



Newsletter Extension

Fruit ICM News

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Calendar

May 6: Cider HACCP Training, Fisher Auditorium, South Exhibit Area, OARDC, Wooster, 10 am to 1 pm. Sponsored by Ohio Department of Agriculture. For more information contact Duane Murray at 614-728-6348.

May 10-12: Ohio Wine Competition, Fisher Auditorium, North Exhibit Area and Conference Room, OARDC, Wooster, 2 pm to 6:30 pm. For more information contact Todd Steiner, 330-263-3881.

June 30: Ohio Fruit Growers Society Summer Tour, OARDC Horticulture Unit 2, Wooster, 8 am to 3 pm. Registration fee. For more information contact Tom Sachs at 614-246-8292 or email at growohio@of.f.org.

August 19: Ohio Grape Research Day, OARDC, Wooster, OH.

Correction to Issue 10

Source: Shawn Wright, OSU Horticulturalist

A hyphen disappeared from the web address for the Organic Food & Farming Education & Research Program. The correct address is <http://www.oardc.ohio-state.edu/offer/default.htm>.

Pesticide Use in Greenhouses

Source: Dr. Wayne G. Buhler, Pesticide Education Specialist, Department of Horticultural Science, College of Agriculture and Life Sciences, North Carolina State University via Mike Ellis, OSU Plant Pathologist

I frequently receive calls from greenhouse operators regarding the use of pesticides. The typical question is, "Can I use a pesticide to control _____ in my greenhouse, if greenhouse use is not printed on the label?" The answer, according to EPA (this year, and they have flip-flopped on this issue), is yes, as long as the crop or commodity being treated is listed on the label and greenhouse use is not prohibited. Stated another way, if the crop is listed and greenhouse use is not prohibited on the label, it is legal to use the pesticide in the greenhouse.

Tissue Testing of Strawberry

Source: Brad Bergefurd, Ohio State University Extension Agent, Horticulture

With the increased acreage of plasticulture strawberries being grown throughout the state, I have been getting quite a few calls from growers needing more information on tissue testing and spring fertilization of this crop. The timing for beginning this procedure is right about now.

To educate yourself, as well as your growers, on the basics of routine tissue testing of strawberry, here is a good slide show from the North Carolina Department of Agriculture. It displays several slides of tissue testing procedures and how to perform them:

<http://www.agr.state.nc.us/agronomi/Tissue/sb01.htm>

Most of the labs that perform other crop tissue analysis will also perform strawberry plant tissue analysis. We send our samples to Spectrum Analytic because they are nearby in Washington Court House, Ohio. <http://www.spectrumanalytic.com/>

To see our research results on plasticulture strawberries over the past years, see our web site: <http://southcenters.osu.edu/hort/>

Western New York Ascospore Maturity Report

Source: Bill Turechek, Plant Pathology, Geneva, Scaffolds Fruit Journal, April 5, 2004

The apple scab season is off to an early start this year. We assessed apple scab ascospore maturity from

leaf litter samples collected at the 'Darrow' research block here in Geneva on March 31 and April 2. Visual inspection of the asci showed many well defined, pigmented spores; i.e., these spores appeared nearly-mature to mature. We tested for their ability to discharge using the "water bubbler technique." With this technique, 50 leaf discs are placed in a bottle of water (100 ml) agitated by bubbling air and discharged ascospores are collected via centrifugation and are enumerated using a hemacytometer. This technique is considered to be the most sensitive for detection of viable ascospores.

From three 50-leaf-disk samples, each collected at the Darrow block, we detected two ascospores from the sample on March 31 and nine ascospores on April 2. I haven't done the math to calculate the actual number of ascospores in the entire sample, but it is low; however, they are increasing. Nonetheless, the presence of mature ascospores has prompted me to begin the ascospore degree-day model. In other words, I am using the first mature ascospores as my biofix to run the degree-day model . . . not green tip. Note that I have started the model for all the sites we run based on the assumption that the Geneva sample is representative of western NY. This may change as I receive samples or updates from Cornell extension. The degree-day model can be accessed at:
<http://www.nysaes.cornell.edu/pp/extension/tfabp/forecast.shtml>

The weather data to run these models is collected from various NEWA sites, but not all locations are up and running at this time, so if you are interested in tracking maturity using this model, check the location running nearest to you. If you are timing your first application based on the proportion of mature ascospores, realize that the model reports the percentage of ascospores that have matured. Thus the amount of overwintering inoculum in your orchard should factor into your decision. For example, using a threshold of 10% ascospore maturity (somewhat common), growers with a million overwintering ascospores will have a lot more spores ready to discharge come a rainy period than the grower with only 100 ascospores.

However, my recommendation is that growers start their spray program at green tip this year. The degree of apple scab area-wide last year (and the year before) was very high, so I believe that there are plenty of mature ascospores waiting in the litter to infect the first bit of green tissue they "see." Growers using oil early will want to rely on mancozeb as their first spray. Growers not using oil may also choose captan.

