

Dixie Blueberry News

Georgia Blueberry Growers Association Newsletter

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Evaluating Techniques for Detecting Blueberry Gall Midge in Southern Highbush and Rabbiteye Blueberry Plantings

by Dr. Oscar Liburd
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Blueberry gall midge, *Dasineura oxycoccana*, is an important insect pest that feeds on floral and vegetative buds of blueberry bushes. Female midges lay their eggs when bud scales begin to separate during the spring. Eggs hatch into larvae (maggots) within a few days, and the emerging maggots feed on plant juices within the buds. Symptoms of infestation

include premature floral bud abortion, leaf curl, stunted growth, and blackened leaf tips. In response to growers' concern, entomologists in the Small Fruit and Vegetable Laboratory at the University of Florida focused their attention on ways to provide early detection of blueberry gall midge within blueberry plantings. During 2002, various colors of sticky monitoring boards were evaluated because of their wide use in similar agricultural programs for monitoring insect pests. Preliminary results indicate that sticky boards are ineffective in providing early detection of gall midge adults. Several reasons may prevent sticky boards from becoming practical monitoring tools for blueberry gall midge. First, gall midges were difficult to distinguish from other insects on the boards. Secondly, the sticky glue on the board surface often

disturbed characteristic antennal segments and fine hairs on the wings of midges that are useful in making a positive identification. Two alternative methods were evaluated for their ability to detect blueberry gall midge including larval-adult emergence and bud dissection techniques. In the emergence technique, approximately 50 young (breaking) floral or vegetative buds were placed into plastic zip-lock bags containing a moistened paper towel. Bags were tightly sealed and placed at room temperature. Bags were exposed to 14 hours of light and 12 hours of dark (to mimic day and night) for one week to allow maggots to emerge. Mature maggots appear orange and tend to be quite mobile. In the dissection method, floral and vegetative buds were destructively sampled under a microscope by peeling back successive layers of plant material to expose midge eggs, larvae, or adults. A 10X dissecting microscope was sufficient to view all life stages of blueberry gall midge, including eggs, which appear as deposits of elliptical transparent masses, often in the internal scales. Overall, emergence and dissection methods performed equally well for detecting larvae (maggots) in the buds. However, the dissection method was the only technique capable of detecting eggs, and it appears to be more reliable when gall midge populations were low. For more information contact Dr. Oscar Liburd at (352) 392-1901 ext. 108.

Editor's note:

After talking to Dr. Dan Horton and Dr. Oscar Liburd, here is my suggestion for scouting this season. The gall midge season (in the flower buds) is coming up in the next few weeks. They attack the flower buds

when they start to crack open just enough for the female to lay eggs between the scales (flower bud stages 2 and 3-see flower bud chart in spray guide). Thrips can attack from flower buds stage 2 on. They usually reach their peak during the tail end of the bloom, especially during a "dry down" of the surrounding winter weeds. We do not know if this will be a bad year or "good" year for gall midge, but generally warm winters have been the worst. However, it has been discovered that N.C. growers have a problem with gall midge in 'Premier' and they never have a warm winter by South Georgia standards! Two of the most susceptible cultivars for gall midge are 'Premier' and 'Climax'. The gall midge also attacks the vegetative shoots (especially on 'Climax') after bloom, causing abnormally short new growth. The entomologists will be looking at this problem this year. You can get in touch with Dr. Dan Horton via your Georgia county agent. Dr. Liburd's number is listed at the end of his article.

What to do????

I would collect 10 shoots containing about 40 **flower buds** (fat flower buds, not skinny vegetative buds) from each major cultivar / field twice a week. Stick with the same number of flower buds each week so you can track the development of the problem. Put each sample in a zip lock bag and mark on the bag with a Sharpie marking pen the cultivar, field and date of collection. Bring them inside the house and put the bags near a window. After a few days (or maybe hours) the gall midges and thrips (if present) will start emerging. The thrips are cigar shaped and have wings, the gall midges look like worms. Both are much smaller than a grain of rice, but you will be able to see them with the

naked eye (if you have been eating ½ cup of blueberries a day!). When to spray??? Dan Horton says spray when you pick up the bag and say “Oh my God!”. It will take some time to develop scientific threshold levels for action.

