



# Grazing Alfalfa

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Alfalfa is the most important forage legume in the United States. Grown over a wide range of soil and climatic conditions, it has the highest yield potential and feeding value of all perennial forage legumes. This versatile crop can be used for hay, pasture, silage, green-chop, pellets, cubes, and soil improvement. Because of its many merits, especially yield, quality, and versatility, it can be used successfully in many animal feeding programs.

Although extensively practiced in other countries, grazing alfalfa has not been used to a great extent in the United States. Research and producer experience have shown excellent gains per animal and per acre without shortening the alfalfa stand's life.

## Advantages of Alfalfa as a Grazing Crop

**Versatile Use**—Alfalfa can be ideal on farms where it can be used for hay, silage, or grazing. Virginia workers studied grazing alfalfa systems based on need and environmental conditions. Systems of grazing the early spring growth provided quality feed and delayed the first hay harvest until more favorable weather conditions for curing. Other systems provide grazing during midsummer when cool-season grasses are often less productive. These studies show that total seasonal yield is not reduced by any graze-hay systems.

With proper grazing management, alfalfa's high yield potential can be converted to high levels of animal production per acre. Liveweight gains per acre are quite high for grazing beef cattle with total season gains of 500 to 800 pounds per acre in research trials and on-farm demonstrations. The Kentucky record is 1,354 pounds of beef per acre.

In grazing trials and demonstrations, forage quality of alfalfa pasture is excellent, resulting in total season average daily gains of over 2 pounds per day. In addition, milk from dairy cows and gains of lambs are greater when these animals graze alfalfa compared to grass.

The deep root system of alfalfa makes it more drought-tolerant than cool-season legumes and grasses. Although alfalfa does not make maximum growth during summer droughts, it usually provides good summer pastures. During extreme drought, this aspect is even more important since cool-season grasses become dormant.

**Extended Use of Stand**—Grazing can extend the useful life of a stand by a year or more for old alfalfa hay fields where some of the stand has been lost or has become weedy.



Grazing may also rejuvenate some stands by reducing grass and weed competition. Research has shown that alfalfa stands with fewer than three plants per square foot may not produce maximum hay yield; however, excellent beef gains have been made on alfalfa stands with as few as one plant per square foot.

**Reduced Machinery Cost**—Over 40 percent of the cost of producing alfalfa hay is machinery and equipment. In a total grazing system, this cost can be greatly reduced or eliminated.

**Lower Fertilizer Expense**—Under grazing, over 80 percent of the plant nutrients ingested are returned as dung and urine. Therefore, annual fertilizer needs are lower than where plant nutrients are removed from a field as hay. However, manure distribution is not uniform in a grazing environment because of concentration around water points and shade.

## Disadvantages of Grazing Alfalfa

The most frequent concern of producers considering grazing alfalfa is bloat, but it can be minimized with precautions. Producers may lose more money from fear of bloat than from bloat itself because it keeps them from efficiently using the alfalfa pasture.

**Additional Fencing**—Alfalfa must be grazed on a rotational basis. Doing so requires that fields be subdivided so that cattle are restricted to one area for a time, then moved to another area. This system gives the grazed area time to

regrow before grazing again. Simple low-cost electric fences are adequate if they restrain animals to a given area while giving access to water and minerals.

**Greater Management and Labor Inputs**—Once the necessary fencing is in place, time studies have shown that the amount of additional labor required for rotational grazing is quite small compared to harvesting hay. In addition, regularly moving cattle to new pastures allows the producer to observe them more closely, therefore permitting greater cattle-pasture management efficiency.

**Stand Decline**—If alfalfa plants are not grazed properly, weeds increase and stands decline. Grazing animals may damage alfalfa crowns during wet and muddy conditions. In addition, damage to new crown shoots can occur when cattle are left on an individual paddock after new shoots develop.

Stand decline can be minimized with the following practices:

- Use a “sacrifice paddock” with a good grass sod where cattle can stay during wet and muddy conditions.
- To minimize damage to newly developed shoots, do not let cattle graze an individual paddock for over a week. Exceptions include the first grazing in spring and when alfalfa is dormant (during drought and after freeze-down).

