

Mirabilis longiflora

New Crop Report

Taxonomy

Mirabilis longiflora is a flowering perennial native to the southwestern part of the United States as well as the northern region of Mexico. It belongs in the Nyctaginaceae family and goes by the common name of Sweet Four O'clock (USDA).

Graphic Distribution

Mirabilis longiflora is native to North America, specifically Mexico and the United States. Within the United States, Arizona, New Mexico, and Texas are the states that *Mirabilis longiflora* is native to. It survives best in the USDA growing zones 9, 10, and 11 (USDA). According to the United States Department of Agriculture, the species has not been introduced natively to any other states (USDA). It thrives between 20° and 35° North latitude in low to mid range elevation areas, especially on slopes (Flora of North America).

Native Habitat

Being drought resistant, *Mirabilis longiflora* does well in full to part shade in dry, desert conditions. They are often seen across the landscape inner mixed with other plant species (USDA).

Taxonomic

This dicot species has the potential to grow up to three feet in height while having a sprawling, bush-like habit which may resemble a shrub and will be just as wide as they are tall (Hardy Plants Seeds). The flower is the most intriguing part of the plant. Flower petals are one-half inch wide and are white with a purple centered tube. The flowers are scented and attract moths such as Hawkmoths, which play a key part in pollination (Grant, 1983). Flowers that are

prone to Hawkmoths are white or pale yellow with an elongated nectar tube while having a strong fragrance (Grant, 1983). The flowers open up during the evening hours and remain open until late morning before closing during the day (Grant, 1983). This perennial plant will flower nocturnally in the first year beginning in late summer (Hardy Plants Seeds). Flowers extend up to four to six inches long. The purple fused center provides a purple stamen that protrudes outside the flower accompanied by red colored anthers. Leaves start to occur at midstem with a petiole ranging in one-half inch to two inches in length. The leaves are heart-shaped, or cordate. The plant is anchored down by tuberous roots (Hardy Plants Seeds). No indigenous or other uses were found which utilize *Mirabilis longiflora*.

Propagation Methods

Thompson & Morgan sells *Mirabilis longiflora* seeds. The seeds do not require stratification, but it is recommended. Seeds should be sown on the surface and covered lightly with vermiculate in a deep cell pack to avoid root disturbance during transplant (Hardy Plants Seeds). Once sown, the seeds can be either placed in a mist house or placed in a sealed polythene bag at a temperature of 68° - 77° F for one week (Thompson & Morgan). Soil temperature in the mist house should be in the range of 65° - 70° F (Hardy Plants Seeds). Germination will take place between one and three weeks. Once germinated, plants should be transplanted into four inch pots (Thompson & Morgan). Tubers produced from previous years can be chilled over the winter months and be planted in the spring as well (Encyclopedia of Plants).

Market Niche

Primary dates for seed sales include the month of January and February so that the plant will be ready for retail sale in May. Several seed companies sell *Mirabilis longiflora* including Thompson & Morgan, Chiltern Seeds, and Hardy Plants Seeds. Different colored cultivars

ranging from white to red and from pink to salmon are available on the market that has been available to consumers and has maintained a presence on the perennial market (Encyclopedia of Plants). Factors that will help eliminated possible crop maximization and limitations are to grow in species in full sun and in thin, well-drained soil (Thompson & Morgan).

Cultural Requirements

Mirabilis longiflora thrives best in USDA zones 9-11 and is drought and heat tolerant due to its native nature in desert like environments (USDA). The soil should be light and well-drained. The species can survive in sandy soil as well. Proper macro and micro nutrient management is important and there are no specific plant growth regulator recommendations. There are no harmful, widespread diseases either. (Thompson & Morgan). Consumers will either plant *Mirabilis longiflora* in large patio pots or directly into the ground (Encyclopedia of Plants).

Production Schedule

The production schedule created in lab aimed to have *Mirabilis longiflora* ready for sale at the retail level. Seeds were sown in week nine directly into a 128 plug tray and left in the mist house for two weeks. On week eleven, the plug tray was moved to a capillary mat. The seedlings were transplanted on week twelve into four inch pots resulting in an eleven week long production schedule aimed for the retail market. Since *Mirabilis longiflora* is a perennial which blooms in late summer, no flower bud initiation documentation could be recorded. No plant growth regulators were applied since no research was found or information provided by seed companies who distribute *Mirabilis longiflora* seeds. No research has been done on forcing *Mirabilis longiflora* as well.

The experiment that was conducted measured germination rates. One group, consisting of fifteen seeds, was not stratified and were directly sown out of the seed packet. The other group,

consisting of fifteen seeds, was stratified for one week at 40° F prior to sowing. Both groups were sown during week nine. Three seeds germinated by week ten, all of which were from the stratified group. On week eleven, a total of 14 seeds germinated in the stratified group while 9 seeds germinated in the non-stratified group.

Stratification proved to produce a 93% germination rate while the non-stratification recorded a 60% germination rate. Growers should stratify *Mirabilis longiflora* for the recommended amount of time of one week prior to sowing.

Genetic Improvement

Mirabilis longiflora is a hardy, drought resistant plant. The only genetic improvement would be to create cultivars that could survive lower USDA growing zones to create a larger market for *Mirabilis longiflora* producers.

Literature Cited

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