For gall midge, the best treatment appears to be diazinon. (See spray guide). If some open blooms are present or there are blooming weeds in the field, spray at night to avoid bee kill. Cover hives nearby with a sheet of plastic before spraying if there is any chance of drift (or don't spray the area near the hives).

For thrips the best treatment appears to be Spintor. See spray guide. Spray at night when the bees are in the hive. Cover hives nearby with a sheet of plastic before spraying if there is any chance of drift (or don't spray the area near the hives).

UGA BLUEBERRY CULTIVAR DEVELOPMENT PROGRAM

A Brief Report for 2002

**D. Scott NeSmith
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Blueberry breeding and cultivar development efforts in Georgia over the past 4 decades have largely involved rabbiteye blueberries. 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 continues to generate and evaluate rabbiteye selections.

In addition to rabbiteye cultivars, grower interest in southern highbush 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 UGA 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 5 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 was named 'Ochlockonee'.

One of the areas we have been working on in our program is breeding and selecting rabbiteye blueberries with large berry size. Rabbiteye fruit are generally considered to be small compared to highbush blueberry fruit, yet, several of the selections being tested in the UGA Program have very favorable berry size (Table 2). For the early season, both T-451 and T-584 have large berries, especially when compared to 'Climax'. T-451 continues to be one of the largest fruited rabbiteye selections we have seen; however, it does have problems with early blooming and fruit splitting during the rainy season. Both T-584 and T-451 maintain large berry size even through the second harvest. For mid-to-late season, the selections T-431 and T-459 both had large berries, and maintained excellent size across all harvests. One selection (not listed in Table 2) that continues to be especially appealing with regard to berry size is T-300. In addition to large berry size (218 g/100 fruit at first harvest), T-300 also has a high degree of fruit firmness and low amounts of seed in the berry. One of our newest selections, T-655, had very large berries at both Alapaha and Griffin sites in 2002. This is only the first year of evaluation for this selection, and additional years of observations are needed.

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. Note some are yield estimates from cropping scores.

Cultivar or selection	Total yield per bush (lbs)					
	1998	1999	2000	2001	2002	Average
<i>Southern Highbush</i>						
Georgiagem	---	2.6	3.2	4.4	0.8	2.7
Sharpblue	---	7.2	5.9	13.1	1.1	6.8
TH-471	---	6.2	8.1	6.2	3.4	6.0
<i>Early Season Rabbiteye</i>						
Climax	6.6	6.2	11.2	7.9	5.2	7.4
Alapaha	11.5	13.4	15.0	12.5	13.0	13.1
Austin	7.9	17.6	21.5	7.5	9.5	12.8
Premier	8.0	5.9	11.7	14.1	---	9.9
T-451	8.6	23.0	23.2	23.8	14.0	18.5
T-584	7.4	13.4	14.0	22.5	13.0	14.1
<i>Mid Season Rabbiteye</i>						
Brightwell	13.0	6.8	13.1	20.2	11.4	12.9
T-431	11.4	9.5	13.4	13.3	17.8	13.1
<i>Late Season Rabbiteye</i>						
Tifblue	6.3	3.1	17.5	16.8	6.7	10.1
T-105 ^{y/}	14.5	5.3	26.5	17.5	21.0	17.0
T-397	7.9	13.2	12.8	10.4	13.5	11.6
T-459	8.8	14.3	16.8	10.1	17.3	13.5

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

Table 2. Berry weight (g per 100 fruit) during 1998 thru 2002 of early, mid, and late season rabbiteye blueberry selections and cultivar standards at The University of Georgia Blueberry Research Farm, Alapaha, Ga. Data for individual years are from the first harvest only, but the multi-year averages include second harvest data also.

