

**2012**

# [ TULIP CULTIVATION ]

Department Of Floriculture Kashmir

## Scientific classification

**Kingdom: Plantae**

**Order: Liliales**

**Family: Liliaceae**

**Subfamily: Lilioideae**

**Genus: Tulipa**

## Introduction

Tulips occupy a prominent position among the top 10 flowers of the world. In the international flower market, tulips command good demand on account of their elegant flowers of different hues and shapes. Tulip is a temperate crop and the bulbs require a cold temperature regime for flower initiation. Tulips are less influenced by light. However, under KASHMIR conditions, partial reduction in sunlight results in healthier plants with longer flower stalks. Tulips prefer light soil with a low salt content and pH of 6-7. Well decomposed FYM should be mixed @ 5-10 kg per m<sup>2</sup>, depending on the soil condition, to enrich the soil. Plants can be grown outdoor and under green house conditions. To get a good crop of flower, bulbs of 10-12cm size or more should be planted 15cm x 30cm apart, i.e., 10,000 bulbs per kannal area. The tunics should be removed before planting the bulbs. The flowering plants will produce 4-6 leaves. Smaller (less than 6-8 cm) bulbs will produce plants with single, leaf and will not

produce any flower until the bulbs reach proper size. Recommended cultivation practices are followed to get quality flowers.

### **Tulip BULB**

A mature tulip bulb consists of five to seven tunicated scales attached to the basal plate. The outer bulb scales are generally fleshy and contain reserve food material. Axillary bud is formed on the basal plate in the interior of each tunicated scale. Usually most of the axillary buds abort and only 2 or 3 bulblets develop annually along with the daughter bulb. In late spring or early summer, growth of the new daughter bulb is complete. After the flowering, the old mother bulbs disintegrate and are replaced by a cluster of new bulb and bulblets, which were initiated during the previous flowering season. Largest of these bulbs, the daughter bulb may attain the flowering size within one year, but smaller bulblets require 3-4 years, depending on the size and cultivar.

#### **1. PRODUCTION OF LARGE BULBS:**

The agro-climatic condition of Kashmir is congenial for growing tulips. However, the production of larger commercial sized (10-12 cm or more) bulbs capable of producing marketable flowers is a major problem as observed in many parts of the world. Deflowering at bud initiation is partially beneficial in increasing the bulb size. Foliar applications of CCC 1000 ppm (cycocel) with Tracel 4g/l immediately after removal of the flower

buds at green bud stage shows marked increase in number, weight and circumference of bulbs and bulblets. Two to three foliar applications of CCC and Tracel at an interval of 3-4 weeks result in larger bulbs.

## **2. FORCING:**

For uniform and proper flowering, the bulbs should be subjected to low temperature treatment, which is known as forcing. Care should be taken that the bulbs should reach the 'G' stage (gynoecium clearly visible on dissection) before forcing the bulbs, otherwise flower may abort. Depending on the temperature (10C / 32C) and duration (10-15 weeks) of the forcing treatment, the plants will flower either in March or in early April.

## **3. INSECT-PESTS:**

Tulips are often infested with aphids. Application of recommended doses of Endosulfan, Malathion, Aldicarb etc. will be beneficial in controlling the attack. Other insect-pests are of minor importance.

## **4. DISEASES:**

Tulips are affected by a number of diseases. Fusarium infection causes a 'sour' smell from the bulbs and the appearance of a white mould on tunic. Removal of tunic reveals soft infected bulbs. The bulbs, badly damaged by the fungus, become hollow and light in weight. A preventive dip and soil drenching with 0.2% Benomyl is recommended. Botrytis infected plants

show the presence of brown spots on the leaves, flowers or even on bulb. The bulbs should be treated with 0.2% of Benomyl, Captan and Dithane M-45. Pythium infection will cause bulb or Root Rot. A preplant dip in 0.2% Benomyl is recommended. Many viral diseases also affect tulip plants. They produce stripes on the leaves or flowers. In severe cases, stunting or deformation of plants may occur. Till date there is no remedial measure to control virus infection of plants and only disease free plant materials after virus elimination should be used.

### **Growing Tulips: Life Cycle Facts You Should Know**

1. Tulips might only bloom in the spring, but their growing season actually begins in late summer or early fall, depending on your location. Knowing what's happening with your tulips all year long will help ensure a plentiful spring garden.
2. Tulips need to be planted in the fall to allow them to begin their life cycle. Ideally, they should be planted early enough so that they can begin to form a good root system before the ground freezes, but late enough so warm weather doesn't cause them to try to bloom. Generally speaking, the best time to plant tulip bulbs is about two weeks before the average first frost date in your area.

