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Vegetable & Fruit Headline News

The University of Maryland Extension Agriculture and Natural Resources Profitability Impact Team proudly presents this bi-weekly publication for the commercial vegetable and fruit industry.

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UNIVERSITY OF MARYLAND

Spring Observations from WyeREC

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Tree Fruit **April 17, 2013**

Full bloom for peaches occurred April 12th. Critical sprays for Brown rot/blossom blight during bloom. Begin scab sprays at shuck fall.

Selected Asian pear varieties began blooming on April 10. Critical sprays for fireblight control during bloom. Conditions favorable for fireblight include; 1) open blossoms and succulent young growth; 2) temperature of 65f or higher; and 3) rainfall or 60% humidity or higher. If these conditions are met, begin streptomycin sprays just before blossoms open and repeat at 5-day intervals until last petals fall. The use of the FireBlight model MaryBlyt may help reduce the number of Strep sprays.

Apples have not bloomed. Scab sprays for susceptible varieties should begin at 1/2inch green tip.

Strawberries Plasticulture

After a slow start, Chandlers are not quite at full bloom. Critical sprays for Gray mold are at 10% bloom and again at 100% bloom. For the prevention of development of fungicide resistance always follow the pesticide label with respect to number of applications allowed. Also, rotation between different chemistries and the addition of a protectant fungicide (Captan) will help slow the resistance build-up.

Dr. Guido Schnabel of Clemson University started monitoring for Gray mold resistance last year and is offering this in 2013 as well. If you would like to participate in this monitoring you should call me (410-827-7388) to discuss the procedure. Some interesting findings so far are that products that were good last year may be ineffective this year. Topsin-M is ineffective, Rovral and Switch are still good options; Contrary to what was found last year, Pristine may still be effective. Always read, understand and follow the pesticide label.

Strawberry virus is some fall planted material resulted in stunted plants. I received some of those infected plants and the plan is to continue with a fertility plan as scheduled based on leaf and petiole nutrient analysis and continue with my standard pest control. New leaves are not showing symptoms, but there are some differences in plant size. It's important to keep strawberry aphid populations under control to prevent the possibility of spreading the virus.

Strawberries Perennial-matted row system

With a later season this year, there is the possibility of strawberry bud weevil becoming a problem. Keep looking in rows that boarder woodlands for the first weevils. One cut bud per linear row foot is the treatment threshold. Lorsban works well with good residual activity, but it cannot be applied after flowering starts. Sevin, Danitol and Brigade are other options. Please check the label for limitations.

2013 Strawberry Twilight Meeting

Wednesday May 29th
6:00 – 8:00 PM
Wye Research and Education Center
211 Farm Lane
Queenstown MD

The 2013 Strawberry Twilight Meeting at the Wye Research and Education Center will be held Wednesday, May 29, 2013 from 6:00-8:00 PM, rain or shine, at the Farm Operations Complex, 211 Farm Lane, Queenstown, MD. Directional signs will be posted.

We hope you can join us for an informative evening. Pre-registration is not necessary. Refreshments will be served.

For additional program information, contact Mike Newell at 410-827-7388 or mnewell@umd.edu.

If you need special assistance to attend this program, please contact Debby Dant at 410-827-8056 or ddant@umd.edu.

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Tree Fruit Disease Update

By Dr. Kari Peter
Penn State Fruit Research and Extension Center
http://extension.psu.edu/plants/tree-fruit

April 15, 2013

Be on alert for early season disease development: We have optimal conditions for brown rot (blossom blight) on stone fruit and growers are encouraged to apply fungicides during this critical period. This also continues to be a critical period for controlling primary apple scab infection.

As a plant pathologist, this is an exciting time of the season; however, I know I'm in the minority with that excitement. Mother Nature went from 0 to 60 mph in a blink of an eye last week and the fruit trees are progressing at a rapid rate. At FREC, our peaches are in early bloom and Gala is at tight cluster. Combined with the weather, we are in a critical period for infection for brown rot (blossom blight) and primary scab. Optimal conditions for scab mean optimal conditions for cherry leaf spot and rusts as well, especially after green tissue is first exposed. Although we are seeing wet conditions, it's best not to let one's guard down during the dry periods for apples, which is when powdery mildew infections occur.