Cultivar or selection	Berry weight (g per 100 fruit)					First harvest multi-year average	Second harvest multi-year average
	1998	1999	2000	2001	2002		
<i>Early Season</i>							
Climax	136	127	131	120	119	127	102
Alapaha	---	102	136	134	---	124	96
Austin	---	168	182	188	---	179	140
Premier	---	---	199	188	---	193	129
T-451	---	---	290	290	258	279	226
T-584	---	182	212	187	167	187	153
<i>Mid Season</i>							
Brightwell	126	131	143	166	153	144	111
T-431	188	181	162	196	142	174	132
<i>Late Season</i>							
Tifblue	87	106	111	127	80	102	85
T-105 ^{y/}	110	148	147	170	127	140	111
T-397	169	144	158	174	141	157	121
T-459	156	212	205	219	212	201	171

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

UGA Alapaha Twilight Field Day

May Day this year (Thursday, May 1, 2003) Field day is always the first Thursday in May. This will be the biggest May Day event since the collapse of the Soviet Union! Mark your calendars. Starts at 5 pm, free hot dog and hamburger supper. UGA Alapaha Blueberry Farm is about two miles south of the town of Alapaha on the Nashville highway.

Solution to Drain Problems Discovered???

by Gerard Krewer

Mr. Kenneth Lee, a blueberry grower and manager of Lee Engineering in Dupont recently made a discovery which I think could be of great significance to the blueberry industry. Mr. Lee has a business laying fiber optics cable. The machine they use to lay the cable is a bulldozer with a deep subsoiler that vibrates as it subsoils, shattering hard pans. He was having drainage problems with pools of standing water between his raised beds. His southern highbush were dying in these areas.

He used the cable laying machine (a small one) to subsoil down each row. It took one pass to break the spodic horizon in most of the fields. In one section it took three passes to sink the subsoil shank all the way down. This broke the spodic horizon and the puddles drained overnight. Now for the surprising part. After a two inch rain the small slit resealed with sand and is now quite firm. It is difficult to tell the field has been subsoiled. Of course we don't know how well this will work on other soil types, but on spodic sands this might be a major breakthrough. We don't know how well the slit will firm up on other soil series and we don't know how long it will last before needing subsoiling again. However, it looks outstanding to me at this point. I ask Mr. Lee if he would be willing to

do some custom work and he indicated he thought he could do it for about \$60 per hour. If only one pass is needed, they should be able to subsoil about two acres per hour. His phone number is 912-487-5307 if you would like to see the field or get additional information.

Spray Guide Changes

Note the new sections on thrips control and expanded section on leaf spot control. Our plant pathologists and entomologists, Drs. Phil Brannen, Harald Scherm, and Dan Horton are doing a great job. They are doing a lot more research work on blueberries and helping us get chemicals registered (Indar, Section 18 for Georgia, Spintor, etc., research on leaf spots in S. Ga., etc.) and in the spray guide. If you have a chance to talk to the Deans and their department heads, let them know you appreciate them. You can access these specialist via your local county agent.

PRE-BLOOM, LEAF BUD SWELL UNTIL FIRST BLOOM

If mummy berry disease becomes established in your field, Indar is very important in pre-bloom sprays for cultivars that show leaf bud break before flower bud break. Start spraying when green tip occurs on the leaf buds or 1-5% open bloom (stage 6) occurs on the flower buds, whichever comes first. Continue sprays till all blooms have fallen.

TO CONTROL	CHEMICAL	AMOUNT PER ACRE	REENTRY INTERVAL	PREHARVEST INTERVAL	REMARKS
Mummy Berry Twig Blight	Indar 75WSP (Section 18)	2 ozs./acre	12 hrs.	30 days	Do not make more than 5 applications or apply more than 10 oz. per acre per year. Do not make applications within 75 feet of streams, rivers, ponds, lakes or reservoirs.
Thrips can be extremely damaging. When thrips are abundant treat pre-bloom.					
Thrips	SpinTor 2SC	4-8 ozs.	4 hrs.	3 days	SpinTor should be applied just before first bloom. SpinTor is toxic to bees until it is thoroughly dry.

