original plant was selected in 1959 and identified as Arizona 5402-6. Yield trials were conducted at Marana, Safford, Tucson, and Yuma, Arizona. In 17 replicated yield tests grown from 1961 through 1967 Arimar produced an average of 7% more grain and yield with a higher bushel weight than Arivat, presently the most widely grown variety in Arizona.

Arimar is adapted to the irrigated areas of Arizona and to other areas of the Southwest where Arivat and California Mariout are grown. Arimar is 8 to 15 centimeters (3 to 5 inches) shorter and matures 4 to 5 days earlier than Arivat. Arimar is less likely to lodge, when grown under irrigation, than Arivat or California Mariout. Arimar produces many tillers per plant and is resistant to shattering at maturity.

Breeder seed is available in the Arizona Agricultural Experiment Station, Tucson, Arizona.

REGISTRATION OF ZORA BARLEY

(Reg. No. 100)

Rex L. Smith and J. P. Jones

'ZORA' barley (Hordeum vulgare L. emend. Lam.), CI 11903, was developed by the Arkansas Agriculture Experiment Station. The variety originated from the cross ('Kenbar' × 'Rogers') (Kenbar × CI 6511) made in 1956. Foundation seed was released by the Arkansas Agriculture Experiment Station in 1965.

Zora is a six-rowed, semi-tall awned, winter barley; early growth is intermediate to semi-prostrate; the plant is mid-tall, matures mid-season, and is yellow at maturity. The leaves are long, narrow, and drooping; collars are closed but occasionally may be open; auricles are white or rarely purple streaked; the upper leaf sheath is waxy; flag leaves are short. The spikes are dense, midlong, slightly waxy, slightly nodding, and sometimes are not fully exerted from the boot. The kernels have a white or light blue aleurone, are short to midlong, and of-
matic experiment station. Received April 29, 1968.

Zora was released to replace Rogers because of its superior performance. Zora is 5 to 6 days earlier, has greater lodging resistance and greater yield potential than Rogers. In 3 years of testing from 1960 to 1962 at Stuttgart, Arkansas, Zora yielded an average of 3.875 kg per hectare (72 bu/a) to 2.798 kg (52 bu/a) for Rogers. In the Uniform Semidet Barley Nursery (20 locations in southern states) during 1962-64 Zora yielded an average of 3.902 kg per hectare (55.8 bu/a) to 2.652 kg (49.3 bu/a) for Rogers. Zora is similar to Rogers in disease reaction with the exception that it is susceptible to scald whereas Rogers is resistant. Breeder seed of Zora will be maintained by the Arkansas Agriculture Experimental Station.

REGISTRATION OF HARLAND BARLEY

(Reg. No. 101)

Coyt A. Suneson

'HARLAND' barley (Hordeum vulgare L. emend. Lam.), CI 11903, was conceived for feed use from materials and data available in 1953. It is a populational variety with a California evolutionary breeding history, and it yields 50% more than an unselected world collection of barleys known as C. C. X, F. The 500 female parents of Harland were random F, male

seed (1966) was labeled C. C. XVI, F, Research with Har-

land, and its parent populations, has established that they have low seasonal variation in yield and stability of produc-
tivity with generation advancement. Research also indicates that the comparative level at which this increase occurs can be forecast from the F, and F, yields. Thus, over the 1962-67 period, extensive tests of Harland at Davis, Calif. (5 to 35

replications per year) show that it equals or exceeds yields of its parent populations, and such prominent California cultivars as 'Arivat,' 'Atlas 57,' and 'Blanco Mariout.' Since its yield at Davis should be at least 10% higher by generation F, we can be assured of its increasing public acceptance within the California release area — approximately 250 km north or south from Davis. Elsewhere the general and specific adapta-
tional improvements in Harland have yet to be precisely estab-
lished. Available data from tests outside California suggest that yield of Harland is close to the combined mean of that for 'Atlas,' 'Hannchen,' 'Trail,' and 'Trebi.' However, its immediate growth in productivity from generation advance-
tment will not be as great in outside areas as at Davis.

Nearly all of the components of Harland are six-rowed, white, covered, awned, spring habit, shatter resistant and relatively large-seeded, Harland has a trace of 2-rowed spikes, black seed and hull-less seed, and has about 2% of genetic male sterility and 40% of detectable heterozygosity. This

implies that there is significant recombination which is independent of the male-sterility. The maturity range is about 15 days. The reaction to all the major foliar diseases varies conspicuously from plant to plant, but presents a favorable average.

In 1967 foundation seed of Harland was released cooperatively by the Crops Research Division, Agricultural Research Service, U. S. Department of Agriculture, and the California Agricultural Experiment Station. The latter will maintain breeder seed at Davis by yearly generation advancement under the historical managements of barley gene-pools. The initial seed certification will be under a 4-generation limitation. However, since Harland with time will continue to become better adapted locally, the grower is encouraged to grow his own seed year after year.

REGISTRATION OF PAWNEE BIG BLUESTEM

(Reg. No. 1)

L. C. Newell

'Pawnee' big bluestem (Andropogon gerardi Vitman) was released in 1963 by the Nebraska Agricultural Experimental Station in cooperation with the Crops Research Division, Agricultural Research Service, U. S. Department of Agriculture. The variety traces to collections made in 1938 from native prairie in Pawnee County, Nebraska. After several generations of selection from open pollination, selected clones were iso-


dified, and the lemmas bear long yellow awns. The basal rachis internode is straight but sometimes curved, 1 to 3 mm long. The glumes are 1/4 to 3/4 the length of the lemma, are covered with short pubescence and have glume awns equal in length to the glumes. The rachilla is short haired.

1 Registered by the Crop Science Society of America, Cooperative investigations between the Crops Research Division, Agricultural Research Service, U. S. Department of Agriculture, and the California Agricultural Experiment Station. Received April 29, 1968.

2 Agriculturalist, Crops Research Division, Agricultural Research Service, U. S. Department of Agriculture, and the Agronomy Department, California Agricultural Experiment Station. The latter will maintain breeder seed at Davis by yearly generation advancement under the historical management of barley gene-pools. The initial seed certification will be under a 4-generation limitation. However, since Harland with time will continue to become better adapted locally, the grower is encouraged to grow his own seed year after year.

1 Registered by the Crop Science Society of America. Received March 14, 1968. Cooperative investigations of the Nebraska Agricultural Experimental Station and the Crops Research Division, Agricultural Research Service, U. S. Department of Agriculture. Published with the approval of the Director as Paper No. 2208, Journal Series, Nebraska Agricultural Experiment Station, Lincoln, Nebraska 68503.

2 Research Agronomist, Crops Research Division, ARS,USDA.

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2 Research Agronomist, Crops Research Division, ARS,USDA.