



NOURSE news

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Greetings from Nourse Farms!

I would like to acknowledge all the extension personnel throughout the U.S. who are working on solutions and strategies for Spotted Wing Drosophila. The extensive range of trapping, habitat study, and biology is providing knowledge that will help improve strategies to deal with this pest. I must also acknowledge people at the EPA, who are allowing reduced pre-harvest intervals and slight rate increases for Malathion. I have attended several conference calls where people at the EPA were listening to both extension and growers with the intent to facilitate a positive outcome. An action plan is being developed with IR-4 personnel for both long and short term solutions. All growers need to be supportive of their extension personnel by filling out surveys and attending meetings. Raspberry growers who haven't filled out a survey can get one from us. Call or write and we will be happy to send you one. Our strategy for 2013 will continue to evolve as we learn more about SWD.

Our winter meeting schedule was short, but filled with great information. The tour and meetings in Portland, Oregon were highlighted with the trellising of blueberry plants. The basic two wire or double T trellis allows for machine harvest and crop protectant applications without knocking off as many berries. I can foresee trying it in our hand harvested blueberries for the same reasons and to prevent berries being knocked off by wind and rain. The trellis systems for blackberries were interesting, but are specific to machine harvest and the varieties of the Pacific Northwest. A conversation developed about pruning blackberries for specific uses — I'll call it a prescription for pruning individual varieties. For example, someone who thought that Natchez fruit was too large, might leave longer laterals and more canes per foot of row to decrease berry size. If berries were too small, they would do the opposite.

We continue our mission to provide the best plants and advice to our growers. Let us know where you're having difficulty and we will make every effort to help you. We have expanded our refrigerated service with a truck to Columbus, Ohio's Federal Express depot. In most cases, orders scheduled to ship via Fed Ex ground between the second week of April and first week of May leave here Saturday morning and arrive at the depot Monday afternoon. This has shortened the delivery interval by one day in the Midwest and West and expanded our cold chain. Many growers have called with concerns that their strawberry plants were still frozen and were relieved to find out about the benefits of our improved service.



Nate, Mary and Tim Nourse

Planting Strawberries for Matted Row



The majority of our strawberry plants are still planted in the matted row system. One of the greatest challenges growers face in this system is weed management. I recognize many growers want to plant early and utilize the spring rains to establish plants. For several years I have recommended growers consider a 3-part strategy to reduce weed pressure during the first growing season: create a sterile seed bed, limit tillage, and utilize pre-emergent herbicides.

One of the biggest mistakes growers make during the growing season involves tilling too often and too deep. It is easy to get caught up on the aesthetics of a beautifully manicured field, the result is often an abundance of weeds. For over ten years, we have made our beds in April and planted in May after the first weeds begin to emerge. This is when growers need to consider applying Chateau or Prowl up to 24 hours before it will rain 1-2 inches or more. This will kill weeds less than one inch tall and create a weed barrier that can be planted into 5-7 days later. After planting, Devrinol and Sinbar could be applied in a band over the plants when rain is less than 12 hours away or followed with 1"-2" of overhead irrigation. At this point, no tillage has occurred since making the beds.

In some cases, growers are planting by hand to reduce the amount the soil is disturbed. While I cannot recommend it, growers are applying pre-emergent herbicides after planting

WARNING! Herbicides labeled for application over the plants can kill the plants. Spring dug plants are especially sensitive because of new tender growth.

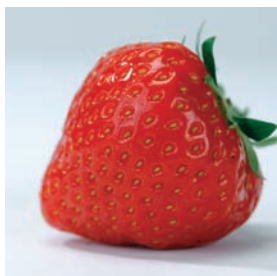
with the irrigation running. This should not be confused with application followed by irrigation, the irrigation is actively running while the herbicide is being applied. **WARNING!** Herbicides labeled for application over the plants can kill the plants. Spring dug plants are especially sensitive because of new, tender growth. Mixing several herbicides increases the chance of damage, even if plants are not killed, plant growth can be delayed.

Another part of the strategy involves no tillage until the first or second runners appear. When tillage occurs, it should be shallow (one inch or less!) and only disturb soil 4"-8" on either side of the plant. The tillage should only break the crust to allow runners to set roots. Again aesthetics don't mean much to the plants, the crust doesn't need to be pulverized, the crust needs to be broken up. In mid to late August, a second application of Devrinol should be considered to prevent weed germination.