**DO NOT USE INSECTICIDE DURING BLOOM.
BEES ARE NEEDED FOR POLLINATION AND FRUIT SET.**

10-20% BLOOM UNTIL 80-90% BLOOM
DO NOT USE INSECTICIDES DURING BLOOM -- Spraying, particularly with insecticides, may kill or repel wild bees and honey bees needed for adequate pollination and fruit set.

TO CONTROL	CHEMICAL	AMOUNT PER ACRE	REENTRY INTERVAL	PREHARVEST INTERVAL	REMARKS
Botrytis flower blight and fruit rot	Rovral 4L	1-2 pts.	24 hrs	0 days	Do not make more than 4 applications of Rovral per acre per year. Make the first application at early bloom (5-10% bloom) and again at full bloom. Two additional applications may be applied at 14 day intervals as required.
	Elevate 50WDG	1.5 lbs.	12 hrs.	12 hrs.	Begin application at 10% bloom. Applications should be made every seven days when conditions favor disease. Do not make more than two consecutive applications without switching to a fungicide with a different mode of action. Do not apply more than 6.0 lb product per acre per year.

Blueberry maggots (BBM) are established in a small percentage of rabbiteye orchards. BBMs are serious mid-and late-season fruit pests. BBM may go undetected at harvest, so one can easily ship infested fruit. Thorough field by field scouting is needed to find BBMs early and minimize loss. Scout for BBM by hanging one or more yellow, sticky traps baited with ammonium carbonate per cultivar. Trap catches indicate when BBM adults are present and when adults are becoming more or less common. **Traps should be hung in orchards by mid-May.** See your [County Agent](#) for ID pictures and further reference.

If your orchard has been damaged by BBM infestation before, spray as soon as adult BBMs are trapped.

If your orchard has not been damaged by BBM infestation before, and adult BBMs are trapped, either:

1. spray immediately, or accept more risk by following option
2. begin daily examination of fruit for larval infestation, and **spray immediately** if any larval injury is found.

Once spraying for BBM begins, it is very important to **spray every 7-14 days until all the fruit has been harvested.** Materials and spray intervals are listed below.

TO CONTROL	CHEMICAL	AMOUNT PER ACRE	REENTRY INTERVAL	PREHARVEST INTERVAL	REMARKS
Blueberry Maggot	Imidan 70WP (GA label) or	1.3 lbs.	24 hrs.	7 days	Imidan is the material of choice. Repeat every 10-14 days. Do not apply more than 2 times.
	Diazinon AG600 or	25 fl. ozs.	1 day	7 days	Diazinon's residual is between Imidan and Sevin or malathion.
	Sevin 80S or	1-2 lbs.	12 hrs	7 days	Sevin's residue life is short. Repeat every 5-7 days.
	malathion 57% EC	1.5 pts.	12 hrs	1 day	Malathion is safe to use, but its residual effectiveness is short. Repeat every 5-7 days through harvest.

PREHARVEST - HARVEST

Fire ants are nuisance pests, especially in pick-your-own orchards at harvest. Growers may elect to treat for them. **Fire ant treatment should not be an automatic treatment, as fire ants feed on pest insects.**

Treatments will vary in their effectiveness according to conditions. Use of preventative post-harvest and pre-bloom fire ant treatment will provide optimal control. Repeat treatment of mounds is often necessary.

Slowly apply mound drenches, using 1 gal. of dilute mixture to each mound.

TO CONTROL	CHEMICAL	AMOUNT PER ACRE	REENTRY INTERVAL	PREHARVEST INTERVAL	REMARKS
Fire ants	if needed malathion 57% EC	1 pt.	12 hrs.	1 day	Malathion is a very modestly effective foliar rescue treatment. May be applied to plants one day before harvest to discourage ants from foraging on the plants. This is a stop-gap treatment to get ants off the plants. Rely on aggressive post-harvest fire ant controls to suppress fireants in blueberries.
Alternaria and Ripe Rots	Abound	6.2-15.4 fl. ozs.	4 hrs.	4 hrs.	Repeat applications can be made on a 7-14 day interval. Do not apply more than two sequential applications before switching to a fungicide with another mode of action (i.e. Captan). Do not apply more than 1.44 quarts per acre per season.

