Managing horse pastures in western Oregon

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Well-managed pastures can provide low-cost feed and a safe environment for your horse.

Pasture can be an excellent source of high quality, low-cost feed. Without grazing management, however, the pasture can be rapidly destroyed. Horses need exercise, and well-managed pastures offer a safe place for this activity.

Well-managed horse pastures are also more attractive, a fact that your neighbors will notice. Horse pastures should be vigorous, free of toxic weeds, and low in parasite infestations.

This publication describes the essential elements of establishing and managing high quality horse pastures.

Unimproved or improved?

Many native (unimproved) pastures consist of grass and grass-legume mixtures. These pastures are well adapted to the local area. Advantages of using pastures as they currently exist include no establishment cost and no waiting period for seedlings to grow.

But unimproved pastures may not have the most desirable forage plants, or they may be infested with weeds. Be sure to consider these factors when you decide whether or not to improve a horse pasture.

Landowners often choose to renovate and manage their pastures for improved animal performance and greater productivity. Choose the type of grass mixture to suit your particular needs.

Along with improving the forage in the pasture, you can renovate pasture to correct some terrain faults, such as areas that are rough or poorly drained. But the cost of all this improvement, with labor and heavy equipment, is high.

There's also a waiting period, while the new seedlings are becoming established, when you can't use the pas-

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Selecting pasture plants

Select forage plants according to their adaptation and your expected use. If your pasture will be your horses' full-time home, you'll need different plants than if you use the pasture for only a couple of hours a day.

A full-time pasture is expected to provide nearly all the nutritional requirements for horses throughout the year, and it must be able to withstand the trampling of sharp hooves. In contrast, a pasture that's used for exercise alone will require less emphasis on nutrition.

Improved pastures normally consist of a mixture of grasses and legumes. Species are frequently mixed to take advantage of different seasonal growth characteristics and tolerance of soil and management conditions.

Incorporate legumes in your horse pastures whenever possible. Legumes are a good source of protein-rich food and they're high in digestible energy, minerals, and vitamins that are beneficial to horses. They can also provide the extra protein needed for pregnant mares and growing foals.

Problems with founder may result if clover content exceeds 50% of the available forage.

**Legumes**

Legumes add nitrogen to the soil with the help of bacteria (Rhizobium) that live in nodules on their roots. The nitrogen fixed by the legume root nodules will eventually promote the growth of other plants. Another benefit of legumes is their high feed quality.

Legumes preferred by horses include alfalfa, white clover, and subterranean clover. Of these, white and subterranean clovers are best suited for pastures, and they're the most commonly used pasture clovers in western Oregon.

**Grasses**

For western Oregon, perennial ryegrass, orchardgrass, and tall fescue are the principal grasses used in pastures.

Perennial ryegrass is adapted to a wide range of soil and climatic conditions. It will even withstand periods of flooding. Most of the growth occurs in the late spring or early fall.

Tall fescue is a good choice for pastures that get heavy traffic use or are used for year-round grazing. Tall fescue is a long-lived plant that has an extensive root system. This helps it to adapt to many conditions—dry or wet, hot or cold, acid or alkaline soils. If you remove animals from tall fescue pastures around the beginning of September, you can fertilize the pasture and allow it to grow for a winter feed supply.

You may also use turf-type tall fescues for pasture. This will result in less forage produced, but if you don't use your pasture principally for feed, this may be desirable.

Recent research has suggested a relationship between reproductive problems in horses and the fescue endophyte, Neotyphodium coenophialum. Endophyte-free tall fescue seed is available; be sure to use it.

The next section suggests several pasture mixes. For more complete information on pasture mixes, see EC 1157.

### Pasture mix recommendations

**Willamette Valley**

**Irrigated.** For pastures with good drainage, a mixture of orchardgrass (8 to 10 pounds per acre or lb/A), perennial ryegrass (12 to 15 lb/A), and white clover (3 to 4 lb/A) will provide a highly productive and high quality pasture for horses.

