REGISTRATION OF KS187 ALFALFA GERMPLASM RESISTANT TO FIVE DISEASES AND TWO INSECTS

KS187 alfalfa (*Medicago sativa* L.) germplasm Reg no. GP-189 was released by the USDA-ARS and the Kansas Agric. Exp. Stn. in January 1985. It provides resistance to anthracnose (Race 1) caused by *Colletotrichum trifolii* Bain, bacterial wilt caused by *Corynebacterium insidiosum* (McCull.) H.L. Jens, downy mildew caused by *Peronospora trifoliorum* d. By., Fusarium wilt caused by *Fusarium oxysporum* Schlecht f. sp. *Fusarium* wilt caused by *Phytophthora megasperma* (Weimer) Snyd. & Hans, Phytophthora root rot caused by *Phytophthora megasperma* Drechs. f. sp. *medicaginis* Kuan and Erwin, pea aphid (*Acyrthosiphon pisum* Harris), and spotted alfalfa aphid (*Thermosiphon maculata* Buckton).

KS187 was derived from BIC-7 (1). The BIC population was derived from 75 diverse (hardy and nonhardy) sources of germplasm. BIC-7 was subjected to recurrent phenotypic selection for resistance to anthracnose (six cycles), bacterial wilt (two cycles), downy mildew (eight cycles), Fusarium wilt (two cycles), Phytophthora root rot (four cycles—two each in field and greenhouse), pea aphid (five cycles), and spotted alfalfa aphid (four cycles). Independent culling was practiced but all pests were not included in each cycle. Over 75 plants were intercrossed by hand pollination in the greenhouse to initiate each cycle of selection. Syn 2 seed of the last cycle was produced by intercrossing approximately 250 syn 1 plants in a field cage. Honeybees (*Apis mellifera* L.) were used for pollination.

In an anthracnose (race 1) seedling resistance test at Reno, NV, the percentages of resistant plants for KS187, the resistant control ‘Arc’ and the susceptible control ‘Saranac’ were 43, 76, and 10, respectively. Resistance evaluation tests for bacterial wilt were 37, 33, and 0 for KS187, ‘Vernal’ (resistant), and ‘Narragansett’ (susceptible), respectively. Percentages of plants resistant to Fusarium wilt were 83, 68, and 5 for KS187, ‘Agate’ (resistant), and MN-1 (susceptible), respectively. Percentages of plants resistant to Phytophthora root rot were 33, 35, and 3 for KS187, Agate (resistant), and Saranac (susceptible), respectively.

Seedling tests to evaluate resistance to downy mildew, pea aphid, and spotted alfalfa aphid were conducted at Manhattan, KS. KS187 and resistant and susceptible controls showed the following percentages of symptomless plants in tests with three downy mildew isolates: KS187 = 72, Saranac = 33, ‘Kanza’ = 2 for isolate 1-5; KS187 = 64, Saranac = 14, Kanza = 1 for isolate 1-7; KS187 = 65, Saranac = 54, Kanza = 1 for isolate 1-8. Percentages of plants resistant to pea aphid were 87, 47, and 0 for KS187, ‘Agate’ (resistant), and ‘Saranac’ (susceptible), respectively. Percentages of plants resistant to spotted alfalfa aphid were 43, 76, and 10, respectively.

REGISTRATION OF USDA 64035M MALE HOP GERMPLASM

USDA 64035M (Reg. no. GP16) hop, *Humulus lupulus* was selected from open-pollinated seed collected from a downy mildew resistant female 7K491 at Wye College, England, and released in March, 1984. 7K491 was selected from the German Hop Research Institute at Wolnzach, West Germany. Seedlings were grown in heavy inoculum pressure of *Pseudoperonospora* et Tak., G.W. Wilson, the causal organism of hop downy mildew, during two cycles of greenhouse and field evaluation at Corvallis, Oregon. Acid house screening and progeny testing confirmed that 64035M possesses a high level of downy mildew resistance, which can be readily transmitted to its progeny. Absence of downy mildew control measures for 64035M may be found on basal leaves in early spring, and primary downy mildew spikes or systemic disease may not have been observed in 64035M. Virus infections may be found on basal leaves in early spring when primary downy mildew spikes or systemic disease may not have been observed in 64035M. Virus infections may be found on basal leaves in early spring when primary downy mildew spikes or systemic disease may not have been observed in 64035M. Virus infections may be found on basal leaves in early spring when primary downy mildew spikes or systemic disease may not have been observed in 64035M. Virus infections may be found on basal leaves in early spring when primary downy mildew spikes or systemic disease may not have been observed in 64035M. Virus infections may be found on basal leaves in early spring when primary downy mildew spikes or systemic disease may not have been observed in 64035M. Virus infections may be found on basal leaves in early spring when primary downy mildew spikes or systemic disease may not have been observed in 64035M. Virus infections may be found on basal leaves in early spring when primary downy mildew spikes or systemic disease may not have been observed in 64035M. Virus infections may be found on basal leaves in early spring when primary downy mildew spikes or systemic disease may not have been observed in 64035M. Virus infections may be found on basal leaves in early spring when primary downy mildew spikes or systemic disease may not have been observed in 64035M. Virus infections may be found on basal leaves in early spring when primary downy mildew spikes or systemic disease may not have been observed in 64035M. Virus infections may be found on basal leaves in early spring when primary downy mildew spikes or systemic disease may not have been observed in 64035M. Virus infections may be found on basal leaves in early spring when primary downy mildew spikes or systemic disease may not have been observed in 64035M. Virus infections may be found on basal leaves in early spring when primary downy mildew spikes or systemic disease may not have been observed in 64035M. Virus infections may be found on basal leaves in early spring when primary downy mildew spikes or systemic disease may not have been observed in 64035M. Virus infections may be found on basal leaves in early spring when primary downy mildew spikes or systemic disease may not have been observed in 64035M. Virus infections may be found on basal leaves in early spring when primary downy mildew spikes or systemic disease may not have been observed in 64035M. Virus infections may be found on basal leaves in early spring when primary downy mildew spikes or systemic disease may not have been observed in 64035M.