is partially resistant to spot and net blotch, in addition to Pyrenophora teres sorokiniana (Sacc. in Sorok.) Shoem. and Bipolaris sorokiniana Silbernagel, and F. J. Muehlbauer. 1972. Registration of PH 14 119 and PH-91-3 Pea Germplasm (Reg. Nos. GPI0 and GPI1). Crop Sci, 12:399. Published March, 1981

Smith, Jr., World Collection of Small Grains, AR-SEA-USDA, with H. spontaneum tant to lateral florets; and medium tall, late maturing plants. It is resistant to BYDV, and adhering to the kernels; long, lax two-rowed spikes with sterile orless aleurone; long, thin kernels with part of the rachis often immune to BYDV (Schooler and Timian, unpubl). Pollen has better self-fertility. The Ono/H. brachyantherum L. var. ‘Ono’ (4x)/H. bulbosum L. (2n = 28)/‘H. brachyantherum’ (2n = 2x) cross. 2n = 6x = 42 before crossing with the induced autotetraploid, ‘Trail’ (4x). Chromosome reduction to 2n = 14 in the F1 generation. This diploid F1 plant was crossed to ono and resulted from a cross between a sister diploid winter barley Dicks and winter barley Dicktoo. Selection for BYDV resistance was made in the F1 generation.

ND497 has H. brachyantherum cytoplasm and long rachilla hairs; colorless aleurone; relatively large kernels which thresh clean from the rachis; erect, two-rowed spikes which may have long and medium tall, early maturing plants. ND586 is partially resistant to the causal organism for spot and net blotch. While ND497 is less tolerant than ND497. Grain yield is greater in ND497, but only about 75% of ‘Larker.’

ND497 and ND586 are completely, self-fertile. In some cases significant levels of sterility have not been observed in crosses with two-rowed barley. However, supplementary parents may be used to resolve some problems when crossed to six-rowed barley. Very few plump six-rowed types occur in subsequent generations. Generally, ND586 crossed to six-rowed barley produced desirable progenies; however, winter type segregates may have been observed with crosses involving ND497. Selections from crosses to ND497 indicating BYDV tolerance can be transferred to ideologically acceptable lines.

Ten- to 15-g samples of these two germplasm lines are available from Plant Genetics and Germplasm Institute, Agricultural Research Center West, Beltsville, MD 20705, or from Dr. D. H. Smith, Jr., World Collection of Small Grains, AR-SEA-USDA, also at the Beltsville Agricultural Research Center.

REGISTRATION OF NORTH DAKOTA 497 AND 586 BARLEY GERMPLASM

(Reg. No. GP53 and GP54)¹

A. B. Schooler and J. D. Franckowiak²

North Dakota 497 (CI 15858) and North Dakota 586 (CI 15859) are spring barley (Hordeum sp.) lines developed at the North Dakota Agric. Exp. Stn. and released as germplasm for breeding purposes because of their tolerance to barley yellow dwarf virus (BYDV). Both lines were more resistant to BYDV in greenhouse tests than their H. vulgare parents and check cultivars.³

ND497 (GP No. 53) has the following parentage: Hordeum vulgare L. var. ‘Ono’ (4x)/H. bulbosum L. (4x)//Elymus mollis Trin. (4x). The Ono/H. bulbosum tetraploid parent, FR221-68, is a two-rowed line similar to autotetraploid Ono but has better self-fertility. The E. mollis clone used in this cross is immune to BYDV (Schooler and Timian, unpubl). Pollen mother cells of the F1 plants indicated a chromosome complement of 2n = 2x = 14. Final selection for BYDV and leaf spot resistance was made in the F1 generation. This diploid F1 plant was crossed to an F2 which was equally represented in the population. This mixture was grown in the winter nursery at Warsaw, Va. in 1979–1980. CC XXXII-C is the harvested seed of this mixture and predominantly has the spring growth habit.

The composite cross populations will segregate for a wide range of characters. They contain a broad spectrum of disease resistance genes and should be a useful source of germplasm for spring and winter barley breeders. Many of the genes in these populations probably are not presently being utilized in cultivar development and these populations should provide better access to those genes than would using H. spontaneum directly. Although these populations are agronomically superior to the H. spontaneum lines, many of the deleterious traits associated with H. spontaneum will be found in them. The populations probably contain resistance to diseases other than those tested since in preliminary tests some of the male H. spontaneum lines have been resistant to Pyrenophora teres Drechs. which incites net blotch. Genetic male sterility was incorporated into the population to facilitate recombination of the resistance genes and the use of recurrent selection methods.

A list of male parents and seed in 500 g quantities can be obtained from the authors, AR-SEA-USDA, Field Corps Laboratory, Plant Genetics and Germplasm Institute, Beltsville Agricultural Research Center, Beltsville, MD 20705, U.S.A., who maintain the composite cross populations, or from Dr. D. H. Smith, Jr., World Collection of Small Grains, AR-SEA-USDA, also at the Beltsville Agricultural Research Center.

REGISTRATION OF 792022 ANTI-PEA GERMPLASM

(Reg. Nos. GP21 and GP22)³

J. M. Kraft⁴

Two F₁ pea (Pisum sativum L.) breeding lines (Reg. Nos. GP21 and GP22) were released combining the modified tendril habit of the H. brachyantherum L. var. ‘Ono’ (4x)/H. bulbosum L. (4x)/Elymus mollis Trin. (4x). The Ono/H. bulbosum tetraploid parent, FR221-68, is a two-rowed line similar to autotetraploid Ono but has better self-fertility. The E. mollis clone used in this cross is immune to BYDV (Schooler and Timian, unpubl). Pollen mother cells of the F₁ plants indicated a chromosome complement of 2n = 2x = 14. Final selection for BYDV and leaf spot resistance was made in the F₁ generation. This diploid F₁ plant was crossed to an F₂ which was equally represented in the population. This mixture was grown in the winter nursery at Warsaw, Va. in 1979–1980. CC XXXII-C is the harvested seed of this mixture and predominantly has the spring growth habit.

The composite cross populations will segregate for a wide range of characters. They contain a broad spectrum of disease resistance genes and should be a useful source of germplasm for spring and winter barley breeders. Many of the genes in these populations probably are not presently being utilized in cultivar development and these populations should provide better access to those genes than would using H. spontaneum directly. Although these populations are agronomically superior to the H. spontaneum lines, many of the deleterious traits associated with H. spontaneum will be found in them. The populations probably contain resistance to diseases other than those tested since in preliminary tests some of the male H. spontaneum lines have been resistant to Pyrenophora teres Drechs. which incites net blotch. Genetic male sterility was incorporated into the population to facilitate recombination of the resistance genes and the use of recurrent selection methods.

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