2003 COMMERCIAL BLUEBERRY WEED CONTROL

A. Stanley Culpepper, Extension Agronomist-Weed Science
Wayne Mitchem, Extension Associate-Weed Science

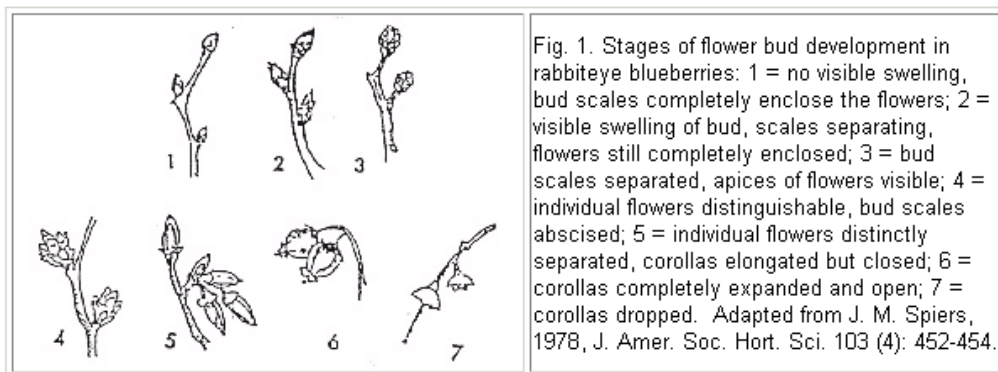
PREPLANT			
PREEMERGENCE		POSTEMERGENCE	
USE STAGE/ HERBICIDE	BROADCAST RATE/ACRE		REMARKS AND PRECAUTIONS
	AMOUNT OF FORMULATION	LBS ACTIVE INGREDIENT	
PREPLANT			
glyphosate acid (numerous brands) 4 SL 5 SL 5.5 SL	1 to 3 pt 0.8 to 2.4 pt 11 to 32 fl oz	0.5 to 1.5	Apply to emerged weeds before transplanting. Perennial weeds may require higher rates of glyphosate. Some formulations of glyphosate may require the addition of an adjuvant. Do not allow glyphosate to contact green stems or leaves.
USE STAGE/ HERBICIDE	BROADCAST RATE/ACRE		REMARKS AND PRECAUTIONS
	AMOUNT OF FORMULATION	LBS ACTIVE INGREDIENT	
PREEMERGENCE			
napropamide (Devrinol) 50 WDG	8 lb	4	Use for control of annual grasses and small seeded broadleaf weeds. Enough irrigation or rainfall to wet the soil to a depth of 4 inches is necessary within 1 week of application. Apply as a directed spray to base of plants. May be used on first-year plantings. NOTE: Use only half this rate the first year if root pieces are planted.
oryzalin (Surflan) 4 AS (Oryzalin) 4 AS	2 to 4 qt	2 to 4	Use for control of annual grasses and small seeded broadleaf weeds. Use low rate for short-term control (2 to 4 months); high rate for long-term control (6 to 8 months). DO NOT apply to a newly established planting until the soil has settled and no cracks are present. DO NOT APPLY ORYZALIN TO LOWBUSH BLUEBERRIES. Apply before annual weeds emerge or tank mix with labeled burndown herbicides. Do not apply when fruit is present.
diuron (Direx 4 L) (Drexel diuron 4 L) (Drexel diuron 80 DF) (Riverside diuron 80 DF) (Karmex) 80 DF	1.2 to 1.6 qt 1.2 to 1.6 qt 1.5 to 2.0 lb 1.5 to 2.0 lb 1.5 to 2.0 lb	1.2 to 1.6	Use for residual control of annual broadleaf weeds <u>ONLY</u> under plants established in the field for at least 1 year. Apply in the spring before weeds emerge, or if small weeds are present then apply with a surfactant or crop oil to improve contact activity. A repeat treatment may be made after harvest. DO NOT use on sand, loamy sand, gravelly soils, or on exposed subsoils.
simazine (Princep, Simazine) 90 DG (Princep, Simazine) 4 F	2.2 to 4.4 lb 2 to 4 qt	2 to 4	Use for control of annual broadleaf weeds and some annual grasses. Provides good control of annual ryegrass. Apply 2 to 4 lbs ai/A in the spring or make a split application with spring and fall applications. Rotation of spring and fall herbicides will usually control a broader weed spectrum. On plantings less than 6 months old, use $\frac{1}{2}$ rate. DO NOT use on gravelly, sand, or loamy sand soils. DO NOT apply when fruit is present. Tank mix with oryzalin or Solicam for improved annual grass control.

