

# GREEN ONIONS



*Presented by*



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This production summary provides an overview of green onion growing, harvesting, and post harvesting practices. There are some common practices that many large commercial growers use when producing green onions, and though there are variations in these practices, having an understanding of the most common methods used will be helpful when carrying out regulatory activities.

## By the end of this summary, you will be able to:

1. List the top producing regions in the U.S. for green onion production.
2. Identify the most common farming practices used in the production of green onions including the use of equipment and manual labor.

## INTRODUCTION

Onions are produced in 170 countries around the world. China is the leading producer of all onions, followed by India, the United States, Turkey, and Pakistan.

In the U.S., different types of onions are grown commercially in more than 20 states. Green onions (*Allium cepa*) are gaining popularity in the U.S. market because of their mild flavor. This type of onion, also known as salad onions, spring onions, or green bunch onions, is harvested in the immature stage before the bulb has fully developed. California leads the nation in green onion production. They are grown mainly in Monterey, Riverside, and Ventura Counties. Arizona, Georgia, Idaho, New Mexico, Oregon, Texas, and Washington are other states with sizable commercial green onion production (Fig 1). Imports from Mexico supply the U.S. market when U.S. production of green onions declines during winter and early spring.

Onions are sold as fresh produce and are also used in processed foods. Many varieties of onions are grown and preserved by canning, freezing, or dehydrating. A significant portion of the onion crop is sold to companies to be used in many processed foods. Fresh, green onions are gaining popularity with consumers and have become the fastest growing segment in the onion market.

Onions form bulbs in response to the number of hours of daylight in the regions where they are being grown. Because of this, different varieties of onions are classified as short-day or long-day. Short-day varieties form bulbs when exposed to about ten hours of daylight. Long-day varieties require about 14 hours of daylight to form bulbs. There are

varieties that are “day neutral” and form bulbs regardless of the day length.

Green onions are considered bulb varieties even though they are not fully grown to the bulb stage. Green onions are harvested before the bulb forms and while the tops are still tender and green. Because of this, short-day varieties are not usually used for green onion production because they form bulbs too quickly. Long-day varieties such as Sweet Spanish or Southport White Globe are more commonly harvested in the green onion stage. These varieties can be grown to the full bulb stage, but only in regions with long growing days.

The development of hybrid varieties of green onions is primarily the work of private companies because only a few public onion breeding programs exist in the United States. Many hybrids have been developed by crossing *Allium*

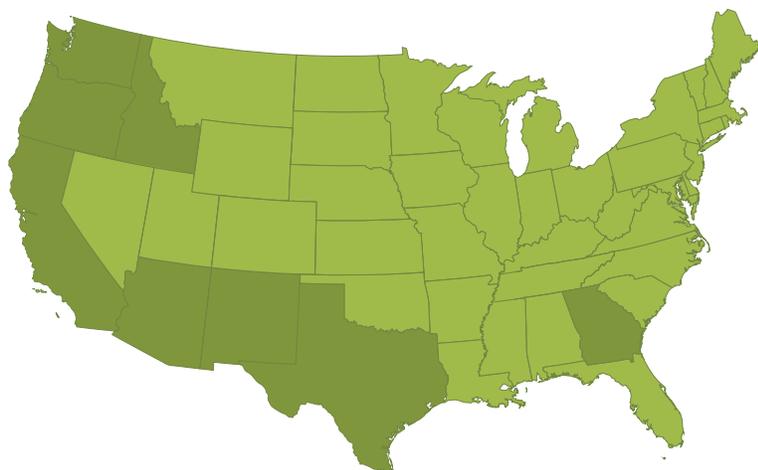


Fig 1 - Top Green Onion Producing States in the US

*cepa* with *A. fistulosum*, the non-bulb-forming Japanese bunching onion. This hybrid retains the characteristics that are desirable for green onions and resists bulb development even when grown in regions with long days. These hybrids are most commonly grown during the long days of spring and summer months.

