Innovative Farming
-An International Journal of Agriculture

# PRODUCTION OF ALLIUMS AS CUT FLOWERS

Popular Article

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**KEY WORDS**
Allium, Flower, Genus

**ARTICLE INFO**
**Received on:**
19.11.2016
**Revised on:**
08.12.2016
**Accepted on:**
09.12.2016

**ABSTRACT**

**Alliums are broad group of plants having food and medicinal values. The flowers of Genus Allium have umbel type of flower at the top of the naked floral stalk with wide range of flower colour and size. Therefore cultivation of ornamental species of Allium has wide scope under various climatic zones in India especially as a unique cut flower.**

## Introduction

There are about 500 species in the genus Allium. While a few species are found in the tropical forest of South America and one species is found in the hemisphere. The largest numbers are found in Europe, North Africa, and Asia. The genus takes its name from the Latin word "allium" for garlic.

## Morphology

The leaves are basal in origin and liner, usually arising from a well- developed tunicate bulb. There are a few alliums that are rhizomatous. The leaves are sometimes keeled or cylindrical to hollow and disappear prior to flowering with some species. The length of the flower stalk (scape), it usually proportional to the circumference of the bulb within each species. The cymose umbel can have few to several hundred small flowers that at the top of the naked floral stalk. The individual flowers of the umbel are star- to bell- shaped and can be white, yellow, pink, blue, or lavender.

## Classification

Almost all alliums are suitable for fresh cut flowers, and many can be used evelasting cut flowers. The list of allium usually grown as fresh or evelasting cut flowers is limited to the those thst have enough stem to be used for cut flower arrangements,are winter hardy and are readly available. The minimum scape length for allium usually used as cut flowers by large commercial producers dealing with whole sellers is 24 inches. For this reason, there are essentially only 5 species of allium grown extensively as cut flowers. Allium with shorter stems have some market in the restaurant and farmer's market trade. Commercially grown alliums can be divided into 2 groups.

**Summer-dorment species (SUDS)** This species have distinct bulb and leaves that wither away prior to, or during the time that the plant habit reflects their origins in areas with summer drought. Commercially grown SUDS include: *A. aflatunense, A. christophil, A. giganteum,* and *A. spharocephalon.*

**Summer-thriving species (SUTS)** This species have less distinct bulb and are often connected by rhizomes. They are more prone to form clumps. Their leaves grow actively though- out the growing season. Perhaps, this is a reflection of their origin in areas with summer rainfall. The leaves should be retained after the inflorescences are harvested. These alliums are prolific seeders and can become a nuisance unless deadheaded prior to seed maturation. The only significant commercially grown species is *A. caeruleum, A. tuberosum* might be an

addition to this group since it is fragrant and blooms in late summer.

***Allium aflatunense***: The Persian Onion bears its inflorescence at the end of a 20 inch tall scape. Each of the several hundred star shaped flowers of the 4 inch wide spherical unbel are ½ and ¾ inches wide and lavender with a darker nerve. The 6 to 8, up to 4 inch wide 20 to 24 inch long, bluish, smooth, linear to lanceolate leaves disappear as flowering being. It is susceptible to root rot when grown in heavy soil.

***Allium caeruleum:*** The inflorescence of the "Blue Globe Onion" is composed of many dozen flowers borne on a 16 to 18 inch tall scape.

***Allium christophii:*** *A. christophii*, sometime known as "Star of Persia" or "Downy Onion" has an inflorescence borne at the end of a 14 to 22 inch tall scape. The individual (up to 100) flowers of the flattened, oval, 5 to 8 inch wide umbel are 3/8 to 3/4 of an inch wide and a silvery purple. The 3 to7, ¾ to 1½ inch wide, 20 inch long, strap shaped, waxy leaves have a white, hairy underside and begin to dieback prior to flowering.

***Allium giganteum:*** The inflorescence of the "Giant Onion" is Borene on a 40 inch tall scape. The individual, over 100 florets of 5 inch wide spherical umbel are ½ of an inch wide, up to 30 inch long, strap shaped leaves began to deteriorate as the plant begins to flower.