## Requirements for Grazing Alfalfa

### *Establishing the Stand*

Requirements for establishing an alfalfa stand for grazing are the same as for hay. A thick, healthy, and productive stand has the greatest potential for animal performance and production per acre. Although pure stands can be grazed successfully, alfalfa/grass mixtures have advantages in grazing situations. Alfalfa/grass pastures may minimize bloat and reduce the amount of hoof damage and soil erosion. Alfalfa can compete well with cool-season grasses with adequate fertilization and rotational grazing.

Recommendations for grazing alfalfa that have been used for many years approximate hay harvest (i.e., graze rotationally, provide for a rest or recovery period, then graze again). If a crop of hay is taken every 30 to 35 days, then a rotation schedule should be set to complete one cycle in that time. Consider the number of paddocks, stocking rate, grazing time, recovery period, ease of cattle movement, water, salt, and minerals.

### *Maintaining the Stand*

Stands of alfalfa are best maintained under grazing when stresses from insects, diseases, and weeds are minimized. In general, practices that result in long-lived stands under hay management will have the same result under grazing. While grazing returns significant amounts of plant nutrients to the soil, it is important to continue soil testing to determine fertility needs. Dung and urine spots are often concentrated where animals congregate, so nutrients returned in dung and urine are unevenly dispersed. When taking soil samples from a grazing paddock, avoid areas near shade, water, fences, gates, or any location where animals tend to group.

## Varieties

Significant advances have been made in the development of alfalfa varieties that are more tolerant of grazing conditions. Alfalfa varieties selected under grazing pressure will better tolerate hoof traffic and allow more flexible grazing schedules than hay-types while maintaining thicker stands. The University of Kentucky has done several studies to document persistence and tolerance to abusive grazing in alfalfa varieties. The grazing tolerance trait provides a safety net or insurance against stand damage from overgrazing. Any variety for grazing should meet the same requirements for yield and disease resistance that would be expected in a hay variety.

In addition to advances in development of grazing-tolerant varieties, progress is also being made in breeding varieties with reduced bloat potential. It is important to note, however, that there are currently no bloat-safe varieties. Researchers in Canada have made selections with more than 60 percent reduction in bloat over standard varieties. This variety has not been studied to any extent in the United States, and no data exist in Kentucky.

For the latest information on performance of grazing-tolerant varieties and reduced bloat varieties, see *UK Alfalfa Grazing Variety Progress Report* available at all county Extension offices and on the University of Kentucky College of Agriculture Web site at <[www.ca.uky.edu](http://www.ca.uky.edu)>.

## Rotations (Graze-Rest)

Research has shown that rotational grazing is better than continuous grazing for yield, quality, and stand persistence.

General recommendations are to graze a paddock for one week and allow four to six weeks for plants to recover before grazing again. First growth grazing in spring is determined by weevil infestation, plant growth stage, and the need to establish the rotation to manage yield, quality, and plant persistence. Considerable flexibility exists in the grazing time, but plants should not be grazed for more than a week. If they are grazed for longer periods, new shoots developing from crown buds will likely be damaged. Stocking density should be heavy enough to remove growth in five to seven days or less.

With more intensive systems and high stocking density, forage growth can be removed in one to three days. Intensive systems require many paddocks and frequent cattle movement.

The time required before a paddock can be grazed again depends on growing conditions. Under good conditions with rapid growth, the rest period will be three to four weeks or less. During less favorable growing conditions, four to six weeks may be needed.

Special considerations should be given when grazing new stands. Plants need to become well established before grazing to avoid damage. The first growth could be taken for hay or silage, minimizing damage to new seedlings.

Alfalfa should be grazed close enough so that regrowth occurs from the crown and not from branches of stems. This situation not only ensures good utilization but also helps control weeds.

An exception occurs during the fall grazing period. It has been generally recommended to make the last hay cutting by mid-September because growth from mid-September until freeze-down ensures root reserves for overwintering and regrowth the following spring. However, alfalfa plants can be grazed during this period if they are not grazed short. To accomplish this, rotate animals more frequently or reduce stocking rates. Grazing during the period from September 15 to November 1 should ensure that at least 6 to 8 inches of growth remains when animals are moved. Quality and animal performance can be high since animals are only eating high quality plant tops.

