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Calendar for Southern Highbush Blueberry Management in Florida[1]

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Introduction

Southern highbush blueberries (SHB) are commercially grown throughout Florida in both deciduous and evergreen systems. This calendar addresses the monthly general management requirements for Florida commercial blueberry growers in conventional (nonorganic) systems and should be used in coordination with other Ask IFAS publications.

December–January

Disease

Once bloom occurs, monitor for Botrytis blossom blight during cool, wet periods. If present, spray recommended fungicides in rotation. Also consider beginning fungicide applications to prevent anthracnose fruit rot. Use the AgroClimate Blueberry Advisory System (BAS) (also available as a phone app) to know when weather conditions are favorable for the development of anthracnose fruit rot. See Ask IFAS publication PP366, "Blueberry Advisory System: A Disease Alert System for Blueberry Anthracnose Fruit Rot." Applying fungicides prior to a forecasted freeze event, one that would need overhead irrigation as protection, can help reduce Botrytis severity on plants damaged by low-temperature injury. See Ask IFAS publication PP198, "Botrytis Blossom Blight of Southern Highbush Blueberry." ***January***—Apply Ridomil to help prevent Phytophthora root rot. See Ask IFAS publication PP374, "Phytophthora Root Rot on Southern Highbush Blueberry in Florida," and HS1156, "2024 Florida Blueberry Integrated Pest Management Guide."

Insect Pests

Monitor for blueberry gall midge (BGM) and spray recommended insecticides when adults are present. If traps are not used for monitoring and the planting has a history of BGM infestation, spray insecticides before floral and vegetative bud break and again approximately 7–10 days after the first application, following label directions. See Ask IFAS publication ENY-2105, "Management of the Blueberry Gall Midge on Southern Highbush Blueberries in Florida." Also scout for scales, southern red mites (Tetranychids), flat mites or false spider mites (Tenuipalpids), flower thrips, and blueberry bud mites. If any are observed, use recommended control measures. See Ask IFAS publications ENY-2094, "Wax Scale on Southern Highbush Blueberries in Florida," and ENY-1006, "Mite Pests of Southern Highbush Blueberry in Florida." Nematodes are not known to damage southern highbush blueberries in Florida. See Ask IFAS publication HS1156, "2024 Florida Blueberry Integrated Pest Management Guide," for detailed recommendations.

Weeds

Apply postemergence herbicide if weeds are present at densities that hinder bush growth.

Hydrogen Cyanamide

Hydrogen cyanamide can help accelerate vegetative budbreak and concentrate harvests for SHB in deciduous systems. Consider applying hydrogen cyanamide (marketed as Dormex and BudPro) in deciduous production systems, particularly those with weak or delayed leaf canopy development and heavy fruit loads. However, at higher concentrations, hydrogen cyanamide can cause floral bud injury and reductions in yield, especially in some cultivars that are more sensitive to it, such as 'Jewel' and 'Primadonna'. Growers should do test applications by cultivar on small sections to determine safe concentrations. In addition, growers should make this application before 20% of the floral buds are at or past stage 3 (separation of bud scales) and after sufficient chilling has occurred to minimize floral bud damage. For more information on the use of hydrogen cyanamide, see Ask IFAS publication HS1156, "2024 Florida Blueberry Integrated Pest Management Guide."

Freeze Protection

Monitor forecasted and actual temperatures and utilize freeze protection strategies as needed. See Ask IFAS publication HS968, "Protecting Blueberries from Freezes in Florida."

Pruning
Dormant pruning can be performed to maintain appropriate plant structure and size. Removal of approximately 25% of old canes should be done annually, beginning when a plant is five to six years old, to promote the growth of new canes. Low branches, weak growth, and damaged wood can also be removed at this time. See Ask IFAS publication HS1359, "Pruning Southern Highbush Blueberry in Florida."