**Cultural Requirements -** Allium require a well-drained, even dryish site with a moderately fertile soil that has been tested and adjusted to a pH of 6 to 7. Most alliums are planted in the fall and naturalize readily. Thus, they may be undisturbrd for many years. Plant allium on a 12 inch wide raised ridge to promote drainage. This allows easier maintenance of the crop. Allium can be transplanted right after they flower. Incorporate about 3 to 4 cubic yards of organic matter per 1,000 square feet of bed space before planting if economically possible.

**Environmental Factors –** Hardy allium need a cold temperature period of 12 to22 weeks, depending upon the species in order to flower the next year. New bulb and inflorescence initials are formed at the base of the scape during the current growing season prior to the onset of cold weather. Growth of the new bulb and differentiation of the following year's flower bud resume with the emergence of the current year's leaves until the leaves senescence prior to, or shortly after bloom.

**Propagation** – Most alliums naturalize easily and usually come back annually. The tunicate bulb are propagated by division of the replacement bulb when they are dormant, by seed, or in those instances where they occur, from bulbils that develop in the umbellate inflorescence.

**Propagation of Allium by Division –** Detach the bulblets from the mother bulb and plat them on a 1 by 1 inch grid in a bed of sterilized loam and sand, and grow them on until they are flowering size. It will take at least 2 years for the bulblets to reach the minimum flowering size.

**Propagation of Allium from seed –** Most alliums propagate quite readily from seed. Some alliums, e.g., *A. christophil*, do not readily reproduce vegetatively and must be propagated by seed. Sow the seed in a tray on top of a moist sterile mix containing some humus for moisture retention. Lightly cover the seed with more of the same mix and keep the tray at 70ºF for 2 to 4 weeks. After the warm treatment, place the tray at 50º to 70ºF until germination occurs. Subsequently, set the seedlings out in a nursery bed on a 2 by 2 to 3 by 3 inch grid until the bulbs reach flowering size.

**Table 1. Planting directions**

| Species | Bulb size | Date to plant | Depth inches | Density Bulbs/row foot | Spacing |
|---|---|---|---|---|---|
| *Allium aflatunense* | 4"- 4.7" | Sep. to early Oct. | Tip 4" Deep | 10 to 15 | 2" to 3" |
| *Allium caeruleum* | 2.4"-2.8" | Oct & Nov. | Tip 4" Deep | 30 | 2" |
| *Allium christophii* | 4" | Oct. to early Nov. | Tip 4" Deep | 4 | 12" |
| *Allium gignateum* | 7.8" | Oct to early Nov | Tip 6" Deep | 2 | 12" |
| *Allium sphaerocephelon* | 2"-2.8" | Oct to early Nov. | Tip 4" Deep | 30 | 2" |


**Fig1.** ***Allium aflatunense***


**Fig 2.** ***Allium caeruleum***


**Fig 3.** ***Allium christophii***


**Fig 4.** ***Allium giganteum***

**Fertilization –** Fertilize alliums with 2 to 3 pounds of an 8-8-8 fertilizer per 100 feet of row immediately after planting. Fertilize established plants with 2 to 3 pounds of an 8-8-8 fertilizer per 100 feet of row as the shoots emerge in spring.

**Watering –** Most alliums prefer a well-drained, dryish soil. Water sparingly and infrequently when foliage is present. Plant the bulbs on a ridge or raised bed to guarantee the good drainage that is essential for alliums. It is advisable to use trickle irrigation since the plants will be in the same place for many years. Trickle irrigation can deliver the water uniformly, if properly designed. Since the foliage is not wetted, pesticides are not washed off and foliage, disease development is not encouraged. Trickle irrigation can be combined with plastic or organic mulches that are used to reduce weed and to conserve soil moisture. Most allium require about 30 inches of water per season to grow a good crop with drip irrigation. The key is to provide about 0.3 – 0.4 inches/day – drip irrigation is the best way to apply small amounts of water frequently. Generally, one line of tape to supply 4 rows of allium is adequate. It's important to maintain good soil moisture during the 8th leaf stage which is when bulb formation begins. Good moisture monitoring will result in increased flower yields.

