

RELEASE OF PEA BREEDING LINES 86-638, 86-2197, 86-2231, AND 86-2236

The Pacific West Area of the Agricultural Research Service of the United States Department of Agriculture and the Agricultural Experiment Station of Washington State University announce the germplasm release of four F5 pea breeding lines as sources of germplasm. These breeding lines are unique in combining genes for resistance to common root rot caused by Aphanomyces euteiches Drechs., Fusarium root rot caused by Fusarium solani (Mart.) Sacc. f. sp. pisi (Jones) Snyder & Hans., and genes for resistant to races 1, 2, and/or 5 of Fusarium oxysporum Schlecht. f. sp. pisi (van Hall) Snyder & Hans. Lines 86-638, 86-2197, 86-2231, and 86-2236 have consistently outperformed the susceptible 'Dark Skin Perfection' when grown on moderately infested Aphanomyces ground in Washington, Idaho, and Minnesota. On ground severely infested with Aphanomyces in Wisconsin, 86-638, 86-2197, 86-2231, and 86-2236 had disease severity indices of 1, 2.3, 2.7, and 0.7, respectively. Using a disease severity scale of 0-5, where 0=healthy and 5=dead, Dark Skin Perfection consistently exhibits a disease severity index of 4.5. The resistant control, P.I. accession 180693, will consistently exhibit a disease severity rating of 0-1. In a disease nursery where Fusarium root rot is prevalent, all four lines have consistently outyielded Dark Skin by at least 30%.

The parentage of 86-638 is 691008 (a selection from P.I. 244133, released by W. A. Haglund, which is resistant to race 5 of F. oxysporum f. sp. pisi) x PH-91-3 (a release by J. M. Kraft) x P.I. 257593 (resistant to Fusarium solani f. sp. pisi and Pythium ultimum) x PH-91-3. Line 86-638 blooms in the 15th node, is double podded, has dimpled seed, is resistant to races 1 and 5 of F. oxysporum f. sp. pisi and is tolerant to Fusarium root rot.

The parentage of 86-2197 is 'Tahoe' (Pure Line Seed Co.) x 792022. Line 792022 was released in 1979 and is semi-leafless (af/af), tolerant to Aphanomyces and Fusarium root rot, resistant to races 1 and 2 of F. oxysporum f. sp. pisi, blooms in the 16th node, double podded, and is a wrinkled-seeded canner with green cotyledons.

The parentage of 86-2231 is a selection from B5099 (Aphanomyces tolerant mutant line developed by Dr. Earl Gritton, University of Wisconsin) which was selected at Prosser for tolerance to Fusarium root rot, x 792022. Line 86-2231 is also an af/af line with resistance to races 1 and 2 of F. oxysporum f. sp. pisi, blooms in the 14th node, is double podded, and has green cotyledons with wrinkled seed.

The parentage of 86-2236 is a selection of B5762 (mutant line also developed by Dr. Karl Gritton, University of Wisconsin) which was selected at Prosser for tolerance to Fusarium root rot, x 792022. Line 86-2236 is highly tolerant to Aphanomyces root rot with a disease severity index as low as the resistant P.I. 180693. Flowering at the 14th node, 86-2236 is a wrinkled-seeded canner with green cotyledons, double pods, and normal foliage (Af/Af).

The major expected uses of 86-638, 86-2197, 86-2231, and 86-2236 are as parents to develop semi-leafless (af/af) and normal (Af/Af) canopy peas with increased resistance to common root rot caused by A. euteiches.

Small amounts of seed of these lines are available from Dr. John M. Kraft, ARS-USDA, Vegetable and Forage Crops Research Unit, Irrig. Agric. Research and Extension Center, P.O. Box 30, Prosser, WA 99350, USA. Seeds will be supplied with the request that the source of the germplasm be acknowledged if it undergoes further selection or is used in crosses for

development of improved cultivars.

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