New Varieties for 2013!

SONATA Limited Quantities

Strawberry variety introduction for 2013. Sonata, fruiting mid-season, performed very well in our fruiting trials and we are highly recommending it for its excellent flavor and its ability to hold fruit size through the season.



SONATA



TULAMAGIC®

TULAMAGIC®

Raspberry introduction for 2013. TulaMagic®, a mid-season summer/ florican variety has excellent qualities for raspberry producers. Most important is its tolerance to Phytophthora root rot disease. With its good plant vigor and its flavor characteristics, TulaMagic® has the potential to benefit summer

raspberry production especially for organic producers. We know it is winter hardy in zone 5 and should be trialed in zone 4 to check its level of winter hardiness.

GALLETTA Sold Out

We introduced Galletta in 2011 with growers fruiting it for the first time in 2012. We received glowing reports from growers for its earliness, very large fruit size, good yields and excellent flavor. It will provide an alternative to Wendy for the early season. Galletta also has good plant disease resistance with one of its parents being Earliglow.



GALLETTA



MAYFLOWER

MAYFLOWER

Introduced in 2012, Mayflower has good plant vigor and performs well under difficult conditions. With its productive yield, large berry size and good flavor, Mayflower is an excellent alternative for the late mid-season as indicated by our grower survey results.

STRAWBERRY VARIETIES *for* **GROWER TRIALS**

EVES DELIGHT A day-neutral strawberry variety with excellent flavor and plant characteristics, including some resistance to anthracnose crown rot. Eves Delight grows similar to Portola, with good plant vigor and strong, upright fruiting trusses for easy harvesting. In 2012, grower fruiting trials indicated it is best adapted to zones 3 to 5 and not to the warmer conditions of zone 6. Eves Delight is not as “crunchy” as other day-neutrals and has better flavor than most. We have good quantities of Eves Delight for grower trials in 2013 and recommend it be trialed. Grows best in zones 3-5.

MALWINA Released from a German breeding program, Malwina is the latest fruiting June bearing strawberry available today, fruiting at least a week later than Record. In our trials, the berries were very large, dark red with excellent taste, and have medium firmness. The plant is vigorous with dark green foliage. For growers interested in extending the summer fruiting season, Malwina will be a very interesting variety. We have limited plants for grower trials of 500 plants each. Contact Nate or Tim to coordinate. Grows best in zones 5-7.

LAUREL A mid-season, red-stele resistant variety from the Nova Scotia, Canada breeding program. Especially suited for pick-your-own and direct marketing, it produces large, aromatic, flavorful fruit and ample runners for establishing matted rows.

Spotted Wing Drosophila (SWD) BY NATE NOURSE

and the differences between strawberries and raspberries.

Spotted Wing Drosophila is a pest that will become more problematic as the summer season progresses. I like to compare them to mosquitoes; there are always a few in May and June, with increasing populations as conditions become more favorable. In 2012, the early spring brought earlier identifications in traps and crops. Later starts will result in later pressure points. In 2012, above average temperatures delayed and prohibited egg laying. SWD isn't active when temperatures exceed 85-90°F. As we become more familiar with its habits, we will modify our harvest schedule and crop protection applications.