We are currently trapping airborne ascospores at the Geneva station and will report to you any substantial release through Cornell Cooperative Extension, Scaffolds, and the Tree Fruit and Berry Pathology web site: <http://www.nysaes.cornell.edu/pp/extension/tfabp>. We will also bubble some more leaf disks next week.

MaxCel, a New 6BA Thinner for Apple

Source: Dr. Jim Schupp, PSU Fruit Research and Extension Center, Biglerville, PA, Fruit Times, Vol. 23, No. 4

Valent Biosciences announced in late March that US-EPA has approved the registration of a new formulation of 6BA for thinning apples. The new product, named MaxCel, will replace Accel and is expected to be registered in Pennsylvania in time for the 2004 growing season. This product is an improvement over Accel in both formulation and in labeled instructions for use.

6-benzyadenine (6BA) is a cytokinin, a class of growth regulator that promotes cell division and bud initiation in plants. It is the active ingredient in Accel, Exilis Plus, and RiteSize apple thinners. 6BA thinners purportedly have the advantage over other thinners that they can increase fruit size by

promoting cell division in the fruit as well as by providing thinning.

New Formulation

The MaxCel formulation contains 1.9% 6BA, which is slightly higher concentration than Accel, and unlike Accel, it contains no GA. Prior research showed that the GA in the Accel formulation might interfere with the thinning activity of 6BA, especially at higher concentrations of Accel. The new product also contains additives to enhance absorption.

New Label

Perhaps the most improved aspect of this product is its label! The MaxCel label will allow higher concentrations of 6BA than were permitted under the Accel label. Following the Accel label, a grower could apply one or two sprays 30g of active ingredient per acre per season. For semi-dwarf trees, this was the equivalent of about 75 ppm. At this rate 6BA is a mild thinner. The MaxCel label permits up to 200 ppm per spray and up to 182 g of 6BA per acre per season, which will allow for multiple sprays, even at the higher rates.

The thinning response to 6BA is rate dependent, meaning that increasing the concentration applied generally will result in increased thinning activity. MaxCel at 100 to 150 ppm will provide a stronger thinning response than what a grower would have expected from Accel. While most growers considered Accel and its generic equivalents to be mild thinners, the MaxCel label will permit a range of rate options from mild through aggressive thinning.

If mild thinning is desired, similar to the results obtained with Accel, then 75 ppm MaxCel is a good starting point. For moderate thinning with moderate to difficult varieties, 100 to 150 ppm is an acceptable range. If additional thinning is desired, MaxCel can be tank-mixed with carbaryl.

The new label is concentration based, so growers accustomed to thinking about thinners in parts per million will now be able to think about MaxCel in this way. Research suggests that MaxCel may be concentrated up to 5X with similar thinning results; however, thinning and fruit size responses to MaxCel were slightly better with more dilute applications. Another change on the MaxCel label is that the preharvest interval (PHI) is 86 days. This means MaxCel may not be a good choice for very early season varieties.

What's Not New

6BA, regardless of formulation, works best when temperatures rise into the 70's for several days during and after the application. The best window of application will be a stretch of warm weather while fruit are in the 9 to 15 mm size range. As with all 6BA thinners, don't apply 6BA and NAA in the same year to Delicious or to Fuji, as this combination may result in a bad case of pygmy fruit.

Conclusion

The registration of MaxCel is noteworthy because it represents a big improvement in 6BA technology. Growers will be able to use highly effective concentrations, either as a stand-alone thinner, or in combination with carbaryl. I predict this product will put 6BA in its rightful place with apple growers as a first-rate apple thinner.

Pips from New Zealand - Harvest

Source: Rob Crassweller, PSU, Dept of Horticulture, on sabbatical in New Zealand, Fruit Times, Vol. 23, No. 4

For those of you who do not know, the term 'pip' is the English way of referring to seeds. Apples and pears are referred to as pipfruit, while our stone fruit are referred to as soft fruit.

Harvest has been underway for nearly 1.5 months, depending upon location. In an almost exact copy of Pennsylvania's harvest season last fall, maturity down here was delayed by cool and wet summer weather. Maturity started out about 2 weeks behind normal and then rapidly caught up. A wet February (our August) led to somewhat less than ideal color and low sugar levels. However, a dry warm March (September) resulted in large fruit size and improved fruit color. Like Pennsylvania, the fruit harvest season does not seem to be shifting later, but rather sped up with less time between the multiple harvest windows.

On April 5 I visited several orchards in the Hawkes Bay region with a local consultant who was gathering samples for fruit maturity evaluations. The second to third picking of Braeburn was occurring in most orchards. Fuji harvest had not started. Pacific Rose (a Gala x Splendour cross) harvest was just about to begin. Most apple cultivars are harvested two to four times, with the last harvest usually done for sanitation or processing purposes rather than for fresh sales.

