

Small Fruit News



Clemson University
NC State University
University of Georgia
University of Tennessee

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Pests/Diseases

Management of Strawberry Spider Mites

Guido Schnabel and Ken Sorensen
Clemson University
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Examine the leaves and crowns of tips and/or fresh dug upon arrival from the producer for spider mites and mechanical damage. Destroy infested and suspicious fresh dug or plugs to help eliminate problems later in the season.

Spider Mite Symptoms. Mites pierce the epidermis and extract sap from the undersides of leaves. Infested foliage soon assumes a whitish or bronze appearance. Lightly infested leaves have pale blotches or spots showing through the leaf. Heavily infested leaves turn completely pale and dry up.

Management Strategies. Several management strategies and tactics may reduce mite development in your field:

- rotate crops to prevent insect & mite pests from becoming established
- keep the environment around planting well maintained and free of broadleaf weeds
- insist on pest free certified and tagged plants

- request spray records from nursery & plant producers
- never take for granted the value of a reputable nursery
- inspect plants by nursery source and lot number for mite stages & mite damage using your 10x hand lens
- plant by source & lot number & keep detailed records of pests, diseases and crop development
- select a suitable miticide (Table 1) and spot treat hot spots
- monitor for mites & spray for coverage
- continue to monitor for mites & order & release predatory mites in the spring when 5% of plants have mites & as plants bloom & fruiting period occurs.

Table 1. Relative effectiveness of various chemicals for strawberry mite control

Miticide	Eggs	Larvae	Adults	Safety to benef. mites	Other pests
Agri-Mek 0.15EC	-	4+	3+	+	-
Brigade 2 EC	-	4+	3+	-	3+
Kelthane	-	3+	2+	-	-
Danitol 2.4 EC	-	3+	2+	-	2+
Savey 50WP	5+	3+	-	3+	-
Vendex 50W	+	2+	+	3+	-
M-Pede	-	+	+	+	+
Acramite 50W	3+	3+	3+	3+	-

Note: '5+'= very effective; '-'= not effective

If you would like to find out more about mites mite management etc., take a look at the following websites:

- IPM NCSU: <http://ipmwww.ncsu.edu/>
- ENT NCSU: www.cals.ncsu.edu/entomology
- ENT Florida: <http://strawberry.ifas.ufl.edu>

Research Report

Development of Blueberry Cultivars Adapted to Georgia (Progress Report for 2002)

Scott NeSmith
University of Georgia

Blueberry breeding and cultivar development efforts in Georgia over the past 4 decades have largely involved rabbiteye blueberries (*Vaccinium ashei* Reade). Rabbiteye blueberries are well adapted to many soils in Georgia, and their continued usage by the industry is expected. In fact, more than 85% of the blueberry acreage in Georgia is rabbiteye. Thus, the cultivar development program at The University of Georgia (UGA) continues to generate and evaluate rabbiteye selections.

In addition to rabbiteye cultivars, grower interest in southern highbush (*Vaccinium corymbosum* L.) blueberries is rapidly increasing. Southern highbush blueberries are desirable because they have high quality, early ripening fruit; however, the species of blueberry is limited by production problems including those that are soil and weather related in the Southeast. There is considerable need in Georgia for southern highbush cultivars that have high quality, early season fruit, and that can be produced on atypical highbush blueberry soil. Also, late blooming cultivars are needed to avoid spring freeze damage. The Georgia Blueberry cultivar development program is currently generating and evaluating many selections of southern highbush.

Currently, the UGA Research Blueberry Farm in Alapaha is the primary field evaluation site for advanced seedlings, new selections, and advanced selections. Griffin is the primary site for high density seedling nurseries and it is a duplicate test site for growing the most advanced selections for final testing. Starting in 2001, UGA Branch Stations at Blairsville and Savannah were enlisted as advanced testing sites for blueberry selections. Having these multiple sites provides considerable climatic and edaphic variability to actually enhance the cultivar development process.

The 2002 growing season at Alapaha was highlighted by a severe freeze (20 F) on February 28. Many early season selections and cultivars had reduced fruit set due to the cold weather, depending on their stage of bloom at the time. Thus, selections experienced “selection pressure” with respect to freeze damage due to early blooming. Chill hours at Alapaha were slightly below average, with 570 to 600 hours accumulating from October 1, 2001 thru February 15, 2002 (700 hours is the historical average). Comprehensive flowering notes, cropping notes and fruit characteristic evaluations were taken for more than 200 selections and advanced seedlings of rabbiteye and southern highbush blueberries, as well as numerous cultivar standards at Alapaha. This resulted in several advanced seedlings and selections being identified for further testing. Ratings were made for some selections at Griffin, GA for the first time in 2002, as the plants were of suitable age. Some establishment and plant vigor ratings were made for advanced selections at Savannah and Blairsville for the new plantings there also.

