



GRAZING ALFALFA

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Alfalfa is the most important forage legume grown in the US. Grown over a wide range of soil and climate 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.

Grazing alfalfa has not been practiced to any great extent in the US, but has been done extensively in other countries. Research and producer experience have shown excellent gains per animal and per acre without shortening the alfalfa stand's life expectancy.

Advantages of Alfalfa as a Grazing Crop

- 1. Versatile Use**—Alfalfa can be ideal on farms where it can be used for hay, silage or grazing. Research results—Virginia workers studied systems of grazing alfalfa 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 for curing. Other systems provide grazing during midsummer when cool-season grasses are often less productive. Comparing the systems shows that total season 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 500 to 800 lb/acre in research trials and on-farm demonstrations.
- Alfalfa's **quality for grazing** is excellent, resulting in total season average daily gains over 2 lb/day in grazing trials and demonstrations.
- Alfalfa's deep root system makes it more **drought tolerant** than our other 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.

- 5. Extended Use of Stand**—For old alfalfa fields that have been used for hay but where some of the stand has been lost or become weedy, grazing can extend the stand's useful life a year or more. Grazing may also rejuvenate some stands by reducing grass and weed competition.

Research results—When alfalfa stands decline to less than 3 plants/sq ft, optimum hay yields usually cannot be achieved. Excellent beef gains have been made on alfalfa stands with as few as 1 plant/sq ft although productivity per acre suffers.

- 6. Reduced Machinery Cost**—Over 40% of the cost of producing alfalfa hay is machinery and equipment. In a total grazing system, this cost can be eliminated or certainly minimized.
- 7. Lower Fertilizer Expense**—Under grazing, most of the plant nutrients are returned as dung and urine. Annual fertilizer needs therefore would be lower than where plant nutrients are removed from a field as hay.

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 if it keeps them from efficiently using the alfalfa pasture.
- 2. 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. Fencing does not have to be elaborate or complex. Simple low-cost electric fences that restrain animals to a given area are adequate. Access to water and minerals is also important.
- 3. Greater Management and Labor Inputs**—Although some consider this category to be a disadvantage, advocates of controlled grazing do not always agree. 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 lets the producer observe them more closely and therefore permits greater cattle-pasture management efficiency.

4. Stand Decline—If alfalfa plants are not grazed properly, 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.

These disadvantages can be minimized with the following practices:

- To avoid damage to stands, use a “sacrifice paddock” next to the alfalfa where you can put cattle during wet and muddy conditions.
- Do not let cattle graze an individual paddock for over 10 to 12 days to minimize damage to newly developed shoots. Exceptions to the 12-day rule include the first grazing in spring and times when alfalfa is dormant, (during drought and after freezdown).

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.

Recommendations for grazing alfalfa that have been used for many years reflect and approximate hay harvest: i.e. graze rotationally, provide for a rest or recovery period, then graze again. For example, if a crop of hay would have been taken every 35 days, then a rotation schedule would 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 which result in long lived stands under hay management will do so also under grazing. While grazing does return significant amounts of plant nutrients to the soil, one should continue soil testing to determine fertility needs. Nutrients returned in dung and

urine are concentrated and unevenly dispersed. Periodic chain harrowing will help to redistribute dung piles. However, dung and urine spots are often concentrated where animals congregate. For this reason, avoid areas near shade, water, fences, gates, or any location that animals tend to group when taking soil samples from a grazing paddock.

Varieties

Significant advances have been made in the development of alfalfa varieties that are more tolerant of grazing conditions. These advances began with the release of ‘Alfagraze’, the first variety selected under intense grazing pressure. However, expect several more varieties to become available soon which have also been developed while being stressed by grazing animals. These new ‘grazing-types’ yield more and have better disease resistance levels than the ‘spreading-types’ promoted for grazing in the past. The yields of ‘AlfaGraze’ are comparable to many ‘hay-type’ varieties in university clipping trials in Kentucky and elsewhere. Alfalfa varieties that have been selected under grazing pressure will better tolerate hoof traffic and more flexible grazing schedules than hay-types while maintaining thicker stands. Stands of grazing-type alfalfas should last as long under proper grazing as others under hay management. However, it is not known if grazing types will persist longer than hay types when both are managed optimally.

