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Registration of Crop Cultivars

REGISTRATION OF WL 311 AND WL 318 ALFALFA CULTIVARS[1]

(Reg. Nos. 85 and 86)

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'WL 311' and 'WL 318' alfalfa (*Medicago sativa* L.) were developed by the Waterman-Loomis Company.

WL 311 (Reg. No. 85) was tested experimentally as 70T3 and 72WR ANR-1. It was developed from advanced breeding materials of diverse background all of which had resistance to the spotted alfalfa aphid (*Therioaphis maculata* (Buckton)). Following severe natural anthracnose [*Colletotrichum trifolii* (Bain)] epiphytotics at Fulton, Md. in 1966, 1967, and 1968 approximately 300 plant selections were combined into 25 test synthetics. Four hundred seedlings of each synthetic were inoculated with anthracnose in the greenhouse. Surviving seedlings were planted in three large cages at Bakersfield, Calif., for seed production in 1970. Following preliminary testing for bacterial wilt (*Corynebacterium insidiosum* [McCull H. L. Jens.] anthracnose resistance and spotted alfalfa aphid resistance, cage 70 T 3 comprised of 308 surviving seedlings from 12 of the test synthetics and the cultivar 'WL 215'[3], was chosen for seed increase and released as WL 311.

WL 311 is adapted for hay and haylage production from New Jersey and Virginia west to Iowa, Nebraska and Missouri. In forage yield tests WL 311 consistently produced higher than 'WL 309'[4], 'Saranac' and 'Vernal'. Percent stand after 2 years in New Jersey, primarily reduced by anthracnose, was 86% for WL 311, 68% for WL 309, 41% for Saranac, 81% for 'Buffalo', 73% for 'Kanza' and 63% for 'Apalachee', with an LSD (.05) of 7.9%. Anthracnose resistance of WL 311 approaches that of 'Saranac AR', but is significantly less than that of 'Arc'. WL 311 also combines resistance to bacterial wilt with resistance to the pea aphid (*Acyrthosiphon pisum* (Harris)). Spotted alfalfa aphid resistance is equal to that of Kanza and 'Dawson'.

WL 311 flower color is approximately 80% purple, 15% blue and blue variegated, 4% white or cream and 1% yellow. Breeder seed was that produced in cage 70 T 3, a reserve of which is maintained in controlled cold storage. Foundation seed is produced only from breeder seed in eligible fields between the 37° and 44° parallels. Certified seed is produced only from either breeder or foundation seed.

WL 318 (Reg. No. 86) was tested experimentally as Ca 193-97 and Exp. 218. Over 100 experimental and commerical WL cultivars possessing good levels of resistance to pea aphid and spotted alfalfa aphid were screened. Approximately 3,000 seedlings of each entry were exposed to Phytophthora root rot (*Phytophthora megasperma Drechs.*) by maintaining wet field conditions. Surviving plants were dug, and their roots were examined, and the plants were replanted in Phytophthora-infested tanks in the greenhouse where a constant water table was maintained. Over 80% of the transplanted plants were killed. The remaining plants were transplanted to the field under cages for seed production. Eighty-nine plants from 10 moderately fall dormant entries with the cleanest roots were selected as parents for WL 318.

WL 318 is a hay and haylage cultivar adapted to Phytophthora infested soils of the central U.S. It is similar in fall and winter dormancy to WL 311, and significantly less dormant than 'Team' and Arc. In forage yield tests WL 318 has yielded equal to or better than WL 309, 'Agate', Vernal, Team and Dawson. WL 318 is intermediate in resistance to Phytophthora between Vernal (susceptible) and Agate (resistant). Bacterial wilt resistance of WL 318 is between that of Vernal and 'Ranger'. In tests for spotted alfalfa aphid resistance, it ranked equally with Dawson, Kanza and WL 311. It also has greater resistance to pea aphid than Dawson and moderate resistance to anthracnose and Fusarium wilt (*Fusarium oxysporum* Schlechtf. *Medicaginis* (Weimer) Synd. and Hans.). The flower color of WL 318 is predominantly purple, blue and blue variegated with about 1% yellow, green and white.

Breeder seed is produced from the 89 parent plants interpollinated under cages with honeybees at Bakersfield, California. Foundation seed may be produced only from breeder seed in eligible fields between the 37° and 44° parallels. Certified seed is produced in eligible fields planted only with either breeder or foundation seed.

Both WL 311 and WL 318 were favorably reviewed by the National Certified Alfalfa Variety Review Board at its December 1974 meeting.

[1] Registered by the Crop Sci. Soc. Am. Accepted 5 Nov. 1977.

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[3] Beard, D. F. 1969. Registration of WL 215 alfalfa. (Reg. No. 42). Crop Sci. 9:847.

[4] Beard, D. F., and I. I. Kawaguchi. 1974. Registration of WL 309 alfalfa. (Reg. No. 66). Crop Sci. 14:337.

REGISTRATION OF DES 24 COTTON[1]

(Reg. No. 69)

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'DES 24' cotton (*Gossypium hirsutum* L.) was developed at the Delta Branch, Mississippi Agricultural and Forestry Experiment Station. DES 24 originated from a single plant selection in the F_2 generation and a reselection in the F_3 generation of a cross between 'Stoneville 603' and 'Delcot 277'. DES 24 has been tested since 1972 as DES 06-020-24.

DES 24 is an early maturing cotton with light green foliage and has approximately 12% yellow pollen. It produced 10% higher lint yields, matured 10 days earlier, and produced 6% stronger fiber than 'Deltapine 16' in 33 Delta environments over the past 5 years. Fiber length, micronaire value, lint percentage, and boll size are approximately equal to those of Deltapine 16.

DES 24 is primarily adapted to conditions of the Mississippi Delta, but yield results from nine states show an 8% yield advantage over Deltapine 16. Test results from Alabama and Arkansas show that DES 24 has good resistance to *Fusarium* wilt (*Fusarium oxysporum* Schlecht). The earliness of DES 24 has offered an escape mechanism from late season insect damage that has resulted in higher yields in host-plant-resistance studies.

Mississippi Foundation Seed Stocks will produce foundation seed. Foundation seed will be sold on a pro rata basis to breeding firms and individuals meeting all standards of the Mississippi Seed Improvement Association for the production of registered seed. When the demand for Mississippi producers has been met, foundation seed may be released to other states provided they have qualifications of those requested of Mississippi producers.

Breeder seed will be maintained by Delta Branch, Mississippi Agricultural and Forestry Experiment Station. Variety protection will be applied for under the Variety Protection Act, Public Law 91-557.

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