glyphosate acid (numerous brands) 4 SL 5 SL 5.5 SL	1 to 3 pt 0.8 to 2.4 pt 11 to 32 fl oz	1 to 2	Use for broad spectrum control of emerged weeds, both annuals and perennials. Apply as a directed spray under bearing and non-bearing bushes. DO NOT allow spray to contact foliage or green bark. Refer to product label for rates to control specific weeds. Allow a minimum of 14 days between last application and harvest. May be tank mixed with certain preemergence herbicides to provide postemergence and residual weed control.
bentazon (Basagran) 4 SL	1.5 to 2 pt	0.75 to 1	Apply as postemergence-directed spray to emerged weeds. Add two pints of crop oil concentrate in 20 to 50 gallons of water per acre. NONBEARING PLANTS ONLY. Do not apply within 1 year of harvest.
clethodim (Select) 2 EC	6 to 8 fl oz	0.09 to 0.125	Controls annual and perennial grasses in NON-BEARING bushes that will not be harvested within 1 year of application. Sequential applications will be necessary for controlling perennial grasses like bermudagrass and johnsongrass. Use higher rates for perennial grasses. Add crop oil concentrate (1 qt/A). Make application to johnsongrass-12 to 18 in. tall; bermudagrass-3 in. tall or with 4 to 8 in. runners; annual grasses-2 to 8 in. tall. Does not control nutsedge(s).
fluazifop (Fusilade DX) 2 EC	16 to 24 fl oz	0.25 to 0.38	Controls annual and perennial grasses in NON-BEARING bushes (harvest not expected within 1 year). Sequential applications will be necessary for perennial grass control. Low spray volumes (10 GPA) generally improve control. Add crop oil concentrate (1 qt/acre). Make application to johnsongrass-12 to 18 in. tall; bermudagrass-3 in. tall or with 4 to 8 in. runners; annual grasses-2 to 8 in. tall. Does not control nutsedge(s).
sethoxydim (Poast) 1.53 EC	1.5 to 2.5 pt	0.3 to 0.5	Use for control of annual and perennial grasses under both bearing and non-bearing bushes. Sequential applications will be necessary for controlling perennial grass weeds like bermudagrass and johnsongrass. Low spray volumes (10 GPA) generally improve control. Add crop oil concentrate (1 qt/acre). For annual grasses up to six inches tall, 1 to 1.5 pt/acre should be adequate. For annual grasses taller than six inches and perennial grasses, use up to 2.5 pt/acre. Do not use more than 5 pt/acre per season and the last application must be made at least 30 days prior to harvest. Does not control nutsedge(s).

14. Blueberry fruit set and fruit size under natural conditions is determined in large part by number of seeds in the fruit. The seeds produce plant hormones that set the fruit and cause it to grow to maximum size. Low seed counts result in smaller, later ripening fruit. Gibberellic acid can set fruit, but will not fully substitute for total lack of seeds. Seedless fruit of 'Tifblue' set only with gibberellic acid usually produce berries about 2/3rds normal size. Seedless fruit of 'Climax' set only with gibberellic acid will produce berries about 1/4th normal size. Fruit set with a combination of gibberellic acid and some seeds develop better fruit size, so bee pollination is important even in fields treated with gibberellic acid.

