

# *Tulipa sprengeri*: The Long Lost Tulip

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## Executive Summary:

The Sprenger's Tulip, otherwise known as *Tulipa sprengeri*, is a beautiful deep scarlet red tulip native to Northern Amasya, Turkey. For nearly 125 years the tulip has been extinct in the wild due to over harvesting of the bulbs only surviving through cultivation in commercial production and gardens around the world. Even though this gorgeous flower has been abused so much there have been some recent successful conservation efforts.

## I. Introduction

### A. Study Species

The family *Liliaceae* contains many beautiful flowers with two of the most popular being lilies and tulips. Today I will show you a tulip that has been lost from history for over a century and how it's making a comeback.

## II. Taxonomic Classification and Geographic Distribution in the Wild

### A. Taxonomy and Geographic Distribution



*Figure 1. Tulipa sprengeri* in flower.

*Tulipa sprengeri* (Figure 1) is part of the *Liliaceae* family, the genus *Tulipa*, the subgenus of *Eriostomes*, and of the species *sprengeri*. Its full taxonomic name is *Tulipa sprengeri* and is commonly known as Sprenger's Tulip. A synonym of this is known as *Tulipa brachyanthera*. The Sprenger's Tulip is native only to a remote area in Turkey called the Amasya Province. This is the only known area where this tulip has grown naturally (KewScience 2020, Wilford and Bay 2007). The Amasya Province has a latitude of 40.6517° North, a longitude of 35.9038° East, and an altitude of 395 meters above sea level.

### B. Climatic Conditions of its Native Habitat

The climate in Amasya is considered warm and temperate. The minimum temperature to occur is 30.4° F and a maximum temperature of 85.3° F. The hottest time of year is during July and August. What this weather tells us is that it is too cold to grow *Tulipa sprengeri* year-round so the bulbs will survive during the winter months and re-emerge when the temperature is optimal for their survival (Climate-Data No Date).

### C. Tendency to Naturalize/Become Invasive and Native Habitat

The Sprenger's Tulip is not known to naturally grow in any other area but the Amasya Province. This tulip is currently "considered to be extinct in the wild" (KewScience 2020). Being as there are "no confirmed records of this species in the wild since the late nineteenth century" it is unknown how the plant may spread or become invasive when in the wild (KewScience 2020). Floriculturists can only guess based upon how it behaves in cultivation and how other similar species act in the wild with similar climatic conditions. In general tulips enjoy a well-drained soil with a pH of 6-7 as well as enjoy full sun to partial shade (Hertough 1996). A tulip's climatic zone can vary depending on the height of the plant (Hertough 1996). This will also affect the planting and flowering time of these varieties. It is unknown what the ecology surrounding *Tulipa sprengeri* is given its extinction status. However, due to how it is grown in

cultivation and in gardens it is thought that an open woodland or a mountain scrub would be ideal (KewScience 2020).

#### D. Taxonomic Description

*Tulipa sprengeri* is a beautiful perennial often propagated with bulbs. It has six glossy leaves that are lanceolate in nature. The six petals are an intense red with the anther and filament being easily visible in the center. They are typically 30 to 40 cm tall.



#### E. Uses By Indigenous People/Edible Crop

It is unknown what its uses were by indigenous people. Its current use in Europe is purely ornamental. It is also unknown if the crop is used as an edible crop in any way.

#### F. Medicinal Uses or Other

There are also no known uses for the *Tulipa sprengeri* medicinally. However the area where it is native to is well known for using plant materials for homemade medicines.

