Texas Agricultural Extension Service

# Vegetable Production & Marketing NEWS

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# Whiteflies Destroy Winter Garden Cantaloupe But Results May Provide Hope For Melon Growers

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The Texas Agricultural Extension Service conducted a cantaloupe trial in the Texas Winter Garden during the 1996 fall season. On August 13, nineteen varieties and/or advanced breeding lines were direct seeded at Willoughby Farms in Batesville, Texas.

Unfortunately, a severe infestation of whiteflies occurred throughout the Winter Garden. Consequently, crop failures were the norm in most fields in the area. The one in which our trial was established was no exception.

Although the trial was unharvestable, the severe whitefly pressure did afford us the opportunity to index the entries for relative tolerance to injury. The results are shown in Table 1. Of the 19 entries, only 1, Gold Eagle, did not show significant evidence of whitefly injury in any of the 3 reps in which it appeared. Plants of only 2 others, Sunre 7044 and Ranger, were still alive on November 5.

Based on the results of this evaluation, the variety Gold Eagle may offer some promise in the battle against whiteflies. If the observed tolerance is real and not just a case of insect preference, what appeared to be a disaster may turn out to be an overwhelming success. Therefore, trial planting of this variety in areas prone to whitefly problems is suggested for 1997.

TABLE 1. FALL, 1996 TAEX CANTALOUPE TRIAL, BATESVILLE, TEXAS (WILLOUGHBY FARMS)

| ENTRY | SEED X/ SOURCE | WHITEFLY Y/ TOLERANCE | NO. FRUIT/ Z/ PLANT |
|---|---|---|---|
| GOLD EAGLE | 4 | 1.33 | 2.11 |
| SUNRE 7044 | 7 | 3.00 | 2.32 |
| RANGER | 6 | 3.00 | 2.20 |
| SCOUT | 6 | 4.00 | 2.33 |
| MAINPAK | 7 | 4.33 | 2.63 |
| HMX 1603 | 4 | 4.33 | 3.21 |
| XPH 6299 | 2 | 4.50 | 1.25 |
| PACKSTART | 2 | 4.67 | 1.97 |
| SUNRE 7045 | 7 | 4.67 | 3.46 |
| GOLD MINE | 4 | 4.83 | 2.84 |
| CARAVELLE | 2 | 5.00 | 2.54 |
| ORO RICO | 4 | 5.00 | 2.01 |
| GOLD RUSH | 4 | 5.00 | 1.95 |
| SUPER 45 | 8 | 5.00 | 2.41 |
| XPH 6300 | 2 | 5.00 | 1.43 |
| ACX 5233 | 1 | 5.00 | 2.55 |
| ACX 6201 | 1 | 5.00 | 2.73 |
| ACX 6204 | 1 | 5.00 | 2.17 |
| ACX 6203 | 1 | 5.00 | 3.02 |
| LSD (P=0.05) | ---- | 1.18 | 1.36 |

X/ SEED SOURCE:
1=Abbott & Cobb 5=Sakata
2=Asgrow 6=Shamrock
3=CDM Fastrack 7=Sunseeds
4=Harris Moran 8=Willhite

Y/TOLERANCE INDEX SCALE:
1=no vine injury
2=slight vine injury
3=moderate vine injury
4=vines dying
5=vines dead

Z/NO. FRUIT/PLANT:
Total fruit harvested/vine (living or dead). Severe whitefly infestation destroyed grower's crop prior to fruit maturity.
Planting Date Aug. 13 (direct seeded); whitefly injury indexing date Nov. 5.

# Spray Drift Minimization

*This article by Bryan W. Shaw appeared in the Texas Agricultural Extension* ***Chemogram***

Spray drift has many adverse effects including environmental damage, off-target damage, poor pest control, wasted chemicals, and damaged public perception. Drift is defined as "the movement of chemicals outside the intended target by air mass transport or diffusion" by the American Society of Agricultural Engineers standard ASAE S327.2. Drift can occur by two methods: vapor drift and particle drift.

Small particles are more likely to drift, especially particles less than 100 micrometers in diameter. For good spray coverage and reduced drift, particles 300-600 micrometers in diameter are typically desired. Small particles fall slowly and are easily carried off-target by even a gentle breeze. High temperatures and low relative humidity may result in evaporation of spray droplets, resulting in smaller particles of chemical solution that are easily carried off-target.

The following tips will help minimize the potential for spray drift while applying agricultural chemicals:

1. Select pesticides with low volatility to reduce vapor drift.
2. Read and follow the pesticide label. Remember, approximately 65 percent of drift complaints involve applications in violation of the label.
3. Avoid spraying with susceptible areas downwind or when the wind speed is above 10 miles per hour (5 mph when applying regulated herbicides).
4. Consider leaving a 200- to 300-foot buffer zone between fields being sprayed and sensitive areas.
5. It is best to spray early and late in the day when winds die down, temperatures are low, and relative humidity is high. Use additional caution when relative humidity is below 50 percent.
6. Consider using larger orifice sizes to increase droplet size.
7. Operate at the lower end of the recommended pressure range with a low boom height. Keep boom just high enough to assure proper coverage.
8. Consider using drift reduction nozzles to produce large droplets.
9. Consider adding drift control 'thickeners'. If used properly, they can reduce drift 50 to 80 percent. If not used properly, they can cause a nonuniform spray pattern and/or incorrect application rate.
10. Use shields to reduce drift caused by wind.

