REGISTRATION OF 530 ALFALFA¹

(Reg. No. 65)

Jonas W. Miller and Marvin K. Miller²

"530" alfalfa (Medicago sativa L.) was developed cooperatively by the Arnold-Thomas Seed Service and Pioneer Hi-Bred International, Inc. 530 is a winterhardy Flemish-type synthetic cultivar with resistance to bacterial wilt, spotted alfalfa aphid, pea aphid, and some foliar diseases. 530 was originally tested as 29H-1.

Parent clones of 530 were selected from two different sources. One population was developed by selecting bacterial wilt and spotted alfalfa aphid-resistant plants from a backcross program in which outstanding Flemish-type plants were the recurrent parents and bacterial wilt-resistant selections from 'Vernal' were the nonrecurrent parents. The other population was developed from selecting spotted alfalfa aphid-resistant plants from 'Saranac'. About 500 individual plant selections were made in California on the basis of seed yield and other desirable characteristics from several thousand spotted alfalfa aphid-resistant survivors. Following progeny row forage yield tests and other evaluations in the Midwest, 530 was synthesized with 24 clones from the backcross population and 9 clones from the Saranac population.

530 is adapted to the central, northern, northeastern, and mid-Atlantic areas of the United States. Forage yields have been equal or superior to current check cultivars in these areas. 530 is superior to 'Ranger' and Vernal in resistance to Leptosphaeria maculans leaf spot, common leaf spot, and downy mildew. It has rapid recovery after clipping and has more fall growth than either Ranger or Vernal. Flower colors of 530 range from dark purple to light purple with an occasional plant having variegated bowers. Seed production in California has been similar to Ranger.

Seed classes for 530 will be breeder, foundation, and certified. Breeder seed is composed of seed produced from an isolation, planted from bulk harvested polycross seed from a cage increase of the 53 parent clones. Certified seed may be produced only on fields established with breeder or foundation seed. No other class or generation is recognized as 530. Seed of 530 became commercially available in 1971.

The National Certified Alfalfa Variety Review Board reviewed 530 favorably at its December 1972 meeting and it has subsequently been approved for certification in California and Washington.

REGISTRATION OF CHIEF OATS¹

(Reg. No. 256)

M. E. McDaniel³

"TAM 0-301" oats (Avena byzantina C. Koch.), C.I. 9198, was developed by the Texas Agricultural Experiment Station and varietal release was approved in June 1973. It was tested as Texas Selection 71C3000.

TAM 0-301 was increased from a single F1 plant from the cross Ab555/3/Ora/65C3688-4/2/Ora/F.I. 295919. The final cross was made in 1968. Following the final cross, two generations per year were obtained by growing a summer crop at either S. Paul, Minnesota, or Aberdeen, Idaho, and a winter crop in Texas. P.I. 295919 (A. sterilis L.) was chosen as a parent because of its excellent field resistance to races 325 and 264-B of Puccinia coronata Cda. var. avenae Fraser and Led. F1 plants from the first and second crosses were inoculated with these virulent races to identify plants having A. sterilis resistance. F2 head hills were grown under a heavy natural crown rust epidemic at Beeville, Texas, in 1970. TAM 0-301 is the unselected progeny from a head selection from an F2 head-hill plot which was homozygous for crown rust resistance.

The juvenile growth of TAM 0-301 is semi-erect to decumbent (semiwinter type). Leaf blades are medium dark green and mid-wide. TAM 0-301 resembles 'Cortez' in overall agronomic type and maturity. It is slightly taller than Cortez, and has good straw strength. The panicle is equilateral, medium short, and mid-wide. Spikelet and floret separation is by fracture. Glumes and lemmas are light red. Awns are rare, but occasional a straight awn is present. Kernels are large, mid-wide, and plump.

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Most kernels are yellow; however, up to 4% may be white and fluoresce under ultraviolet light. Test weight per bushel and g hotel percentage are good. Protein content in the grain is slightly higher than that of Garland. Milling tests have shown Chief to be a good milling oat.

Chief has resistance to more predominant races of crown rust than many currently grown varieties. It is variable in reaction to crown rust race 264-B; however, most plants are resistant. Chief is not resistant to threatening stem rust races 51 and 94.

In South Dakota tests Chief yields on the average 215 to 3358 kg/ha more than several widely grown varieties for the period 1970 to 1972. This yield advantage gives an indication of its straw strength and crown rust resistance.

Breeder seed will be maintained by the South Dakota Foundation Stocks Division of South Dakota State University, Brookings, SD 57006.