Chapter 7

Forages for Beef Cattle

Forages are required for beef production and provide the majority of nutrients for cattle. In many cow-calf operations, forages provide all the nutrients needed for maintaining the cow and producing the growing calf except for mineral supplementation. A forage system may include pasture, hay, silage, crop residues or any combination of these. Grazing is the most economical method for harvesting forages, so well-managed pasture is a very important feed source. When sufficient forage is not available for grazing, cattle are fed stored forages such as hay or silage. Machine harvesting of forages for hay or silage adds expense, but also adds flexibility because harvested forages can be stored for later use or transported for feeding in other locations.

Matching Pastures With Seasonal Forage Requirements of Cattle

Different livestock operations require different seasonal pasture strategies for optimum animal production. Spring-calving herds have different seasonal forage requirements than fall-calving herds. Stocker calf operations have different forage needs than cow-calf operations. A good pasture program matches forage quantity and quality with the animal nutritional requirements during each season.

The peak seasonal nutritional requirement for a cow-calf operation occurs between calving and rebreeding. The cow will reach peak lactation at about 60 days after calving and should be on schedule to rebreed 60 to 90 days after calving. These performance demands require that pastures be at an optimum level of growth and quality during that period. For spring-calving herds, calving in February/March, the best quality forage should be available April 1 through July. For fall-calving herds, calving in September/October, the best quality forage should be available November 1 through February. Dry, non-lactating cows have lower nutrient requirements and can maintain adequate body condition on lower quality forage after the calf is weaned.

In cow-calf operations, most calves are weaned at approximately 400 to 500 pounds. Preferred weights for calves going to a finishing feedlot are 600 to 800 pounds. So in stocker calf operations, about 200 to 300 pounds of weight can be added to weaned calves before they are ready for the feedlot. High forage quality is required at all times to support good calf weight gains. Weight gains will be low for calves grazing low quality pastures without supplementation. Some producers prefer to utilize existing low or moderate quality pasture and provide supplemental feed, and others prefer to manage for very high quality forages with less feed supplementation. Cost of feed supplements or establishing high quality pastures must be considered for profitability of stocker operations.

Forages for spring and fall pastures include cool-season grasses and legumes such as clover. Cool-season grasses produce most of the annual growth during spring and fall but are usually dormant or unproductive during hot summer months. About two-thirds of the annual growth of perennial cool-season grasses occurs in the spring, and about one-third of the annual growth occurs during the fall. Perennial cool-season grasses commonly grown in Arkansas include tall fescue, Kentucky bluegrass, matua bromegrass and orchardgrass. Winter annual cool-season grasses include annual ryegrass and small grains such as wheat, cereal rye and oats. These grasses can be grown in pure stands or in mixtures with other cool-season grasses or legumes. Forage quality of cool-season grasses is very high when new growth begins in spring but declines as the plants become mature and produce seed. Forage quality of fall regrowth of cool-season grasses is also very good, but it does not decline as quickly during the fall growth phase as in spring because plants remain vegetative during that time of year.

Tall fescue is the major perennial cool-season grass in Arkansas and is adapted statewide. Many tall fescue pastures are infected with an endophyte fungus which causes fescue toxicosis in grazing animals. Animals grazing fescue pastures that are infected with the endophytic fungus can show symptoms of lameness, heat stress, lower weight gains, low milk production and lower conception rates. These symptoms are often more severe when cattle are grazing infected fescue during hot weather. The negative effects of the fescue endophyte can often be reduced by reducing nitrogen fertilizer rates, by planting new pastures of nontoxic endophyte fescue varieties, by

incorporating legumes into existing infected pastures and by grazing other forages during the hot summer months.

Legumes are highly palatable and nutritious to livestock and generally have higher nutritive quality at any given growth stage than grasses. Legumes can be grazed in spring, summer or fall but require careful management to maintain adequate stands. Perennial legumes include alfalfa, white clover and red clover. Annual legumes include annual lespedeza (Kobe or Korean), arrowleaf clover, crimson clover and hairy vetch. Red and white clovers grow in spring, early summer and fall. Alfalfa grows from spring through fall. Annual lespedeza is a summer annual legume that germinates in spring, grows in summer and dies at frost. Arrowleaf and crimson clover and hairy vetch are winter annual legumes that germinate in fall, produce most of their forage yield in spring, then die before summer.