Note on Control of Periodical Cicada

Source: Celeste Welty, OSU Extension Entomologist

The periodical (17-year) cicadas are expected to emerge in west central Ohio this year, so fruit growers in affected areas need to be prepared to prevent cicada damage to fruit crops. Orchards near woods should be scouted every two to three days during the egg laying period from late May through late June to detect incoming female cicadas and first signs of egg-laying damage to small branches. Insecticide sprays are targeted against egg laying adults before eggs are laid.

In apple, pear, and peach orchards, Sevin (carbaryl), Asana (esfenvalerate), and Warrior (lambda-cyhalothrin) are allowed for control of periodical cicada. This list is modified since previous emergencies, in that Warrior has been added and Lorsban is no longer on the list because its use is now restricted to the pre-bloom period on apples. In tree fruit orchards where Vydate (oxamyl), Lannate (methomyl), or Pounce or Ambush (permethrin) are used for control of other insect pests, no additional insecticide is needed for cicada control. It seems likely that Danitol would also control cicadas due to its broad-spectrum activity, but no data is available on whether or not this is true. Surround (kaolin) provides suppression but not full control of periodical cicadas on apples and pears, and is an option for organic growers.

Be aware that applications of Sevin or Vydate within 21 days after apple full bloom may cause fruit thinning. Full bloom of apples in central Ohio is usually in late April or early May. The 21-day critical fruit thinning period after Sevin or Vydate application is usually still in effect when the cicadas begin emerging in late May, but by the time of peak emergence of cicadas, the 21-day critical fruit thinning period is over. The use of pyrethroids (Asana and Warrior), Vydate, or Sevin is cautioned in orchards because of the subsequent problems with increased spider mite populations due to toxicity of these products to predatory mites. However, these three products are the most effective products for cicada control.

For blueberries, grapes, and raspberries, there are no insecticide products that list periodical cicada as target pests on the label, but cicadas will be controlled if Sevin, Asana, or Lannate are used for control of other insect pests. Sevin can be used in blueberries, grapes, and raspberries. Asana can be used in blueberries and raspberries. Lannate can be used in blueberries and grapes.

A Tribute to a Specialist in Small Fruit

Source: Richard C. Funt, OSU Horticulturalist

Dr. Herbert D. Stiles, research and extension specialist at the Virginia Tech Southern Piedmont Agricultural Research and Extension Center, Blackstone, Virginia, died February 21, 2004. He received his degrees from Rutgers and the University of Florida and accepted his first assignment at the University of Maryland from 1974 to 1978. His older brother, Dr. Warren Stiles, held a position at Cornell University in tree fruit production with emphasis on soil fertility and plant nutrition.

While at the University of Maryland, Herb collaborated with USDA, Beltsville, in improving strawberries and bramble transplant production and maintaining black raspberry selections made by the late Dr. I.C. Haut. The 'Haut' black raspberry was introduced by Dr. Harry J. Schwartz, who joined the University of Maryland faculty soon after Herb went to Virginia. He maintained a close relationship with Dr. Schwartz and the Five Aces bramble breeding project. The yellow primocane cultivar 'Anne' was named for Anne Stiles, his wife.

Dr. Stiles will be remembered for his collaborative work with agricultural engineers in the development of the 'Shift Trellis', which separates primocanes and floricanes for ease of harvest and protection from sunburn.

Herb worked closely with growers to find solutions to their problems in strawberry renovation, nursery production of virus free transplants, and plant spacing of thornless blackberry. He cooperated with other horticulturists in the field, classroom, and conferences. He will be remembered as one who put his full devotion to the berry industry, had a grin and short laugh, and lots of energy. For me, it was a pleasure to know and to work with him at the University of Maryland, to share our common background and support of grower organizations, and to bring progress to a strong industry.

Nitrogen Fertilization of Established Blueberry Plantings

Source: Kathy Demchak, PSU Small Fruit Specialist, Fruit Times, Vol. 23, No. 4

In the past, nitrogen application to blueberries was thought of as an early-spring task. However, if you've heard Dr. Gary Pavlis from Rutgers University discuss blueberry plant nutrition in the last few years, you've heard him make the point that nitrogen is not taken up in any appreciable quantity before the plants reach bud break. Therefore, nitrogen application should be delayed until budbreak, and preferably applied in a split application, with half applied at budbreak, and the remainder applied about 4 weeks later. Furthermore, he has found that, simply put, the more frequent and smaller doses of nitrogen that the blueberry plant gets, the better. This is no different than the theory behind "spoon-feeding" any other crop - smaller, more frequent applications result in nitrogen (or any other nutrient) being more efficiently used, with less of the nutrient being lost to leaching, as long as it is being applied when the plant is taking it up. In addition, the nutrient is constantly present and available for use whenever the plant needs it. Nitrogen should still never be applied past the beginning of July, as new growth that might be encouraged late in the season would be more susceptible to winter injury. Changes will be made in the tissue analysis printout produced by Penn State's Agricultural Analytical Services Lab to match this recommendation.

