

# Forage Management

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## Walk-in Seedings

### What is a "Walk-in" Seeding?

A "walk-in" seeding is a seeding method using grazing animals to establish legumes in a grass stand. It requires an adequate number of paddocks in a rotational grazing system to maintain proper control of the livestock for managing the stand. It uses the hoof action of the livestock to open up the established grass stand and walk the legume seeds into the soil. Then, the controlled grazing activity of the animals reduces the competition from plants already in the stand.

### Correct Soil Fertility and pH

Before using a walk-in seeding, have the soil tested and apply the proper rates of phosphorus, potassium, and lime to meet the needs of the new seeding. For spring seedings, fertilizer and lime should have been applied the previous year since it is difficult to get lime trucks out on wet fields in the spring. ([TRIM Fact Sheet 3201 - Sampling Soils](#), [TRIM Fact Sheet 3212 - The Value of Agricultural Limestone](#))

### Select the Forage Species for the Soil and Management to be Used

Select the legume species that are best adapted to the soil drainage and management to be used in the field. Improperly matching the legumes to the soil and management will result in the untimely death of the seeding. Legumes that establish easily using the walk-in method are red, ladino, and alsike clover. Most grasses do not establish well using this technique and their use is not recommended. ([TRIM Fact](#)

[Sheet 5122 - Orchardgrass and Tall Fescue Varieties](#), [TRIM Fact Sheet 5190 - Disease Ratings of Red Clover and Alfalfa Varieties](#))

### Control Plant Competition

There are two types of competition to a walk-in seeding, **perennial weeds** and **desirable forage grasses**. Remember that many so-called weeds are high quality forage. If you want to kill perennial weeds, use an appropriate systemic herbicide long enough before seeding to meet label restrictions. Competition to legume seedlings from grasses can be reduced by close grazing while walking in the seeds and by eliminating the use of N fertilizer. If a major part of the stand consists of undesirable perennial weeds consider using no-till or conventional tillage establishment. ([TRIM Fact Sheet 5004 - Plant Growth and Development as the Basis of Forage Management](#))

### Seed at Proper Rate and Depth Maintaining Good Seed-Soil Contact

Use certified seed of proven varieties to ensure clean seed with known performance. Seed red clover at a rate of 4-8 lb./a and ladino clover at 1-2 lb./a. Spread the seed over the pasture just before turning cattle or sheep into the paddock for grazing. Use the livestock to walk the seed into the soil surface, ensuring good seed to soil contact for germination. Moist soil conditions during the grazing and after seeding are best for establishing a walk-in seeding. Due to the need for moisture, these seedings are

best done in early spring (March-May depending on elevation) or fall (August-September). ([TRIM Fact Sheet 5302 - Recommended Seeding Rates of Forage Species When Seeded Alone or In Mixtures.](#))

### **Manage Grazing and Mechanical Harvest to Maintain the Desired Plant Species**

A main reason new seedings are lost is that they are not managed properly after establishment. Graze the field at the appropriate timing and intensity for the forage mixture seeded. Remember that before renovation, a pasture is in balance with the soil fertility and grazing

management used. Without changing the grazing or fertility management, a new seeding will revert back to what was there before. ([TRIM Fact Sheet 5004 - Plant Growth and Development as the Basis of Forage Management](#))

### **Manage Soil Fertility to Maintain Forage Production**

To maintain forage production, fertilizers should be applied to replace the plant nutrients removed in the harvested forage. These fertilizers can be home grown manure or purchased fertilizers and lime ([TRIM Fact Sheet 5202 - Forage Fertilization Based on Yield and Management Goals](#)).

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August 1997

## Orchardgrass and Tall Fescue Varieties

Perennial forages are the backbone of the cattle industry. Orchardgrass (*Dactylis glomerata*, L.) and tall fescue (*Festuca arundinacea*, Schreb.) are the two most important, commercially available forage grasses in West Virginia. These grasses have a longer life span than legumes and protect the soil from erosion and the legumes from winter injury. For hay production, the grass of choice in West Virginia is most often orchardgrass. However, where you want late-season grazing, tall fescue is the best grass to use.

The information in this fact sheet was obtained from variety trials in West Virginia, Virginia, Kentucky, and Pennsylvania. Comparisons are made on a relative yield basis. Relative yield is the yield of a variety in a given trial and year, divided by the average yield of all varieties in that trial and year. This is similar to the gain-on-test ratio of a bull, the test gain of the bull divided by the average gain of all contemporary bulls on test.

The relative yield of selected orchardgrass and endophyte-free tall fescue varieties over the region are presented in Tables 1 and 2. Varieties that were not present in four or more site years with above average performance are not presented. There were 52 site years for tall fescue and 44 site years for orchardgrass. In these trials the average hay yield per acre was  $5.1 \pm 1.5$  for tall fescue and  $4.8 \pm 1.3$  tons for orchardgrass. (The number after the  $\pm$  sign is the standard deviation or SD. The range of yield from the average minus the SD to the average plus the SD includes 66% of the observed variation in yield.)

The reliability of the average relative yield can be estimated from any one of three values in the table: site years, SD, or confidence interval (CI). The number of site years reflects the accuracy of the data since a variety with only four site years may have shown up

good those years but if it had been in other sites on other years it may not have done so well. The SD was explained previously. The CI is the SD statistically weighted for the number of site years the variety has been observed. The CI is the range about the average within which future measurements should average 19 out of 20 times.

