

Production of Certified Organic Blackberries in the Southeast

Organic blackberry production can be a rewarding but often challenging undertaking. This is especially true in areas in the eastern United States, where high amounts of rainfall and humidity can lead to elevated disease and insect problems. There are options when considering this type of production system, but what does “certified organic production” mean?

In short, an organic certification is a verification that the blackberry fruit (or any fruit) is produced according to [United States Department of Agriculture \(USDA\) organic standards](#) established by the National Organic Program (NOP). These standards must be meticulously followed to ensure compliance. Growing crops organically can be an attractive proposition because of consumer willingness to pay a premium for the product. This publication covers some of the necessary considerations for organic production of blackberries.

Site Preparation

Production of organic blackberries starts in the planning phase. This includes properly preparing the planting site for new plants as well as keeping the soil in good shape for long-term production. Choose a well-drained location in full sunlight. Berms or raised beds can help if soil drainage is less than desirable. Avoid heavy clay soils or low, frequently saturated areas as many problems can arise in these types of locations.

It is important to address water drainage, organic matter, and soil pH before planting because it is far more difficult to correct these issues once plants are in the ground. The best starting place for organic production is healthy soil. Get a soil test well in advance of planting to allow soil improvements to fully take place and have the desired effect. Adding organic matter enhances beneficial soil microbial communities that may help stave off root rot diseases and harmful nematodes.

Irrigation is another important aspect of blackberry management. Blackberries need 1 to 2 inches of water per week by rainfall or irrigation during the growing season, especially when the crop is on the bush. Drip irrigation provides the best environment for the plants; it keeps the leaves, flowers, and fruit dry, eliminating a potential conducive environment for disease development. This type of irrigation system also allows precise nutrient delivery.



Soil Conditions

Soil pH should fall between 6.0 and 7.0. Levels outside of this range can lead to poor plant growth and stress due to lack of available nutrients. In general, blackberry bushes grow best on land that was not in previous crop production; this type of site can immediately be used for organic production. Land that was in previous crop production may have residual nutrient, pesticide, and pest levels that are detrimental to plant longevity. If replanting an entire field is necessary, the site must be rotated away from blackberries for at least 1 year according to USDA NOP rules. However, at least 3 years would be more effective to disrupt insect and disease life cycles and improve the suitability of the site.

Plant Material

While starting with non-organic stock is possible, sourcing organically certified planting material is the best option. Once the blackberry bushes start to grow, a trellis system can be installed to support the canes as they lengthen. An NOP-approved trellis system helps to keep canes and fruit off the ground while improving canopy density. During the growing season, canes need to be thinned to prevent overcrowding within the row. Once harvest is over, remove and destroy any dying floricanes.

Plant Nutrition

Organic fertilizers such as manure can be difficult to apply and can vary in nutrient availability. There are also restrictions on how and when to apply manure. The pre-harvest interval for manure can range from 90 to 120 days, depending on its use. However, properly composted manure can be applied throughout the season without a pre-harvest interval. Commercially available organic fertilizers have known nutrient contents and are easier to apply either broadcast or through the irrigation line.

Blackberry plants are highly active in the spring when they push out leaves and flowers and develop fruit. This is the time when demand for nutrients is highest. Blackberry nutrient demand can depend on various factors, such as plant age, vigor, and fruit production, so nutrient applications may need to be altered from growing season to growing season. Annual or biennial soil testing should be part of any management program to help assess nutrient and soil pH issues.

Pest Control

Pest control is probably the most difficult management task of certified organic blackberry production. The primary pests are weeds, insects, and diseases but also may include animals such as birds and deer. Protected-culture structures, such as high tunnels, can help mitigate some of these pests.

The NOP sets rules for how to use NOP-approved pesticides (fungicides, herbicides, and insecticides). NOP-approved pesticides are usually less effective than conventional products, but combining them with sustainable integrated pest management (IPM) practices can help. This means using preventive tactics that may help lower overall pest pressures throughout the season.