Research Update - High Tunnel Brambles

Source: Kathy Demchak, PSU Small Fruit Specialist, Fruit Times, Vol. 23, No. 4

Since 2000, we've been growing red raspberries and blackberries in high tunnels. Through 2002, we obtained fairly impressive yield increases compared to field production (3 to 4 times as much marketable fruit per unit area) due to better growth and a longer harvest season. We also obtained better berry quality, and found it feasible to completely avoid pesticide use. We found that we could fruit the raspberries for both a summer and fall crop, but the fruiting season was actually shifted forward, with more production occurring in the summer than during the fall during 2002.

In 2003 we compared berry production with a 4 foot spacing between rows as compared to an 8 foot spacing for a second year. Once again, we found that the yields per foot of row were cut in half by going to the closer row spacing, resulting in nearly identical yields on a per area basis.

We also compared fruiting both Heritage and Autumn Britten for both the summer and fall crop to fruiting them for just the fall crop, expecting a larger fall crop if we didn't produce the summer crop. However, we were in for a bit of surprise, in that the amount of fruit harvested for the fall crop stayed about the same whether we kept the canes and produced the summer crop, or removed them and produced just the fall crop. The fruit ripened a few days earlier when the floricanes were removed and we produced just the fall crop. We'll be checking this out for a second year, in case there's cumulative effect that might become apparent, such as an effect on a build-up of plant reserves that might not have been apparent during the first year of treatments. The continual rain and high humidity in the tunnels did produce a somewhat lower percentage of marketable fruit, around 82%, than in past years, though compared to field production, this is still better than usual, especially in a wet year.

Once again, thornless blackberries produced a tremendous crop, at 5.5 lb of marketable berries per linear foot of row, or over 30,000 lb/acre. This research was supported in part by agricultural research funds administered by The Pennsylvania Department of Agriculture.

Pennsylvania Strawberry Production Statistics for 2003

Source: Kathy Demchak, PSU Small Fruit Specialist, Fruit Times, Vol. 23, No. 4

Given the nearly continual rains last spring, especially in the southeast part of the state during harvest, I was a bit apprehensive about looking at the strawberry production statistics for 2003. However, The Noncitrus Fruit and Nuts 2003 Preliminary Summary released by the USDA National Agricultural Statistics Service in January showed that for the third year in a row, the value of strawberry production in Pennsylvania was at a new high, at \$11.1 million.

This keeps Pennsylvania in fifth place nationally for value of production overall, and in fourth place for fresh-market value. There were about 1300 acres of strawberries grown, a figure which had been holding steady for five years, placing Pennsylvania seventh nationally in acreage of strawberries. Pennsylvania producers obtained the second highest price of the top ten producing states, with the average price slipping to \$1.34/pound, 3 cents per pound lower than last year's average price. New York producers obtained the highest price per pound, at \$1.55 per pound.

That's a Berry Good Question !!!

Source: Kathy Demchak, PSU Small Fruit Specialist, Fruit Times, Vol. 23, No. 4

Question:

I have a question on mulching blueberries with sawdust. Some literature recommends mulching specifically with softwood sawdust, while other literature recommends mulching with hardwood sawdust. Why is there a difference, and does it matter which type of sawdust I use?

Answer:

I've wondered about this myself. I checked out a number of studies done in different locations, hoping to find one where someone compared softwood sawdust to hardwood, but couldn't find any. (If anyone out there knows of any information on this, let me know!). It seemed likely that the reason for the differences in recommendations might simply be due to availability of materials for the studies. Those done in locations where softwood sawdust was available (Southern states, or Canada) found that softwood sawdust worked, and hence recommended softwood sawdust, while those done in locations where hardwood sawdust was available (Northeast U.S.) found hardwood sawdust to be acceptable.

There's some reference to softwood sawdust being acidifying. In studies where soil was mixed with sawdust, the pH initially dropped, but then rose as the sawdust decomposed, regardless of whether the study used softwood sawdust or hardwood sawdust. This could be a bit troubling for blueberry growers, and it's always a good idea to check the pH of the mulch you are going to use. If it's above 7, it's probably better to find another source just to be safe. The pH of our decomposed sawdust at PSU has often been high, but the use of ammonium sulfate for fertilization has always dropped the pH of the mulch layer to an acceptable (and sometimes too low) range. So we tend to alternate between using urea and ammonium sulfate to keep the pH in the correct range (4.5 to 5.0)

Got a question? Chances are that someone else has the same question, but isn't asking! Send your question to Kathy Demchak, at 102 Tyson Bldg., University Park, PA 16802, or via email to kdemchak@psu.edu. You will be credited with the question, or can remain anonymous, as you wish.