# Program Brings Farm to City Kids

*This article by Kim Becka appeared in The Packer, Dec. 30, 1996*

**The American Crop Protection Association has expanded its program to teach elementary school students how fresh produce gets from farms to lunch trays.**

**Two years ago, the association launched 'Benny Broccoli and His Buddies: Cultivating an Interest in Agriculture', its first nationwide educational program to help students develop an appreciation for agriculture. "We think our program is a good way to make students and teachers more aware of agriculture," said association member Margaret Speich. In the first year of the program, the association distributed the materials to about 5,000 teachers. "We thought we'd start out small and get feedback for the program, then make it more widely known," Speich said. After a few modifications to the program, the association sent brochures announcing the program to teachers nationwide. Since the program began in 1994, the association has received more than 20,000 requests for materials, Speich said. This year, the association solicited 33,000 teachers. Although the response hasn't been calculated yet, the association expects the response will be at least 25 percent, Speich said.**

**One of the association's goals for the program this year is to find sponsors to help promote the program. In exchange for printing costs, agricultural organizations and companies can use the materials, put their names on them, and distribute them to teachers at their communities' school. Each program kit contains a teacher's guide and 4 activities for each grade. Students learn about the agricultural process from the farm to the store through activities such as playing board games, singing songs, and creating cartoon books about agriculture. Designed for second-, third-, and fourth-graders, it uses animated fruit and vegetable characters to teach both teachers and students about crops. Through Benny and his friends, which include Terri Tomato, Cliff Corn, and Glenda Goodbug, students learn how plants gather the nutrients they need to grow. They also learn how Benny and his friends fight off their adversaries Icky Insect, Wicked Weed, Fearsome Fungus and Loathsome Larva.**

***Programs such as this are really needed at this time in the history of the vegetable industry. Perhaps it is time our commodity organizations, grower groups, 4-H programs, etc., conducted versions of this for our Texas grade school students. Individual growers and processors can do their part by hosting class field trips. We must get our side of the story told.***

# *Are Foliar Fertilizers Appropriate?*

*This article by Terry Jones, Extension Horticulturalist, appeared in* ***New Harvest****, January-February 1995, published by the Cooperative Extension Service of the University of Kentucky College of Agriculture, Lexington*

The high value and cost of vegetable production make soil testing prior to planting a very wise investment! Such practice enables the development of a sound fertilization program. The balancing of fertilizer applications to meet crop needs should be the goal of every grower.

The fact that plants can absorb a number of fertilizer elements through their leaves has been known for some time. However, leaves of many vegetable plants are not especially well adapted for absorbing nutrients because they have a waxy cuticle. In fact, plants may appear to benefit from foliar uptake when the actual cause of improvement may be that component of the nutrient spray which reaches the soil and provides essential nutrients for subsequent root uptake.

**DON'T SPRAY YOUR N, P, AND K.** The effectiveness of applying macronutrients such as nitrogen, phosphorus, and potassium to plant leaves is questionable; high rates often cause damage to plant tissues. It is virtually impossible for greens (waxy-leaved cabbage, collards, and kale) to absorb enough N, P, or K through their leaves to meet their nutritional requirements; furthermore, it is unlikely that they could absorb sufficient amounts of macronutrients to correct major deficiencies. Although nitrogen may be absorbed within 24 hours after application, up to 4 days are required for potassium uptake, and 7 to 15 days for phosphorus to be absorbed from foliar application.

The crucial question is whether foliar N, P, or K actually increases yield and/or enhances quality. Although some growers feel that foliar fertilizer should be used to supplement soil-applied fertilizer, research findings do not support this practice. If proper fertilizer management of soil-applied nutrients is used, supplementation by foliar fertilization is not usually required.

**NO MIRACLE CURES.** Foliar nutrients often are expected to cure a variety of plant problems many of which may be unrelated to nutrition, such as reducing stress, aiding in healing frost- or hail-damaged plants, or increasing plant resistance to various stresses and pests. Nutrients are effective as long as they are supplying a nutritional need; however, neither soil-applied nor foliar-applied nutrients are capable of performing miracles.

After frost or hail occurs, some cabbage and leafy-greens growers apply foliar nutrients to give the plants an 'extra shot' to promote rapid recovery. However, if a proper fertilizer program is being used before foliage damage occurs, the plants don't need additional fertilizer. What they do need is time and the proper environment for the normal recovery processes to occur. The likelihood of deriving significant nutritional benefits from a foliar application of fertilizer to plants that have lost some of their leaves (or have had a large proportion of their leaves severely damaged) is questionable.

**SECONDARY AND MICRONUTRIENT SPRAYS.** Foliar application of sulfur, magnesium, calcium, and micronutrients (based on soil test) can help alleviate deficiencies in certain cases. An application of water-soluble boron (Solubor, for example) at approximately 0.25 lbs. actual boron per acre can be used when a boron deficiency occurs.

Foliar treatments should be applied only if there is a real need for them and only in recommended quantities. Application of excessive amounts can cause fertilizer burn and/or toxicity problems. Once deficiency symptoms occur, some yield loss can be expected.

Foliar applications are a poor substitute for proper soil testing prior to planting.

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