Blossoming peaches at the Penn State Fruit Research and Extension Center

Brown Rot

The source of spores for spring infection is usually due to overwintered mummified fruit on the ground or in the tree, and twig cankers. It doesn't take much for brown rot spores to be happy and infectious: when at 61ºF, four hours of wetness is all that is required. The higher the temperature, the fewer hours of wetness are required; however, when temperatures are lower, more hours of wetness are required for infection. For controlling infection, if you use a single mode of action fungicide, such as an SI (FRAC Group 3) or a QoI (FRAC Group 11), tank mix with an unrelated fungicide, such ziram, thiram, captan, mancozeb, etc. Also note the FRAC Group number on the fungicide you are using, which is located on the upper right area of the label, and rotate fungicides by FRAC Group number when spraying.

Apple Scab

The SkyBit Ag E-Weather IPM Apple Disease Report at FREC is still forecasting primary scab infection through this week. Thanks to the very warm temps, not only has the tree growth been increasing, but the apple scab spores have been maturing rapidly. We performed spore counts on April 8 and April 12 and the numbers increased 500 – 1000x in just a few days. Spores will continue to mature and be released. For the vulnerable period of tight cluster to bloom, control for infection by tank mixing fungicides and rotate fungicides by FRAC Group number.
When controlling for disease, weather and tree growth conditions need to be monitored at a local level within one's own orchard.

Additional resources:

For a good overview of brown rot, Noemi Halbrendt wrote a Fruit Times article in June 2012.

Guidance and fungicide recommendations:

For those in Pennsylvania, see The Pennsylvania 2012-2013 Tree Fruit Production Guide (starting at page 221 for apples; page 236 for stone fruit).
For the folks in Maryland, see the 2013 Spray Bulletin for Commercial Tree Fruit Growers
Before chemical products are applied, be sure to be in compliance by obtaining the current usage regulations and examining the product label. Product information can be easily obtained from CDMS.

Source:
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http://extension.psu.edu/directory/tab36
Web: extension.psu.edu
Penn State tree fruit resources:
http://extension.psu.edu/plants/tree-fruit
Fruit Times Newsletter:
http://extension.psu.edu/plants/tree-fruit/news
Young Grower Alliance:
http://extension.psu.edu/plants/tree-fruit/yga
Specialty Crop Research Initiatives:
http://www.cascrop.com/
http://www.abe.psu.edu/scri/

High Density Apple Variety Fire Blight Resistance Trial Comparing M9/Bud 9 and Geneva 16 Rootstock in Southern Maryland

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Introduction/Situation

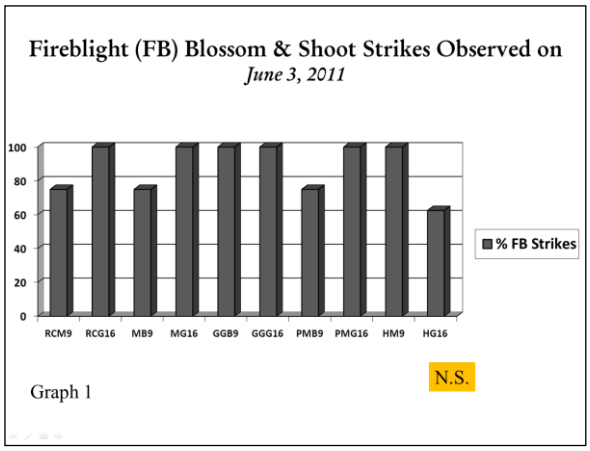
Orchardists in Southern Maryland have recognized that fireblight caused by the bacteria Erwinia amylovora sp. has been the most limiting factor for expanding apple and pear production into the warmer and humid coastal plains region. Fireblight is especially devastating for high density apple orchards utilizing full dwarfing rootstocks that offer no resistance, and generally succumb to graft union necrosis within the first five years of growth. In the Southern Maryland region it is not uncommon for fifty percent tree loss due to fireblight within the first five years for apple orchards planted on either M9 or M26 rootstocks. These tree losses would be incurred even when good fireblight prevention programs, such as Maryblyt and timely spray treatments were utilized. A fruit research team was formed at the University of Maryland Central Maryland Research and Education Center (CMREC), Upper Marlboro Facility to address the production concerns of orchardists in the Southern Maryland region by conducting training system evaluations and pest management spray research programs. Viable apple and pear production for fresh market sales in Southern Maryland and other coastal plains areas would certainly be an excellent alternative agriculture enterprise for farmers seeking to transition into a high value crop.

