

'Centennial' Lettuce¹

T. W. Whitaker and J. D. McCreight²

U. S. Department of Agriculture, Science and Education

Administration — Agricultural Research, U. S. Agricultural Research Station, Salinas, CA 93915

Additional index words. iceberg lettuce, crisphead lettuce, *Lactuca* spp., interspecific hybridization, vegetable breeding

Crisphead (iceberg) lettuce accounts for the major portion of commercially produced lettuce in the U. S. Crisphead types are not, however, commonly grown by home gardeners because of misunderstandings about cultural practices necessary to ensure head formation. Two important factors are planting date and thinning of seedlings. Lettuce should be planted when temperatures are favorable: 17-28°C day and 3-12°C night (2). Warmer temperatures will cause bushiness, bolting, and tipburn. Cooler temperatures will delay head formation and reduce head size. Lettuce should be thinned at the 2-3 leaf stage to increase postthinning survival and ensure even maturity; plants should be spaced 25-35 cm apart (2). If the home gardener is successful in producing a well-formed head, it is often too large to be consumed in a single meal, and if stored in the refrigerator, it loses its 'fresh-picked' quality and appeal. Leaf and cos types of lettuce are more popular with home gardeners because they do not form heads and individual plants produce high-quality leaves over a long period of time. An objective of this program was to produce a high-quality iceberg lettuce with smaller sized heads for home gardeners.

Origin

'Centennial' originated at the U. S. Department of Agriculture's Imperial Valley Conservation Research Center at Brawley, Calif. 'Centennial' is the 6th mass generation from the F₅ of the 3-way cross [6045 (sibline of 'Climax') × 46521 (breeding line resistant to downy mildew race 5)] × 'Vanguard' (Fig. 1). It combines germplasms derived from wild *Lactuca* species with germplasms from cultivated loose-leaf, butterhead, cos, and crisphead types of *L. sativa*. *Lactuca serriola* occurred in the pedi-

grees of 'Imperial D' and 'Imperial F'. *Lactuca serriola* and *L. virosa* occurred in the pedigree of 'Vanguard'.

Downy mildew resistance was combined with desired quality characters by selection and inbreeding. Selections for quality were made in fall and early winter field plantings. Downy mildew susceptible progenies were eliminated in greenhouse tests during the summer.

The resistance to race 5 is not effective against the strain of downy mildew fungus that has appeared in California in recent years.

Description

'Centennial' is a small, tipburn-resistant crisphead lettuce with uniform maturity, excellent (nearly spherical) head shape and conformation, and excellent internal structure (Fig. 2). The leaves are inserted into the stem in a symmetrical, spiral pattern, and each successive leaf can be separated from the head without disturbing the remaining leaves. The excellent internal head structure of 'Centennial' makes it easy to use individual leaves as a garnish with fruit or molded salads, or in sandwiches. This cultivar's excellent head structure gives it an appealing appearance when cut in halves or quarters for a head lettuce salad, and 'Centennial' also makes an excellent tossed salad.

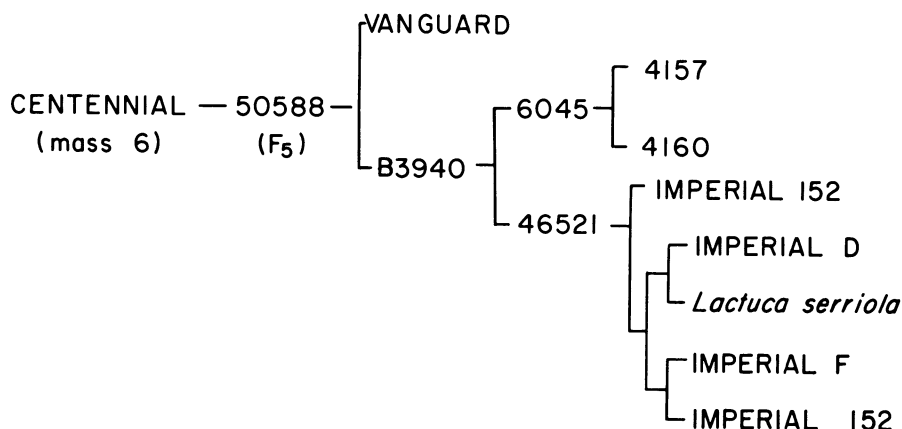


Fig. 1. Pedigree of 'Centennial' lettuce.