3. Tulips need several weeks of cold weather to gear up for bloom time in the spring. On average, the soil temperature needs to be below 10 degrees C for about eight weeks.

4. Depending on the variety you've planted, tulips will begin to bloom from late winter into late spring. If you are growing hybrid tulips, once the bloom begins to fade you should remove it. This will allow the plant to put all its energy back into the bulb so that it can produce another flower next season. If you are growing wild or botanical tulips, however, you should allow the flower to go to seed, so that your tulips will spread.

5. In both cases, you will want to allow the leaves to yellow and die off naturally, keeping the plants well watered during this time. If you plan to replace your tulip bulbs every year, you can skip this step, but if you are trying to naturalize or perennialize your tulips, this time is important, as this is when the tulip stores its energy for next spring. Avoid cutting the greenery, or braiding or tying the leaves. Allow them to wither and die off, then gently pull them away from the bulb.

6. Once the leaves have yellowed and been removed, you should stop watering your bulbs. Tulips need a dry warm period in the summer months. For hybrid varieties you might choose to lift, or dig up, your bulbs and store them elsewhere. This isn't strictly necessary, however, and most people find it to be a hassle. As long as your summers are dry, your bulbs should be fine if left in the ground.

7. Wild, botanical, or species tulip varieties are particularly adept at spreading and returning year after year. Some hybrid varieties, such as the Darwin Hybrids and Mughal Tulips are bred to return for several years, needing replacement only when they stop producing flowers.

## **Cultural Practices**

### **1. Soil**

In their native habitats bulbs used to grow on slopes where drainage was naturally good. Therefore the bulbs need well-drained soil or they will rot. Drainage and moisture conditions in your garden can always be improved. If there is any doubt about the drainage, plant bulbs in raised beds or mix sharp sand or grit with the soil in the planting area. Always cultivate garden soil before planting anything. This makes planting so much easier and helps the bulbs' new roots to get off to a good start. Bulbs that are left in the ground for next year's season prefer some organic material or compost mixed with the planting soil. When your bulbs have been planted, water the soil well.

### **2. Planting distance**

The best planting distance depends on the size of the flower and on the effect that you want to achieve. For a more natural look the bulbs should be planted further apart than indicated on the product page. In containers

the bulbs should be planted close together, but they should never touch. To get a good crop of flower, bulbs of 10-12cm size or more should be planted 15cm x 30cm apart.i,e, 10,000 bulbs per kanal area.

### **3. Planting depth**

The depth of the planting hole will depend upon the size of the bulb. As a general rule you should make the planting hole two to three times the height of the bulb. Be sure to plant the bulbs the right way: the root system down and the pointed part up.

### **4. Fertilizers**

Excellent fertilizer for bulbs is dry cow manure and of course compost. The best inorganic fertilizer is a general purpose one such as NPK 5-10-5, with 5% nitrogen, 10% phosphorus and 5% potassium. The higher percentage of phosphorus puts the emphasis on the development of the flower and the root system. Plants need nitrogen for healthy foliage, phosphorus for a strong flower and root system and potassium for firm stems and resistance to disease and cold. Other NPK ratios include 7-14-28 and 12-10-18 both putting more emphasis on firm growth.

### **5. Traditional Method of storage:-**

The method is to allow them to continue growing until the leaves all turn yellow. This yellowing leaf tells you that they have stored all the flowering energy they require for next year and are safe to dig up.Dig them up.Keep

them cool and dry . You need to give your bulbs a dormancy period. You need to give them 14-16 weeks (16 is better) of 4.5C temperatures to get them to set a flower bud.

**For tulip bulbs that will be stored inside, here are some general guidelines to follow:**

- Be sure not to store them in damp or moist conditions. Dampness leads to rotting and tulip bulbs should be dried out before you begin to store them.
- Storing tulip bulbs in the refrigerator is not always a good idea as ethylene can cause some bulbs to become distorted. Ethylene is produced by fruits like apples and grapes. If you still want to store your tulip bulbs in the refrigerator.
- Store tulip bulbs in a location that provides ventilation to remove excess humidity. Extreme humidity will also cause the bulbs to rot or decay.
- Dry sand, vermiculite, or peat moss make ideal storage mediums for tulips bulbs.
- Don't store tulip bulbs in an area that is susceptible to rodents or pests. Mice, chipmunks, and squirrels will make a feast out of any available tulip bulbs that they happen to come across.

- Damaged bulbs can still be saved with a little bit of care before you store them. Let the tulip bulb dry out all the way and dust the damaged area with a little bit of sulfur which will help prevent any rot from becoming established. Although most damaged bulbs can be saved, they should be stored in another area so that they don't hurt the remaining tulip bulbs.