Objectives

The purpose of this five year trial conducted from 2008-2012 at the CMREC, Upper Marlboro facility was to assess the performance and fire blight susceptibility of five premium apple varieties on two dwarfing rootstocks: M9/Bud 9, which is susceptible to fire blight, and Geneva 16, which is tolerant. Because of the warmer climate in southern Maryland, fire blight is a serious problem for growers who want to specialize in premium apples for the retail market. The varieties included in the trial are Royal Court, Macoun, Ginger Gold, Pioneer Mac, and Honeycrisp. Each variety was grafted onto both M9/Bud 9 and Geneva 16 for comparison of tree growth, yield, and fireblight incidence over four bearing years. This research orchard was instrumental in promoting fruit production in Southern Maryland, alleviating grower apprehension to fruit crop adoption by providing hands-on pruning clinics, field-days, twilights, lectures and demonstrable production data.

Experimental Procedure

The CMREC, Upper Marlboro facility apple fireblight research and demonstration orchard was planted on March 12, 2008 on a Monmouth fine sandy loam soil with a warm southern aspect exposure and orchard rows oriented north to south. Eighty nursery-grafted feathered trees were planted in a high-density quarter acre block with fourteen foot between-row spacing and six foot in-row spacing, utilizing a slender spindle training system with support conduits. Tall fescue was drilled into the alleyways and herbicides were used throughout the study to maintain a five foot weed free root zone. Fruit cover sprays were adhered to utilizing a calendar approach with IPM scouting. Each treatment consisted of two trees of each variety grafted onto M9/ Bud 9 or Geneva 16 rootstock. There were ten treatments: five varieties by two rootstocks, replicated four times in a randomized complete block design. Tree growth measurement began in 2008. The trees were allowed to begin bearing in 2009, at which time yield and fire blight assessment began. Infection periods were forecasted using Maryblyt and streptomycin sprays applied during bloom only as indicated by the forecast. The

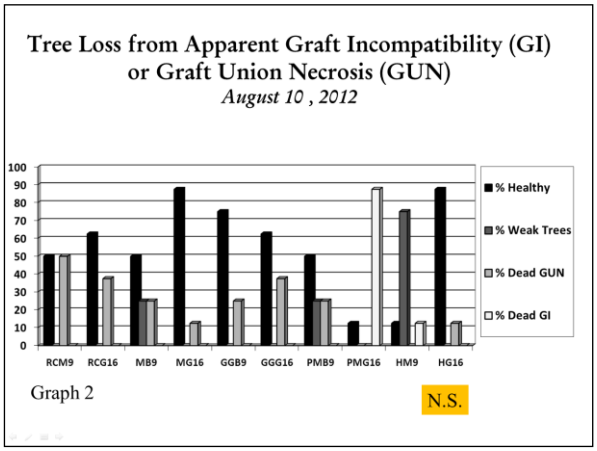


Graph 1

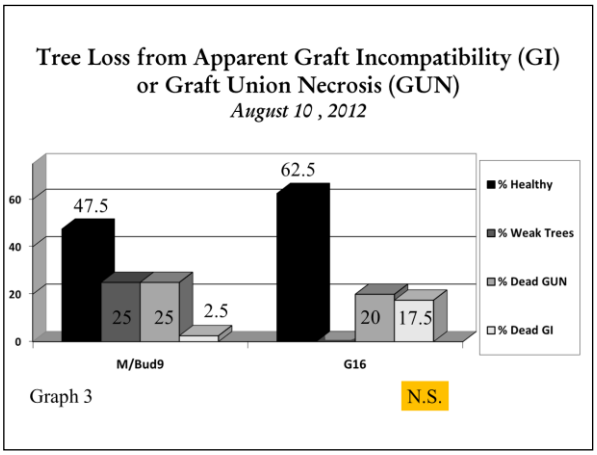
percentage of flower clusters infected and number of shoot strikes were assessed for each treatment. For the duration of the study shoot and flower strikes were pruned out as observed; and copper sprays were applied after severe fireblight strikes. The trees were evaluated for health and vigor, rating the decline of trees caused by fireblight infection, which ultimately led to weakened trees and death by graft union necrosis.