## GROWING

In the U.S., green onions are planted in the spring, summer, and fall resulting in nearly a year-round harvest. Commercial growers grow green onions as an annual crop, meaning that they are planted as seeds and allowed to grow only until the immature green onion stage when they are harvested. The optimal temperature for growing onions is between 68° to 77°F.

Green onions are shallow-rooted and will grow in a wide range of soil types. They grow best in well-drained soils such as sandy loam, loam, and clay loam soils which tend to retain moisture. Sandy soils tend to dry quickly and require frequent irrigation.



Crops of green onions are densely planted with 18 to 20 seed lines filling beds that are 80 inches wide. Onion seeds are planted about 0.5 (one-half inch) deep. Because of this, the soil surface must be well prepared and kept moist from planting through germination. Germination may take up to ten days. It is critical that seeds and soil remain moist for proper seedling emergence during this time.

Green onion development requires frequent and uniform irrigation. Green onions are typically irrigated with overhead



sprinklers. Drip irrigation is not common in green onion production because of the close spacing of rows. Mild water stress can reduce yield or cause uneven growth patterns in the field. The amount and frequency of irrigation depends on the soil type, weather conditions, and development stage of the crop. The demand for water increases as the plants increase in size.

The shallow roots of onions and the cool, moist soils that they are planted in, makes these plants particularly responsive to fertilization. Soils are usually analyzed for levels of phosphorus, potassium, nitrogen, and micronutrient needs. The soil in the growing regions of California usually has adequate levels of micronutrients. If any nutrient is limited, it is most often zinc. Most fertilizers are added to the soil prior to planting. Nitrogen supplements, however, are applied three times including before planting, during the early-season when young plants are at the two to three true leaf stage, and at mid-season.

Weeds, insects, and diseases can impact commercially grown green onions. Weeds can easily out compete the young onion plants because all onions grow slowly during the early growth stage. Herbicides are used before the onion plants have emerged to kill the faster growing weeds. Other herbicides that target weeds specifically are available that can be applied after the onion plants have emerged. Insects that impact green onion crops include thrips, maggots, bulb mites, leafminers, and armyworms. Soil and foliar pesticides are available that help combat infestations of some of these pests. To avoid pest infestation, growers utilize management practices, such as allowing organic material to completely decompose before planting, that will help reduce the probability of certain pests from becoming established.

There are several bacterial and fungal diseases that can infect green onion crops as well. To avoid severe outbreaks, most commercial growers follow guidelines for sanitation, crop rotation, use of resistant varieties, and frequent monitoring.

### HARVESTING

Green onions are harvested by hand. The most common method involves undercutting the onions, pulling them up immediately, and gathering them into bunches of five to seven. The bunches are then tied together with rubber bands.

Harvesting in this way is labor intensive and expensive. For this reason, much of the production of green onions has moved to Mexico, where the crop is less expensive to produce and harvest.



### PACKING

Once harvested, the bunches of green onions are placed into various sized cartons in the field. The most common size is 20 pounds. The size of the carton depends on final destination of the harvested crop. Green onions destined for export are packed in different sized cartons such as 11, 13, or 28 pounds.



### HOLDING

Green onions have a short shelf life of about seven to ten days. Because they are so perishable, green onions are stored at 32°F at 95 to 100 percent relative humidity. Improper storage of green onions can result in wilted, yellowed, and decayed leaves. Top ice, covered by plastic film, can also be applied to help keep the moisture content high and further preserve the harvested green onions.

### CONCLUSION

**Having a basic understanding of the way green onions are grown, harvested, and cooled will provide the basic background information that will be helpful to regulators when completing inspections or investigations in the field.**

*The agricultural practices described in this production summary are common on most large commercial farms like those found in major green onion producing regions in the United States. There are undoubtedly variations in these practices depending on the region, operation size, and individual grower preferences. This is especially true of farms outside of the U.S.*

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