Stands of ‘AlfaGraze’ alfalfa were significantly greater than Apollo at the end of a 5 year period of grazing/haying in Lincoln County, Kentucky (Table 1). However, longer rotations or continuous grazing reduce average daily gains and/or milk production, slow down regrowth of alfalfa, and increase weed pressure. Both ‘hay-type’ and ‘grazing-type’ varieties can be used successfully in a livestock grazing program if a strict rotation schedule is followed (such as grazing a paddock for 7 days and then resting it for 28).

Table 1. Stand density and percent cover of 2 alfalfa varieties after 5 years of grazing and haying*.

Variety	Plants per square foot	Percent of Total Cover **
AlfaGraze	1.9	23.5
Apollo	0.5	5.5

* Alfalfa seeded in pure stand March 1990 in Lincoln County, Kentucky. Orchardgrass was drilled into both varieties in September 1991. Data taken in September 1994 and are an average of 10 random locations. Varieties were cut for hay at least once each year and were grazed at other times. Length of grazing periods without rest varied, but were the same for both varieties.

Rotations (graze-rest)

Research has clearly 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 4 to 6 weeks for plants to recover before grazing again. Considerable flexibility exists in the grazing time, but plants should not be grazed for more than 10 to 12 days. If they are grazed that long, new shoots developing from crown buds will likely be damaged. Therefore, stocking density should be heavy enough to remove growth in 10 to 12 days or less.

With more intensive systems and high stocking density, growth can be removed in 1 or 2 days. Intensive systems require many paddocks and frequent cattle movement.

Time required before a paddock can be grazed again depends on growing conditions. Under good conditions with rapid growth, the rest period is 4 weeks or less. During less favorable growing conditions, 4 to 6 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 crop could be taken for hay or silage and begin grazing on the next growth to minimize damage to new seedlings.

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

An exception occurs during the fall grazing period. General recommendations have been to make the season's last cutting by mid-September, because growth from mid-September until freeze-down ensures root reserves for overwintering and regrowth the following spring. However, research has shown that 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 Sept. 15 to Nov. 1 should ensure that at least 8 inches of growth remains when animals are moved. Quality and animal performance can be quite high, since animals are only eating high quality plant tops.

Number of Paddocks

Dividing the alfalfa field into smaller areas (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 5 individual paddocks. Having this number lets you rotate animals to a new paddock each week with a 4-week recovery. During peak growth, you may need to cut one or more paddocks for hay 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 defined as the number of animals grazing over an area during the grazing season. Stocking density is defined as the number of animals grazing an area at a particular time. Past productivity influences how many animals a given area will support (carrying capacity).

Alfalfa's high yield potential and high quality furnish enough feed for a high stocking rate. On good, productive stands, stocking rates of 3 to 5 animals per acre are generally suggested. Adjustments can be made based on the stand's productivity, animal needs, experience in grazing management and risk levels that a producer is willing to assume.

Bloat Precautions

No management practice can ensure that bloat will not occur. However, its likelihood can be decreased so much that grazing alfalfa can become common. The following suggestions can reduce the risk of cattle bloat:

- Grow grass with alfalfa.
- 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, rainy weather for signs of bloat.
- Do not graze alfalfa for three days following a killing frost (below 28 degrees F). The harder the frost the greater the risk for bloat

On-Farm Grazing Demonstrations

Five 'Graze-More-Beef' demonstrations were conducted on alfalfa pastures in Kentucky. Limited grain feeding (2 lb/head/day) was practiced in some of the demonstrations to provide a carrier for bloat-preventing additives. The average production over a broad range of weather conditions, stocking rate, management and cattle type was 791 lb/acre. Additional demonstrations have continued to show excellent beef gains. Record on-farm beef gains of over 1300 lb per acre have been achieved in Kentucky using intensive grazing and young, growthy cattle.

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 will help you develop an alfalfa grazing program include:

AGR-1 Lime and Fertilizer Recommendations

AGR-76 Alfalfa, The Queen of Forage Crops

AGR-107 Alfalfa in Kentucky: High Yield, High Quality

AGR-137 Alfalfa Hay: Quality Makes the Difference

AGR-148 Weed Control Strategies for Alfalfa and Other Forage Legume Crops

ID-74 Planning Fencing Systems for Intensive Grazing Management

ID-104 Managing Diseases of Alfalfa

These publications are available through your county Extension office.

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