**Nonirrigated.** For pastures with well-drained soils, the addition of subterranean clover (6 to 8 lb/A) is recommended. Tall fescue (12 to 15 lb/A) may be substituted for the orchardgrass in the irrigated pasture mix, because of the increased drought tolerance of tall fescue.

**Coastal areas**

**Hill land.** For well-drained pastures, perennial ryegrass (15 to 20 lb/A) and subterranean clover (6 to 8 lb/A) are the most commonly used species. This type of pasture, however, won't produce much forage during the dry summer period.

For wetter areas, use white clover (3 to 5 lb/A) and one of these three grasses:

- orchardgrass (8 to 10 lb/A),
- tall fescue (12 to 15 lb/A), or
- perennial ryegrass (12 to 15 lb/A).

**Bottom land.** The same combinations for coastal hill lands may be used for well-drained bottom land areas. For wetter areas, substitute meadow foxtail for orchardgrass.
Other pasture plants

Kentucky bluegrass is one of the most palatable grass species for horses, and it's often used for horse pastures in other parts of the United States. In western Oregon, however, the previously described mixtures are more productive.

Horses prefer timothy and smooth bromegrass as hay over orchardgrass, tall fescue, meadow foxtail, and reed canarygrass. Timothy and bromegrass, however, are not recommended for western Oregon pastures.

Horses don't prefer birdsfoot trefoil, probably because of the taste of certain compounds (tannins) present in the forage. Nevertheless, horses will eat trefoil, and you can add it to pasture mixes for areas that are poorly drained and have acid soil pH. In addition, the plant's deep roots keep it green during dry summer periods.

Animal disorders

Some problems can occur when horses are put on lush pasture. A pasture containing more than 40% clover can cause scours. Mature crimson clover heads can cause compaction problems.

Founder or laminitis is a very serious condition that occurs when horses suddenly change from a low quality to a high quality (“rich”) diet. Horses that are "easy keepers" are more prone to founder.

The increase in carbohydrates leads to circulatory changes and partial constriction of blood vessels leading to the animals’ feet. This is a debilitating condition that can have permanent effects on the horse.

Watch horses on pasture very carefully in the spring when new grass growth is occurring. Feeding some dry hay before turnout can act as a safeguard.

Colic is another serious disease of horses. There are many causes, including ingesting sand and parasite infection. With a blockage in the intestine, blood supply is cut off, and some of the intestine dies. Horses that survive this limited use of their digestive tract and are susceptible to repeated problems.

Grazing systems

There are principally two types of grazing systems, continuous and rotational. Choosing which is best depends on your needs and management capabilities. You can obtain additional information in EC 1077.

Because of their mobile lips and two sets of incisors, horses are capable of grazing very close to the ground. Horse also graze in distinct patterns, repeatedly grazing some parts of the pasture and avoiding others. If you don't exercise some management, pasture quality and productivity will decline.

Continuous grazing

This is the easiest system to manage. You use only one pasture without any rest periods, for the entire grazing season. This system requires low labor input, as you don't move animals around. Fencing and watering facilities are also at a minimum.

Management decisions are reduced—you don't need to decide when to move animals from one pasture to another. Perennial ryegrass, tall fescue, and white clover tolerate continuous grazing systems.

Rotational grazing

With this system, you subdivide the pasture into two or more pastures and allow the grass in each pasture to have a rest period for regrowth. This is probably the best system for horses and the best for the pasture plants.

It provides forage of good quality throughout the season because animals are always moved onto fresh, growing pastures. It also provides a rest period for the plants to recover before being grazed again.

Tall fescue tends to yield more when managed in a rotational system. If you use timothy, smooth bromegrass, alfalfa, red clover, or other upright growing plants in pastures, you must graze them rotationally. Continuous grazing will cause a loss of these species from the stand.