Observations

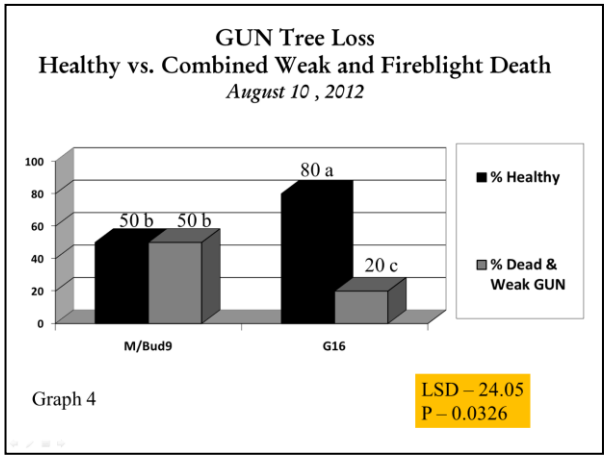
The fireblight blossom and shoot strikes observed on June 3, 2011 (graph 1) provide evidence of the severity of fireblight disease in the research orchard and offer no observable significant difference in the incidence of fireblight infections for varieties or rootstocks. At the culmination of the five year study trees were evaluated for fireblight hardiness and survival.



On August 10, 2012 (graph 2) observations were made of the percent healthy trees, weak trees, trees dead from graft union necrosis (GUN) and trees dead from graft incompatibility (GI). The Pioneer Mac G16 and Honeycrisp M9 trees that had graft incompatibility died during the summer of planting, 87.5% and 12.5%, respectively. The death due to graft incompatibility caused the variability of the study by variety and rootstock to increase, leading to non-significant findings when comparing varieties and rootstocks directly to each other.



When comparing only the rootstock performance for the same fireblight hardiness and survival observations, (graph 3) combining the varieties, trees on M9/Bud9 rootstocks were 47.5% healthy, 25% weak, 25% dead GUN, and 2.5% dead GI; whereas, trees on G16 rootstocks were 62.5% healthy, 0% weak, 20% dead GUN and 17.5% dead GI. The graft incompatibility also renders this comparison confounded and non-significant. However, when the same comparison is made excluding the trees that died early in the study due to GI, examining only the healthy trees as compared to the trees that are weak, (succumbing to fireblight) combined with the trees that have died due to GUN (graph 4) the findings were significant for trees on M9/Bud9 rootstocks were 50% healthy, 50% weak or dead GUN; whereas, trees on G16 rootstocks were 80% healthy 20% weak or dead GUN, with an LSD value 14.05 and p value 0.0326.



Conclusions

Careful consideration should be given to the selection of variety grafted onto the Geneva 16 for compatibility. Even in the Southern Maryland region of severe fireblight infection, this study provides good evidence that the Geneva 16 rootstocks offers a thirty percent increase of survival of graft union necrosis caused by fireblight and a fifty-five percent increase in tree health and hardiness. This increase of productive apple trees surviving establishment and early orchard development should offer encouragement to trial high density full dwarf apple production once again in the coastal plains region. Growers utilizing Geneva 16 rootstocks on the strongest fireblight resistant apple varieties, coupled with strict adherence to fireblight control programs, sanitation and spray strategies should be able to achieve profitable high density apple orchards.

Vegetable Crop Insects

By Joanne Whalen,
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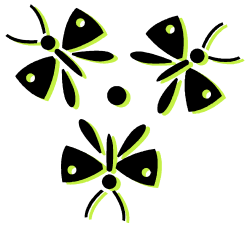

Cabbage

April 12, 2013

Continue scouting fields for imported cabbage worm and diamondback larvae as soon as plants are placed in the field. With the recent warm temperatures, we are starting to see an increase in moth egg laying activity. As a general guideline, a treatment is recommended if you find 5% of the plants infested with larvae.