Bees
Managed honey bees and bumble bees provide essential pollination services in commercial blueberry fields. Have honey bees (and bumble bees if applicable) delivered early in bloom but after some flowers have opened; ideally, they should be placed in the field after 10% bloom but before 20% bloom. The recommended number of honey bee hives is four to five per acre. On large farms, hives should be distributed throughout the farm while still allowing access to the bee providers. Position hives to face crop rows, but place them at a safe distance from the direct path of pesticide applications. Confirm the health of colonies upon delivery; at least eight frames per hive should have adults, and at least six frames per hive should have brood in the cells, with good forager activity into and out of the hives during fair weather. The average count of foragers returning to the hive should be around 40 foragers per minute during temperatures of 70°F or higher. Consider adding additional honey bee or bumble bee hives if there is a heavy, concentrated bloom across the farm and the potential for a high yield or if the colony sizes are smaller than typical. See additional details in Ask IFAS publication ENY-172, "Pollination Best Practices in Southern Highbush Blueberry in Florida" and Ask IFAS publication ENY-2110, "A Guide to Selecting and Using Pesticides During the Blueberry Pollination Period: How Can We Reduce Risk to Pollinators?"

February–March

Disease
Monitor for Botrytis and control as needed. Apply recommended fungicides in rotation for control of anthracnose and/or Alternaria fruit rot at petal fall, 10–14 days after petal fall, 20–24 days after petal fall, and prior to harvest.

Insect Pests
Monitor for gall midge, flower thrips, and blueberry bud mites. Apply recommended controls, if necessary and available.

Weeds
Warm-season weeds will begin to emerge during this time. Early in emergence apply a preemergence herbicide tank-mix with a postemergence herbicide. Select a preemergence herbicide with longer periods of control. Apply the postemergence herbicide with a shielded sprayer to prevent drift onto the flowers or fruit.

Freeze Protection
Monitor forecasted and actual temperatures and utilize freeze protection strategies as needed.

Bees
Monitor the appropriate level of bee activity in and out of the hives and on the blueberry bushes. Consider adding additional hives if there is a heavy, concentrated bloom across the farm or if the hives are smaller or weaker than typical. Bee hives should be kept in the field through the end of bloom for all cultivars.

April

Disease
Apply recommended fungicides in rotation for control of anthracnose and/or Alternaria fruit rot. Promptly harvest and cool ripe fruit.

Insect Pests
Monitor for gall midge and flower thrips and control as necessary. Spray recommended insecticides to control spotted wing drosophila (SWD) and promptly harvest ripe fruit. If the farm is located north of Lake City and has a history of blueberry maggot, establish yellow sticky traps to monitor blueberry maggot adults. Also, in infested areas, start scouting for adult *Diaprepes* (citrus) root weevils (see Ask IFAS publication ENY-999, "Diaprepes Root Weevil on Southern Highbush Blueberry in Florida") and adult flatheaded borers on the blueberry foliage. No pesticide is labeled in blueberry for citrus root weevil and flatheaded borer; however, some cover sprays for spotted wing drosophila will control these pests.

Weeds
Apply a postemergence herbicide if weeds are present at densities that hinder bush growth. Carefully read preemergence herbicide labels because they have longer preharvest intervals than many of the postemergence herbicides.

May

Disease
Monitor for postharvest leaf diseases (rust, anthracnose, Septoria, target spot, Phyllosticta, and Cercospora) and apply recommended control measures. See Ask IFAS publication PP348, "Florida Blueberry Leaf Disease Guide." See also Table 1.

Insect Pests

Continue using insecticide sprays for spotted wing drosophila for the remaining ripe fruit on the bush. Continue monitoring blueberry maggot in affected areas. Continue monitoring adult citrus root weevils and adult flatheaded borers in infested areas. Postharvest, spray to control blueberry bud mite if present or observed in the previous season. Scout for chilli thrips (leaf curling and bronzing) and blueberry flea beetle (shot holes in the leaf) and apply recommended control measures if present. See Ask IFAS publication ENY-2053, "Chilli Thrips on Blueberries in Florida."

