

Orchardgrass

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Orchardgrass (*Dactylis glomerata* L.) is a cool-season, perennial, tall-growing, bunchgrass that grows in clumps and produces an open sod. It starts growth early in spring, develops rapidly, and flowers during May under Kentucky conditions. Orchardgrass is more tolerant of shade, drought, and heat than are timothy and bluegrass. Although shade-tolerant, it also grows well in full sunlight.

Orchardgrass is native to Europe but has been grown in Kentucky for more than 170 years. The first report of orchardgrass in Kentucky occurred in the early 1830s when seed was collected by Phillip Henshaw from his father's orchard in Orange County, Virginia, and planted on the Henshaw farm in Oldham County, Kentucky. From this planting, seed was collected by another farmer and seeded near Goshen, Kentucky, where seed was commercially grown. Oldham County was a large producer of seed for several years.

Orchardgrass is adapted to the better, well-drained soils of Kentucky and is especially well adapted for mixtures with legumes such as alfalfa and red clover. It will generally persist longer than timothy in frequently cut, properly managed alfalfa.

Orchardgrass is a versatile grass and can be used for pasture, hay, green chop, or silage. This high-quality grass will provide excellent feed for most classes of livestock.

Varieties

Many new orchardgrass varieties have been released in the past decade. In addition, several varieties have been brought to the United States from other countries. As a result, farmers have and will continue to have good varieties to select for seeding. The University of Kentucky conducts orchardgrass variety trials in several locations across Kentucky, with ongoing testing programs at Lexington, Quicksand, and Princeton. In 2002 alone, more than 20 commercial varieties and 10 experimental varieties were tested. Yields ranged from less than 1 ton to more than 7 tons of dry matter per acre. In addition to variation in yield among varieties, differences also exist in disease resistance, maturity, and grazing tolerance. For information on orchardgrass varieties, see the most recent *Orchardgrass Report* available at each county Extension office or on the Web at <<http://www.ca.uky.edu/agc/pubs/respubs.htm>>.

Orchardgrass at a Glance

Origin	Europe
Characteristics	Perennial bunchgrass Grass 2-4 feet tall Stem flattened at base Use for pasture, hay High quality, high yield Well suited for mixture with red clover or alfalfa
Seed	416,000 seed/lb 14 lb/bu
Seeding rate	10-15 lb/A
Seeding depth	1/4- 1/2 in
Primary seeding date	Aug. 15-Oct. 1
Secondary seeding date	Feb. 1-April 15
First harvest	May 1-15
Yield range	2-4+ T/A/yr

Establishing the Stand

Orchardgrass can be seeded in either early spring or late summer. It is usually easy to establish. Late summer seedings have been most successful in Kentucky. There is a greater risk of winter injury with seedings made after mid-September. Use high-quality seed and sow at the rate of 8 to 12 pounds per acre. When seeding in combination with legumes, the seeding rate should be reduced to 4 to 8 pounds per acre. Orchardgrass should not be seeded in mixtures with other grasses because of differences in maturity and palatability.

Seed 1/4- to 1/2-inch deep into a well-prepared seedbed that has been limed and fertilized according to a soil test. If orchardgrass is seeded in pure stands, nitrogen (N) should be applied at the rate of 50 pounds per acre prior to seeding. Cultipacking following seeding will firm the soil to ensure good seed-soil contact and help to hasten germination and emergence. Orchardgrass can be successfully seeded using no-till techniques, assuming there is adequate competition control.

If orchardgrass or orchardgrass-legume mixtures are seeded with a small-grain companion crop, removing the small grain before it begins to compete strongly with the forage seedings will increase the chances of obtaining a good stand of the latter.

Management

Orchardgrass is responsive to fertilizer, especially nitrogen, and becomes very competitive when fertilizer nutrients are available.

Nitrogen applied at seeding, along with timely applications split over the following growing seasons, can greatly increase total dry matter production (Figure 1). Topdressings of lime, phosphorus (P), and potassium (K) based on soil-test results will be necessary for top production and long stand life.

