'Mississippi Pinkeye' Cowpea

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'Mississippi Pinkeye' cowpea [*Vigna unguiculata* (L.) Walp.] was released by the Mississippi Agricultural and Forestry Experiment Station to fill the need for a pinkeye purple hull type with multiple disease resistance.

Origin

The first cross in the development of 'Mississippi Pinkeye' was between M855 and 'Bunch Purple Hull' (Fig. 1). M855 has high resistance to *Fusarium* wilt and root-knot nematodes, virus tolerance, tan pods, and brown seed. C19 was selected from the progeny of that cross based on yield, quality, and disease resistance, and was backcrossed to 'Bunch Purple Hull'. PH7-14 was the top-performing progeny from the backcross and was crossed to M57-1, which has brown crowder seeds and high levels of resistance and tolerance to the diseases listed above for M855. Selection C31 was backcrossed to PH7-14. Following that backcross, pedigree breeding procedures were used to complete development of 'Mississippi Pinkeye'. During each cycle, progenies were selected for *Fusarium* wilt and root-knot nematode resistance by inoculation and screening in a glasshouse. Selection for yield, quality, plant type, and virus tolerance was performed in field trials.

Description

'Mississippi Pinkeye' (Fig. 2) is similar in appearance and maturity to 'Bunch Purple Hull'. Plant type is semierect and average plant height is 0.45 m at maturity. Flower color is lavender. Pod set is concentrated and slightly curved pods are bunched on the plant above foliage level. Average pod length is

240 mm and each pod contains an average of 18 peas. Pods are light purple at green-shell maturity and dark purple when dry. The mature-green stage of development is reached in 54 to 60 days. Mature-green peas are light green with a pink eye. Shellout percentage at green-shell maturity averaged 73% compared to 63% for 'Bunch Purple Hull' in trials during 2 years. Dry peas are white with a red eye. Dry seed average 5 x 9 mm (width/length), have smooth seed coats, and are kidney shaped. Average dry seed weight is 22 g/100 seed.

The cultivar has resistance to *Fusarium* wilt incited by all three known races (Races 1, 2, and 3) of *Fusarium oxysporum* f. sp. *tracheiphilum* (E.F. Sm.) Snyder & Hans, in contrast to 'Bunch Purple Hull', which is resistant to Race 1 and susceptible to Races 2 and 3. 'Mississippi Pinkeye' is resistant to

the three species of root-knot nematodes [*Meloidogyne incognita* (Kofoid and White) Chitwood, *M. javanica* (Treub) Chitwood, *M. arenaria* (Neal) Chitwood] likely to occur in the southeastern United States.

The virus tolerance of 'Mississippi Pinkeye' is equal to the tolerance exhibited by 'Magnolia Blackeye', 'Mississippi Silver', 'Mississippi Purple', and 'Mississippi Shipper'. The reaction to virus infection is termed tolerance because symptoms sometimes are observed, but yields from these cultivars remain much higher than yields from other infected cultivars. Collins et al. (1985) reported that 'Magnolia Blackeye', 'Mississippi Silver', and 'Mississippi Purple' were resistant or tolerant to blackeye cowpea mosaic virus, cowpea chlorotic mottle virus, cowpea severe mosaic virus, southern bean mosaic virus and cucumber mosaic virus.

Fresh, in-pod yields of 'Mississippi Pinkeye' were similar to those of other pinkeye-type cultivars averaged over four locations in each of 4 years and at one location in another year (Table 1). Yield differences among cultivars by locations within years are not shown, but for the 5 years, 'Mississippi Pinkeye' had higher yields ($P > 0.95$) than 'Bunch Purple Hull' in three trials, 'Bunch Purple Hull' had higher yields in two trials, and there was no difference between yields of the two cultivars in any remaining trial. In the five trials that included 'Corona', 'Mississippi Pinkeye' produced greater yields than 'Corona' in two trials and 'Corona' outyielded 'Mississippi Pinkeye' in one trial.

Fig. 1. Pedigree of 'Mississippi Pinkeye' cowpea.

Fig. 2. 'Mississippi Pinkeye' cowpea.

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Table 1. Summary of fresh whole-pod yields at green-shell maturity of cowpea cultivars at four Mississippi locations.

Cultivar	Yield (kg·ha ⁻¹)				
	1981	1982	1983	1985	1987 ^a
Bunch Purple Hull	3880	3880	4970	4370	3410
Corona	...	...	...	4180	3140
Mississippi Pinkeye	3450	3240	5240	3920	3950
Cardinal	...	2640	5080	2430	...

^aOne location.

Quality, as judged (1= disliked extremely; 5 = like extremely) in 1987 by a seven-member taste panel, of fresh and frozen 'Mississippi Pinkeye', 'Bunch Purple Hull', and 'Corona' peas was also similar. No dif-

ference among cultivars for any evaluation was found (ranges: color 3.4-4.1; appearance 3.641; moisture 3.5-4.4; texture 3.6-4.4; flavor 3.3-4.1; overall acceptability 3.3-4.2). The lower values apply to frozen peas,

the higher ones to fresh peas.

The benefit from 'Mississippi Pinkeye' is resistance to more diseases than other cultivars, so that higher yields are obtained when disease is present.

Availability

Seeds are available from Wax Seed Co., Armory, MS 38821.

Literature Cited

Collins, M. H., W. Witcher, O.W. Barnett, and W.L. Ogle. 1985. Reactions of 16 cowpea cultivars to six viruses. Plant Dis. 69:18-20.