Consider these important facts about rotational grazing:

1. It can interrupt parasite life cycles, although the length of time necessary for parasite control is often longer than the time used for pasture rotation.
2. It provides an opportunity to conserve surplus forage, by leaving a portion of the pasture ungrazed.
3. It requires more input from the manager. You must decide when to move animals, based on the use of each pasture and on plant growth rates. Ideally, pastures are allowed to grow to 5 to 8 inches, then grazed down to 3 to 4 inches, and animals are moved to the next pasture. Specific systems vary according to the type of pasture and the environmental conditions.

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4. It involves some additional effort and cost. You'll need to move animals to new pastures, and there's a cross-fencing requirement. In spite of the initial cost of the extra fencing, the benefits of fresh pasture make the extra cost and effort worthwhile.

**Pasture management**

Good pasture maintenance follows the saying, "An ounce of prevention is worth a pound of cure." Weed control, mowing, fertilization, dung distribution, and irrigation are all preventive measures used to keep a pasture productive.

Without proper management, the quality of a pasture is reduced, and renovation may become necessary. Without proper maintenance, pasture yields drop, uneven grazing occurs, and undesirable plants move in.

**Weed control**

Weeds compete with desirable plants and they're potentially dangerous to horses. Prevention of weed problems is the ideal method of control. Proper grazing management and maintaining a vigorous turf will reduce weed encroachment into pastures.

Once weeds have become a problem in horse pastures, it's very important to control and remove them.

Complete renovation may be necessary to return weed-infested pastures to a high-producing level. This will often include spraying herbicides, mowing, and reseeding.

The time of application is very important when you use herbicides. Some plants are best controlled if they're small (2 or 3 leaves); others are best controlled if you use herbicides when they're in the prebud to early bloom stage of growth. Some weed species may require several treatments to control.

Herbicides are useful on steep, rocky, or poorly drained soils where you can't use heavy equipment. Spot application is often the best method in these situations.

Read the label carefully, follow its precautions, and consult your county Extension agent when you have questions about weed control practices. Always store herbicides and other pesticides in a manner that will prevent accidental contact by children, pets, and livestock.

**Mowing**

Mowing can also be used as a management tool for horse pastures. Because horses are selective grazers, they often leave mature, coarse forage after they've grazed. Remove this forage to promote the tender regrowth that horses prefer.

Mowing pastures is one way to prevent grasses from going into the reproductive stage (heading), and you can use it to control weeds and to keep pastures more palatable. In addition, clipping will keep pastures growing at an even rate.

A good schedule is to mow every time you move horses to a new field. Mowing also improves the looks of a pasture, which can be important to your sense of accomplishment—and it's often greatly appreciated by your neighbors!

**Alternatives to mowing.** You can use cattle or other grazing animals with horses, either in continuous grazing or in rotational grazing after you move horses to control extra growth and patchy grazing.

This practice can also help to keep the proper balance between grasses and legumes. Cattle will eat the taller, tougher forage that horses avoid, eliminating the need to mow.

**Fertilization**

Fertilizing horse pastures is usually needed to maintain healthy growth. Prepare soil and plant samples and send them to a testing laboratory for analysis. Your county Extension agent can provide information on how to sample and about available laboratories.

On grass pastures without legumes, nitrogen (N) fertilization is necessary to maintain high levels of production. Typically, nitrogen fertilizer should be applied in three applications of 30 to 50 lb/A each.
For grass-legume mixed pastures, you'll need less nitrogen because of the legumes. Often, 30 to 40 lb N per acre is applied in the spring and fall.

Topdressing pastures with potash, phosphate, and sulfur is often required, and you may need lime in western Oregon to neutralize acid soils (depending on which plants you grow). Consult your soil test results for the amount you need.

Work with your fertilizer dealer to select the proper fertilizer, or blend of fertilizers, that will most economically supply the needed nutrients.

Recycling nutrients through dung and urine can reduce the amount of fertilizer that you'll need to apply. This not only reduces fertilizer costs but also promotes sound ecological practice by reducing the use of non-renewable resources.