If soil fertility is low, a large proportion of the total production of orchardgrass occurs in spring, whereas with proper fertility and split applications of nitrogen, aftermath production may contribute from 35% to 55% of total production. As a comparison, aftermath of timothy with similar management and fertility contributes only about 20% of the total production.

At high rates of nitrogen, orchardgrass is among the most productive of the cool-season grasses. Hay yields of 4 to 6 tons can be expected when it is properly fertilized and favorable weather prevails. Yields are reduced during years of drought.

Since orchardgrass is a high-quality grass, it can be grazed by most classes of livestock. Rotational grazing is usually preferred for best production and quality. Fields should be grazed heavily during the flush growing of spring, but overgrazing should be avoided. Leave a 3- to 4-inch stubble so the grass can recover quickly. Heavy grazing during October can lead to depleted root reserves and increased winter injury.

For highest quality hay, orchardgrass should be harvested in spring during late boot to early flowering stage. Beyond this stage, digestibility decreases at the rate of about 1/2% per day. Aftermath growth can be harvested at 4- to 6-week intervals. Production and cutting frequency are greatly affected by soil moisture, temperature, fertility, and disease.

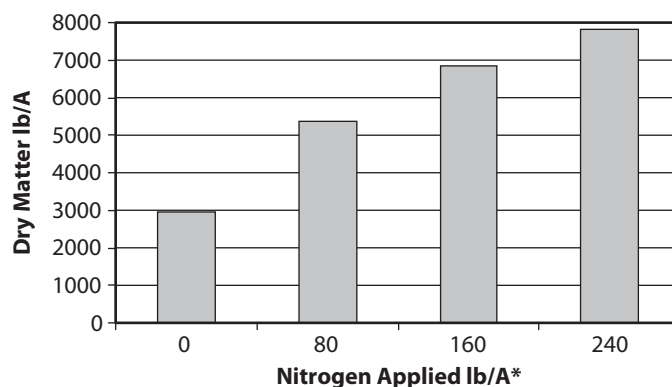
Orchardgrass can be an excellent companion grass in mixtures with legumes such as alfalfa and red and white clover. When grown in mixtures for pasture, rotational grazing is recommended. When grown for hay with alfalfa or red clover, cuttings should be made based on the maturity of the legume. For best compromise around yield, quality, and persistence, harvest when orchardgrass is in late bud to early flower stage of growth.

Animal Performance

In the vegetative (leafy) stage, orchardgrass is a high-quality forage. Quality declines as the plants approach maturity. Therefore, to obtain high animal performance, stands should be managed for top quality.

In a three-year study at Purdue University, animal performance was compared when grazing orchardgrass and endophyte-infected tall fescue (Table 1). Both cows and calves gained

Figure 1. Dry matter yields of Boone orchardgrass (total of three harvests).



*Nitrogen application March 15 and August 15 one-half of total amount applied at each date.

Source: University of Kentucky, K.L. Wells.

approximately one-half pound more per day on orchardgrass than on tall fescue. Conception rate of the cows was 18 percentage points higher on the orchardgrass pastures.

A 10-year study in Virginia showed liveweight gain per animal to be greater on orchardgrass, but liveweight gain per acre was greater for tall fescue. Palatability, as measured by grazing preference, was higher for orchardgrass than either tall fescue, bromegrass, or bluegrass.

Table 1. Performance of cows and calves grazing orchardgrass and tall fescue during a three-year period.

	Orchardgrass	Tall Fescue
Calf Performance		
Average Daily Gain, lb.	1.76	1.28
Weaning Weights (205 Day Adj.)	429	351
Cow Performance		
Average Daily Gain, lb.	0.58	0.02
Conception Rate %	90	72

Source: Adapted from V.L. Lechtenberg et al. 1975 Indiana Beef-Forage Research Day Report, Purdue University 1975.

Summary

Orchardgrass is a tall-growing, cool-season, perennial bunchgrass that continues to play an important role in Kentucky's forage-based agriculture. It has the potential to produce high yields and, with proper management, can be high quality with good animal performance. It can be grown alone or in mixtures with legumes.