Growers should use honey bees (min. 2 strong hives per acre) if there are not large numbers of honey bees and wild bees such as bumble bees and southeastern blueberry bees present in the blueberry field. Most large fields do not have enough bees, so honey bees should be imported.

Although, flowers are most receptive to fruit set with gibberellic acid at stage 5 (elongated but not yet open) and 6 (open), seedless fruit set just with gibberellic acid are smaller in size than partially seeded fruit set with the help of gibberellic acid. Allow at least 40 to 50% of the flowers to open and be worked by bees before gibberellic acid application. About 10% of the petals (corollas) should have fallen. Apply a second application of gibberellic acid 10 to 18 days later.



RABBITEYE BLUEBERRY AID FOR FRUIT SET FOLLOWING SLIGHT FREEZE DAMAGE

Response:

Increase fruit set of flowers with slight freeze damage.

Material:

Gibberellic acid-ProGibb 4% liquid concentrate or GibGro 4 LS

Situations and timing:

The use of gibberellic acid for fruit set following freeze damage to rabbiteye blueberries is a recent discovery. Field and laboratory experiments indicate it may be used in several situations. **Actual damage suffered during a freeze depends on many factors including stage of bloom, cultivar, wind, low temperature, and duration of low temperature. Blossom temperatures during radiation freezes can be 2-3 degrees F lower than protected thermometer temperatures.**

As a general rule, blossom temperatures in the range of 26-32 degrees F will cause partial flower damage to flowers at stage 5 and 6 (see Fig. 2). If the freeze occurs during full bloom, this calls for the first gibberellic acid application soon after the freeze event. Apply a second application of gibberellic acid 10 to 18 days later.

Temperatures below 26 degrees F are likely to cause total death of flowers at stage 5 and 6. In this case, application of gibberellic acid starts when the slightly freeze damaged stage 3 and 4 flowers develop into stage 5 and 6. Note that freeze damaged flowers may never open properly or be receptive to bee pollination, so an application of gibberellic acid should be applied when a large percentage of the damaged blooms reach stage 5 and 6. Apply a second application of gibberellic acid 10 to 18 days later.

Situation I.

Partial flower damage. Flowers with damage similar to Fig. 2 (Blossom temperatures probably in the range of 26-32 degrees F during bloom)

Controlled experiments have been conducted during the last three years where blooms at stage 5 and 6 were subjected to temperatures in the range of 26-32 degrees F. At these temperatures flowers were slightly damaged and may be rescued with gibberellic acid. The first application of gibberellic acid for freeze rescue should be applied after the freeze while the flowers are still in stage 5 and 6. Once an abscission layer is formed, the flower will drop off regardless of gibberellic acid application. A second application should be applied 10-18 days later to further enhance fruit set.

Dormex® to Enhance Fruit Ripening of Certain Southern Highbush and Rabbiteye Blueberries

