'Carolina Crowder' Southernpea

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Additional index words. cowpea, *Vigna unguiculata*, virus resistance, blackeye cowpea mosaic virus, insect resistance, cowpea curculio, *Chalcodermus aeneus*, nematode resistance, root knot, *Meloidogyne* spp., disease resistance, vegetable breeding

'Carolina Crowder' is a new southernpea [*Vigna unguiculata* (L.) Walp.] cultivar that was approved for release in Oct. 1990 by the Agricultural Research Service of the U.S. Dept. of Agriculture. 'Carolina Crowder' is well adapted for production throughout the southern United States, where it has produced excellent yields of high-quality, crowder-type peas. The new cultivar is resistant to the cowpea curculio (*Chalcodermus aeneus*

Boehman), the major insect pest of the southernpea in southeastern U.S. production areas; blackeye cowpea mosaic virus, the major virus pathogen of southernpea in the United States; and root knot, a severe root disease incited by several species of the root-knot nematode (*Meloidogyne* spp.).

Origin

'Carolina Crowder' was developed over 20 years using a backcross-pedigree breeding procedure that included three hybridizations and repeated single-plant selections (Fig. 1). The initial cross involved Ala. 963.8, a line resistant to the cowpea curculio, and 'Floricream'. Single-plant selection was practiced through the F₃ generation, when the cowpea curculio-resistant breeding line CR 17-1-13 was selected (Cuthbert and Fery, 1975). CR 17-1-13 was then crossed with

'Mississippi Silver', a popular crowder-type cultivar, and the F₁ was backcrossed to the 'Mississippi Silver' parent. Following the last hybridization, intense selection pressure was applied in the F₂ through F₃ generations for cowpea curculio resistance and superior horticultural characteristics. 'Carolina Crowder' originated as a bulk of an F₂ population grown in 1984. 'Carolina Crowder' was tested as US-482 throughout the southern United States as an observational entry in the 1987 Regional Southernpea Cooperative Trials and as a replicated entry in the 1988 and 1989 trials.

Description

Except for pod color, 'Carolina Crowder' is similar in appearance to the recurrent parent 'Mississippi Silver'. The plant habit is medium bushy, somewhat more erect and compact than 'Mississippi Silver'. The flower color is lavender; the wing is pigmented, and the standard is lightly pigmented. The pods

Fig. 1. Pedigree of 'Carolina Crowder' southernpea.

Received for publication 11 May 1992. Accepted for publication 1 July 1992. We acknowledge the assistance of Agricultural Research Technicians F.P. Maguire, R.B. Cuthbert, II, and E.L. Corley, Jr. The cost of publishing this paper was defrayed in part by the payment of page charges. Under postal regulations, this paper therefore must be hereby marked advertisement solely to indicate this fact.

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Fig. 2. Pods of 'Carolina Crowder' southernpea.

Fig. 3. Canned samples of fresh 'Mississippi Silver' (left) and 'Carolina Crowder' (right) peas.

are borne in a scattered fashion at foliage level or just above the foliage. Pod set is relatively concentrated. Pods are light green (Munsell rating: 5 GY 7/8) when immature, a brilliant red (Munsell rating: 2.5 R 5/8) at early green-shell maturity, a brilliant red heavily shaded with cranberry-colored pigment (Munsell rating: 2.5 R 5/8 plus 5 RP 3/6) at optimum green-shell maturity, and dark purple (Munsell rating: 5 RP 3/2) when dry. A typical pod is slightly curved, 17 cm long, and contains 16 to 17 seeds (Fig. 2). Dry pods are borne on peduncles in a pendant fashion, and each peduncle usually produces two pods. 'Carolina Crowder' plants have a greater tendency to produce a second crop than plants of most southernpea cultivars, which, even in the absence of disease,

tend to defoliate and die immediately after harvest. The maturity of 'Carolina Crowder' is usually concurrent with that of 'Mississippi Silver'.

'Carolina Crowder' peas are similar in size (18.1 g/100 dry seed) and appearance to those of 'Mississippi Silver'. The fresh peas have a crowder shape and are light green (Munsell rating: 5 Y 8/6). The dry seed testa is smooth and light brown (Munsell rating: 5 YR 7/4). Canned samples of fresh 'Carolina Crowder' peas (Fig. 3) scored well in quality evaluation tests conducted in 1987, 1988, and 1989 at the Univ. of Arkansas (T.E. Morelock and D.R. Davis, unpublished data). The average processed grade of canned samples (average of scores over 3 years for color of peas, color of liquor, wholeness, texture, flavor, and

general appearance; 1 = poorest, 10 = best) was 7.3 for 'Carolina Crowder' and 7.5 for 'Mississippi Silver'.

Resistance of 'Carolina Crowder' to the cowpea curculio is similar to that of Ala. 963.8 or CR 17-1-13. The results of tests conducted over several years suggest that, in most seasons, pods harvested from cultivars with this level of resistance will be infested by 75% to 98% fewer cowpea curculio larvae than pods harvested from susceptible cultivars (Cuthbert et al., 1974).

'Carolina Crowder' has not exhibited any unusual susceptibility to any major southernpea disease. The cultivar is homozygous for the *Rk* gene that conditions a high level of resistance to root knot (Fery and Dukes, 1980). Tests conducted at Auburn Univ. using enzyme-linked immunosorbent assay (ELISA) methodology indicate that 'Carolina Crowder' is resistant to blackeye cowpea mosaic virus (O.L. Chambliss and P.B. Strniste, unpublished data). Observations of natural epiphytotics indicate that the cultivar is also resistant to fusarium wilt [*Fusarium oxysporum* Schlecht. f. sp. *tracheiphilum* (E. F. Sm.) Snyd. & Hans.], cercospora leaf spot (*Cercospora cruenta* Sacc.), rust [*Uromyces phaseoli* (Pers.) Wint. var. *vignae* (Barcl.) Arth.], and powdery mildew (*Erysiphe polygoni* DC. ex St. Amans). The new cultivar is somewhat less susceptible to bacterial blight (*Xanthomonas vignicola* Burk.) than 'Mississippi Silver', but caution should be exercised in areas where this disease might be a problem.

Results of fields tests conducted throughout the southern United States over several years indicate that 'Carolina Crowder' has excellent yield potential. Its yields compared with those of the controls in the 1987, 1988, and 1989 Regional Southernpea Cooperative Trials were as follows (%): 'Mississippi Silver', 116, 101, and 89, respectively; 'Mississippi Cream', 159, 125, and 98, respectively; 'White Acre', 148, 130, and 130, respectively; and 'Pinkeye Purple-Hull-BVR', 118, 116, and 131, respectively (total number of trials reporting shelled yield: 1987, 11; 1988, 11; and 1989, 12).

'Carolina Crowder' is an all-purpose southernpea. It is recommended for use as a home-garden, fresh-market, dry-pack, and processing cultivar for spring, midseason, and fall plantings throughout the southern United States. The cultivar will probably benefit more from closer row spacings than cultivars with a more vining plant habit. The attractive brilliant red or cranberry color of the pods at the fresh-shell stage should make 'Carolina Crowder' an excellent candidate for fresh-market use. The enhanced second crop potential may be of considerable importance to home gardeners. 'Carolina Crowder' should perform well in all areas where 'Mississippi Silver' has been grown successfully.

Availability

Breeder's seed of 'Carolina Crowder' has been released to seed producers. Small trial samples of breeder's seed are available to all interested research personnel from R.L.F.

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