REGISTRATION OF CROP GERMPLASMS

wilt can also be a major problem in these areas. These lines are valuable parental material because they combine the kabuli type seed with wilt resistance and desirable agronomic characteristics.

Seeds of the four lines are available on request from the ICRISAT, Patancheru P.O., Andhra Pradesh, India 502 324.

J. KUMAR, M.P. HAWARE, AND J.B. SMITHSON

References and Notes
1. Plant breeder, pulse pathologist and former plant breeder, ICRISAT, Patancheru P.O., A.P., India.


REGISTRATION OF STORAGE ROT RESISTANT SUGARBEET GERMPLASMS F1004, F1005, and F1006

Three sugar beet (Beta vulgaris L.) germplasms (Reg. nos. GP 94, GP 95, and GP 96) were developed and released by USDA-ARS in cooperation with the North Dakota Agricultural Experiment Station. These germplasms have resistance to the major storage rot pathogens: Phoma betae (Oud.) Frank, Penicillium clavariforme Bainier, and Botrytis cinerea Pers. ex Fr. (1).

Roots from field plots were stored for 60 to 90 days at 5°C and high humidity before being evaluated for rot response. Three 1 cm² blocks were cut from a smooth surface of each root and placed on petri dishes in contact with pure cultures of the three rot fungi. Measurement of rot progression was made after incubation at 20°C for 14 days. Each block was cut down the center and rated on a scale of 0 to 5 with 0 being an absence of rot and 5 indicating that the cube was completely rotted.

These germplasms are intended to be used as pollinators for experimental hybrids, as parents in genetic studies, and as genetic sources for the development of storage rot resistant parental lines. Genetic resistance to storage rot fungi is intended to complement other methods of reducing storage losses such as pile ventilation and the reduction of injury to roots.

F1004 (GP 94) is a multigerm line produced from six cycles of mass selection for rot resistance from VNIS F526, an introduction from the USSR. F1004 segregates for pink and green hypocotyl.

F1005 (GP 95) is a multigerm, green hypocotyl line derived by five cycles of mass selection for rot resistance from VNIS F738, a USSR introduction. The first cycle of selection was for Botrytis resistance only. Subsequent cycles included selection for resistance to the other two fungi.

F1006 (GP 96) is a multigerm, pink hypocotyl line selected from a population formed by interpollinating 55 rot resistant individuals from the world collection of B. vulgaris. Each of these parent plants had a high level of resistance to at least one storage rot organism and was equal to or slightly superior to the commercial hybrid checks for resistance to the other two. Superior progeny were crossed in pairs for three subsequent selection cycles. Individual pairs were maintained as lines in each cycle. Visual selection was used to eliminate lines with the tendency to produce sprangled or colored roots.

All three germplasms were evaluated in replicated field trials for at least 3 years. Storage rot response is summarized in Table 1. Sucrose content and juice purity of the storage rot resistant germplasms were slightly lower than the commercial hybrid checks. Root yield was about 60% of the check hybrids.

Breeder seed will be maintained by USDA-ARS and provided in 10 g quantities to sugar beet breeders upon written request to Sugarbeet Research, USDA-ARS, Agronomy Dep., North Dakota State Univ., Fargo, ND 58105.

L. G. CAMPBELL AND W. M. BUGBEE (2)

References and Notes

REGISTRATION OF A SPROUTING RESISTANT WHITE-SEEDER SPRING WHEAT GERMPLASM LINE

A white-seeded wheat (Triticum aestivum L.), 'Losprout' (Reg. no. GP-287) has improved resistance to sprouting in intact spikes. It was developed at the Agriculture Canada Research Station, Swift Current, Saskatchewan and is being released as a source of germplasm.

Losprout derived from a cross between '7722', a white-seeded line and 'RL4137', a line with a very long stable dormancy, and three genes for red seed coat color. Losprout resulted from bulking an F₃ head-row pedigree as 7915-QX76E and grown during the 1981 to 1982 cropping season at Brawley, CA. A modified pedigree breeding method was used to develop Losprout. Segregation patterns suggest that RL4137 has a genetic mechanism for sprouting resistance associated with red seed color and one or more mechanisms not associated with seed color (1,2).

In 1980 a white-seeded F₃ line from this cross appeared to exhibit some sprouting resistance (1). To verify this observation and to maximize the opportunity for recombination of white-seeded color with increased seed dormancy, remnant F₃ seed of this line was planted in an out-of-season nursery in Brawley, California. In 1981, 81 single F₃ plants were selected in the out-of-season nursery and grown in 4-row plots 3 meters long at Swift Current. Four white-seeded cultivars and six red-seeded cultivars were used as checks for resistance to sprouting at maturity. Two sources of seed for several of the checks were used, one being seed pro-

<table>
<thead>
<tr>
<th>Line</th>
<th>Phoma</th>
<th>Botrytis</th>
<th>Penicillium</th>
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<tr>
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</tr>
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</table>

† Rot rating indicates the distance rot progressed through a 1 cm² block of root tissue after inoculation and incubation at 20°C for 2 weeks: 0 = 0 mm; 1 = not over 2 mm; 2 = 2 to 4 mm; 3 = 4 to 6 mm; 4 = 6 to 8 mm; 5 = entire block.

‡ Checks were not the same in all 3 years but included GW-R1, Beta 1346, Ultraflour, Beta 1260, and Hildehog 853.

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