

## MARKET ONION CULTURE 2002-2003

Annual acreage, yield, and value of market onions in  
Imperial County, CA (1997-2001)

Year	Acres	Yield/Acre*	Value/Acre
2001	4,426	878	\$4,504
2000	5,526	777	\$3,349
1999	6,042	825	\$4,333
1998	4,671	1068	\$7,484
1997	4,979	908	\$4,458

\*50-pound sacks

Source: Imperial County Agricultural Commissioner's Reports 1997-2001

**PLANTING** Most of the acreage is direct seeded from early October to mid-November. Onions are grown on 40-inch beds. The number of rows varies with grower but 4 rows are normal per bed. Some plantings have been made with three seed lines on narrow beds. Seed are precision planted using Milton, Stanhay, and various air planters at a target spacing of 3½ inches between seed. Both pelleted and raw seed are used. Onions are normally not thinned. This makes seed spacing crucial for obtaining a good stand. Poor spacing will produce a high number of skips, or small/deformed onions, thus lowering packout.

Germination of onion seed is normally lower than many other vegetables. Therefore, growers should work closely with seed companies to insure that the seed meets their needs and adjust seeding rates accordingly.

Seed should be sown about ½ inch deep. In UC research plots, there was a tendency for flatter onions when seed was sown shallower. With seed deeper than ¾ inch, there was a reduction in stand and a tendency to develop deeper bulbs. While deeper bulbs are preferable, care must be taken to keep the soil moist while the bulbs are expanding or misshapen bulbs will result.

**VARIETIES** Onions are sensitive to day length and temperature. Only early maturing, short-day types are grown. Most of the local sweet varieties are derivatives of "grano" and "granex" types or their hybrid crosses. Bulb shape will vary and includes "flat" (flattened sphere), "deep flat", "top", or "globe" shapes. The primary use of Imperial Sweet onions is fresh cut for raw use in salads, on hamburgers, sandwiches, dips, garnishes and various marinades. They also make outstanding onion rings.

The more popular varieties include: Goldrush *Sunseeds*; Henry's Special *Sunseeds*; Timon *D. Palmer*; Monsoon *Seminis*; Colossal *Sunseeds*; Sweet Sunrise *Sunseeds*; Don Victor *Sunseeds*; Nikita *Sunseeds*; Safari *Sunseeds*; and Texas Early Grano 502 *various*.

Some onions are used for the fresh onion ring market. Varieties and selections, which have single centers and thick succulent rings, are desired for the fried onion ring trade. Multiple centers can also occur in onions exposed to a hard freeze during the winter.

Some white and red onions are grown and shipped with the yellows. White Supreme *Sunseeds*; Reina Blanca *Sunseeds*; Texas Early White (various); Kristal *Sunseeds*; and Contessa *Seminis* are white varieties.

Red Grano *various*; Mata Hari *Sunseeds*; and Rojo *Sunseeds* are commonly used red varieties.

Occasionally a grower will use transplants for production of jumbo and colossal sized onions. The decision to use transplants usually depends upon the condition of the onion crops in Texas, Mexico, and Georgia.

**SOILS** Medium-textured sandy loams are the most desirable soils for onion culture. Onions are shallow-rooted and need a friable soil that retains moisture well, especially after cultivation. Avoid salty, hard crusting, or weed-infested soils. Onions may be grown on sandy soils provided that moisture is made available whenever needed.

**IRRIGATION** Onions are generally sprinkler irrigated to emergence. It may take 10 days for the seeds to germinate, or even longer with November plantings. During this time, seeds must not be allowed to dry out and the soil surface should be moist. Onions should never suffer from lack of water. Stressing onions for water before maturity increases pungency and may cause splitting. Weather and soil conditions determine the number of irrigations required to grow a crop (usually 7-12).

**FERTILIZER** Generally 500 pounds of 11-52-0 ammoniated phosphate per acre are broadcast prior to listing. During the growing season 150 to 200 pounds of actual nitrogen per acre are applied. Late applications of nitrogen tend to cause re-greening and may contribute to bulb splitting.

**PEST AND DISEASE CONTROL** Mites, thrips, armyworms, leafminers, and maggots are the major insect pests of onions. Fields should be checked regularly for these pests.

Downy mildew (*Peronospora destructor*) and *Stemphylium* leaf spot (*Stemphylium botryosum*) are the major fungal pests of onions. These diseases can be very destructive if left unchecked. Pink root (*Pyrenochaeta terrestris*) is a soil-borne disease affecting onions; crop rotation and resistant varieties should be used to suppress the problem.

Botrytis bulb rot (*Botrytis allii*) can damage market onions. To reduce Botrytis bulb rot incidence and severity, avoid late season irrigations and heavy or late applications of nitrogen, harvest only when crop is mature, and only store after the neck tissue is well cured.

Nematodes can cause damage in onions. However, this problem rarely occurs due to the late-fall planting period.

Hand weeding is often very destructive to the onion stand. Herbicide use is essential to maximize onion yields. Follow the label directions closely to achieve the best weed control and to reduce crop injury.

**HARVESTING** As a rule, harvesting takes place from late March through May depending upon weather. Onion tops begin to bend at the neck and fall over as the bulbs mature. Careful evaluation must be made for the last irrigation. Pulling the water too soon will reduce yield; irrigating too late will cause splitting, delay maturity, and can increase the incidence of decay. Earlier crops tend to command the highest prices and often fields are harvested before prime maturity. A field is considered to be ready after 25 to 40 percent of the tops have fallen over.

Bulbs are undercut and dug with a rod weeder (counter clockwise rotating bar) and allowed to dry overnight. Crews arrive at daylight and hand-top the bulbs with clippers. The onions are sacked in burlap. The bulbs are too succulent and tender to grade and pack immediately. They are stored in the field 3 to 5 days to cure before final packing. After field curing, the sacks are then dumped into bulk trucks and hauled to sheds for sizing, re-sacking in mesh bags or cartons, loading, and shipping. The standard sizes packed include Colossal (greater than 4 inches diameter), Jumbo (3-4 inches), Medium (2-3.5 inches), Repacks (1¾-3 inches), and Boilers (less than 2 inches).

Field packing is increasingly more important. Burlap sacks of cured onions are sorted, sized, and packed on field harvest machines making a packing shed unnecessary. The most common sizes packed are Jumbo, Mediums, and Repackers. The major advantage of field packing is a lower overall cost per sack. The major disadvantage of field packing is a reduced ability to cull undesirable bulbs. Sorting belts on field-pack machines are short, making the time allowed for removing culls less than in sheds. Onions are normally transported on open, flatbed trucks to terminal markets for retail distribution.

**POST HARVEST HANDLING** Onions are cooled by placing pallets of sacks in the shade. Good air circulation is crucial to reduce rot. No additional cooling is used for fresh onions. The shelf life is short, usually a month to six weeks. For best storage onions should be held at 32°F and 60-65 percent relative humidity.

Black mold (*Aspergillus niger*) is a serious postharvest disease that is favored by high

temperatures and high humidity. The fungus is soilborne and may persist on crop debris from season to season. Bulbs become infected via the neck tissues as they start to mature and fall over. The main control measure is rapid curing and drying at temperatures below 86°F. These conditions seldom occur during onion harvesting in the low desert.

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For more information on dry market onions, see “Fresh Market Bulb Onion Production in California”, DANR Publication 7242 available from the Imperial County Cooperative Extension Office or for a free download from the Internet go to <http://anrcatalog.ucdavis.edu/specials.ihtml>