'Imperial Star' Artichoke

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Globe artichokes (*Cynara scolymus* L.) historically have been produced as perennials in the central California coastal region. Two distinct harvest periods are obtained in perennial production by cutting plants back slightly below ground level between mid-April and mid-June for fall and spring production; or in late August or September for spring and summer harvests (Ryder et al., 1983). Cool winter weather in the central-coast region limits yields, however, from November to March.

A new artichoke industry has developed in Southern California using seeded artichoke cultivars and annual production methods. Artichokes grown as annuals from seed are planted from June to September for winter harvests from November to April. This production system takes advantage of the warmer winter climate in Southern California and favorable winter-market prices. Lack of bud uniformity has been a limiting factor for commercially available seeded artichoke cultivars due to the high percentage of unmarketable (off-type, spiny, or small) buds (Baggett et al., 1982). 'Imperial Star' was developed to fill the need for a cultivar that is uniform and commercially acceptable when produced from seed in an annual-cropping system.

Origin

'Imperial Star' resulted from a breeding program conducted at the Univ. of California Desert Research and Extension Center, El Centro. Additional selection and testing were done at the Univ. of California South Coast Field Station, Irvine.

Segregating breeding line 86-024 was obtained from J.A. Principe, Agricultural Re-

search Service (ARS), U.S. Dept. of Agriculture (USDA), Brawley, Calif. Breeding line release documentation indicated that line 86-024 was from the fourth generation of within-line sib pollination of line 83-035 and was moderately uniform in type and production period. Line 83-035 seed was from an F₂ population of a cross between unidentified lines from France and Italy. Line 83-035 was highly variable in many traits, including thorniness.

Seed from line 86-024 was planted at the Desert Research and Extension Center in 1986. Twelve plants from the original planting of > 100 were selected, isolated, and allowed to cross by bee pollination. Selection was for earliness, uniformity, yield potential, and bud appearance (glossiness, shape, color, and the rate at which bracts spread open with increasing maturity). Similar mass selections were conducted for three additional generations from 1987-89. Plants grown from the 1989 seed lot showed acceptable uniformity and became the basis for the cultivar Imperial Star. Plantings grown at the South Coast Field Station during 1989 and 1990 indicate that < 2% of harvested buds have a flared-bract characteristic commonly referred to as "pineapple bud," and <0.1% of plants or buds have spines.

Table 1. Number of marketable² buds per plot for seed-grown artichoke cultivars grown in California, 1989 and 1990.

Cultivar	Planting date	
	15 May 1989 ^y	15 Oct. 1990 ^x
Imperial Star	51 a ^w	50 a
Green Globe Imp.	18 b	12 b
Texas Hills	10 c	4 c

²Marketable defined as buds of acceptable shape, lacking excessive spininess, and with base diameter of ≥ 8.9 cm.

^yTrial conducted at South Coast Field Station, Irvine, Calif. Five harvests were completed from 18 Nov. 1989 to 22 Feb. 1990.

^xTrial conducted at Desert Research and Extension Center, El Centro, Calif. Three harvests completed from 28 Mar. 1991 to 19 Apr. 1991.

^wMean separation within columns by Duncan's multiple range test, $P = 0.05$.

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Fig. 1. Overmature (with coin of ≈ 25 -mm diameter) and harvestable buds of 'Imperial Star' artichoke.

Description

'Imperial Star' is a thornless, globe artichoke cultivar with distinctively glossy bracts. The grayish-midgreen bract color and glossiness give this cultivar a distinct bud appearance. The bracts are slow to spread open with increasing maturity (Fig. 1). Primary buds are spherical and average 11 cm in diameter. Plants average 145 cm in height at

harvest. 'Imperial Star' shows broad climatic adaptability and has done well in both coastal and desert production areas of Southern California. We judge the flavor of 'Imperial Star' to be slightly sweeter and milder than 'Green Globe Improved' (Sunseeds Genetics, Hollister, Calif.) or 'Texas Hill' (D. Palmer Seed Co., Yuma, Ariz).

'Imperial Star' was compared to 'Green

Globe Improved' and 'Texas Hill' in replicated trials evaluating marketable yield during 1989 and 1990. Trials used plots 12.2 m long, rows 2 m apart, and plants spaced 61 cm apart in the row. Plots were arranged in randomized complete blocks with four replications at the South Coast Field Station and eight replications at the Desert Research Center. Marketability was defined as buds with base diameters of at least 8.9 cm (minimum for commercial size classification of 36 per carton). Buds smaller than 8.9 cm were discarded because of the poor market acceptance for small buds and the lack of canning facilities for producing canned artichoke hearts in Southern California. Buds judged to have unacceptable shape or excessive spininess were also excluded. In these trials, 'Imperial Star' showed the uniformity of maturity, bud type, and size that leads to significantly higher marketable yields than for the two other cultivars (Table 1).

Availability

'Imperial Star' has received cultivar certification and is protected under the U.S. Plant Variety Protection Act. Requests for seed samples should be addressed to the Univ. of California, Office of Technology Transfer, 1320 Harbor Bay Parkway, Suite 150, Alameda, CA 94501.

Literature Cited

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