Time for Notching is Here!

Source: W. Autio and D. Greene, Healthy Fruit, Umass Amherst, Volume 12, 2004

Notching is one of the few reliable means of enhancing branch development in apples. Young trees particularly can benefit from notching as a way to encourage new branches in specific parts of the tree. The process is simply to make a cut through the bark into the wood, perpendicular to the stem, and just above a bud that you wish to produce a shoot. The cut can be made with a hacksaw blade and should be about one inch long.

The best timing is between 4 and 2 weeks before bloom, but is still somewhat effective at bloom. Two-year-old wood is ideal for notching, but it can work on older wood as well. Results are nearly as good on one-year old wood, but chances of breakage in the notching process increase dramatically. Choose the largest buds, since they will result in the longest shoots. Overall, you should expect in excess of 70% of these notch buds to produce useable shoots.

Strawberry Plant Establishment

Source: Marvin P. Pritts, Cornell Univ., Ithaca, NY, The New York Berry News, Vol.02, Number 03, March 22, 2003

Getting plants off to a good start will pay big dividends later, when strawberry plants must deal with the

stresses of weather and pests. Among the most important steps in site preparation is the elimination of perennial weeds. Few herbicides are labeled for use in established strawberries, and their activity on perennial weeds is limited. Therefore, weeds are most effectively controlled before planting.

Weeds

Weeds cause a greater economic loss than diseases and insects combined. In addition, weeds also encourage the establishment of other pest populations. Eliminating weeds the year before planting is much easier than controlling them later. Too many growers plant directly into a site in which perennial weeds were not eliminated the previous summer, and then spend the next several years trying to find the right combination of herbicides to undo the damage.

Rotation, coupled with the use of a broad-spectrum postemergent herbicide the summer before planting, is an effective approach. Cover cropping the site again after the herbicide application will further suppress weed growth. Repeated cultivation or covering a site with black plastic for several months are also effective approaches. Growers should begin site preparation 2 or 3 years before the crop is planted to eliminate perennial weeds.

Fumigation at high rates will suppress weeds, although its use worldwide will likely be restricted because of environmental concerns, availability, and expense. In some situations, nematodes, soil diseases, soil insects, or intense weed pressure may justify fumigation. The soil should be friable, warm (>50F), and without decomposing plant material for fumigation to work properly. The best time to fumigate a strawberry field is late summer or early fall of the year prior to planting.

Nutrient amendments

Test the soil for pH, potassium, phosphorus, magnesium, calcium, and boron. Sample soil in a V-shape pattern within the field, collecting from at least ten locations. The sample should represent the profile of the top 10-12 inches.

Plow the site, add the recommended amount of nutrients, and then disc. Because soil testing procedures are not standardized across the region, follow the recommendations from the laboratory where the samples were analyzed. Do not use the test results from one laboratory and the sufficiency ranges from another.

pH: It takes one year for lime to raise, and for sulfur to lower the soil pH, so it is necessary to apply these one year in advance of planting. The more finely ground the sulfur or lime, the faster it will react with the soil. If the soil pH must be increased, a liming agent such as calcite or dolomite should be applied. Liming agents differ from one another in two important characteristics which influence their effectiveness:

1. chemical composition, which affects acid neutralizing potential and fertilizer value and
2. particle size, which determines liming efficiency and ease of application.

Consider the relative importance of these when selecting a liming agent. For example, even though dolomite has a lower neutralizing value than calcite, it is often used at sites which require supplemental magnesium for adequate fertility. Moreover, finely ground lime is more difficult to apply than coarse particles, but it changes the soil pH more quickly.

Sulfur is effective at lowering soil pH, but time is required for bacteria to oxidize the sulfur into a usable form. Sulfur comes as a wettable powder or prills, with the former reacting faster to lower the soil pH.

Aluminum sulfate is sometimes recommended for acidification because it provides an already oxidized form of sulfur, but it is expensive and six times as much is required to do the same job as sulfur. Also, aluminum toxicity can occur with large amounts of aluminum sulfate, so we do not recommend it.

Nitrogen and Phosphorus: Certain nutrients, like phosphorus, are very insoluble in water and move very slowly through the soil. It may take years for phosphorus applied to the soil surface to reach the root zone of the plant and be taken up. For this reason it is imperative to apply a sufficient amount prior to planting and mix it into the root zone.

Animal manures and legumes offer a good source of slowly released nitrogen when incorporated prior to planting. Animal manures are a potential source of weed seeds, however. Manure applied to fields should be well composted and worked into the soil prior to planting to minimize any risk of fruit contamination from pathogenic bacteria.

Irrigation

The irrigation system should be in place prior to planting because transplants probably will require immediate watering. Any preemergent herbicide applied after transplanting will need to be watered in by rain or irrigation to be effective. For these reasons, the irrigation system should be operational prior to planting. Also, in early spring, the irrigation system will be a necessary tool for frost protection.

