

April 25, 2000

Strawberry Information**NC Mid-week Strawberry Update - April 25, 2000**

Barclay Poling, Extension Small Fruits
Ken Sorensen, Extension Entomology
Frank Louws, Extension Plant Pathology

General Roundup (Barclay Poling) - The early strawberry harvest is being hampered by more rains. Most growers in the Piedmont are now harvesting, as well as in the Coastal Plain. I have had very positive reports from growers about the customer turnout this past Easter holiday weekend. I have noted in the last week some discount prices for California strawberries in the supermarkets, but this does not appear to be having any appreciable impact on customer demand for locally grown pick-your-own and ready-pick strawberries. One complaint I am hearing from growers is, "I can't seem to get enough pickers to keep up with my demand". It seems that finding enough local labor for ready-pick marketing is emerging as a real concern of many producers. The cool weather is producing some additional sets of flowers! Warm spells in late April and /or early May will cause a shorter picking season, but this year's unusually cool temperatures can lead to a later harvest of berries than normal. On the negative side, the cool weather and extended periods of wetness are causing a more botrytis problems than I have seen in a number of years. But, the combination of an ongoing spray program and closer picking schedules during these extra wet periods will keep help to significantly reduce botrytis losses.

So far, at Clayton Central Crops we have only seen minimal botrytis problems in Camarosa, but Chandler continues to have fairly high cullage due to botrytis and misshapen fruit. The Camarosa has been exceptionally large and attractive compared to Chandler. Camarosa has super red color and great keeping quality. But, Camarosa fruit must be picked with full, almost "wine-red", color for best flavor. If customers pick Camarosa too early, they will complain about its tartness!

We continue to see many fields with lower than normal yields (late planting, no fumigation), and there is an obvious problem with many early runneris. I am not aware of any data thugh that would suggest an economic benefit from actually removing runners at this late stage.

In previous advisories we have encouraged growers to keep up their botrytis sprays and this week of April 24th is no exception. Just after harvest yesterday we got clobbered with more rains at Clayton Central Crops. And, today it has been on again and off again showers with a maximum temperature of only 60 F and a low in the low 40s tonight! We are looking for some clearing on Wednesday and hopefully we will end the week with mostly sunny, and warmer weather!

Clayton Central Crops Forecast:

<----- 1-7 DAY FORECAST -----> <8-10 DAY OUTLOOK>

DATE Apr 25 26 27 28 29 30 1 2 3 4

DAY TUE WED THU FRI SAT SUN MON TUE WED THU

MAX AIR TEMP (F) 56 58 68 72 77 78 80 80 78 76
MIN AIR TEMP (F) 48 44 42 49 52 51 53 55 53 52
PRECIP PROB (%) 95 46 26 58 33 6 8 14 21 29
AVG DAILY RH (%) 95 74 69 82 62 50 50 64 64 64
AVG WND SPD (mph) 12 9 5 8 7 7 7 7 8 8
DRYING (key) 2 4 5 4 6 7 7 6 6 6
SPRAYING (key) 2 5 7 5 6 6 7 6 6 6

key: 0..1..2..3..4..5..6..7..8..9..10
LESS FAVORABLE MORE FAVORABLE

As soon as you can get back in to pick this week, you may wish to have your own pickers (for ready-pick) assist with botrytis control efforts by removing the "fuzzy gray" mold berries from the plastic mulch beds and tossing these into the picking aisles as a sanitation practice. After picking and sanitation, it may be appropriate to then make another fungicide application for botrytis.

Take advantage of the rainy weather in this mid-week period to get out and promote your crop in the community! This is a very important week for advertising and press kits can help a whole lot. Last week in South Carolina, I was very impressed by the coverage the local media was giving to strawberry growers in the Conway, SC area (this is an area that had 30 inches of rain from Hurricane Floyd!) in the Sun News, Myrtle Beach, April 19, 2000 (Becky Billingsley). Also, see the end of this advisory for a late-breaking request for 6 tons of strawberries!

From: Kenneth A. Sorensen, Extension Entomologist

Insects and Mites - thrips and mite populations on strawberries are heavy. Fire ants are a problem as well.

A. Imported fire ants

Numerous colonies of imported fire ants have invaded plasticulture strawberry plantings in eastern NC. Fire ants and their mounds disrupt plants and crowns and reduce yields. More serious is the impact they have on humans. Ants and their sting can inflict serious red welts which swell and burn with an itching sensation. Death can result to a small child or a person sensitive to insect venom. Fire ant control is prevention and sanitation of the immediate environment. Mounds may be treated with baits and growth regulators (Logic or Clinch), Amdro or with soil drenches of insecticides Lorsban or Diazinon. Orthene may also provide some control. Hot water drenches can disturb the mounds. Efforts should be directed to mounds in between crops.

Within strawberry fields diazinon and Lorsban drenches are suggested. Be sure to follow label directions and adhere to time interval between last spray and harvest and with correct reentry interval. Clinch bait containing abamectin (same ingredient as Agrimek) could be used for a few drops and then followed with drenches of diazinon or Lorsban.