Yields were taken for an advanced southern highbush selection, along with several early, mid, and late season rabbiteye selections (Table 1). The southern highbush selection TH-471 had yield superior to ‘Georgiagem’ and ‘Sharpblue’ during 2002. TH-471 produces 85% of its crop by the 2nd week in May, compared to only 30 to 50% production by that time for the standard

cultivars. The early production is in a very high market price window, thus, TH-471 is being considered for release in 2003. The early season rabbiteye standard ‘Climax’ yielded only 5.2 lbs/bush in 2002, which was the lowest in 5 years. The selection T-451 had high yield in 2002 (14.0 lbs/bush), but not as high as in previous years. Another early rabbiteye with moderate to high yield in 2002 was T-584 (13.0 lbs/bush). Both of these selections had considerably greater 5 year average yields than ‘Climax’. As for mid-season blueberries, ‘Brightwell’ yielded 11.4 lbs/bush in 2002, which was generally less than in previous years.

In comparison, the selection T-431 yielded 17.8 lbs/bush in 2002.

T-431 has had more consistent yields and superior fruit quality than ‘Brightwell’ during the past 4 years. Thus, T-431 is being considered for release in 2003. ‘Tifblue’ (late season rabbiteye) yield for 2002 was only 6.7 lbs/bush. Late season selections that continue to show more consistent cropping than ‘Tifblue’ are T-105 and T-459, which also had good yields this year. T-105 was the highest yielding of all late season selections averaged over the 5 years. T-105 was approved for release in 2002, and will likely be named ‘Ochlockonee’.

Table 1. Total yield (lbs/bush) during 1998 thru 2002 of southern highbush and early, mid, and late season rabbiteye blueberry selections at The University of Georgia Blueberry Research Farm, Alapaha, Ga.

Cultivar or selection	Total yield per bush (lbs)					
	1998	1999	2000	2001	2002	5 year average
<i>Southern Highbush</i>						
Georgiagem	---	2.6 b	3.2 b	4.4 b	0.8 b	2.7
Sharpblue	---	7.2 a	5.9 ab	13.1 a	1.1 b	6.8
TH-471	---	6.2 a	8.1 a	6.2 b	3.4 a	6.0
<i>Early Season Rabbiteye</i>						
Climax	6.6 a	6.2 c	11.2 b	7.9 b	5.2 b	7.4
T-451	8.6 a	23.0 a	23.2 a	23.8 a	14.0 a	18.5
T-584	7.4 a	13.4 b	14.0 b	22.5 a	13.0 a	14.1
<i>Mid Season Rabbiteye</i>						
Brightwell	13.0 a	6.8 b	13.1 a	20.2 a	11.4 b	12.9
T-431	11.4 a	9.5 a	13.4 a	13.3 b	17.8 a	13.1
<i>Late Season Rabbiteye</i>						
Tifblue	6.3 c	3.1 b	17.5 b	16.8 a	6.7 d	10.1
T-105 ^{y/}	14.5 a	5.3 b	26.5 a	17.5 a	21.0 a	17.0
T-397	7.9 bc	13.2 a	12.8 c	10.4 b	13.5 c	11.6
T-459	8.8 b	14.3 a	16.8 b	10.1 b	17.3 b	13.5

^{y/} T-105 was approved for release in 2002, and will likely be named ‘Ochlockonee’.

FQPA Update

Bayer agrees to Guthion phase-outs: Bayer has agreed to reducing fruit crops listed on the Guthion label. There are 3 categories of label changes:

- phased-out registrations (cancelled 8/31/05, not to be used after 12/31/05): nectarine, peach, and caneberries
- time-limited registrations (cancelled 12/31/05 unless new data justify continuation): apple, blueberry, cherry, and pear
- cancelled registrations: grape, plum, quince, and strawberry.

Insecticides Available for Bramble Production

Ken Sorensen
NC State University

Several small fruit growers are interested in what compounds are registered for the use in brambles. Here are some:

- Savey for mites on brambles. Contact Gowan for more information and label.
- Capture on caneberries at 2 to 4 oz for aphids, beetles, leafhoppers, lygus and mites. 7 days to harvest. Contact DuPont distributor for more information and label.
- Brigade on caneberries for leafrollers, weevils and mites at 8 to 16 oz with 3 days time limitation to harvest. DuPont.
- Asana on caneberries at 5 to 9 ounces for leaf rollers, aphids, root weevil adults. 7 day time limitation to harvest. DuPont.

Bramble Chores

Late Summer/Fall Bramble Chores

Gina Fernandez
North Carolina State University

Here is a brief summary of chores for the next few months to prepare your brambles for the non

fruiting season. If you have any questions give me a call.

Pruning/weeds. Prune out spent floricanes after they have produced fruit, do not thin out primocanes until mid to late winter. Control fall weeds now, see NC Ag Chem manual for recommendations.

