



Harvesting Saffron Flowers

Margaret Skinner, Arash Ghalehgholabbehbahani & Bruce L. Parker

North American Center for Saffron Research and Development
University of Vermont, Burlington, VT 05405

<http://www.uvm.edu/~saffron/>

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Saffron, *Crocus sativus*, is a fall-blooming crocus that generally flowers from October – November. First of all, the flower is made up of three parts that must be separated before drying: the red threads (stigma), yellow center (stamen), and purple petals. Each of these parts may have monetary value. The stigmas are the saffron. Stamens and petals are sometimes used as a dye. Growers may want to dry all of the parts, or just the stigmas and stamens, which have the highest value. Picking the flowers and separating them is the first step of the harvesting process, and requires special handling to maximize on time and quality.

At what stage should the flowers be picked? It is generally recommended to pick flowers when they are fully elongated and just as beginning to open (Fig. 1). If you pick them when the flowers are still closed and short, the stigmas may not have had time to fully develop, and will not be as long (Fig. 2). Considering that each stigma weighs a fraction of a gram, length matters. If you wait until the flower has wilted, it is harder to pick them, or the stigmas shrivel up or get dirty.



Fig. 1. Saffron flowers ready to harvest.



Fig. 2. Saffron flowers at different stages of development. **Yellow arrow:** flower is not yet open and not ready to pick; **Red arrows:** flower is just opening and is ready to pick. **Blue arrows:** flowers are wilted and should have been harvested sooner.

When should you pick the flowers? It is best to pick flowers in the morning. In hot climates, growers prefer to pick them before the sun comes up. This is partly because the harvesters prefer to finish in the field before it gets too hot. Exposure to the sun also may degrade the quality of the flower, and thus the stigmas. However, in New England sometimes there is a heavy dew, residual rain, or even snow while the flowers are blooming (Fig. 3). In these situations, it is best to wait a few hours until the flower is fully dry and thawed before picking them. If it is raining, you may want to wait a day until the rain stops. An early snowfall may slow flowering but it will resume, when temperatures rise again. However, we had one season in Vermont when there was an early snowstorm followed by prolonged freezing temperatures. Flowering ceased completely for that year, significantly reducing yield.



Fig. 3. Saffron flowers in the snow.

The flowering season usually lasts 4-6 weeks. The timing depends on climatic conditions. In Vermont it starts in late October and ends in November. Early in the season there may be only a few flowers ready to harvest. In this case flowers can be picked every other day to save time. However, during the peak of the season, flowers should be picked daily. Generally, it is best not to delay flower picking more than 2-3 days. It is common to find

honey bees, bumblebees, butterflies and hover flies (bee mimics) visiting the flowers while picking (Fig. 4). They may be buried deep within the flower. Flick the flower gently with your finger and they generally will exit peacefully. In many regions, saffron is the only plant flowering in late October, and they offer a valuable late-season source of food for these beneficial insects.



Fig. 4. Butterfly on a saffron flower.

How do you pick the flowers? Most growers use their thumbnail and index finger to cut the flower off at the base, ensuring the entire flower is removed. Only pick clean fresh flowers; discarding those that are covered with dirt or moldy. The flowers should be handled gently so they aren't crushed or damaged. The leaves should not be picked. They continue to grow all winter and contribute to production of next year's corms.



Fig. 5. Flower picking in Vermont (USA) (left) and Iran (right). Note that in Iran flowers emerged before the leaves, whereas in Vermont the leaves come out before the flowers.

When the flowers begin to get limp or wilt, it is harder to pick out the stigmas from the other parts. Most people pick the flowers, bring them inside and then separate them. However, a few pick the stigmas out of the flowers in the field with tweezers and leave the other bits (Fig. 7). That seems like more bending over, but if you only want the stigmas, it might be quicker. If you aren't able to process the flowers immediately after harvesting, you should spread the flowers out on a paper towel on a tray, and store them in the refrigerator.

How should you handle the flowers after picking? It is best to place the flowers on a clean tray or into a wide basket (Fig. 5 & 6). Avoid piling them up too deeply because the weight of the flowers on top will mash down the flowers below. In addition, condensation may form around the flowers, which is not good for the saffron. Keep harvested flowers under cover to avoid prolonged exposure to the sun, etc.

When should you process the flowers? Separation of the stigmas from the petals and stamens should be done as soon after picking as possible. When the flowers



Fig. 6. VT grower on a busy harvesting day.



Fig. 7. Harvesting stigmas in the field.

improve on saffron production. This will enhance the quality of the product offered on the market.

Information provided herein is based on our experiences over the past five years in Vermont, USA, and is a work in progress. As our research advances, we may develop other methods that are more effective, time efficient and ensure high quality saffron. Growers in other locations may need to adjust harvesting methods to accommodate their conditions. We hope that growers throughout North America and beyond will share their knowledge so we can continue to

Check out our video of saffron harvesting and post-harvest handling procedures at:

<https://www.bing.com/videos/search?q=Vermont+saffron+harvesting&docid=608025558016410824&mid=910917A8849B4D3C5FB3910917A8849B4D3C5FB3&view=detail&FORM=VIRE>

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