

THE ORGANIC WAY- METHODS FOR BLUEBERRY NUTRITION



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This article examines organic options for blueberry nutrition. Because soil pH and nutrient availability are closely linked, methods for adjusting soil pH are also included.

Before Planting

Blueberries grow optimally in soils with a pH between 4.5 and 5.0. Generally, the soil pH will need to be lowered prior to planting to meet this requirement. Some materials for lowering soil pH include sulfur, peat moss, and organic cottonseed meal. Options for sulfur include elemental sulfur and iron sulfate. Both of these products are labeled as 'restricted' according to the Organic Materials Review Institute (OMRI) that means that they are allowed in organic production but are subject to restrictions. Peat moss, which has a pH between 3.0 and 5.0, can also be used to lower the pH of the soil. It is allowable in organic crop production; however, the type used cannot contain a synthetic wetting agent. Organic cottonseed meal is a fertilizer (see table below) that also has a low pH and can be used to decrease the soil pH. It is approved for organic production as long as it is not from GMO cotton and is free from prohibited substances. Peat moss and cottonseed meal can be expensive. With all of these materials, it is best to work closely with your certifying agency before applying them to ensure organic certification is not compromised by their use.

Berry crops grow best in soils with organic matter contents between 2% and 5%. Organic matter acts as a slow release nutrient source. Methods to increase the soil organic matter content include the use of green manures, composts, and raw manures. Green manures are crops that are turned into the soil while they are young and succulent, rather than harvested, to improve the organic matter content. When planting a green manure crop before blueberries, select one that will grow well in soils with a low pH, compatible with blueberry plant requirements. Some options include: crimson clover, buckwheat, cereal rye and spring oats. All of these will grow in soils with a pH of 5.0. Finished compost typically contains 0.5 to 2.5% total nitrogen. Most of the nitrogen is in an organic or slow release form. As a general rule, about 10% of the organic nitrogen in the compost will be available to the plant per year. When using composts, it is best to apply it based on crop needs rather than on a volumetric basis for long-term soil health. When raw manures are used for blueberry production, they must be soil incorporated a minimum of 90 days before harvest. The Fact Sheet, Estimating Manure Application Rates, Penn State Publication CAT UC151, is available through cooperative Extension with detailed calculations for determining application rates for manures.

After Planting

If soil pH needs to be adjusted after planting, sulfur products used prior to planting can be used. Blueberries generally have a relatively high nitrogen requirement followed by potassium. Phosphorus is needed in lesser amounts. Compost and many 'meals' can be used to meet the nutrient requirements of blueberries. The table below contains the percent nitrogen, phosphate and potash as well as relative availability of nutrients in some of these products. Many blended fertilizers and liquid fish products are also available and allowed for organic production. Many of these products can be costly. Also, as with materials applied prior to planting, verify that the formulations you plan on using are allowable with your certifying agency to avoid compromising your organic certification.

Fertilizer Source	% Nitrogen	% Phosphate	% Potash	Relative Availability of Nutrients
Alfalfa Meal	3.0	1.0	2.0	Medium-Slow
Blood Meal	10.0-14.0	1.0-1.5	0.6-0.8	Medium-Fast
Cottonseed Meal	7.0	2.5	1.5	Slow-Medium
Feather Meal	11.0-15.0	0	0	Slow
Fish Meal	10.0	4.0	0	Slow
Soybean Meal	7.0	1.6	2.3	Slow
Compost	Variable*	Variable	Variable	About 10% of nitrogen per year.

* Nutrient levels in compost vary depending on source materials and composting protocols used; therefore, it is recommended that compost be tested to determine the amount of nutrients it contains (kits are available through local county Extension offices).

Table adapted from *Blueberries: Organic Production* (G.L. Keeper, S. Diver, K. Adam, M. Guerin and P. Sullivan, ATTRA, www.attra.ncat.org), *How to Convert an Inorganic Fertilizer Recommendation to an Organic One* (W. McGauran and W. Reeves, University of Georgia Cooperative extension, <http://pubs.caes.uga.edu/caespubs/pubcd/C853.htm>) and *Organic Soil Amendments and Fertilizers* (D.E. Chaney, L.E Drink water and G.S. Petty grove, UC Sustainable Agriculture Research and Education Program, University of California, Division of Agriculture and Natural Resources, Publication 21505).

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