

Shortening Blueberry Establishment Time with the “Pots in Raised Beds with Drip Irrigation Production Method” (PRBDIPM)

Gary Gao, Ph.D., Professor and Small Fruit Specialist

Email: Gao.2@osu.edu Phone: 614-556-7507



OSU South Centers, 1864 Shyville Road, Piketon, Ohio 45661

Eric Barrett and Clifton Martin, Ohio State University Extension

Thom, Harker, Dane Peck, and Wayne Lewis, OSU South Centers

The establishment of blueberry plants can be time-consuming, typically requiring seven years for the plants to mature enough to yield a good harvest. However, innovative agricultural practices can help reduce the establishment time significantly. One such method is the Pots in Raised Beds with Drip Irrigation Production Method (PRBDIPM). This method is a combination of container planting, raised bed cultivation, and efficient fertilization and irrigation practices, designed to speed up the growth and development of blueberry plants.



Figure 1. Ripening blueberries. Photo by Gary Gao.

Growing blueberry bushes can be quite challenging, as they require well-drained soil with a low pH between 4.5 and 5.2, along with a high organic matter content of 4–7% (Gao, 2013). In addition, they must be irrigated consistently with high-quality water that has little to no alkalinity. To replicate these conditions, growers in Ohio take several steps: they improve soil drainage by building raised beds, lower soil pH by amending with elemental sulfur, increase organic matter by incorporating peat moss or aged pine fines, and reduce water alkalinity by injecting sulfuric acid.

Container production of blueberries with fertigation has been researched and proven as an effective and faster way to grow blueberry bushes for fruit production (Nunez, 2024). Blueberry bushes can live quite “happily” in seven-gallon containers for 7 years. Larger pots are being used for blueberry production in California, Michigan, and Michigan. We grew blueberry bushes in 10 gallon-containers a few years back at OSU South Centers and had good success.



Figure 2. Blueberry bushes in containers from a study from 2016-2019. Photo by Gary Gao.

One of the main questions with container blueberry production in Ohio is “What do with the bushes in containers during winter months?” The roots of the container-grown blueberry bushes can be severely damaged by chilly winter temperatures if the pots are not insulated by soil or some other materials. Pots can be placed on their sides and covered with row covers. They can also be stored on coolers. However, that could be quite time consuming and may not be practical for a lot of growers.

“Pots in Raised Beds with Drip Irrigation Production Method (PRBDIPM)”

Container size: 10 gallons or larger.

Media: 75% peat moss and 25% Cyco Pearl (Coco coir with perlite).

Fertilizers: Jack's Professional 21-7-7 Acid Special or Jack's Classic Acid Special 17-6-6

Fertilizer and acid Injectors: One for the complete fertilizer, and one for sulfuric acid if water alkalinity level is high.

Steps in Implementing (PRBDIPM):

1. Mark the rows, plow, and build the raised beds that are three feet wide and at least one foot tall.
2. Set up stock solution tanks, injectors, and irrigation lines.

3. Fill the 10-gallon containers with commercially available blueberry substrate or a mix of your own.
4. Auger planting holes deep enough so the rims of the pots are level with the surface of the raised beds.
5. Sink the 10-gallon potted blueberry bushes into each planting hole and mulch the tops of the pots with 4" of aged wood chips.
6. Place one spray dripper stakes in each pot.
7. Fertigate the bushes at least once a week.



Figure 3 and 4. Planting holes were dug with an auger (left). Blueberry bushes in ten gallon-pots were sunk in the planting holes (Right). Photos by Dane Peck, OSU South Centers.

All plants were fertigated with a fertigation system. Three injectors with three stock tanks were used to fertigate the blueberry bushes in our trial. The white injector on the left side is used for acidifying water with sulfuric acid, and the two grey injectors were used for injecting either Jack's Acid Special 21-7-7 or Jack's Traditional Acid Special 17-6-6. All plants are fertigated once a week. The plants are all netted for protection of fruits from bird depredation. Keep in mind that growers only need one injector for fertilizer and one for acid injection if needed.



Figure 5. The blueberry fertigation system was used in our trial in 2025. Photo by Gary Gao.



Figure 6: Blueberry in 10-gallon containers sunk in the raised beds with a blueberry in 10-gallon containers placed above ground for illustration purpose. Photo by Gary Gao.



Figure 7. Blueberry bushes in our trial on October 24, 2025. Photo by Dr. Gary Gao.

PRBDIPM looks very promising so far. After planting our blueberry bushes in June, they performed surprisingly well despite a long, hot, and dry summer followed by an early fall drought. The early results suggest that using 10-gallon containers filled with a mix of 75% peat moss and 25% coco coir contributed to better plant survival and growth. Acidic media, regular water with acidified irrigation water, and appropriate fertilizer all helped as well.

An acidic substrate proved more effective than amended soil. Bushes initially grown in one-, two-, and three-gallon containers and later transplanted into 10-gallon containers with 75% peat moss and 25% coco coir exhibited robust growth. In contrast, those planted directly into amended soil without containerization and substrate showed significantly poorer performance.

Larger plants tend to perform better than smaller ones. Blueberry bushes in one-gallon containers were the best option due to their lower cost and well-developed root systems. However, bushes grown in two- or three-gallon containers may actually outperform those in smaller pots. These larger transplants often experience less transplant shock, which can lead to better establishment and growth. While the upfront cost of larger bushes is higher, growers may need to weigh that against potential benefits. It is quite possible that the loss rate is lower with two- or three-gallon plants compared to one-gallon ones. Overall, the price difference may be minimal. That is just something to consider.

Summary:

The “Pots in Raised Beds with Drip Irrigation Production Method” (PRBDIPM) showed strong potential in our 2025 trial. Early results showed that it is not recommended to fill the 10-gallon pots with amended soil. A mix of 75% peat moss and 25% coco coir performed well in our trial and is the recommended substrate. Plants in 2- or 3-gallon containers should be selected over those in 1-gallon containers, as they typically have larger root systems and exhibit stronger growth. Although they cost more, the investment may be justified eventually. However, because this was only a one-year study, additional data will need to be collected in the coming years to confirm these results.

References:

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