Pruning

After harvest is complete, hedge back bushes to stimulate new vegetative growth and immediately spray a recommended fungicide to minimize the risk of fungal pathogens infecting through pruning wounds.

Weeds

Apply a preemergence herbicide after harvest (tank mix with a postemergence herbicide if weeds are present at densities that hinder bush growth). This is an opportunity to incorporate herbicides with long preharvest intervals that are not suitable when fruit are present but provide a new mode of action for herbicide resistance management.

June–October

Disease

Scout for algal stem blotch. See Ask IFAS publication PP344, "Algal Stem Blotch in Southern Highbush Blueberry in Florida." Selectively prune out dead canes and canes infected with algal stem blotch, Botryosphaeria stem blight, and Botryosphaeria stem canker. Continue to monitor and manage leaf diseases. On farms managing bacterial wilt, begin monthly fertigation events or banded-bed applications of a phosphorous acid product. See Ask IFAS publication PP332, "Bacterial Wilt of Southern Highbush Blueberry Caused by *Ralstonia solanacearum*." ***June***—Apply Ridomil to help prevent Phytophthora root rot.

Insect Pests

Scout for flea beetles, adult and larval citrus root weevils, adult and larval flatheaded borers, chilli thrips, flat mites (May–September), and southern red mites (October–November) in affected areas and apply recommended control measures if present. ***October***—Spray applicable insecticides or miticides to control insect pests, fall webworm, and mites, respectively (if present or observed in the prior season).

Weeds

Apply postemergence herbicide if weeds are present at densities that hinder bush growth. Purple and yellow nutsedge will be actively growing during the hot and humid months. This is the best opportunity for control with postemergence herbicides. ***August***—Apply preemergence herbicide if summer rainfall has been heavy. ***September***—Apply a preemergence herbicide for cool-season weeds (tank mix with a postemergence herbicide if weeds are present at a density that hinders bush growth).

Leaf Tissue Sample Collection

Collect leaves for tissue nutrient analysis in late June or early July, depending on how quickly vegetative growth occurs following summer pruning. Select samples from fully expanded leaves in the middle of a recent summer growth flush.

November

Disease

Monitor and manage leaf diseases, particularly in evergreen systems.

Insect Pests

Begin monitoring for blueberry gall midge and spray recommended insecticides when adults are observed. If traps are not used, spray right before floral budbreak and again approximately 10 days after the first application, following label directions. See Ask IFAS publication ENY-2105, "Management of the Blueberry Gall Midge on Southern Highbush Blueberries in Florida." Continue monitoring for southern red mites and flat mites; spray miticides and insecticides that have miticidal effects.

Weeds

Apply postemergence herbicide if weeds are present at densities that hinder bush growth.

Periodic Management Tasks Throughout the Year

- Monitor substrate pH, maintaining levels between 4.5 and 5.5. A pH higher than this range can result in poor plant growth and nutritional deficiencies.
- Obtain a lab analysis of foliar tissue at least annually to confirm sufficient nutrient uptake.
- Add pine bark to beds every two to three years. Growers should be aware that fresh pine bark can tie up nitrogen for a period of time, so it will be important to monitor plant N uptake through foliar analysis after applying new pine bark. Consider supplemental nitrogen applications to compensate for the effects of fresh pine bark on nitrogen availability.

- Scout for Botryosphaeria stem blight, stem canker, algal stem blotch, and so forth. Remove infected canes and stems from the field.
- Scout for bacterial scorch (*Xylella fastidiosa*) and bacterial wilt (*Ralstonia solanacearum*). Remove and destroy infected plants, apply soil drench with phosphorous acid to help protect surrounding plants, and apply this drench before replanting in the same spaces. 'Meadowlark' is known to be susceptible to *Xylella*, and 'Arcadia' is known to be susceptible to *Ralstonia*, although other cultivars have also become infected. Suspected infection can be confirmed by submitting tissue samples (including roots) to the UF/IFAS Plant Diagnostic Center.

