dwelling pests, such as plant pathogens and nematodes.

Most Texas soils require regular additions of nitrogen and sometimes phosphorus (especially in cool seasons) for best growth of crops. Other minerals, including potassium, are not normally needed. Necessary nutrients can be obtained from many sources. Soil tests can indicate nutrient deficiencies, excess salts, and pH problems. Regular testing by the same lab and following the same sampling procedures can indicate if the soil amendments you are adding to your soil are doing their job. To be meaningful, soil tests must be taken in a consistent manner.

For best results, apply all the phosphorus, but only part of the nitrogen, before planting. Nitrogen will be most effectively used by the plant if part is added later as a side dressing when direct-seeded plants have 4 to 6 true leaves, or 4 to 5 weeks after transplants are set out. Growers should have their soil tested annually by a reputable commercial lab.

Contrary to popular belief, vigorously growing crop plants are not less attractive to most pests; in fact, in some cases they are more attractive. For instance, lush vegetative growth is very attractive to aphids, and aphid problems are often increased by over fertilizing with nitrogen. Lush leafy growth also increases humidity within the plant canopy, reduces ventilation, and can increase the incidence of pathogens, such as gray mold or powdery mildew, favored by high air moisture. Therefore, it is essential to keep nitrogen at recommended levels, and be sure adequate levels of other nutrients are also supplied.

Mismanagement of water is a major contributing factor in many pest problems. Too little water can result in small plants, poor root systems, and slowed growth, and exacerbate the injurious effects of pests, such as root nematodes, that injure roots. Excessive water can contribute to development of many diseases. Uneven distribution of water can encourage weeds and disease problems, and prevent uniform maturing of the crop. Furthermore, damage caused by over or under watering is frequently misdiagnosed as pest damage.

To prevent problems, design your irrigation system and prepare soil to promote even water distribution and good drainage. In vegetable gardens and fields, break up compacted areas, reduce clod size, and firm the beds to in-

(Continued on Page 3)

crease water penetration. Irrigate to meet the needs of the particular growth stages and crops present. In states such as California, commercial vegetable growers often sprinkle irrigate from planting until thinning and then switch to furrow irrigation as plants get large. On older plants, sprinkling can splash soil onto leaves, promote disease problems if leaves remain wet after nightfall, and favor weed germination on beds. Drip irrigation is useful in some situations; it provides excellent control of water, and is the most practical method to use under row covers and with certain types of mulches. Too much water, on the other hand, damages roots by depriving them of oxygen, and creates conditions that favor infection by soilborne diseases. Each type of irrigation system has its advantages and disadvantages. More important than the irrigation method is determining when to apply water. In larger commercial farms growers should determine when to apply water by developing a water budget, which estimates how much water the plants are using, and then irrigate to meet the plants' water needs. Irrigating on a calendar schedule can cause serious damage from over or under watering if weather, soil conditions, and stage of growth and crop species are not considered. Remember that adequate water needs to be available to the full rooting depth of your plants and beyond. Keep adequate moisture in the deeper soil layers, even when plants are small. Deep moisture is harder to replace later in the growing season without over irrigating. Add enough water to fill the deepest part of the rooting zone, not just the surface.

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When using sprinklers, keep the application rate low enough that the water does not puddle or run off; if you cannot adjust the sprinklers low enough, turn them off for an hour or two, and then reapply.

Where do pests survive when your crop plants are out of the field? Although a few pests can migrate great distances, most pest populations come from sources within the field itself or adjacent areas -- surviving on alternate hosts, crop debris, or as dormant forms, such as seeds, vegetative propagules, spores, eggs, or pupae in the soil. Some pests are even inadvertently brought in on contaminated seeds, transplants, soil, or equipment. Practices aimed at removing these sources of new pest populations are often called sanitation practices.

Most sanitation practices are just common good sense. Make sure crop seed and organic soil amendments are free of weed seeds and pathogens; use certified seed or stock if available. Check transplants or other greenhouse stock for aphids, diseases, nematodes, and other pests. Make sure your supplier has taken precautions to prevent pest infestations. Clean equipment before moving it from infested areas. Do not transport soil you know to be infested with nematodes, propagules, or perennial weeds such as Bermuda grass stems or nutsedge nutlets, to other parts of the farm. If you use surface irrigation water from canals, use screens to exclude large weed seeds and other plant parts.

Always be sure plant debris, especially residue form previous crops, is completely decayed or removed before planting a new crop.

A final sanitation method that merits mention is to keep weeds under control at all times, and be sure to remove weedy areas around your garden or field well before the new crop emerges. Not only do weeds produce seeds that may find their way into your fields, they also are likely sources of a number of immigrating pests. If you wait to remove or mow these weeds until your crop emerges, the pests will move into your crop. Waiting for the weeds to dry out naturally will also encourage pests.

Use of crop varieties (often called cultivars for cultivated varieties) that resist pest attack or damage is one of the most economically and ecologically sound forms of pest control. Some resistant varieties inhibit pest attack through toxic or repellent compounds or through physical factors; other resistant varieties are attacked by pests but suffer little or no damage. (This phenomenon is sometimes called tolerance.) Varieties of a number of crops are available that are resistant to various pathogens and root knot nematodes. Few vegetable cultivars that resist insects are available, although some varieties are known to be less susceptible to damage by certain species.

Use pest-resistant varieties whenever possible, but take into account other agronomic factors that may be im-

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portant. Varieties will differ in required planting times, resistance to frost and heat, time from planting to harvest and other cultural requirements, as well as flavor, color, ability to be stored, and consumer acceptance. Remember that resistance is not synonymous with immunity. Some resistant varieties are still somewhat susceptible to high levels of pest inoculum, or when stressed by other factors.

The practice of changing the type of crop growing in a field or portion of a garden is known as crop rotation. Crop rotation is an important agronomic practice on farms, but has a more limited use in gardens because of space limits and the impracticality of growing many of the most effective rotation crops. However, it is always a good idea to avoid planting the same crop two years in a row.

Crop rotation is a feasible management practice only for a limited number of pests. Pests that can be successfully controlled with crop rotation must meet specific biological requirements:

1. The sources of the pest must be within the field (i.e., the soil)
2. The pest cannot be so mobile that it is likely to move in from adjacent fields or other areas
3. The host range of the pest must be so wide that practical alternate crops cannot be found
4. The pest must not be able to survive in the soil for more than a year or two in the absence of living host plants.

Good candidates for management by rotation include soil- and root-dwelling nematodes and soilborne pathogens that do not produce airborne spores. Rotation can be an important component in weed management if crops, such as onions, that do not compete well with weeds are followed by very weed-competitive crops, such as corn, potatoes, or cole crops.

This article originally appeared in "Design and Management Program" in ***Pests of the Garden and Small Farm - A Grower's Guide to Using Less Pesticides****, by Mary Louise Flint. Pub. 3332, University of California Division of Agriculture and Natural Resources.*

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