Planting. Prepare ground for fall planting now. Plants can be set in late Oct-December in south and eastern parts of the state. You won't see much above ground growth this fall, but fall planting enables the plant to establish a good root system and allows for more growth next summer. Make sure you get plants from a reputable nursery and that they have been virus indexed.

Trellises/harvest. Inventory and make list for fall winter repair season. Some higher elevations may still be harvesting primocane fruiting raspberries, keep grey mold under control.

Irrigation/fertilizer. Water demand by the plants will decrease after fruiting, however keep water on plants if you are experiencing drought conditions in your area. Just after harvest is the time to take leaf tissue analysis to fine tune your fertilizer program for next season. Sample healthy leaves on primocanes in late summer. Collect the youngest fully expanded leaves on each of 50 randomly selected primocanes.
-Do not apply nitrogen fertilizers until spring
-Apply non nitrogenous fertilizers in fall so that fall and winter rains can move them into the rooting zone
-Apply lime if needed

Insect and diseases. Crown borer and phythophthora root rot control should be implemented in the fall if they are known to be a problem in your area. Check with your states agricultural chemical manual and local extension agent for labeled chemicals to control these pests. Heavily infested sites should be removed as both of these pests will steadily weaken the planting.

NC MUSCADINE DISEASE SURVEY – SPRAYED vs UNSPRAYED

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Sprayed and unsprayed muscadine vineyards were surveyed for diseases in 2001. All were evaluated by visual inspection in the same 8-day period (Sept 5-12). Two of the four vineyards were not sprayed with fungicides. Mature vines were selected randomly, and numbers in tables are the average of four single-vine ratings. ‘Carlos’ was the only cultivar common to all sites.

‘CARLOS’ 2001 (% infected)	Macro- phoma rot	Bitter rot	Powdery mildew (fruit)	Black rot (fruit)	Black rot (leaf)*	Angular leaf spot*
Unsprayed (Site # 1)	1.0	12.0	6.0	2.0	12.5	10.0
Unsprayed (Site # 2)	<1.0	7.5	45.0	21.0	32.0	60.0
(Avg. Unsprayed)	(1.0)	(9.75)	(25.5)	(11.5)	(22.25)	(35.0)
Sprayed (Site # 3)	<1.0	<1.0	0	0	0	<1.0
Sprayed (Site # 4)	0	0	<1.0	<1.0	0	22.5
(Avg. Sprayed)	(<1.0)	(<1.0)	(<1.0)	(<1.0)	(0.0)	(11.25)

* % of leaves with one or more spots

‘CARLOS’ vs ‘NOBLE’ Site # 2 (% infected)	Macro- phoma rot	Bitter rot	Powdery mildew (fruit)	Black rot (fruit)	Black rot (leaf)*	Angular leaf spot**
‘Noble’	0.0	2.8	22.5	0.0	0.0	5
‘Carlos’	<1.0	7.5	45.0	21.0	32.0	50

* % of leaves with one or more spots

** % leaf area affected

CONCLUSIONS

Muscadine grapes DO have diseases, and fungicidal sprays reduce disease. Dark-fruited cultivars (like ‘Noble’) are generally more disease resistant. Disease varies site-to-site.

Bitter rot caused 7.5-12% losses in unsprayed vineyards. Additional bitter rot yield losses at bloom (known to be caused by blighting of flower shoots) were not measured.

Ripe rot caused by *Colletotrichum acutatum* was not observed.

Focus

Small Fruit News Favorites

Compiled by Guido Schnabel
Clemson University

Methyl Bromide Alternatives transition update, by Lisa M. Ferguson, Gina Fernandez and Frank Louws, NC State University. The Strawberry Grower, August 2002.

Don't make berries a commodity! Add value to your product by making strategic marketing choices, by Paul M. Otten, Northland Berry News, Summer 2002.

Georgia research finds cut flowers can follow strawberries in the summer months, The Fruit Growers News, July 2002.

Timing of fungicide applications for grey mold control based on development stage of strawberry flowers and fruit, by J.C. Mertely, S. J. MacKenzie and D. E. Legard. Plant Disease, September 2002.

Disease free, certified strawberry plants will be available to growers in 2003. Zvezdana Pesic-van Esbroeck, NCSU Micropropagation Unit. The Strawberry Grower, October 2002.

To request a copy of one (or more) of the above articles contact Guido Schnabel at schnabe@clermson.edu or call 864 656 6705. Don't forget to indicate which article you would like.

Meetings

November 7-9, 2002 Southeast Strawberry Expo, Greenville, North Carolina. Contact Debby Wechsler at 919 542 3687.

January 25-29, 2003 NABGA international meeting in Puerto Vallarta, Mexico. See the website www.nabga.com for more details.

February 7-8, 2003 NABGA regional Mid-Atlantic meeting in Leesburg Virginia. The meeting will be held at the Holiday Inn at the Historic Carradoc Hall. Contact Jason Murray at jamurray@vt.edu or 703-737-8978.

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