Preplant cover crops

Seeding a cover crop on the site the year before planting is an excellent way to improve soil structure, suppress weeds, and if the proper cover crop is grown, suppress nematode populations. Benefits of a cover crop are greatest when the soil is sandy and/or the soil organic matter content is low. Most cover crops grow under the same soil conditions as strawberries. Except for additional nitrogen (40 lb/A prior to seeding) and perhaps phosphorus, other amendments are not likely to be required.

Minimum seeding rates are used when the objective is to supply an acceptable stand for harvesting the grain or straw. But when a vigorous, dense stand is desired for weed suppression and organic matter, higher seeding rates are recommended.

Preplant cover crops are usually plowed under in the late fall or early spring prior to planting. Those with low nitrogen contents (grains and grasses) should be plowed under early in the fall to allow adequate time for decomposition, unless the soil and site are prone to erosion. Legumes contain more nitrogen and decompose quickly, so they can be turned under within a month of planting.

Many plant species are suitable as preplant cover crops, and each has certain advantages. In some cases, mixtures of crops are used to realize the benefits of both. The *Strawberry Production Guide* (NRAES - 88) provides many details on site selection and preparation, and on suitable preplant cover crops for the strawberry planting.

Assessing Weed Control In Vineyards

Source: Alice Wise and Andrew Senesac, Cornell Cooperative Extension of Suffolk County, Long Island Fruit & Vegetable Update, No. 4, April 2, 2002

Weed control is one of the major challenges in vineyard management. There are no silver bullets, but good judgment and good timing go a long way. *Weeds of the Northeast*, the bible on weed ID co-authored by CCE weed specialist Dr. Andy Senesac, is a very useful reference for diagnosing weed species and developing management strategies. Dr. Senesac also co-authored (with Cornellians Rick

Dunst and Bob Pool) a set of fact sheets *Managing Weeds in NY Vineyards*.

It is not viticulturally necessary to maintain a completely bare ground strip under the trellis all summer long. Just how much weed pressure vines can tolerate at various times of the season would be an interesting research project. Young vines with shallow, developing root systems would be sensitive to anything more than light weed cover. Older vines with deeper root systems can likely tolerate more weed competition, assuming the vines are not otherwise stressed. However, allowing weeds to reach maturity only increases the number of propagules (seeds, tubers, rhizomes) that will be present to deal with in the future. Weed control can be achieved without herbicides, although increased labor inputs will be required. Hand hoeing is fine periodically but an impossibility for long term weed control in a commercial vineyard.

Mechanical weed control can be effective if done properly; however, timing is everything. Once weeds become well-rooted and lignified, cultivation is much more difficult. Use of a cultivating implement requires a skilled tractor driver to avoid vine trunk and root damage and trellis destruction (it has happened). Mechanical weeding long term is detrimental to soil organic matter and may increase soil erosion. Alternating cultivation with a timely postemergent herbicide such as glyphosate may be one way around that concern.

While growers endeavor to reduce pesticide use, it remains difficult to totally eliminate the use of herbicides in Long Island vineyards. Advances have been made in terms of applicators, namely the controlled droplet applicator. This shielded sprayer uses low gallonage and a spinner type nozzle. A higher percentage of the material hits its target and off-target drift is reduced. One difficulty with the CDA sprayer is that dry formulations and certain viscous liquid formulations cannot be used. Another application device uses infrared to turn on the sprayer only when a weed is sensed. These devices are expensive and probably not yet appropriate for LI cultural practices.

Herbicides are divided into two groups: those that prevent weed seed from germinating (emerging), known as preemergent materials, and those that are applied to existing weeds, known as postemergent materials. It is also necessary to plan for control of broadleaf weeds like horseweed, dandelion, groundsel, pineappleweed, etc., as well as grasses such as bluegrass, quackgrass, crabgrass, etc. If planning on using preemergent materials for both broadleaf and grass control, it is usually necessary to combine two materials. If weeds are existing in the vineyard, a postemergent material may also be included. Be aware that only Prowl, Devrinol and Surflan are labeled for non-bearing vineyards.

For established vineyards, preemergent grass herbicides include Devrinol, Surflan, and Karmex (Solicam is no longer labeled for use on Long Island.)

Editor's Note: Solicam, Princep, & Treflan are still listed for use on established grapes in the 2004 Midwest Commercial Small Fruit & Grape Spray Guide.)

Broadleaf herbicides for established vineyards include Princep, Goal, and Karmex. Some points about each one follow. This is not a substitute for reading the label -- read the label thoroughly for complete information.

- **Devrinol:** Necessary to have 0.25 to 1.0" of rain within a few days of application. Under warm summer conditions, significant losses can occur if water incorporation does not occur. In the cooler early spring, this is not so much of a concern.
- **Oryzalin 4AS/Surflan:** The standard for preemergent grass control. Use 6 to 8 pts/sprayed acre in

a tank mix with a broadleaf herbicide such as Princep or Goal.