## Number of Paddocks

Dividing the alfalfa field into smaller paddocks is necessary for rotational grazing. You need enough paddocks to permit proper grazing management but few enough to meet individual management resources.

Begin with a minimum of five individual paddocks. Having this number allows you to rotate animals to a new paddock each week with a four-week recovery. During peak growth, you may need to cut one or more paddocks for hay or silage to maintain high-quality grazing in the rotation. In times of slow growth, you may need to further divide one or more paddocks to permit longer recovery periods.

Be sure to consider placement of gates and lanes, access to water, ease of cattle movement, and the slope and lay of the land when designing the fencing and paddock system. Also provide a sacrifice paddock for times when the ground is too soft to support hoof traffic.

## Stocking Rate

Stocking rate is the number of animals grazing over an area during the grazing season. Stocking density is the number of animals grazing an area at a particular time. Past experience with productivity can give a good estimate of how many animals a given area will support (carrying capacity).

Alfalfa has the yield potential to support a high stocking rate. On good, productive stands, stocking rates of 1500 to 3000 pounds of animal liveweight per acre are generally suggested. Adjustments can be made based on stand productivity, animal needs, experience in grazing management, and risk levels a producer is willing to assume.

## On-Farm Grazing Demonstrations

“Graze-More-Beef” demonstrations have been conducted on alfalfa pastures in Kentucky. Limited grain feeding (2 pounds per head per day) was practiced in some of the demonstrations to provide a carrier for bloat-preventing additives. The average beef production over a broad range of

weather conditions, stocking rate, management, and cattle type was 790 pounds per acre. Additional demonstrations have continued to show excellent beef gains. Record on-farm beef gains of more than 1,300 pounds per acre have been achieved in Kentucky using intensive grazing and young, growthy cattle.

Research and demonstrations in several states have shown increased milk production with dairy cows grazing alfalfa. Pennsylvania results using alfalfa as a grazing crop reduced cost of milk production by \$1.00 per hundredweight. Workers in Texas showed excellent per acre and per animal gains with sheep grazing alfalfa.

## Bloat Precautions

No management practice can ensure that bloat will not occur. However, its likelihood can be greatly reduced when grazing alfalfa. The following suggestions can reduce the risk of cattle bloat:

- Grow grass with alfalfa.
- Provide grass hay or grain during the first week or two of grazing alfalfa.
- Feed Rumensin®.
- Feed bloat-preventing compounds.
- Do not turn hungry cattle into an alfalfa field, especially when plants are wet from dew.
- Do not graze immature alfalfa or alfalfa/grass.
- Provide salt and minerals.
- Observe cattle closely when turning in for the first time.
- Observe cattle closely during cool, cloudy, and rainy weather for signs of bloat.
- Do not graze alfalfa for three days following a killing frost (below 24°F). The harder the frost, the greater the risk for bloat during this brief period.

## Conclusion

Alfalfa is a high-yielding, high-quality forage legume well adapted to Kentucky. Gains per animal and per acre can be excellent with acceptable stand persistence when present technology is used.

Other UK Cooperative Extension Service publications that can help develop an alfalfa grazing program include:

<i>Lime and Fertilizer Recommendations</i> .....	AGR-1
<i>Alfalfa, The Queen of Forage Crops</i> .....	AGR-76
<i>Alfalfa Quality Means Profits</i> .....	AGR-107
<i>Alfalfa Hay: Quality Makes the Difference</i> .....	AGR-137
<i>Weed Control Strategies for Alfalfa and</i>	
<i>Other Forage Legume Crops</i> .....	AGR-148
<i>Forage Identification and Use Guide</i> .....	AGR-175
<i>Planning Fencing Systems for Intensive</i>	
<i>Grazing Management</i> .....	ID-74
<i>Managing Diseases of Alfalfa</i> .....	ID-104
<i>Rotational Grazing</i> .....	ID-143

These publications are available through your county Extension office.

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