The cost and risks of applying NOP-approved pesticides must be balanced against the anticipated benefit. Under NOP rules, preventive (cultural and biological) management options must be attempted before resorting to using pesticides. This publication provides Southeast-specific information on NOP-approved disease and insect management options for blackberry production and addresses the issues most encountered under the unique growing conditions of the region. Another recommended IPM resource for commercial blackberry production is the [Southeast Regional Caneberry Integrated Management Guide](#).

Organic Weed Management

Weeds will compete with blackberry plants for water and nutrients. Numerous weed species can be troublesome throughout the life of a blackberry planting, but aggressive weed control is most critical when blackberry plants are

young. Weeds also harbor insect pests and diseases that can interfere with maintenance tasks. As is the case with conventional production systems, there is no completely effective organic herbicide, so cultural and physical methods must also be used to disrupt weed competition.

A key step to get ahead of weeds, especially in an organic management system, is to eliminate hard-to-control weed species before planting. It may take months to years of repeated cultivation to accomplish this. Planting cover crops may be another option, but that also takes time.

During the establishment phase and beyond, mulch is recommended. Mulch helps control weeds, keeps soil temperatures moderated, adds organic matter back to the soil as it breaks down, and conserves soil moisture.

Mulch should be no deeper than 6 inches but at least 3 inches deep. Mulch that is too deep may limit plant root development and prevent new canes from emerging, whereas too little mulch will not prevent weeds from getting established. It will need to be replenished as the mulch deteriorates, so applications every 2 or 3 years will be necessary. The mulch should cover the entire plant row, approximately 4 feet wide.

Plastic or landscape fabric mulch can also be used. Even though both are petroleum-based products, NOP rules allow them to be used as long as they are removed before any deterioration of the product. Landscape fabric is allowed to be reused if it has not reached the point of breakdown, whereas plastic mulch must be discarded and reapplied every year. Landscape fabric, while convenient, does not add organic matter back to the soil, can increase soil temperatures around the roots, and can create a barrier to fertilizer permeability.

For any mulch used, additional hand weeding will be necessary to maintain weed-free beds. Flame weeding and organic herbicides can be effective, but multiple applications will be necessary as they tend to be effective only on short, young weeds. There are no systemic herbicides labeled for organic production, which makes weed control one of the most challenging management tasks in a blackberry production system.

Row middles are most commonly managed with a seeded cover crop, grass, or natural regrowth of existing vegetation. After blackberry plants are initially planted, the row middles can be seeded with perennial grass types that are not invasive or competitive with the bushes. Grass row middles facilitate access to the plants, decrease weed invasion into the rows, and minimize soil erosion. If existing vegetation is used, it must be managed to keep invasive weeds from becoming established.

There are a few organic products with mostly post-emergence activity against weeds, but they are not as effective as conventional herbicides. This means more applications per season. Alternatives to herbicides can be used in an organic production system. These options include hoes, cultivators, flammers, steamers, and lasers. Using animals, such as weeder geese and sheep, may create food safety concerns and should only be used after harvest.

Organic Insect Management

The easiest way to manage an insect pest in any production system is to prevent, reduce, and suppress any building populations. This is especially important for insect control for organic blackberries, which must be based on IPM strategies to have any reasonable chance of success. Insect IPM in a nutshell follows three simple steps:

1. Understand the insect pest and crop system

relationship. This includes correctly identifying the pest, understanding its life cycle and feeding preferences, knowing the types of plant injury caused by the insect, and determining whether it is of economic concern to the crop.

2. Scout and monitor.

Monitor problematic insect populations regularly and supplement with trapping as needed, as most management decisions have limited timelines.

3. Decision-driven management.

Selecting the right approach/tactic is equally important and depends on the information collected in steps 1 and 2, as the overuse of insecticides can lead to resistant insect pest populations. Populations of pests with short life cycles readily become resistant and require new approaches to suppress populations below established economic thresholds. Management timing and proper implementation are necessary for success—even an effective tactic can fail if done incorrectly.