Gerard Krewer and D. Scott NeSmith, Horticulturists

Response	Material	Timing	Rate of Material	Remarks
<p>If properly used, Dormex® can stimulate more rapid leaf development in the spring, resulting in more concentrated ripening on the first two harvests on blueberry cultivars with poor spring leaf development in south Georgia. Both increased number of leaf bud breaks, and earlier leaf emergence occurs on poor leafing blueberry cultivars in response to Dormex®. Flower buds at stage 3 of bud development or beyond (see gibberellic acid bud stage section) are extremely vulnerable to chemical burn and/or injury when using Dormex®.</p>	<p>Dormex® -50% hydrogen cyanamide</p>	<p>NOTE: Timing of Dormex® applications is <u>extremely important</u> in order to achieve the desired response and <u>to avoid flower bud injury</u>. Apply during the dormant season after significant winter chilling has been received, but before significant flower bud swelling occurs. Apply before a significant number of flower buds reach stage 3 (see flower bud chart in gibberellic acid recommendations). Timing must be based on flower development, however, generally optimum time of application in lower south Georgia has been early January on low chilling requirement southern highbush. Generally, the best timing for rabbiteyes such as 'Climax' has been late January or early February. But again, plants must be examined for their stage of development. If excess floral bud swell and floral bud break has occurred, chemical injury to buds is highly possible.</p>	<p>Apply 1 to 1.5% Dormex® with non-ionic surfactant in 50 gallons of water per acre. This rate is two quarts to three quarts of Dormex® plus one pint of surfactant in 50 gallons of water.</p>	<p>1. Dormex® is a toxic material and is registered for application only with closed cab tractors. Before use read all Dormex label sections carefully.</p> <p>2. Do not consume alcoholic beverages prior to, during, and following (24 hours) handling the product. Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 72 hours.</p> <p>3. Dormex® is highly corrosive to equipment. Clean up thoroughly after application.</p> <p>4. Avoid drift. Dormex® may be phytotoxic to green plants such as winter vegetable crops, shrubs, pets, etc. Use a spray pressure of 50 psi to reduce drift.</p> <p>5. Flower buds sprayed at stage three or beyond may be killed by Dormex®, especially at concentrations of 1.5%. When applied at the correct window, 1.5% may give a better response than 1%.</p> <p>6. Apply during dry weather. Slow drying may enhance Dormex® activity and cause more phytotoxicity if the buds are swelling.</p> <p>7. Dormex® may advance flowering by several days, slightly increasing the risk of freeze damage.</p> <p>8. Dormex® is not needed on cultivars with good leaf development such as 'Sharpblue', 'Brightwell', etc.</p>

Blueberry Products and Services: Do you have blueberry plants, equipment or related items for sale? Call 229-386-3807 and we will list it in this newsletter. There is no charge for members for this service. Up to three lines free. Additional words \$.30 per word.

Blueberry Farm for Sale, 60 acres, 25 acres of blueberries, two-six inch wells, pond, 30x50 metal building, Dublin, Ga., Bennie Fitts, 478-275-1984

Southern Highbush plants for sale, 2"x2" containers, O'neal \$.55, Star \$.75, Nugent Nursery, 229-532-2009 after 6:00 p.m.

Rabbiteye plants for sale, 1 to 3 gallon, Bottoms Nursery, 770-884-5661, Concord, Ga.

Rabbiteye and southern highbush plants for sale, liners to 3 gallon, Alma Nursery, 912-632-5708, Alma, Ga.

Island Grove Ag Products: Don't buy plants until you have talked to us. We have all southern highbush varieties. We will grow specifically for your needs. Now taking orders. Call Ken Patterson (352) 481-5558

Sandy Run Farm and Nursery. Jubilee, Biloxi, Misty and Pearl River southern highbush for sale. Tim Goggans. 601-296-0630 or 601-286-7952.

Georgia-Florida Bark and Mulch. We offer a full line of pine bark products including, pine bark mulch, pine bark nuggets, pine bark fines and composted pine bark. Phone toll free: 1-888-744-9422

Late Breaking News

Dewpoints can now be accessed at:

www.georgiaweather.net

go to city, i.e. Alma, Homerville, Nahunta, etc., then current conditions, then dewpoint

Membership Information

To join the Georgia Blueberry Growers Association, mail a check payable to **Georgia Blueberry Growers Association** to our address:

Danny Stanaland, Sec./Treasurer
Georgia Blueberry Growers Association
Bacon Co. Ext. Service, 203 S. Dixon St.,
Suite 3, Alma, Ga. 31510

**which membership category you fit best.
Jan. 1-Dec. 31, 2002 Membership:**

1. Regular Georgia Member-\$25
2. Out-of-state member- \$25
3. Associate (industry) member-\$50
4. Education and research-\$10 (University and USDA personnel who do not grow blueberries commercially). Email newsletter free to education and research personnel. Send request to gkrewer@uga.edu

The Association annual dues depend on