United States Department of Agriculture

A Conservation Plant Released by the Natural Resources Conservation Service
Tucson Plant Materials Center, Tucson, Arizona

'Seco' barley

Hordeum vulgare L.

Figure 1: A field of 'Seco' barley at the Tucson Plant Materials Center

'Seco' barley (*Hordeum vulgare* L.) was released in 1987 by the University of Arizona Agricultural Experiment Station in cooperation with the Natural Resources Conservation Service and the Agricultural Research Service of the U.S. Department of Agriculture.

Description
Seco barley is a drought tolerant, annual, six-rowed, rough-awned, spring barley. The plants are erect and 30 to 48 inches tall. The leaves are flat and narrow with closed collars. The spike is lax and non-waxy. The mature lemmas are semi-wrinkled and have purple veins. Kernels are predominantly white but occasionally blue. The root crown is 1 to 2 inches below the soil surface.

Source
Seco barley was comparatively evaluated with 27 accessions of barley in over 50 test plantings by the University of Arizona and ARS. 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.

Conservation Uses
Seco barley is recommended for the control of weeds and wind erosion on abandoned farmland and disturbed lands. It is also recommended to provide feed and cover for wildlife, to stabilize soils, as a winter cover crop, and/or green manure especially in areas where water is limited.

Seco is considered a one-irrigation barley. One-irrigation barleys have less yield potential than commercial cultivars when grown under optimum conditions. However, they are more productive than commercial cultivars when irrigation applications are limited. At a study conducted near Bullhead City, Arizona, Seco produced 2,835 lbs/acre of dry matter on a sandy soil and 7,860 lbs/acre of dry matter on a silty clay soil in a 91-day growing period with only one irrigation.

Root development of Seco can extend beyond 6 feet under favorable conditions. This type of deep rooting potential results in Seco's drought tolerance and provides good erosion control and can also be used to alleviate compacted soil layers.

Area of Adaptation and Use
Seco barley is adapted as a winter barley to southern portions of Arizona, New Mexico, California, and western Texas at elevations from sea level to 3,000 feet. Seco is well adapted to a wide range of soil textures from sandy loams to clay loams. Seco has a salt tolerance equivalent to that of other highly salt-tolerant barley strains with a threshold electrical conductivity rating of 8.0 decisiemens/meter.

Figure 2: Area of adaptation of 'Seco' barley

Establishment and Management for Conservation Plantings
For all plantings, the recommended seeding rate for Seco is 20 to 30 pounds pure live seed per acre. Seed should be planted at a depth of 1.5 inches. There are approximately 10,000 to 11,000 seeds of Seco per pound. The recommended planting dates are in the late fall from November 25 to December 30.

As a green manure crop, Seco should be incorporated into the soil when it is in the soft dough stage. As feed for wildlife, Seco should be allowed to mature then harrowed or lightly disked to aid in seed dispersal and replanting for an additional crop. Seed yield under dryland conditions with no pre plant irrigation, depending on residual soil moisture and seasonal rainfall, has exceeded 2,000 lbs/acre.

Ecological Considerations
Seco is closely related to another one-irrigation barley, 'Solum'. Solum has a higher seed yield potential than Seco but does not provide the cover and erosion control benefits of Seco. Care should be taken to ensure these two varieties are not confused.

Seed and Plant Production
Seco should be planted in the late fall into a firm, weed free seedbed at a depth of 1.5 inches and a rate of 20 to 30 pounds pure live seed per acre . To maximize Seco's seed production, a 4-inch pre-plant irrigation is required; and depending on rainfall, an additional 4-inch irrigation may be necessary at boot stage.

At Tucson, Arizona, seed yields have exceeded 2,500 lbs/ac with one 4-inch pre-plant irrigation. In southern Arizona, seed maturity of fall-seeded Seco ranges from April 15 to April 30.

Availability
For conservation use: Seco barley has limited commercial availability but may be available from specialized seed producers on request.

For seed or plant increase: Seed production of Seco barley will be maintained by the USDA-NRCS Tucson Plant Materials Center. Limited quantities of seed are available to seed producers for increase and to other interested parties, as available.

Figure 3: 'Seco' barley seed head

For more information, contact:
NRCS Tucson Plant Materials Center
3241 N Romero Road
Tucson, AZ 85705-9233
Phone: (520) 292-2999
Fax: (855) 848-4349
www.plant-materials.nrcs.usda.gov/azpmc

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For additional information about this and other plants, please contact your local USDA Service Center, NRCS field office, or Conservation District <http://www.nrcs.usda.gov/>, and visit the PLANTS Web site <http://plants.usda.gov> or the Plant Materials Program Web site <http://www.plant-materials.nrcs.usda.gov>