Any insecticide or miticide, organic or conventional, has the potential to negatively impact beneficial insects, including pollinators. As much as possible, avoid insecticide use during bloom; if not possible, apply insecticides in the evening when pollinators are less active. Remember that organic pesticides must be handled with the same precautions as any other pesticide, and the pesticide label must be followed to minimize undesired impacts. Some organic-approved pesticides contain aromatic compounds that could potentially alter fruit quality, so they should be applied only in a manner consistent with the label guidance.

Prevention is the best approach to reduce the impact of insect pests in the blackberry planting, so be intentional when selecting cultivars. Mulch not only benefits the plants but also helps potentially reduce populations of insect pests

like the spotted wing drosophila (SWD). Fine-mesh netting is an effective exclusion device for SWD and can be used between fruit set and harvest.

Sanitation is key—remove fruits that have fallen to the ground and debris and other weeds to reduce primary and secondary insect populations. Pruning plants to help open the canopy allows airflow, improves fruit production, and promotes natural enemy movement into the canopy to reduce insect pest populations while exposing pests to less favorable weather conditions.

Traps are commercially available, with different types for different pests, and can be used to monitor seasonal pest populations. Placing traps in the field, for example, when fruits are near harvest helps to guide any management decision. Regularly scout and monitor plants throughout the season for symptoms and signs of insect damage. Use the MyIPM Fruit & Nut app (available in the Apple or Google Play stores) to recognize potential insect pests and indicators of insect damage.

Organic Disease Management

Disease management in an organic production system requires multiple management practices to achieve acceptable levels.

When available, choose cultivars that have resistance to the blackberry diseases known to commonly occur in the growing area. Obtain clean, pathogen-free plants from reputable sources; do not plant blackberry plants that exhibit symptoms of disease.

Plant only in well-drained soils, preferably in a location that was not previously planted to blackberries or that is not known to have a history of soilborne pathogens, such as nematodes, *Phytophthora* spp. (*Phytophthora* root rot), or *Rhizobium* spp. (formerly *Agrobacterium* spp.; crown gall). As much as possible, remove wild blackberries in proximity to the commercial planting to reduce potential sources of pathogens and their insect vectors.

Good air circulation and sunlight penetration through plant canopies can help reduce foliage diseases; increased plant spacing, canopy management, trellising, and managing weeds near the base of plants and within the rows will further increase these benefits.

Reduce unnecessary plant stress by providing sufficient water when needed and balanced nutrition based on soil or tissue analysis reports. Avoid working with plants or harvesting berries when plants are wet. Avoid damage to berries when harvesting, and harvest berries in a timely manner before they become overripe.

Store berries at appropriate storage temperatures quickly to minimize postharvest disease development. Remove old, weak, and dead canes at the end of the season to eliminate potential sources of inoculum and help with canopy management. When diseases (e.g., orange rust or blackberry yellow vein disease [BYVD]) caused by systemic pathogens first occur, remove and properly dispose of infected plants to eliminate the source of the pathogen. Infected plants will not recover, and the diseases can cause significant reductions in fruit yield (orange rust) or the lifespan of the plant (BYVD).

Various fungicides labeled for use against some blackberry diseases are available and approved for use in organic production; however, these should only be used if other management practices have not been successful. Copper and sulfur are the backbone of most organic disease management programs, but these fungicides are not as effective as many synthetic fungicides used in conventional production systems. The same is true of biological products, whose performance may be even more variable from year to year and location to location. These products work best when applied preventively, before disease onset, and when disease pressure is low.

Regularly scout and monitor plants throughout the season for symptoms and signs of disease. Use the MyIPM Fruit & Nut app (available in the Apple or Google Play stores) to recognize potential symptoms and signs of disease. At the first indication of disease, submit samples to your local diagnostic laboratory to determine which disease is present; many diseases produce similar symptoms that could easily be mistakenly identified based on symptoms alone. In some instances, such as when disease is limited within a planting or with certain diseases, proper removal and destruction of infected canes or entire plants may be the best course of action.

Organic blackberry growers can be successful, but organic pesticide products are not as effective as conventional products. Growers may need to educate consumers about cosmetic blemishes that do not change the edible nature of the fruit but may not meet large-market standards.



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