**Table 1.** Relative yield of selected orchardgrass varieties reported in variety trials across West Virginia, Virginia, Kentucky, and Pennsylvania. A site year is one year's data from one experimental site (SD - standard deviation, CI - confidence interval).

Variety	Avg.	Site Years	SD	CI
Able	0.96	9	0.07	0.06
Ambassador	1.00	9	0.08	0.06
Benchmark	1.06	23	0.06	0.03
Boone	0.99	7	0.09	0.09
Crown	1.02	21	0.06	0.03
Dart	1.06	4	0.03	0.05
Dawn	0.97	16	0.13	0.07
Elsie	0.97	7	0.04	0.04
Hallmark	1.03	24	0.07	0.03
Hawk	1.02	6	0.04	0.04
Haymate	0.98	11	0.07	0.05
Justus	0.99	9	0.05	0.04
Latar	0.98	5	0.09	0.12
Pennlate	0.98	18	0.06	0.03
Potomac	1.00	25	0.04	0.02
Rancho	0.99	10	0.05	0.03
Rough Rider	0.96	7	0.07	0.06
Shawnee	0.94	12	0.07	0.04
Shiloh	1.04	30	0.05	0.02
Warrior	1.07	8	0.09	0.07

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**Table 2.** Relative yield of selected tall fescue varieties reported in variety trials across West Virginia, Virginia, Kentucky, and Pennsylvania. A site year is one year's data from one experimental site (SD - standard deviation, CI - confidence interval).

Variety	Avg.	Site Years	SD	CI
Advance	0.98	8	0.04	0.04
Barcel	0.97	11	0.08	0.05
Cajun	1.02	10	0.08	0.06
Cattle Club	0.98	23	0.06	0.03
Fawn	0.98	11	0.06	0.04
Festorina	1.02	15	0.07	0.04
Forager	1.01	23	0.06	0.03
Johnstone	0.97	45	0.06	0.02
KY 31 EF	1.02	9	0.11	0.09
KY 31 EI	1.01	43	0.07	0.02
Kenhy	1.01	18	0.06	0.03
Martin	0.99	19	0.06	0.03
Maximizer	0.97	4	0.07	0.10
Mozark	1.02	19	0.07	0.04
Phyter	1.02	21	0.05	0.02
Stargrazer	1.04	23	0.06	0.03

For orchardgrass, the relative yields were not affected by trial location. However, for tall fescue there was a variety by trial yield interaction. This means that the relative yield of some varieties was dependent on the trial's average yield. Some varieties had a positive interaction, when trial yields were high the variety ranked high and when trial yields were low the variety ranked low. Other varieties had a negative interaction, when trial yields were high the variety ranked low but when trial yields were low the variety ranked high. Cattle Club and Johnstone had a positive interaction of trial yield on their ranking among varieties. Cajun, Forager, Martin, and Mozark had a negative interaction. For the other varieties there was no or only a small interaction. Figures 1, 2, and 3 show the data and trend lines for Cattle Club, a variety with a positive interaction; Mozark, a variety with a negative interaction; and Phyter, a variety with no interaction, between trial average yield and variety ranking among tested varieties.

Late heading orchardgrass varieties produce pasture about a week later than early heading varieties. If making a planting on sites where you desire early grazing do not use a late heading variety. This also applies to tall fescue but the difference between varieties tested in West Virginia was not as great as for orchardgrass varieties. It appears that late heading orchardgrass varieties may also be less productive in the fall, but when mixed with legumes the legume compensated for the lower grass yield.

Selecting adapted grass and legume varieties is important when establishing a new forage seeding. This summary of regional variety trials shows that the variety of orchardgrass or endophyte-free tall fescue chosen will have less effect on forage production than the soil type or soil fertility and harvest management applied to the stand. Relative yields of varieties ranged within about 10 percent of the average for these grass species. Forage yields can vary by plus or minus 50 percent or more due to fertility, legume content, and harvest management. It is important that the proper management be used to obtain good yields from any forage variety planted.

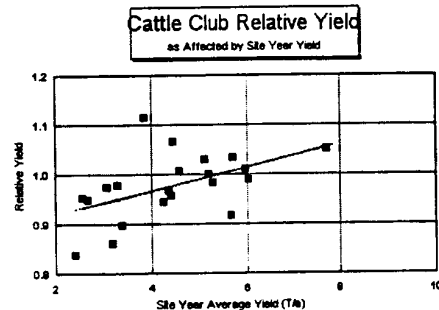


Figure 1

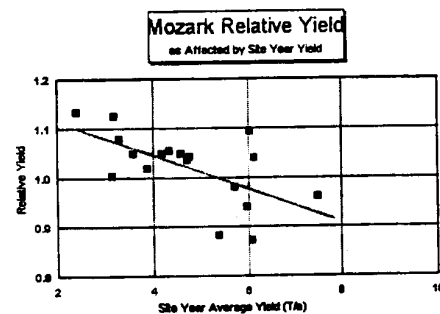


Figure 2

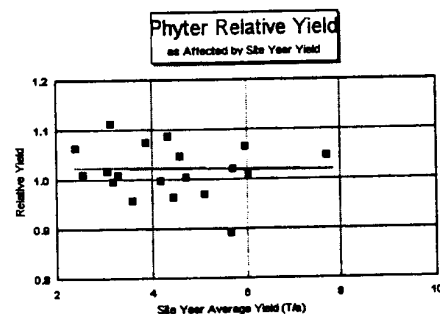


Figure 3