



Saffron Cultivation: Descriptions of Planting Methods

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Saffron (*Crocus sativus*) is a fall-blooming crocus in the *Iridaceae* family, which can be grown in USDA plant hardiness zones 4-8. It is a sterile plant and thus does not produce productive seeds. Propagation occurs asexually by producing secondary corms. Saffron is commonly grown as a perennial crop, in which the corms are planted and then left to reproduce over 4-5 years. This cropping system requires minimal time investment after the first year, except weeding and harvesting the flowers, which should increase annually as the number of secondary corms increase. Alternatively, some growers dig up last year's corms annually when they reach dormancy, sell the large corms and plant new corms in the fall. Herein, we describe various ways of growing saffron used in northern Vermont, US.

Several factors must be considered when planting saffron corms to maximize on flower and corm production. Selecting the best site to grow saffron is critically important. It grows best in soils with a light to moderate texture and relatively high organic matter content. Research has shown that using soil with good drainage and enriching it with compost improves saffron yield and the weight of secondary corms. Humic acid which is released from soil organic matter can increase saffron yield up to 50%. The soil and planting site should be well drained. If corms are growing where there is standing water for an extended period, they will rot.

If purchased from a commercial source, corms should be ordered in late spring to ensure they are available. Even if ordered in the spring, they will not be delivered until August or September. Corms should be planted in August or September and as soon as possible when they arrive from the supplier. **They should not be held over until the next spring because they will sprout and then die.**



Fig. 1. Saffron grown in a VT field. Left: Planting corms with a power auger; center: field plot in bloom; right: saffron foliage in the spring.

Several cultivation methods have been used in Vermont, including in the field (in raised beds, milk crates or a standard planting bed) and in high tunnels (in raised beds, milk crates or in the ground) (Figs. 1-4). If grown in milk crates, the crates should be lined with some sort of permeable weed cloth that will hold the soil in the box.

Different planting depths are used in different geographical regions and climatic conditions, varying between 3-12 inches. It is reported that the highest yield is obtained when corms are planted at a depth of 6-8 inches. Planting the corms deeper protects the corms from cold winter temperatures and hot temperatures in the summer. However, planting the corms deeper than 7-8 inches is thought by some to restrict vegetative growth and decrease yield. Planting saffron corms at 8 inches or more also is believed to have a negative effect on the number of secondary corms produced, which impacts saffron productivity the following year. We have not conducted



Fig. 2. Saffron in a raised bed at planting (left) and flowering (right). Hardware cloth is attached at the bottom to exclude rodents.



Fig. 3. Saffron grown in a VT high tunnel. Images from B. Leven, Golden Thread Farm, Stowe, VT.



Fig. 4. Milk crate for growing saffron (left) and filled with soil and sprouting corms (right).

replicated trials to assess the effects of planting depth on saffron or corm yield. We selected a depth of 6 inches in soil that was a light sandy loam and well drained. This depth ensured they were somewhat protected from the cold.

The density at which saffron corms are planted plays a role in yield and varies with the cropping system and size of the

corms. In some countries such as Iran and Spain where saffron growers keep the corms in one place for 4-8 years, a density of 5-7 corms/ft² is common. However, in parts of Italy where growers replant saffron corms every 1-2 years, a higher corm density of 10-13 corm/ft² is used.

For our Vermont trials we usually use a density of 11 corms/ft²., planting the corms 3-4 inches apart. In our raised beds we start with a 4-inch layer of top soil, place the corm over that and cover them with 2 inches of top soil and 4 inches of commercial potting soil “perennial blend” potting mix blended from composted manure and plant materials, composted maple and yellow birch bark, crushed and screened granite and basalt, blood meal, kelp meal, steamed bone meal, mined gypsum, vermiculite, washed coconut coir, herbs [Vermont Compost Co., <http://www.vermontcompost.com/products/>] (Fig. 5). The potting mix served as mulch to prevent weed growth, supplied nutrition for saffron over the growing season, and insulated the corms from the cold. If you grow them in a garden bed, beware, squirrels and voles may eat them. Some people install hardware cloth around the perimeter of the beds to discourage these saffron predators. Deer also love to feed on the leaves over the winter and spring, so cover them with deer netting if necessary.

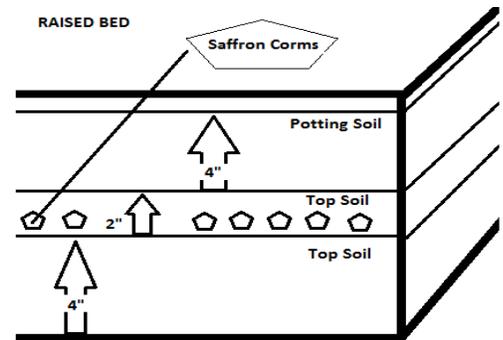


Fig. 1. Saffron corms planted in a raised bed.

After planting the corms, they should need no further watering if they are grown outside. Natural rainfall should be enough. If they are grown in a high tunnel or greenhouse, the soil should be kept moist but not over saturated. Corms should begin to sprout in 30 days and the flowers will emerge soon after.

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