and a recurrent selection population (two). Two of the parents of 520 are also parents of 'ATRA 55.' The clones and their open-pollination and restricted polycross progenies were evaluated over a period of years at several midwestern locations. Selection of parents was based on persistence, resistance to bacterial wilt and other diseases, high general combining ability, adequate seed production, and good forage appearance, including dark green color.

520 has averaged more than 10% more hay per acre than Vernal or Ranger in tests conducted over a 4-year period in Iowa, Indiana, Illinois, Minnesota, Wisconsin and Pennsylvania. It yielded second only to ATRA 55 in the first harvest year in 10-entry irrigated trials conducted in both Alberta and Saskatchewan, Canada. It is more resistant to downy mildew (Peronospora trifoliolorum d. v.) than either Vernal or Ranger. 520 represents a major improvement over other cultivars in resistance to the leaf spot caused by Leptosphaerulina briosiana (Poll.) Graham & Luttrell.

520 is slightly less dormant, as measured by late fall growth, than Vernal. It has flower colors ranging from deep purple through variegated to a few plants with pure yellow flowers. Seed yields of 520 have approximated those of Ranger in trials conducted in Fresno County, California.

520 was favorably reviewed by the National Certified Alfalfa Variety Review Board at its December 1968 meeting and has been accepted for certification.

Seed of 520 will be produced under the three-generation sequence — breeder, foundation and certified. Breeder seed represents the composite of the eight parental clones replicated and randomized either in a cage or an isolation. Foundation seed is the first generation grown from breeder seed under the supervision of the originator. The only authentic certified seed, according to the originator, will be that produced from breeder or foundation seed.

REGISTRATION OF 'ATRA 55' ALFALFA1
(Reg. No. 45)

Jonas W. Miller, Howard L. Carnahan, and Michael H. Yama2

'ATRA 55' alfalfa (Medicago sativa L.) is an 8-clone wilt resistant, winter hardy synthetic cultivar adapted to the central and northern areas where 'Vernal' and 'Ranger' are grown. It was developed cooperatively by the Arnold-Thomas Seed Service and Pioneer Hi-Bred Corn Co., and was marketed in the spring of 1969. The parent clones were selected from Vernal (two), 'Narragansett' (one), 'Arnim' (one), 'Culver' (two), and a recurrent selection population (two). Two of the parents of ATRA 55 are also parents of 520. The clones and their open-pollination and restricted polycross progenies were evaluated over a period of years at several midwestern locations. Selection of parents was based upon persistence, resistance to bacterial wilt and other diseases, high general combining ability, adequate seed production, and good forage appearance, including dark green color.

ATRA 55 has averaged about 10% more hay per acre than Vernal or Ranger in tests conducted over a 4-year period in Iowa, Indiana, Illinois, Minnesota, Wisconsin and Pennsylvania. In the first harvest year, ATRA 55 ranked first in forage yield among 10 entries grown in irrigated trials in both Alberta and Saskatchewan, Canada. Similarly, ATRA 55 ranked higher in forage yield than the three recommended check cultivars in the first harvest year of a trial at Macdonald College, Quebec, Canada; and higher than two of the three recommended check cultivars in the first harvest year of a trial at La Poatière, Quebec, Canada. It is more resistant to downy mildew (Peronospora trifoliolorum d. v.) than either Vernal or Ranger. It is moderately resistant to the leaf disease caused by Leptosphaerulina briosiana (Poll.) Graham & Luttrell.

ATRA 55 is similar to Vernal in late fall dormancy. It has flower colors ranging from dark purple through variegated to a few plants with pure yellow flowers. Seed yields of ATRA 55 in trials conducted in Fresno County, California, have been equal or superior to those of Ranger.

ATRA 55 was favorably reviewed by the National Certified Alfalfa Variety Review Board at its December 1968 meeting and has been accepted for certification.

Seed of ATRA 55 will be produced under the three-generation sequence — breeder, foundation and certified. Breeder seed represents the composite from the eight parental clones replicated and randomized either in a cage or an isolation. Foundation seed is the first generation grown from breeder seed under the supervision of the originator. The only authentic certified seed, according to the originator, will be that produced from breeder or foundation seed.

REGISTRATION OF MONTEZUMA OATS1
(Reg. No. 226)

C. A. Suneson2

The oat cultivar 'Montezuma,' Cl 84/19, classified as Avena byzantina C. Koch, was released by the University of California Agricultural Experiment Station and the Crops Research Division, Agricultural Research Service, U.S. Department of Agriculture in 1969. Previously known as CAS 5022, it was selected at Davis from a bulk of A. byzantina crosses with A. fatua L. (California C.C. II or complex) in 1965. Grain production of Montezuma in comparison with other cultivars has been evaluated.3

Montezuma has the highest test weight per bushel of any oat cultivar recommended for direct combine harvesting in California. A seed size separation, based on seed produced at three diverse locations, showed 84% of Montezuma seeds retained over a 0.198 × 1.905-cm (5/64 × 3/4-in) screen, compared to 'Curt,' 62%, and 'Sierra,' 78%. Other features include good shatter resistance and a 3-year yield record averaging 17% more than Sierra at two locations in north-central California.

Montezuma is a semiwinter to spring-type red oat similar to 'Kanota' in growth characteristics. The early growth habit of Montezuma is semiprostrate, and it tillers profusely. Straw is stiff, leaf blades are midwide and plant height is intermediate to Curt and Sierra. Panicle type is medium-sized, fairly compact and equiangular, with matured lemmas being midlong to long, midgray, and predominantly red. Spikelet separation is by semi-abscission and floret separation primarily through hetero-fracture. Awns are common to numerous on the primary florets. In California, oats are best adapted to the central and south coast districts but also are grown in the Sacramento and San Joaquin Valleys.4 Montezuma matures 8 to 15 days earlier than Sierra and is rated slightly earlier than Curt and Kanota. Montezuma may be useful in the drier, hotter interior valleys but will be less desirable than later-maturing cultivars for fall planting where late frost is common at flowering.

Recent evidence (unpublished results) indicates that Montezuma's productivity as a forage oat is satisfactory for growers who need an earlier-maturing cultivar, but one similar in forage quality to 'California Red.' Observations on disease reaction

1 Registered by the Crop Science Society of America. Received August 25, 1969.
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4 Personal correspondence from Dr. D. H. Heinrichs.

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