2 cm in length. Culms are round shouldered with an acute beak, midlong, wide, and white. Kernels are red, ovate, with a short non-collared brush, and rounded check. Phenol reaction is brown. Coleoptile color is generally white.

Ruler has been tested in state-wide Ohio yield trials since 1969 and has been outstanding in yield, averaging over 14% higher than 'Arthur 71', 8% higher than Arthur, and equaling Logan in a total of 42 location-years. Actual yields are 5780 kg/ha for Ruler, 3491 kg/ha for Arthur, 3302 kg/ha for Arthur 71 and 3787 kg/ha for Logan.

Winterhardiness of Ruler under Ohio conditions is excellent. Tillering ability is very good. Ruler averages 96 cm in height compared with 93 cm for Arthur, 90 cm for Arthur 71, and 106 cm for Logan. Heading date for Ruler is 5 days later than Arthur and Arthur 71; one day earlier than Logan. Ruler is moderately tolerant to acid soil conditions. Straw strength and test weight are superior to those of Arthur, Arthur 71, and Logan. Ruler is very resistant to soil-borne smut, virus, resistant to loose smut, but moderately tolerant to powdery mildew and most races of leaf and stem rust. It has also shown moderate tolerance to barley yellow mosaic and is resistant to the Great Plains, A, C, and F races of Hessian fly.

Ruler has good soft wheat milling and baking characteristics producing finer granulation and slightly lower protein than Arthur and is resistant to powdery mildew and most races of leaf and stem rust. Ruler has been approved for certification by the National Small Grain Variety Review Board of AOSCA. Breeder seed will be maintained by the National Plant Germplasm System, ARS-USDA, and the Arizona Agric. Exp. Stn. Foundation seed will be maintained by ARS-USDA. The following AOSCA Registration Certificate has been issued for Ruler specifying that the cultivar be sold as a class of certified seed only. Seed classes of Ruler are: breeder, foundation, registered, and certified. Ruler has also been approved for certification by the National Small Grains Variety Review Board of AOSCA. Breeder seed will be maintained by the two originating agencies and will be obtained in 1 or 2 kg lots by writing to the third party.

Although the parents in this composite cross had approximately winter growth habit, several spring parents were included. Thus the composite can be used for either spring or winter types. In most cases, tall is dominant over short and the distributed seed stock will produce a predominance of tall plants. Some plants will further segregate for growth habit. Likewise, some spring habit plants will segregate for growth habit.

Because of the numerous character differences and the resulting genetic variability, we suggest that seed be planted at a location. Seed of the composite can be maintained by the two originating agencies and is contained in 1 or 2 kg lots by writing to the third party.

REGISTRATION OF GERmplASMS

REGISTRATION OF BARLEY COMPOSITE CROSS XXIX
(Reg. No. GP 18)

David A. Reid, R. K. Thompson, and J. C. Craddock

Barley (Hordeum vulgare L.) Composite Cross XXIX has been released by ARS-USDA, and the Arizona Agric. Exp. Stn., to provide a diverse gene pool with possible new combinations for short straw or semidwarf plant types. Parents usually had a medium or lax rachis internode length and included winter and spring growth habits, hulled and naked caryopses, 2 and 6-rowed spikes, awned and awnleted lemmas, white and blue aleurones, a range of maturity dates, and a genetic male sterile gene (msgl, designated with *).

Original parents from the World Collection were: Belownee* (CI 10284), Brachytic (CI 6572), Deba Abed (CI 11478), Indian Dwarf (CI 13994), Jaybel* (CI 13887), Jaydeec* (CI 9289), Jotun (CI 11670), Purd. 609A2-1* (CI 15545), Tex. 68C710, and CIs 8256*, 8992*, 10680*, 10549, 4284, and 12140*.

Several semidwarf lines of winter or facultative growth habit were also used as parents. The short character had been previously transferred from one of the original parents to the cultivars ‘Dayton’ (CI 9517), ‘Hudson’ (CI 8067), ‘Mo. B-475’ (CI 9168), ‘Rogers’ (CI 9174) and ‘Wong’ (CI 6728).

Since many of the short parents were known to have weak straw, several winter cultivars were chosen that had good resistance to lodging in their area of adaptation but that were not necessarily of short stature. These were: ‘Barsoy’ (CI 11904), Harrison* (CI 10667), Jefferson* (CI 11902), ‘Keowee’ (CI 11369), ‘Rapidan’ (CI 14006), and ‘Schuyler’ (CI 11887).

The crosses were made over a period of 8 years and included more than 450 combinations in single, double, 3-way, and backcrosses. Both male-sterile and emasculated spikes were used as female parents. Each cross was individually increased and approximately equal amounts of seed from F1 plants of each cross were bulked to provide planting stock for the seed now available for distribution to interested barley breeders.

The possible uses of composite crosses have been reviewed3,4.

REGISTRATION OF ARIMONT BARLEY GERMPLASM
(Reg. No. GP 19)

R. T. Ramage and R. F. Eslick

‘ARIMONT’, CI 15509, (Hordeum vulgare L.) was selected as a cooperative effort of ARS-USDA, at Tucson, and the Arizona and Montana Agric. Exp. Stns.

Arimont was selected from the progeny of Sibbi composite Cross XXX-C that had been exposed to 150 kr/hr of fast neutrons. It is a bulk of the progenies of 36 plants from the M2 generation.

Arimont has the ability to yield 80 to 90% of the yield of the cultivars when grown in the winter in Arizona or the spring in Montana. This ability is also exhibited by cultivar Arimont. Hybrids of Arimont and locally adapted cultivars yield 20 to 25% more than the high parents grown in both Arizona and Montana.

Arimont is a six-rowed, rough-awned, naked barley, of midseason flowering and maturity. Seed color is mixed white and blue, and purple. Seed weight averages about 50 g and have about 15 to 17 rachis internodes. Rachis is short non-collared brush, and rounded cheek. Phenol reaction is brown. Coleoptile color is generally white.