### III. Crop Species History and Potential Uses

#### A. Name and Description of Cultivars on the Market

In the wild *Tulipa sprengeri* has been considered extinct for just under 125 years. This occurred through the overharvesting of the bulbs in the wild. While it is extinct in the wild it still exists through cultivation in Europe. Currently there are conservation



efforts by Nezahat Gökyiğit Botanical Garden to reintroduce *Tulipa sprengeri* into its native range, the Amasya Province (Daily Sabah 2019). Due to these conservation efforts, after 123 years after planting cultivated bulbs in May of 2020 two emerged in its native range of Amasya Province (Daily Sabah 2019). The only known cultivar on the market is *Tulipa sprengeri* 'Trotters Form' and can be found at Kevock Gardens. As shown in Table VIII the Sprenger's Tulip starts off with plant explorers and has no need to be developed and can be released as is. The most probable way this plant would be produced is vegetatively, specifically by dividing the bulbs and taking the bulblets. While tulips do produce seed and in the case of *Tulipa sprengeri* it heavily produces seed, this goes to show just how irresponsible the bulbs were initially harvested as with a species that produces such copious amounts of seed there is no reason for it to have been in danger (Pacific Bulb Society 2019). But the seeds of a tulip take much too long to germinate, up to 8 weeks in some cases. Given this information it would be more prudent and efficient to use the tulip bulblets.

#### IV. Anticipated Cultural Requirements

##### A. Life Cycle

*Tulipa sprengeri* was originally described by J.G. Baker in 1894 but the original plant was brought over by a German garden named Mühlendorff (Wilford and Fay 2007). But after these original harvestings of plant material there were no new sightings of *Tulipa sprengeri* and it is presumed extinct in the wild but survives in commercial cultivation (Wilford and Fay 2007). Given how the plant grows it should be positioned on the market as a bulbous herbaceous perennial.

##### B. Plant Characteristics

*Tulipa sprengeri* is a herbaceous perennial bulb. It has a single long and thin stem leading to a single flower. Unlike many other tulips the Sprenger's Tulip flower opens up fully showing its six petals. After opening you are able to see the stamens very visibly especially the anthers with its bright yellow pollen. The Sprenger's Tulip has characteristics suitable for cut flowers, a traditional garden flower, and a garden outer layer. It is not recommended that you eat this tulip as "all parts may cause severe discomfort following ingestion" (RHS 2020). Finally the Sprenger's Tulips won the RHS Award of Garden Merit. This award is given to plants that "have been through rigorous trial and assessment and are excellent for ordinary use, are of good constitution, essentially stable in form and colour, and are reasonably resistant to pests and diseases" (RHS 2020).

##### C. Winter Hardiness & Heat/Drought Tolerance

The Sprenger's Tulip is hardy in zones 3-8 and has a heat/drought tolerance in zones 1-8 (Gardenia 2020). In regards to positioning this puts the Sprenger's Tulip in a very good position marketing wise. This is because it is winter hardy to nearly all areas of the United States. This is especially fortuitous as it can survive even in the coldest areas in the far north. This will give it a huge advantage against others of the same type. As for drought and heat tolerance this tulip can survive throughout the United States sparing the deep south.

#### D. Potential Production Environment

The Sprenger's Tulip in general terms will need full sun to partial shade at a minimum of 6 hours. For the temperature they require 60-70° F with a soil that has a pH of 6-7 as well as an 8-8 fertilizer immediately after planting in the fall (Hertough 1996). Must be wary of Fusarium and aphids (Hertough 1996). The bulbs must be cooled and it is recommended to do so at 41° F (Hertough 1996).

#### V. Market Niche

##### A. Target Sales Date(s)

As shown, tulips in the climatic zone of 4-5 flower at the latest in May (Hertough 1996). The Sprenger's Tulip is known to be the latest flowering tulip known on the market (Pacific Bulb Society 2019). Knowing this it tells us that *Tulipa sprengeri* would have a similar late flowering date in late May. This makes the flower for sale as a potted flowering crop or as a cut flower for

multiple major holidays in the cross-over from spring and into summer including Memorial Day, Pentecost, Flag Day, and Father's Day.

#### B. Programmability

The Sprenger's Tulip is moderately programmable as it requires a precooling time and can only be forced between January and April (Gill et al 2020). *Tulipa sprengeri* is also known for creating copious amounts of seed and can pop up in areas that you will least expect it (Pacific Bulb Society 2019).

#### C. Potential Crop Limitations

As previously stated *Tulipa sprengeri* is extinct in the wild, and the only way to obtain new bulbs/bulblets is to propagate them. One major limitation that could come up is a lack of bulbs to propagate or a lack of quality bulbs to propagate from; likewise the genetic variation present in the species may be extremely limited. This could also become an issue if the stock of bulbs or stock plant the producer has were to be devastated by a host of diseases or insect attacks.