Peas

Be sure to sample peas for pea aphids as soon as small seedlings emerge. On small plants, you should sample for aphids by counting the number of aphids on 10 plants in 10 locations throughout a field. On larger plants, take 10 sweeps in 10 locations. As a general guideline, a treatment is recommended if you find 5-10 aphids per plant or 50 or more aphids per sweep.

Vegetable Transplant Height Control in Vegetable Crops

By Gordon Johnson,
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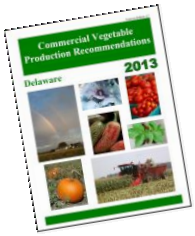
One of the most important considerations for transplant production is managing "stretch" or height of transplants. The goal is to produce a transplant of a size that it can be handled by mechanical transplanters without damage and that are tolerant to wind.
Most growth regulators that are used for bedding plants are not registered for vegetable transplants. One exception is Sumagic® registered for use as a foliar spray on tomato, pepper, eggplant, groundcherry, pepino and tomatillo transplants (no other crops are registered at present). The recommended label rate is 0.52 to 2.60 fluid oz per gallon (2 to 10 ppm) and one gallon should be sprayed so it covers 200 sq ft of transplant trays (2 quarts per 100 sq ft). The first application can be made when transplants have 2-4 true leaves. One additional application may be made at the low rate, 0.52 fluid oz per gallon (2 ppm), 7-14 days later, but you cannot exceed 2.60 fluid oz of total product (per 100 sq ft) for a season. Growers are advised to perform small-scale trials on a portion of their transplants under their growing conditions before large scale adoption.

For other crops alternative methods for height control must be used. One such method that is successful is the use of temperature differential or DIF; the difference between day and night temperatures in the greenhouse. In most heating programs, a greenhouse will be much warmer during the day than the night. The critical period during a day for height control is the first 2 to 3 hours following sunrise. By lowering the temperature during this 3-hour period, plant height in many vegetables can be modulated. Drop air temperature to 50° – 55°F for 2-3 hours starting just before dawn, and then return to 60° – 70°F. Vegetables vary in their response to DIF. For example, tomatoes are very responsive, while squash is much less responsive.

Mechanical movement can also reduce transplant height. This may be accomplished by brushing over the tops of transplants twice daily for with a pipe or wand made of soft or smooth material. Crops responding to mechanical height control include tomatoes, eggplant, and cucumbers. Peppers are damaged with this method. Managing water can also be a tool to control stretch in some vegetables. After plants have reached sufficient size, expose them to stress cycles, allowing plants to approach the wilting point before watering again. Be careful not to stress plants so much that they are damaged.

Managing greenhouse fertilizer programs is yet another method for controlling transplant height. Most greenhouse growing media come with a starter nutrient charge, good for about 2 weeks after seedling emergence. After that, you need to apply fertilizers, usually with a liquid feed program. Greenhouse fertilizers that are high in ammonium forms of nitrogen will induce more stretch than those with high relative proportions of nitrate nitrogen sources. Fertilizers that are high in phosphorus may also promote stretch.
Exposing plants to outside conditions is used for the hardening off process prior to transplanting. You can also use this for transplant height control during the production period. Roll out benches that can be moved outside of the greenhouse for a portion of the day or wagons that can be moved into and out of the greenhouse can be used for this purpose.

Commercial 2013 Vegetable Production Recommendations Maryland EB 236



On-Line at:

http://mdvegetables.umd.edu/files/EB-236_2013RecGuide.pdf

Also available in a new very interactive format at the Delaware Extension site at:
http://extension.udel.edu/ag/vegetable-fruit-resources/commercial-vegetable-production-recommendations/

Vegetable & Fruit Headline News

A bi-weekly publication for the commercial vegetable and fruit industry available electronically in 2013 from April through September on the following dates: March 21; April 18; May 9 & 23; June 6 & 20; July 11 & 25; August 15; September 12.

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