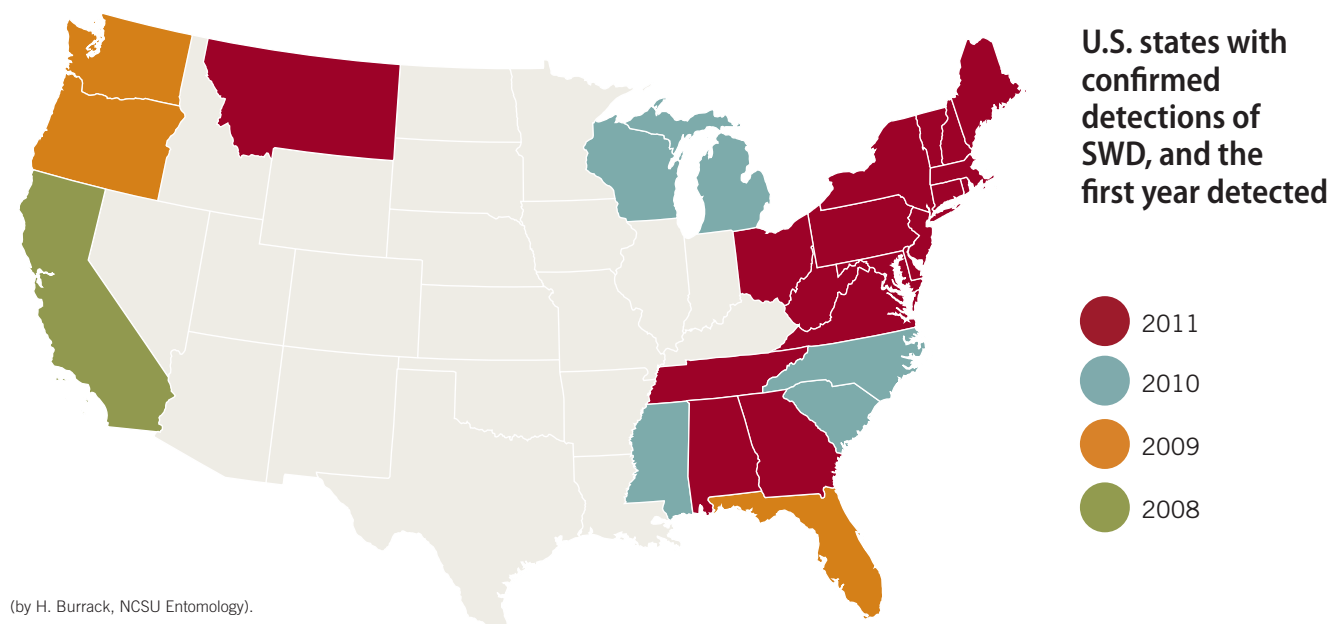
Consequently, most of the June strawberry harvest shouldn't be affected. However, berries that aren't harvested on a timely basis, especially in mid to late season, will be a source of habitat for populations to increase. Evidence suggests that strawberry skins tend to be tougher and more difficult for the female to penetrate and lay her eggs. One of our most successful strategies to combat SWD hinges on frequent and timely harvest. As soon as a field has finished being harvested, I would recommend beginning the renovation process. As everbearing strawberries begin to be harvested the year of planting, SWD pressure will be moderate to high. A weekly application of crop protectants and harvesting 2-3 times per week is recommended.

Raspberries will only have low pressure at the very beginning of harvest, most early varieties won't be affected much until the last few harvests. Evidence suggests that the softer skin allows female SWD to lay her eggs as fruit turns white to

pink. Harvest schedules need to be maintained at every other day intervals. Night time temperatures will determine if pick intervals are increased or decreased. In our fruiting fields, we clean harvest all fields including pick-your-own before crop protectant applications. When SWD pressure is high and trap counts start doubling, we begin to remove all cull fruit from the field. Similar to strawberry renovation, summer raspberry canes should be removed as soon as harvest is complete. At this time we also removed small primocanes on the edges of the rows that were producing berries. Our strategy allowed us to apply insecticides that had longer preharvest intervals for resistance management. Our goal was to have 1-2 weeks off between summer and fall harvest and apply 1-2 longer lasting insecticides to get SWD populations back in check.

SWD control strategies that are common to both strawberries and raspberries :

- **Maintain weekly crop protectant applications.**
- **Maintain frequent harvest schedules.**
- **Don't allow over ripe fruit to stay on the plants. Even picking it and leaving in the wheel marks will reduce egg development. The sun will cook a lot of eggs in exposed fruit. Leaving berries under the plant canopy will allow more egg development.**
- **Deliver harvested fruit to the cold storage hourly, maintaining temperatures as close to 32°F as possible through the entire cold chain.**



(by H. Burrack, NCSU Entomology).

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SWD and the future of different cultivars.

Certain cultivars will be more and less susceptible to SWD. Logic dictates that earlier cultivars will tend to have the least pressure. Some cultivars will have thicker skins providing more resistance and vice versa. There have always been cultivars that attract more or fewer insects. Research and grower experience will prove which are better and worse. Once the traits are known they will be utilized by breeders to develop resistant varieties. Until then, I have observed varieties and conditions that might make a cultivar more or less susceptible. In strawberries and raspberries, lighter colored varieties tend to be left on the plant longer to get better color. This will create a situation that allows SWD eggs to hatch and develop into second and third instar larva by the time berries are harvested. This will also be prevalent when growers miss a harvest day due to weather. The cultivars that take an extra day to ripen will be affected in the same way.