Please note: 24C or state labels will be sought with data gathering this year and a package submission to NCDA. For this season, recommendations are limited and restrictive (please call Dr. Sorensen at 919-515-1662, for more details).

B. Thrips

Thrips and damage to strawberry fruits is relatively new. Literature and sporadic reports support some damage attributed to thrips. However, more observations and research is needed to understand thrips and strawberry phenology. Yellow sticky traps have been placed in several strawberry fields in Robeson, Columbus and Brunswick Counties to detect and monitor thrip populations. Flowers can also be placed in a bag or vial to observe and count thrips. Irregular and misshapen fruits could be correlated directly to thrips. However, other insects (lygus and plant bugs), cold temperatures, poor pollination, extreme wind, excess fertilizers or chemical injury can cause similar deformities on strawberry fruit. Thresholds of 2 thrips per flower could result in bronzed, scarred and cracked berries. In addition to checking yellow sticky traps, a good technique is to place flowers in a plastic bag and breathe into it (your CO₂ will activate the thrips). Consult the NC Ag Chem Guide for recommendations. Insecticides listed include: malathion (3 day minimum interval between last application and harvest) and pyrelin EC (0 day).

From: Frank Louws, Extension Plant Pathologist (

A. Phytophthora Crown Rot in Strawberry Fields Prevalent This Year

Many fields have been diagnosed with Phytophthora crown rot, caused by Phytophthora cactorum. Historically, this disease has been associated with the plant source but since it is so prevalent this year, I cannot rule out the possibility of field inoculum.

Symptoms - stunting of plants or wilting of young leaves are the first symptoms and may appear at any time during the season. Infected plants may remain stunted, or foliage may turn blue in color and the entire plant may wilt rapidly until total collapse. Plants may break freely at the upper part of the crown (this can be diagnostic for the disease; for sample submissions to the clinic, one may need a shovel to dig out the entire crown). When the crown is first infected, a longitudinal section reveals watersoaked and light brown tissue, but, as disease progresses, extensive necrosis appears that is uniformly brown and not restricted to the vascular tissue. The dark brown discoloration may appear at the base or middle of the crown. Roots often are discolored brown also. In contrast, tissue infected by the anthracnose pathogen takes on a darker cinnamon color, is more firm, and often has a marbled appearance.

As warm weather conditions arrive and fruit load increases, plants will continue to collapse. Many fields have a low level of incidence and no intervention may be needed. Earlier during the season, growers were advised to rogue out infected plants and apply Ridomil Gold EC at the rate of 1 pint per treated acre. This appears to have helped in cases where disease incidence was high. At this time of the year, the benefit of fungicide application is uncertain and should be considered on a case-by case basis. The disease does not appear to spread much from one plant to the next and neighboring plants have remained productive. The long-term concern is that the pathogen may persist in our soils for years but we have no research data to verify this.

B. Bacterial Angular Leaf Spot Sporadic in North Carolina Strawberry Plantings

Angular leaf spot has been observed in numerous fields this year and is a problem associated with the plant source. The disease during early stages is difficult to diagnose. Mature leaves should be viewed from the underside and translucent watersoaked and angular lesions observed. As the disease progresses, lesions will also appear on the top of the leaves. The bacteria can be systemic within the plant resulting in stunted growth habits. We have observed unique symptoms this year

associated with the disease. We have not been able to correlate reduced yields due to angular leaf spot in North Carolina plantings. Of primary concern, if the weather is cool and wet, the pathogen will colonize the calyx and cause the calyx to turn an unsightly black. This detracts from the aesthetic appearance of the picked berry and is a serious problem for already-picked berries. Pick your own customers seem to tolerate the discoloration more.

We have never been able to demonstrate yield benefits even with intensive copper application schedules. However, two to three well-timed copper applications could reduce the final incidence of calyx discoloration. Growers with an identified problem should consider applying copper sprays prior to predicted cool and wet weather. A limitation of 3 applications is advised and copper is not recommended if no angular leaf spot is present due to possible phytotoxicity of copper to the strawberry plants.

C. Anthracnose Diagnosed

Anthracnose fruit rot has been diagnosed in one field in Sampson County. To date, we have not seen much anthracnose and it is unlikely that an emergency exemption for Quadris will be activated this year like it was in 1999. If problems arise, growers have had success by immediately rouging out all infected and surrounding plants if the problem starts in a small hot spot. If this is not practical, a vigilant schedule using Captan fungicide could be implemented and all overhead watering (e.g., for cooling the crop) stopped.

The information and recommendations in this newsletter are applicable to North Carolina and may not apply in other areas.

The information presented in this newsletter is for educational purposes only and represents the opinions of the respective authors. Any reference to trade names is made with the understanding that no discrimination is intended and no endorsement by the North Carolina Cooperative Extension Service is implied. Use pesticides safely. Read and follow all label directions.

Market Opportunity: (message from 4/25, 2:35 pm)

Dr. Poling, we are a small winery in upstate New York which is looking for six tons of strawberries to process into Strawberry Wine.

Do you know anyone large enough to possibly supply us with that amount of berries?

Thanks,

Patricia & Jack Baldwin
Baldwin Vineyards
www.daspin.com/baldwin

Contributed by:

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