**Insects**

**Aphids:** Aphids are the only serious insect pest of alliums. They are soft-bodied, small insects with long slender mouthparts. Aphids damage plants by inserting a long mouthpart, called a stylet, into plant tissue, such as leaves and stems, and sucking out plant juices. Aphid infestations may cause curling, twisting, or stunting of foliage, shoots, or other plant part. The easiest way of accomplishing this is eliminating weeds, which may harbor aphids. The predatory midge, *Aphidoletes aphidimyza,* is recommended for control of the green peach aphid. Release 1 to 2 cocoons per pant, or 3 to 5 cocoons per square yard weekly or biweekly until the aphids are controlled. Use Dimethoate 2 % and 0.5-1% insecticidal soap included in a spray mixture may enhance its performance.

**Disease:** Alliums are remarkably free of diseases if the grower obtains clean stock, provides good drainage, a sunny location, feeds the bulbs at the appropriate time, and practices scrupulous sanitation during the growing season. Excess moisture at the wrong time is the worst enemy of alliums. While most of the diseases found on flowering onions are more prevalent on vegetative onions, ornamental onions are susceptible to several diseases. The following diseases may be found on ornamental onions:

**Botrytis –** Botrytis spp., or "Fire," attacks leaves, stems, and flowers of alliums. Botrytis normally starts in dead flowers and damaged or withered leaves. The edges of fresh flowers show water-soaked areas that enlarge rapidly. Spore production may be so rapid that entire crops can be destroyed in a few days. Rain, water splash, and a persistent water film on the plat surfaces spread the disease. Botrytis is encouraged by cool temperatures and high relative humidity. Good hygiene, the removal of withered leaves, flowers, and bulbs is good preventative measure. Try not to damage the foliage of those alliums that retain their leaves at the time of harvest. The spores overwinter on plant debris and in the soil.

**Downy mildew –** Onion or Downy Mildew, caused by *Pernospora destructor,* makes the leaf tips shrivel. It is difficult to diagnose, as many ornamental onions have leaf-tips that whither naturally as the inflorescence mature. As the disease progresses, downy mildew appears as cotton-like growth on the foliage. It is usually most prevalent when the temperatures are high and the humidity is low. The fungus will remain viable in the soil for many seasons. Lift the bulbs and dust them with an appropriate fungicide before replanting them and spray the foliage during the growing season.

**Harvest –** The date and stage of harvest and vase-life varies with the species of allium. Table II on page illustrates differences.

**Table 2. Harvest:**

| Species | Date of harvest | Flowering span in days | Stage of harvest |
|---|---|---|---|
| *Allium aflatunense* | Early to mid-May | 15 | Flower head 50% open |
| *Allium caeruleum* | Early June | 23 | Flower head 50% open |
| *Allium christophii* | Late May | 19-20 | Flower head 100% open |
| *Allium gignateum* | Early June | 18-23 | Flower head 100% open |
| *Allium sphaerocephelon* | Early to mid-June | 17 | Flower head 50% open |

**Table 3. Storage**

| Species | Storage in water | Cut flower life | Dried flower |
|---|---|---|---|
| *Allium aflatunense* | 2 weeks | 2 weeks | Good |
| *Allium caeruleum* | Few days | 2 weeks | Good |
| *Allium christophii* | Few days | 2 weeks | Excellent |
| *Allium gignateum* | 4 weeks | 3 weeks | Good |
| *Allium sphaerocephelon* | 4 weeks | 10 days | Excellent |

**Post Harvest –** All the alliums may be stored in water for varying lengths of time at 33º to 35ºF with a pH of 4.0 They all respond favorably to the addition of floral preservatives to their water. All alliums will store dry for 2 to 3 days at 32º to 35º F.

**How to cite this article?**

Abhilash Shukla, Vikas Ramteke, Sushil Kashyap and Manisha Netam. 2016. Production of alliums as cut flowers. *Innovative Farming,* 1(4): 200-204.