- **Karmex:** Considered to be tricky on Long Island because of the risk of damage on sandy soils. However on mature vines, the labeled rate for our soil types does provide good broadleaf weed control for most of the season.
- **Goal:** Must go on before bud swell, can cause burning of foliage close to ground due to volatility and 'splash up' of treated soil onto green tissues.
- **Princep:** Kills weeds by inhibiting photosynthesis after they emerge, so it needs incorporation with rain, though less time restricted than Devrinol.

A typical spring herbicide application might be Princep, Surflan, and either Roundup or Gramoxone, the latter two being postemergent materials for established weeds. Postemergent herbicides will be covered in a future newsletter.

Calculation of area to be treated can be done by first noting the spray swath of the herbicide rig. For example, at the research vineyard, we use an 18 inch Enviromist. Since we drive this down both sides of the trellis, our spray swath is 36 inches.

For traditional application devices, measure the spray swath by filling the tank with water and turning on the unit while on pavement. Our row width is 8 ft. or 96 inches. Our calculation for area to be sprayed is $36/96 = 0.375$. Thus for every acre of vineyard, we will spray 0.375 acres with herbicide. This 0.375 acres is referred to as the "sprayed acre" on herbicide labels.

Grape Flea Beetle

Source: Bruce Bordelon, Purdue University, Facts for Fancy Fruit 04-01, March 26, 2004

The Grape flea beetle can be a serious pest of grapes because they feed on developing buds after final pruning. Lost buds can relate to a direct loss of yield. Grapes will be in early swell to budbreak across the state over the next two weeks, and these are the stages most likely to be damaged by flea beetles. Scout vineyards for these insects or their damage and control if more than 5% of the buds have been damaged. Damage appears as holes eaten into the sides of buds.

The insects are small (1/8 inch long) and shiny green, blue, or black in appearance. They crawl quickly along the canes and tend to drop to the ground if disturbed. Incidence often occurs in outer rows adjacent to fence rows or woods, making spot spraying an option. Scout the planting carefully and apply insecticides only if needed. Damage from flea beetles usually decreases as buds break and shoots become 1/2 inch or longer. Sevin will provide excellent control of this insect.

Mite & Insect Information for Grapes

Source: Doug Pfeiffer, Virginia Tech Entomologist, PA Wine Grape Info Newsletter, April 1, 2004

European Red Mite

Oil for European red mite eggs? European red mite is the most common spider mite pest in Virginia vineyards. This species overwinters in the egg stage on cordons and trunks (unlike twospotted spider mite, which overwinters as adults in the ground cover). One treatment often applied for overwintered

ERM eggs is Superior oil. This is effective on apple and peach, both of which have smooth bark. Effectiveness is hindered with the loose bark of grapevines. If growers opt for this approach, remember to use high volumes, in order to soak the bark and get as much penetration into crevices as possible.

Climbing cutworms

One of the early season insect pests that many growers contend with is the climbing cutworm complex. These caterpillars spend the daytime in the ground cover, usually hiding beneath clods of dirt or rocks. At night, they crawl up trunks of vines and feed on buds during the bud swell period. Once shoots have reached about two inches in length, they have grown past the main period of vulnerability. Sometimes the injury is confused with grape flea beetle, another pest at bud swell. The injury to buds by cutworms is generally more ragged in appearance, while GFB feeding is more sharply defined, sometimes a neat circle eaten in the side of the bud.

Cutworms can be difficult to control. Last year I had a spray trial for cutworms in a Seyval block that included Intrepid, SpinTor, a band of Tanglefoot around the trunk, and the untreated check. Intrepid and SpinTor gave a level of control not significantly different from each other, between a quarter and a third of the injury in the check. The Tanglefoot treatment was intermediate, not different from the check while not different from the insecticides, either.

An expanded discussion of climbing cutworms, including photographs, can be found in the March-April 2003 *Viticulture Notes* <http://www.ext.vt.edu/news/periodicals/viticulture/03marchapril/03marchapril.html#I>. Ohio Fruit ICM News April 8, 2004 Page 11

April in the Vineyard

Source: Mark Chien, Penn State University, PA Wine Grape Info Newsletter, April 1, 2004

Budbreak is coming up fast, so this is the time to get ready for a new season. The hope is, of course, that 2004 will be a bit more forgiving than 2003. A harsh winter has set the tone, however, so growers need to be ready. My hope is that vintners in colder climes counted buds and adjusted their pruning and bud counts accordingly. The Finger Lakes and Ontario were hit hard, and it's a tremendous viticultural challenge to maintain production, re-establish the vine with healthy wood, and manage a gangly canopy. Spring will be very revealing.

