

United States Department of Agriculture
Soil Conservation Service
and
Agricultural Research Service
and the
University of Arizona Agricultural Experiment Station

Notice of naming and release of 'SECO' drought-tolerant barley (Hordeum vulgare) for erosion control plantings, winter cover crop, green manure crop and to provide feed for wildlife on disturbed land or abandoned cropland.

The U.S. Department of Agriculture, Soil Conservation Service and U.S.D.A. Agricultural Research Service and the University of Arizona Agricultural Experiment Station announce the naming and release of 'SECO' drought-tolerant barley (Hordeum vulgare L.) for commercial production and marketing of seed.

Origin: Barley breeding program, R. T. Ramage, ARS, Tucson, Arizona.

Other Identification Used: 'SECO' has been tested under the following control numbers: 2-22-1 U of A Agricultural Experiment Station, Tucson, Arizona; 9047432 USDA-SCS, National Plant Materials Center, Beltsville, Maryland.

Description: 'SECO' barley is a robust and erect six-rowed, rough-awned spring barley. The culms are erect, 75 to 120 cm tall. The leaf blades are flat, 5 to 15 mm wide; the collars are closed. The spike is lax, 4 to 9 cm long, excluding awns; non-waxy, erect to inclined. It has a rachis with long-haired edges. The lemma awn is long and rough, mostly 12 to 15 cm. The lemma has a depression at its base. The glume awn is shorter than the length of the glume. Glumes are one-half to two-thirds the length of the lemma and covered with long hairs. The glumes are divergent at the base, narrow, nerveless, gradually passing into a stout awn. The rachilla is long-haired. The stigma is hairy. The kernels are covered, white and long. The hulls are slightly wrinkled to semi-wrinkled. 'SECO' has erect, early growth and is earlier maturing than any commercial barley cultivar.

Root Development: The crown of 'SECO' is one-to-two inches below the ground surface; root development extends downward beyond six feet under favorable conditions. Deep rooting gives this variety excellent drought tolerance and provides good erosion control.

Development and Use: 'SECO' barley was comparatively evaluated with 27 accessions of barley in over 50 test plantings during the past 5 years by R.T. Ramage, ARS and the University of Arizona. 'SECO' was selected as the best overall performer in vigor, height, root spread and yield on dryland plantings in Arizona and California. 'SECO' also had the earliest harvest date of any

commercial spring barley cultivar. This variety has shown superior performance to standards of comparison 'Signal', 'Bold', 'Arivat' and 'Briggs' under reduced water-use conditions in the hot and arid southwest.

The yields under dryland conditions with no pre-plant irrigation, depending on residual soil moisture and seasonal rainfall, have exceeded more than 2,000 lbs/ac. There are about 10,000-11,000 seeds per pound (22,000-24,000/kg.)

The optimum planting date in southern Arizona and California is November 25 to December 30. Recommended drill seeding rate is 20 to 30 pounds per acre. The average harvest date is April 15 to April 30.

'SECO' was selected for use in critical area stabilization, winter cover crop, green manure crop and to provide feed for wildlife on abandoned cropland, especially where water is limited.

Area of Adaptation: Historically, barley occurred naturally from southern Europe to Turkey, Iraq and Iran, Ethiopia and other temperate regions of the Old World; it grows on a variety of soils receiving 8 to 40 inches of annual precipitation. Barley is also known to be tolerant of saline soils.

The environmental range of 'SECO' drought-tolerant barley, is not known. Observations have shown it to be adapted when grown as a winter barley in southern Arizona and California, at elevations from sea level to 3000 feet (914 m). 'SECO' has been planted and has performed well in the 8 to 10 inch (20 to 25 cm) annual precipitation zones. However, it may require a minimum of 3.5 inches (9 cm) of winter precipitation to produce adequate vegetation and a seed crop. 'SECO' appears to have salt tolerance equivalent to other high-salt-tolerant barley strains. It has been planted as a spring barley in Oregon, Washington, Idaho and Montana with good success.

Seed Source: Breeder seed will be maintained by R. T. Ramage, ARS, Tucson, Arizona. The Tucson Plant Materials Center will be responsible for maintaining a supply of foundation seed. Foundation seed will be available to growers for commercial production of certified seed through the Arizona Crop Improvement Association and natural resource conservation districts. Standards for all classes of seed will be included in the Arizona Seed Certification Handbook.

A suggested release date of 'SECO' drought-tolerant barley is March, 1987. Limited quantities of foundation seed will be available immediately for commercial seed production.