Tables

Table 1. Calendar of blueberry leaf disease activity and potential fungicide management options. Legend: Orange shading represents the time span for bloom, harvest, and postharvest timing; blue shading represents the time span when disease is typically observed; and gray shading represents the time span when disease is occasionally observed.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Bloom (1)												
Harvest (2)												
Postharvest (3)												
Phomopsis												
Pristine, Switch, Abound or Quadris, Quash, Quilt Xcel, Cevya												
Septoria												
Orbit, Indar, Quash, Quilt Xcel, Proline, Luna Tranquility, Abound or Quadris, Switch, Pristine, Bravo, Cevya												
Rust												
Orbit, Indar, Quash, Proline, Pristine, Bravo, Cevya												
Anthracnose												
Indar, Orbit, Quash, Quilt Xcel, Proline, Luna Tranquility, Abound or Quadris (tank mixed with Captan), Switch, Captan, Bravo, Omega 500F, Cevya												
Target spot												
Indar, Orbit, Quash, Quilt Xcel, Proline, Luna Tranquility, Abound or Quadris, Pristine, Switch, Captan, Bravo												
Phyllosticta												
Orbit, Quash, Tilt, Pristine												

(1) February through March for north-central, January through March for central and south-central in most years. Check the preharvest interval of all products.

(2) April through May for north-central, March through May for central and south-central in most years. Check the preharvest interval for all products.

(3) June through December for all regions in most years.

Table 2. Calendar of insect activity and suggested insecticide controls. Legend: Orange shading represents the time span for bloom, harvest, and postharvest timing; blue shading represents the time span when each insect is typically observed.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Bloom (1)												
Harvest (2)												
Postharvest (3)												
Blueberry gall midge (4)												
Movento, Exirel, Assail, Admire Pro, Delegate, Malathion, Diazinon, Entrust												
Blueberry bud mite (4)												
Magister, Carbaryl, horticultural oil												
Flower thrips (4)												
Delegate, Sivanto, Entrust												
Scale (4)												
Superior oil (pre-bloom only), Malathion												
Tetranychid (southern red) and Tenuipalpid mites												
Magister, horticultural oil, Danitol, Brigade, Malathion												
Spotted wing drosophila (SWD)												
Mustang Max, Delegate, Malathion, Exirel, Danitol, Brigade, Imidan, Entrust, Assail												
Blueberry maggot												
Imidan, Malathion, Diazinon, Delegate, Sevin												
Citrus root weevil (Diaprepes)												
Adults—Malathion, Brigade, Danitol, Actara; Larvae—Brigade, Danitol, Platinum, Admire Pro												

Flatheaded borer												
Adults—Malathion, Mustang Max; Larvae—Platinum, Admire Pro												
Chilli thrips												
Apta, Assail, Exirel, Sivanto, Entrust												
Flea beetles												
Diazinon, Mustang Max, Assail, Sevin, Malathion												
Fall webworm												
Intrepid 2 F, Delegate, Entrust, Bacillus thuringiensis												

Note: See Ask IFAS publication HS1156, "2024 Florida Blueberry Integrated Pest Management Guide," for details and cautions on suggested insecticides, including limitations when pollinators are present. Read and follow all label instructions. Use a rotation program with different modes of action to minimize the development of resistance.

(1) February through March for north-central, January through March for central and south-central in most years.

(2) April through May for north-central, March through May for central and south-central in most years.

(3) June through December for all regions in most years.

(4) The following insecticides are highly toxic to pollinators: Exirel, Sivanto, Malathion, Delegate, Entrust, Admire Pro, Diazinon, and Carbaryl. See Ask IFAS publication ENY-2110, "A Guide to Selecting and Using Pesticides During the Blueberry Pollination Period: How Can We Reduce Risk to Pollinators?" for more information.

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Use pesticides safely. Read and follow directions on the manufacturer's label.

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