

ORCHARDGRASS

Dactylis glomerata L.

Plant Symbol = DAGL

Contributed by: USDA NRCS Pullman Plant Materials Center, Rose Lake Plant Materials Center, Idaho State Office & Aberdeen Plant Materials Center; USDA ARS Forage & Range Laboratory



Robert Mohlenbrock
USDA NRCS Wetland Science Institute
@ PLANTS

Alternate Names

Cocksfoot

Uses

Grazing/Hayland: The primary use of orchardgrass is for forage production. It is used for pasture, hay and silage. It is highly palatable to all classes of livestock. Orchardgrass is one of the best forage grasses for use in the Northern states under intensive rotational grazing systems.

Erosion control: Because of its dense network of non-rhizomatous roots, orchardgrass provides good erosion control on those soils to which it is adapted.

Wildlife: Elk and deer find orchardgrass highly palatable and will utilize it most of the year. Orchardgrass is sometimes used in grass-legume mixes for nesting brood rearing, and escape and winter cover in upland wildlife and conservation plantings. However, upland birds and waterfowl prefer taller grasses that develop sparser stands such as basin wildrye and tall wheatgrass.

Status

Consult the PLANTS Web site and your State Department of Natural Resources for status (e.g. threatened or endangered species, state noxious status, and wetland indicator values).

Description

Dactylis glomerata, orchardgrass, is a long-lived, introduced, cool season bunchgrass. Under dryland conditions, it usually develops distinct clumps and flower culms 15 to 18 inches tall. Leaves usually stand less than 12 inches in height. When grown under irrigation or in moist-fertile situations, it attains a much larger stature and grows in a more closed stand. Orchardgrass is one of the earliest species to initiate growth in the spring and makes tremendous growth during cool conditions. Due to deep roots (most within 2 feet of the surface) it is also capable of strong summer growth when conditions are favorable (i.e. somewhat cool). Under extremely hot conditions, orchardgrass will have a bigger production slump than meadow brome. Orchardgrass has 540,000 seeds per pound.

Adaptation

Orchardgrass is found from Maine to the Gulf Coast states and from the Atlantic Coast to the Pacific Coast. It is common throughout the Appalachian Mountains and is especially well adapted to Maryland, Pennsylvania, West Virginia, Virginia, Kentucky, and Tennessee. It is also found in the high-rainfall regions of the western mountains and in irrigated areas throughout the West. Areas of greatest adaptability in the West are soils that had supported the sagebrush, grass, pinyon-juniper, ponderosa pine, aspen and Douglas fir communities.

Orchardgrass is winter hardy and is adapted to moderate to well-drained basic to acidic soils. It will not tolerate soils that are saturated for extended periods of time. It produces best in areas with very little frost in the spring. Spring frost will not kill orchardgrass, but it does reduce overall production.

In areas with significant spring frost such as mountain valleys, meadow brome is a better species selection.

Orchardgrass performs well on soil textures ranging from clay to gravelly loams and on shallow to deep soils. It does not grow well in saline soils and areas with high water tables within the rooting zone. It has the ability to establish and persist in areas that receive as little as 16 inches of annual precipitation, but performs best with 18 inches of rainfall.

Orchardgrass performs best in a pH range of 5.8 – 7.5, but will tolerate pH as high as 8.5. It is adapted to shady areas or areas with reduced light.

Establishment

A clean, firm, weed-free seedbed is recommended. Dryland and erosion control seedings should be made in the late fall or very early spring. Irrigated seedings should be made in early to mid spring. Do not seed after the spring moisture period is well advanced or a failure may occur because of dry seedbed conditions and hot summer temperatures before the grass is well established. A deep furrow or double disc drill with press wheels may be used, however, orchardgrass is easily established with common agricultural drills. The recommended seeding rate for orchardgrass is 4 pounds pure live seed (PLS) per acre. If broadcast seeded or planted for critical area treatment, double the seeding rate. Adjustments in seeding rate should be made when seeding in mixtures. Seeding depth should be 1/4 to 1/2 inch.

Management

Under dryland conditions the new planting should not be grazed until late summer or fall of the second growing season. The plants may be severely damaged by overgrazing especially in the seedling year. Under irrigated conditions the new planting should not be grazed until late summer or fall of the first growing season. The plants may be severely damaged by grazing too soon.

Use no more than 60% of the annual growth during the winter season or 50% during the growing season. Close grazing in the fall is consistently associated with winterkill. This plant responds well to rotation-deferred grazing systems. Periodically the grass should be allowed to mature and produce seed for continuation of the stand.

Orchardgrass responds very well to good fertility management. It is one of the most responsive pasture grasses to nitrogen applications. One strategy to even

out the forage production is to fertilize the stand after the first and second cutting or grazing period to boost late spring and summer production. Apply fertilizer based on soil tests.