Manure management
Distributing manure piles is important, as horses won't eat where they defecate, leaving areas of tall, untouched forage. Spreading manure also helps control parasites—it allows the sun to kill some of the larvae found in the manure.

It's generally enough to harrow or drag a pasture once or twice a year, although high stocking rates may dictate more frequent spreading.

Irrigation
Pastures aren't often irrigated in western Oregon, although irrigation will improve pasture production during the dry summer months (June through September). If you select drought-resistant plants like alfalfa and birdsfoot clover, you'll reduce the need for summer irrigation.

Protecting plants from the stress of grazing during these months by supplying an alternate feed source can improve your pasture production later in the season.

Winter management
Managing pastures so that they survive the winter and grow well in the spring requires the careful balancing of available forage, available nutrients, water supply, day length, and temperature.

Although you can't control rainfall, day length, and temperature, you can use historical data about weather conditions to help you decide when to reduce pasture access and prepare pastures for winter.

The principal causes of pasture deterioration are overgrazing and allowing horses onto pastures that are too wet. Plan to use hay or other stored feed during winter periods when pastures aren't growing or are growing very slowly. Provide exercise areas during wet weather so that you can keep your horses off the pasture when it's too soft.

Fertilizing with 30 to 40 lb N per acre and 15 lb S per acre in mid-September will ensure that plants are able to best use favorable growing conditions.

Excessive N fertilization, however, will stimulate the plant to grow too rapidly. This will decrease winterhardiness because plants will be using energy stored in their roots to support this rapid growth. These root reserves are needed to keep the plant alive during cold winter periods and start regrowth in the spring. So when fertilizer is applied in early fall and don't exceed about 50 lb N per acre—apply proportionately less if you do this later in the fall.

Seasonal distribution of pasture growth
Pasture growth varies greatly at different times of the year. During early spring, pastures can support several animals per acre. During the dry summer period, however, supplementation will be required unless you have set aside some part of the pasture with no grazing, so that stockpiling of forage occurred.

The growth surge in the fall occurs with the return of cool temperatures and adequate moisture.

Renovation and reseeding
In some cases, complete renovation of pastures is needed. This involves destroying the old sod, either with herbicides or by plowing, and then reseeding.

Whenever you reseed a field, don't graze it until the new growth is at least 3 inches tall. This will ensure that the plants have become well established and firmly rooted. After a pasture is plowed and reseeded, the ground will be soft. Delay grazing until the soil is dry enough to support the horse.

For additional information on establishing and managing pastures in western Oregon, see EC 1157.

Conclusions
You can use pastures to provide a major portion of a horse's diet or just a supplement to conserve feed like hay. For either use, pastures should be well managed. A
well-managed pasture has a longer life and produces more usable forage.

Although this requires additional effort in the long run, it's easier and more cost-effective to maintain a pasture or to improve it through management, than to do a complete job of renovation.

For further reading

OSU Extension publications

These publications, and the one you’re holding (EM 8404, Managing Horse Pastures in Western Oregon, 75c) are available from:

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Bedell, Thomas E., Managing Pastures in Western Oregon, Oregon State University Extension Service Circular 1077 (Corvallis, revised 1986). 75c

Day, Paul E., David B. Hannaway, William S. McGuire, and Thomas E. Bedell, From Forage to Profit: How to Establish and Manage a Productive Pasture in Western Oregon, Oregon State University Extension Service Circular 1437 (Corvallis, 1983). 75c

Wickwire, Terri, David B. Hannaway, Peter J. Ballerstedt, and Donald Holten, Horse Owner’s Guide to Buying Hay, Oregon State University Extension Service Circular 1249 (Corvallis, 1987). 75c

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McArthur, J. Wayne, and Paul V. Fonnesbeck, Practical Horse Feeding: Feed Don’t Fatten, Utah Cooperative Extension Service, Utah State University (Logan, 1980).


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