#### D. Competitive Crops

During its time of flowering there are two major national holidays in the U.S. so the flower colors will be dominated by red, white, and blue the colors of the U.S. flag, for instance. Some of these crops include the Buddy Poppy, Roses, Peonies, and Hydrangeas among others. Seeing as the Sprenger's Tulip itself is red it is in competition with these crops while also getting a boost in popularity due to its color as well.

## E. Marketing Story

The Sprenger's Tulip springs back from the past, this beautiful deep scarlet red tulip hails from the northern region of Amaysa, Turkey and for nearly 125 years has been extinct in the wild. But you can get this beautiful bulbous herbaceous perennial for your own home garden. Starting this May you can have a century old piece of history in your garden.

## VI. Production Information Guide (PIG) & Crop Schedule

### **Sprenger's Tulip (*Tulipa sprengeri*)**

#### **Propagation**

While it is definitely possible to seed the Sprenger's tulip it is recommended that you plant a bulb directly in the ground. If you decide to seed it can take up to 8 months to germinate. You will want to use a 288 plug tray and make sure to cover them light is required for germination. For a bulb you want to plant them 4 inches deep and 4-8 inches apart.

#### **Media/Soil**

It would be best to use your standard germination mix for seeding as not much is known about the plant but for bulbs it is recommended to use a gravelly soil (RHS 2020).

#### **Light**

To germinate it is required that the seeds/bulbs are covered so that they do not receive any light. When in a greenhouse use low to medium light intensity about 1000 foot candles (Hertough 1996).

### **Forcing**

It is recommended that you precool the tulip bulbs for 8-10 weeks at 41° F prior to planting to flower (Hertough 1996).

### **Plug Production**

#### **Media/Soil**

It is recommended to use a media/soil that is gravelly or has larger soil aggregates. Can tolerate acidic, alkaline and neutral soils (RHS 2020).

#### **Plug Tray Size**

It is recommended that you use a 288 or smaller plug tray for the seeds while larger pots such as a 4 in. will be necessary for the bulbs.

#### **Sowing**

For both seed and bulb cover them as they do not need light to germinate. For seeds only cover lightly while with the bulbs you want to bury them about 4 inches deep.

### **Finishing**

#### **Container Size**

Many different container sizes can be used but the recommended sizes are 4 inch and 6 inch pot. It is also popular to use a much larger pot and plant multiple bulbs.

### **Media/Soil**

It is recommended that the bulbs be planted in a slightly gravelly soil as this is where they have seen success (KewScience 2020). This bulb also does well in well drained media/soil and can tolerate acidic, alkaline, and neutral media/soil (RHS 2020).

### **Light and Temperature**

*Tulipa sprengeri* needs full sun to partial shade and needs temperatures of 60-70° F when planted and a cooling cycle of 28-32° F before the next season (RHS 2020, Hertough 1996). When in a greenhouse use low to medium light intensity about 1000 foot candles (Hertough 1996). When growing in a greenhouse it must be well ventilated (Hertough 1996).

### **Fertilizer**

In general it is recommended that you use 2 pounds of 8-8-8 per 100 row feet after planting in the fall and 1 pound at shoot emergence (Hertough 1996).

### **Growth Regulators**

Growth Regulators are not recommended at any time of growth, although A-Rest has been used in commercial potted flowering tulips to reduce height of the “foot”.

### **Crop Scheduling**

### **Sow to Transplant**

When planting seeds in a 288 or smaller plug tray this will take 6-8 months. When planting a bulb in a pot this will take 3-4 weeks.

### **Transplant to Flowering**

For both seed and bulb once germinated it will take 3-4 months after a proper cooling period has occurred.

### **Total Crop Time (Sow to Flower)**

For seed it is 4-5 years to flower and when starting with a 3-year old or older bulb, it is 4-5 months.

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Figure 2. Horticultural Distribution Chain for tulip species.

