'Florida 202' and 'Everglades': Two New Butterhead Lettuce Cultivars Adapted to Florida

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Lettuce (*Lactuca sativa* L.) production in Florida is primarily on organic soils found in the southern and central portions of the state. The unique environmental conditions of climate and soil mandate the development and/or use of adapted cultivars. This subtropical climate is also conducive to the development of many diseases and can induce a variety of environmental stresses. When the lettuce breeding program started in Florida during the early 1970s, lettuce mosaic virus (LMV) was one of the most serious diseases limiting lettuce production. Initial efforts were to develop LMV-resistant lettuce cultivars adapted to Florida conditions. During the mid-1970s, corky root (CR), caused by *Rhizomonas suberifaciens* van Bruggen et al. (Datnoff and Nagata, 1990; van Bruggen et al., 1990), became the most devastating disease of lettuce in Florida. Breeding efforts were then redirected to include CR resistance. The two new butterhead cultivars described herein, 'Florida 202' and 'Everglades', are adapted to Florida conditions and both have resistance to LMV. The former is resistant to CR, while the latter is tolerant to the disease. 'Everglades' is also resistant to lettuce downy mildew (*Bremia lactucae* Regel) (Datnoff et al., 1990).

Origin

'Florida 202' was derived from a 'Montello' × 'Brazil-48' cross made in 1980, followed by six generations of pedigree selection and two mass seed increases. This cultivar

was tested as breeding lines 70202 and 80091.

The origin of 'Everglades' began in 1973 when line G (Great Lakes' × 'Fulton', F₂), from G. Raleigh's program at Cornell Univ., was crossed to 'Gallega' (Fig. 1). In 1974, a single F₂ plant selection was crossed to 'Dark Green Boston'. A single F₂ plant was then crossed to 'Troc' in 1975. 'Everglades' resulted from eight generations of pedigree selection followed by two mass seed increases. This line was tested as breeding line 70291.

Description

'Florida 202' is an attractive butterhead lettuce with medium-green foliage, maturing ≈55 days after sowing. Seeds are white. At maturity, leaves cup inward and overlap to form a well-developed medium to large

spherical head with an average weight of 261 g, based on five tests (Table 1). The leaves are slightly blistered, but this should not cause problems with soil accumulation. The interior of the head is buttery-yellow with a small basal stem. The basal end of the head is light green to white, and the midribs are normally smooth and seldom ribby. 'Florida 202' is highly resistant to CR and LMV. It is also resistant to bolting and tipburn. However, it is susceptible to a downy mildew isolate that is similar to California Pathotype IV (Schettini et al., 1991). This cultivar is recommended for fall and spring harvest in southern Florida due to the absence of downy mildew resistance.

'Everglades' is a medium-green butterhead lettuce that is suitable for planting from mid-October to February in southern Florida. Leaves extend outward from the basal stem without folding over to form a "normal" head with inward cupping leaves as found in 'Florida 202'. Despite the abnormal open rosette head configuration, 'Everglades' forms a large, high-quality head averaging 312 g, based on two trials (Table 1), and is capable of producing heads of 450 g or more. 'Everglades' has a harvest maturity range of 3 to 5 days in winter. Heads at maturity are attractive, with a smooth basal end that is seldom ribby. Internal leaves are a golden yellow at harvest maturity. Tipburn in 'Everglades' is rare and, therefore, it is considered highly tolerant. It is completely resistant to the downy mildew isolate that resembles the California Pathotype IV, mating type B (sporulation is absent against differential *Dm* resistant genes 4, 10, and 16)

Fig. 1. Pedigree of 'Everglades' butterhead lettuce.

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Table 1. Average head weights for 'Florida 202' and 'Everglades' grown on the organic soils of southern Florida.

Location	Plant date	Harvest date	Cultivar	Head wt (g) ^a
Belle Glade	8 Sept. 1989	3 Nov. 1989	Florida Buttercrisp	219 a
			Florida 202	206 a
Belle Glade	3 Oct. 1989	27 Nov. 1989	Dark Green Boston	297 ab
			Florida Buttercrisp	286 abc
Lake Harbor	13 Oct. 1989	1 Dec. 1989	Florida 202	260 bc
			Dark Green Boston	299 a
Lake Harbor	9 Jan. 1990	7 Mar. 1990	Florida Buttercrisp	276 bc
			Florida 202	266 c
Lake Harbor	9 Jan. 1990	7 Mar. 1990	Florida Buttercrisp	332 a
			Everglades	288 b
Belle Glade	11 Jan. 1990	3-13 Mar. 1990	Florida 202	286 b
			Everglades	337 a
			Florida 202	285 b
			Dark Green Boston	262 b

^aMean separation in columns by LSD at $P = 0.05$.

(Datnoff et al., 1990; Schettini et al., 1991). It is also resistant to LMV and spring yellows virus (Falk and Guzman, 1981). However, it is moderately susceptible to CR. Seeds are dark brown and have a thermotolerant character that allows 90% or better germination of nonprimed seeds at a constant 35C within 72 h. This characteristic makes it well suited for fall planting, when soil tempera-

tures can exceed 32C and seed thermodynamicity can be a major problem. 'Everglades' is susceptible to bolting when exposed to high temperatures for an extended time.

Seed availability

Inquiries on seed availability should be directed to Florida Foundation Seed Produc-

ers, Inc., P.O. Box 308, Greenwood, FL 32443. Seed stock was produced in California and was indexed at 0/30,000 infected seeds for LMV.

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