Seed Production

When planting for seed increase, recommended row spacing is 28 to 40 inches. Seeding rate is 1.5 to 2 pounds PLS per acre to seed 25 to 30 PLS per linear foot of row. Irrigated seed yields are commonly 250 to 300 pounds per acre. Seed matures evenly and is ready for harvest in mid-July. Windrowing followed by combining is the preferred method of harvest. When direct combining the seed should be dried to 12 percent moisture in bins and 15 percent moisture in sacks before storing.

Pests and Potential Problems

Brown stripe, scald, rust and leaf spot are the most prevalent and destructive disease in orchardgrass. Resistance to these varies among cultivars. Japanese and green June beetle larvae feed on orchardgrass roots; sawflies feed on their tops. Little is known, however, about the economic loss caused by these insects.

Orchardgrass does not spread vegetatively and is much less invasive than many other grasses. Consult the PLANTS Plant Profile for references pertaining to invasive qualities. Seeds can collect on animal coats and be transported long distances. Watering and bedding areas are typical sites where orchardgrass may colonize.

Orchardgrass seed is a common contaminant of turfgrass seed. While mowing prevents further spread, individual orchardgrass plants persist and lower the aesthetic value of the turf.

Cultivars, Improved, and Selected Materials (and area of origin)

There are many orchardgrass releases available. Consult local experts to select the best release for your area. Orchardgrass cultivars fall into two types: early maturing and late maturing. The late maturing cultivars are more common. The most common releases used in the Intermountain West are described below.

‘Latar’ was released in 1957 and is still commonly seeded in pasture and hayland plantings. It has a low lignin (fiber) content and digestibility is very high. It matures 10 to 14 days later than common orchardgrass and is usually in the pre-bloom stage when alfalfa is at the optimum growth stage for cutting hay. Therefore a mixture of ‘Latar’ and

alfalfa makes a high quality hay. Forage yields of 'Latar' are at least as much per acre as the earlier maturing varieties and forage quality is generally superior. The venerable old 'Latar' has lost some of its market-share to newer cultivars, which exhibit disease tolerance and winter hardiness. 'Latar' Breeder seed is maintained by the Pullman, Washington Plant Materials Center.

'**Paiute**' is a cultivar that produces an abundance of basal leaves and leafy upright stems. Its intended use is for forage production on arid lands. 'Paiute' is considered somewhat more drought tolerant than other varieties of orchardgrass. However, it generally does not perform well below 16-inch rainfall areas. At very high elevations (6500 feet plus), it may perform well at slightly lower rainfall amounts. It matures too early to be compatible with alfalfa. 'Paiute' Breeder and Foundation seed is maintained by the Aberdeen, Idaho Plant Materials Center.

'**Potomac**' is a productive, persistent, rust-resistant cultivar that produces good yields but matures too early to be compatible with alfalfa for hay. When alfalfa is ready to cut, 'Potomac' is too mature to produce good quality hay. When seeded in a monoculture, 'Potomac' often produces very high yields. This variety should be used where early maturity is needed and as a single species hay. Oregon Foundation Seed and Plant Materials Project and Washington Crop Improvement Station maintain Breeder and Foundation seed.

'**Berber**' is a long lived, drought resistant, cool season perennial bunchgrass, native to Europe. It has been tested in the mediterranean climate area of California for erosion control on natural and man-made disturbed areas, and for dryland range use. It appears that Berber could be used for erosion control and fire control in areas adjacent to housing developments. It is very drought tolerant and would remain green throughout the summer with small amounts of supplemental water. Berber seed is maintained by the Lockeford Plant Materials Center in California.

Control

Contact your local agricultural extension specialist or county weed specialist to learn what works best in your area and how to use it safely. Always read and follow label and safety instructions for each control method. Trade names and control measures appear in this document only to provide specific information. USDA NRCS does not guarantee or warranty the products and control methods named and other products may be equally effective.

Prepared By:

Tony Bush
USDA NRCS Rose Lake PMC
East Lansing, Michigan
Dan Ogle
USDA NRCS Idaho State Office
Boise, Idaho

Loren St. John
USDA NRCS Aberdeen PMC
Aberdeen, Idaho

Mark Stannard
USDA NRCS Pullman PMC
Pullman, Washington

Dr. Kevin B. Jensen
USDA ARS Forage and Range Research Laboratory
Utah State University, Logan, Utah

Species Coordinator:

Mark Stannard
USDA NRCS Pullman Plant Materials Center
Pullman, Washington

Edited: 10Aug00 jlk; 24sept02 lsj; 22oct02 ms; 24jan03 kbj;
03jan03 dgo; 11feb03 jsp; 27apr05 rln; 25may06jsp

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

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's [TARGET Center](http://www.usda.gov) at 202-720-2600 (voice and TDD).

To file a complaint of discrimination write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice or TDD). USDA is an equal opportunity provider and employer.

Read about [Civil Rights at the Natural Resources Conservation Service](#).