The disease issues last year also means having a well considered spray program based on observations and results of last year's disease, insect, pest, and problem situation in your vineyard. Where were the holes in your program? What are you going to do to plug them? A plan should be in hand prior to the beginning of the spray season and then adjusted and adapted to the growing season as it develops. If you had a problem last year, it's waiting to become an even bigger problem this year.

Also see Dr. Jim Travis' power point presentation on disease control for 2004 on the Wine Grape Network web site at <http://winegrape.cas.psu.edu/>. Scouting your vineyard will be important early and throughout the season. IPM will help you control your pest problems. See <http://www.nysipm.cornell.edu/> for IPM advice.

Pruning needs to be finished before buds pop, especially cane pruning, since it's almost impossible to tie down canes after the buds have pushed without popping them off. Later pruning will delay budbreak and help you through early spring frost events. Brush needs to be chopped or removed. Many have asked if they had a disease problem should they physically remove the prunings from the vineyard. Depending

on severity, it couldn't hurt, but it's a ton of work. Using a real brush chopping mower will probably suffice, make two passes if necessary to pulverize the wood. If you have any dead cluster stems still hanging on the vines, it would be a good idea to remove them. They are a great source of inoculum for Phomopsis and Botrytis. Start thinking about ordering spray materials and other supplies.

Early season weed control can start now, with the use of pre-emergence herbicides. While I like to discourage growers from using herbicides, they may be necessary to help get a problem under control and then allow you slowly transition to other non-chemical methods of weed control.

Fertilizers can also be applied on the ground now with spring rains to move them into the soil. This is the time you really need to be fixing stuff. Actually, two months ago, but now is the 11th hour. Get out there and fix trellis, fencing, buildings, equipment, tools, everything that you will be using in the summer; make sure it's in tip top shape. If you work on it now, you won't have to deal with it when it breaks at a critical moment in the growing season. Repair roads and spray fence lines.

It's a good time to be securing a home for your grapes. Talk to the wineries and get contracts delivered and signed. Talk to the wine makers about last year's results and talk together about how to make this year a better vintage. How was your bird control last fall? It's not too early to be thinking about strategies for 2004.

If you are planting grapes, you should be out there prepping the fields. By this time, it's too late for weed control except cultivating. You can still put down amendments. But vines should be on their way and the design and layout work should be considered. And, don't forget about re-plants, which should be going in as well.

It's a miraculous time of year when the vines slowly break dormancy and the buds and new shoots begin to push. Enjoy the miracle, but be prepared for all the challenges of the new season. Oh, and it's a good time to visit wineries and taste your wines, if they haven't been blended yet. And don't forget to leave some time to attend some grape meetings. There are still plenty of good ones happening around the region.

Fruit Observations & Trap Reports

Insect Key	
AM:	apple maggot
CM:	codling moth
ESBM:	eye-spotted budmoth
LAW:	lesser apple worm
LPTB:	lesser peachtree borer
OBLR:	obliquebanded leafroller
OFM:	oriental fruit moth
PTB:	peachtree borer
RBLR:	redbanded leafroller
SJS:	San Jose scale
STLM:	spotted tentiform leafminer
TABM:	tufted apple budmoth
VLR:	variegated leafroller

Site: Waterman Lab, Columbus

Dr. Celeste Welty, OSU Extension Entomologist

Apple: 3/31 to 4/7/04

RBLR: 2 (down from 7)

OFM: 1 (same as last week)

STLM: 27 (up from 8)

Site: Sandusky County

Ted Gastier, OSU Agent

Peach: 3/24 to 4/6/04

OFM: 0 (first report)

Beneficials: brown lacewing, multicolored Asian lady beetle

Pest Phenology

Coming Events	Degree Day Accum. Base 50F
Spotted tentiform leafminer 1 st catch	17 - 251
Tarnished plant bug active	34 - 299
Oriental fruit moth 1 st adult catch	44 - 338
Rosy apple aphid nymphs present - 1 st egg hatch	45 - 148
Lesser appleworm 1 st flight	49 - 377
Pear thrips in pear buds	54 - 101
Green apple aphids present	54 - 156
Pear psylla 1 st egg hatch - nymphs present	55 - 208

Thanks to *Scaffolds Fruit Journal* (Art Agnello)

Degree Day Accumulations for Ohio Sites April 7, 2004

Ohio Location	Degree Day Accumulations Base 50	
	Actual	Normal*
Akron-Canton	44	48
Cincinnati	108	102
Cleveland	41	47
Columbus	73	69
Dayton	81	68

Kingsville	33	34
Mansfield	40	48
Norwalk	42	39
Piketon	108	115
Toledo	28	35
Wooster	54	42
Youngstown	31	40

*Normal - Revised to reflect change in base period from 1961-1990 to 1971-2000 by Midwestern Regional Climate Center <http://mcc.sws.uiuc.edu/>.

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