At this time I can only provide a few examples of better or worse cultivars.

Jaclyn is a primocane that can be harvested as a florican. Its fruit has to be fully ripe before it can be removed without bruising. I am recommending that growers avoid this variety. When we discovered SWD on our farm in 2012, Jaclyn was the most heavily laden with larvae of any variety. The main reason, we skipped a harvest interval and picked it for processing.

Josephine, Heritage, and **Caroline** are primocane fruiting berries that are traditionally harvested with a little more color. I recommend all fall raspberries be harvested when they can be removed from the fruiting spurs. The following harvest will provide berries that are just ripe. **Nantahala** probably fits in this category, but I don't have enough experience with the cultivar.

Joan J is a primocane that can be harvested as a florican. Because it ripens quickly, it can be harvested on a daily basis. This could be advantageous for both conventional and organic growers. Harvesting berries as soon as they can be removed without bruising will tend to have more fruit containing eggs that haven't hatched.

Prelude is a primocane that is primarily harvested as a florican. The early fruit will develop with low SWD pressure, the later crop will be harvested during the highest SWD pressure.

Himbo Top can be harvested with very light color. I have seen pictures from Europe that showed partially white berries or half ripe. Many growers will try to harvest this cultivar with too much red, it should be picked with pink color.

The spotted wing drosophila is a vinegar or fruit fly of East Asian origin. It has been in Hawaii since the 1980s, but was first discovered in California in 2008, and Florida, Utah, the Carolinas, and Michigan in 2010. It has many hosts, but is most often attracted to grapes, cherries, peaches, blueberries, raspberries, strawberries, and other soft-flesh fruits.

Damage

Spotted wing drosophila deserve notice because, unlike other fruit and vinegar flies which lay their eggs on past ripe or rotting fruit, they lay their eggs inside fresh fruit, often before harvest. Aside from the superficial scars left by the female's ovipositor (their egg-laying device), most damage is done by the maggots feeding inside the fruit. After only a few days, the skin will collapse and create craters in the fruit, making it susceptible to decays and rots. It is possible, however, for them to leave no visible impact on the fruit, only detectable once the fruit is picked and prepared for eating.

Description

Just as one could imagine from the insect's common name, male spotted wing drosophila have a single black spot on the tips of their wings. Females lack this particular trait, making them more difficult to identify, but both genders have distinct red eyes. What sets female spotted wing drosophila apart from other fruit flies is the black, saw-tooth edges that line either side of their ovipositor. While spotted wing drosophila generally have striped abdomens like so many other fruit flies, females tend to have a wider black band at the very end. Spotted wing drosophila are a medium sized fruit fly, generally about 0.08-0.12 inches long.

BY JULIET CARROLL AND KELSEY PETERSON,
NEW YORK STATE INTEGRATED PEST MANAGEMENT
PROGRAM, CORNELL UNIVERSITY

www.nysipm.cornell.edu/invasives_exotics/swd/swd.pdf



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- LTL shipments must be requested before noon on the departure day.
- If at all possible, please notify us by Wednesday the week before your scheduled ship date to change an order or FedEx ship date. We pack orders the week prior to shipment during our busy season.
- Some customers store plants in their own cooler before planting. While this can work, we recommend leaving your plants with us until conditions are right for you to plant within a few days of receipt. We have state-of-the-art cooler facilities that maintain constant temperature and humidity levels. Also, plants will warm-up during shipment and start to lose vigor.
- If you must cool plants, open the boxes to allow warm air to escape, reseal and keep them as close to 28°F as possible. Do not allow them to fall below 26°F as that will kill your plants.
- Do not add water or soak plants if you can't plant right away. Open boxes upon receipt to check temperature and freshness and reseal. If mold forms on asparagus roots they should be spread out on a pallet and kept dry to stop more mold from growing.
- Leaving your ship date "open" allows you to watch the weather and let us know when you would like us to ship. There is no default shipping date on "open" orders, therefore you need to let us know when you are ready.
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