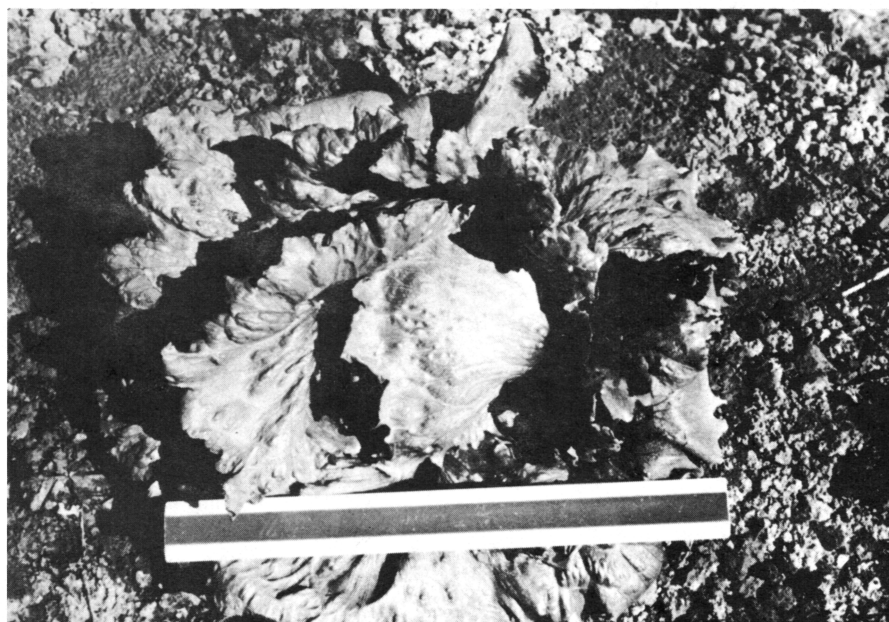


Fig. 2. 'Centennial' lettuce. Note small size of the fully mature head. Rule is 31.5 cm long.

¹Received for publication February 7, 1980. The cost of publishing this paper was defrayed in part by the payment of page charges. Under postal regulations, this paper must therefore be hereby marked *advertisement* solely to indicate this fact.

²Research Geneticist (Collaborator) and Research Horticulturist.

'Centennial' is smaller than other crisphead types and is characteristic of the Vanguard-type lettuces, with its smooth, attractive, dark, dull-green outer leaves and creamy-yellow heart leaves (1). It produces heads with a uniformly round shape and has enough cover leaves to protect the heads from frost and sunburn damage.

'Centennial' should be planted for trial in spring and early summer plantings. Planting during hot summer months should be done cautiously,

since 'Centennial' bolts readily. Mid-September plantings (mean high/low temperature at planting, 38°/19°C) for December harvest (mean high/low temperature at harvest, 18°/10°) in Imperial Valley produced high-quality heads most years, but plants bolted in some years. 'Centennial' also produced high quality heads when grown near the coast in San Diego County.

'Centennial' can be grown as easily as other lettuces now used by home gardeners.

Availability

Limited quantities of seed are available to plant breeders and seed producers upon request.

Literature Cited

1. Thompson, R. C. and E. J. Ryder. 1961. Description and pedigrees of nine varieties of lettuce. U. S. Dept. Agr. Tech. Bul. 1244.
2. Whitaker, T. W., E. J. Ryder, V. E. Rubatsky, and P. E. Vail. Lettuce production in the United States. U. S. Dept. of Agr., Agr. Handb. 221.

HortScience. 15(4):533. 1980

'Signal' Lettuce¹

T. W. Whitaker and J. D. McCreight²

U.S. Department of Agriculture, Science and Education Administration-Agricultural Research, U.S. Agricultural Research Station, Salinas, CA 93915

Additional index words. *Lactuca sativa*, cos, romaine, vegetable breeding

Cos (romaine) lettuce (*Lactuca sativa* L.) accounted for less than 5% of California lettuce production in 1978³. Cos lettuce adds color, flavor, and texture to tossed (chopped) lettuce salads. In addition, cos lettuce is more nutritious than crisphead lettuce (1).

'Parris Island' is the cos lettuce commonly grown in Arizona and California. It is vigorous, yet resistant to bolting and tipburn. 'Parris Island' is, however, variable in maturity and bitter. A goal of this program was to develop a high-quality cos lettuce with improved taste, adaptation to the desert Southwest, and that is earlier and more uniform than 'Parris Island'.

Origin

'Signal' originated at the U.S. Department of Agriculture Imperial Valley Conservation Research Center, Brawley. It was derived from an F₆ selection of the cross 'Parris Island' X PI 167150, a cos from the Netherlands.

Description

In appearance, 'Signal' differs distinctly from other cos types. The leaves are more upright, and they cap over the

head rather than remaining open. The head is tapered only slightly towards the butt end which results in a "blocky" appearance (Fig. 1). Leaf shape is spatulate rather than club-shaped, as in 'Parris Island'. The flavor of 'Signal' is not bitter; it is sweet compared with that of 'Parris Island'.

'Signal' produced high-quality heads in late fall, winter, and spring plantings in the Imperial Valley, and in spring plantings in Chula Vista and Salinas Valley. It reached marketable maturity earlier and was firmer and more uniform

than 'Parris Island'. Tipburn has not been observed on 'Signal' in Imperial Valley plantings but was observed in spring plantings in Chula Vista and Salinas.

'Signal' is recommended for trial in fall, winter, and early spring plantings in southwestern deserts. It should not be planted in extremely cold locations in winter production areas. In the 1978-79 Imperial Valley season, unusually cold temperatures in early December caused marginal necrosis of the leaves of 'Signal', while 'Parris Island' was not damaged.

Availability

Limited quantities of seed are available to plant breeders and seed producers upon request.

Literature Cited

1. Agricultural Research Service. 1977. U.S. Dept. Agr. Nutritive value of foods. Home & Garden Bul. 72.



Fig. 1. Trimmed heads of 'Signal' at maturity.

¹Received for publication February 7, 1980. The cost of publishing this paper was defrayed in part by the payment of page charges. Under postal regulations, this paper must therefore be hereby marked *advertisement* solely to indicate this fact.

²Research Geneticist (Collaborator) and Research Horticulturist.

³Based on crop reports of California counties producing lettuce.