Forages for summer pastures include warm-season grasses and legumes such as lespedeza. Warm-season grasses grow rapidly during the summer months but grow very little in spring or fall. Warm-season grasses provide good quality, actively growing forage during the hot summer when cool-season grasses and many legumes are dormant or unproductive. A forage program that includes both warm-season and cool-season grass pastures will provide a more constant forage supply over the growing season. Typical perennial warm-season grasses grown in Arkansas include bermudagrass, bahiagrass, dallisgrass and johnsongrass. Some annual warm-season grasses include crabgrass, millet (several species) and sorghum-sudan. These grasses usually have a very rapid growth rate and very high production potential. Close attention to grazing or hay harvest management is required to prevent them from becoming too mature for good forage quality, especially in stocker calf operations.

Where wildlife is important on the farm, native warm-season grasses can be grown. Native grasses provide nesting cover for wildlife but also can be grazed or harvested for hay. Native warm-season grasses include big bluestem, indiangrass, little bluestem, eastern gamagrass and switchgrass. These grasses can be grown in pure stands or in mixtures with other native warm-season grasses. The native grasses should not be grazed shorter than 8 inches to maintain stands.

Forages for winter, other than small grain forage or stockpiled fescue, include stored hay and silage and also crop residues. Stored forages are mainly fed during winter but can be used anytime to supplement low pasture availability. Good quality hay can be made from almost all forage species grown in Arkansas. But every species including alfalfa can be very poor quality if allowed to become too mature. Forage quality is influenced mainly by maturity of the forage at harvesttime and, to a lesser extent, by soil fertility. Fiber content of the forage increases as the forage matures and is the primary factor that controls the animal's intake. Mature forages have high fiber content and pass through the digestive tract slowly, reducing animal performance. Leafy, immature, vegetative forages have low fiber content and high nutritive quality. Low fiber forages are digested rapidly and pass through the digestive tract faster, promoting good animal performance.

Visual evaluation of hay may indicate good or poor forage condition, but a lab analysis is the only way to determine nutrient content. Hay samples can be tested for nutrient content by the University of Arkansas Forage Lab and by private laboratories. If there is considerable variation in hay quality, more efficient feeding will result by grouping the hay according to quality, grouping the cattle according to nutrient requirements and matching hay quality with animal nutrient needs.

The amount of hay needed per cow depends upon the hay quality, length of the hay feeding period, storage and feeding methods and conditions, and the production cycle and size of the cow. For a 65-day feeding period, approximately one ton of hay is required per cow, but that nearly doubles for a 120-day feeding period (Table 7-1). Hay can be fed by spreading it on the ground or feeding in bunks or hay feeder rings. The major task in properly feeding hay is to limit waste. Storage and feeding losses of hay can range from as low as 5 percent to as much as 30 percent depending on conditions and hay type. Typical storage losses are chemical and physical deterioration that occur due to rain or water damage, and feeding losses include trampling, leaf shatter, fecal contamination and refusal. The best feeding method is influenced by the type of bale, amount to be fed and weather conditions.

TABLE 7-1. Amounts of Hay Needed Per Cow* (1,100 Lb Average Weight) for 65- to 120-Day Feeding Periods Assuming 25% Feeding and Storage Loss From Large Round Bales

	Hay Feeding Period		
	65 days	90 days	120 days
	---------- lbs of hay ----------		
Non-lactating dry cow – 1,100 lbs	1,787	2,475	3,300
Lactating cow – 1,100 lbs	2,234	3,093	4,125

*Assuming the hay quality meets animal nutritional requirements

Silage for feeding beef cattle in Arkansas is limited mainly to backgrounding or finishing programs. Silage made from corn, sorghum or small grains is relatively high-energy, high-cost feed that can be used more economically when fed to high-producing animals. It is not widely used for feeding beef cows in Arkansas because their feed requirements can be furnished with pasture or hay at less cost. Plastic-wrapped baled silage is becoming popular and is lower cost to produce than chopped silage. Most forages typically cut for hay can be used for making baled silage, but higher quality forages such as small grains, ryegrass, clover and alfalfa are good choices. An advantage of baled silage is that the forage can be cut, baled and wrapped at higher moisture levels during weather that is too wet for drying hay. This helps producers capture the forage quality that would have been lost due to rain damage on partially dried hay or from excessive forage maturity due to delayed hay harvest.

Crop residue is that part of crop plants that remains in the field after grain is harvested. The residue left after harvesting grain sorghum, corn, wheat, soybeans, rice or cotton should not be overlooked as a feed to fill some of the seasonal voids in pasture availability. It is usually low quality and fibrous but may be used for grazing or hay. Before using any crop residue for forage, check the grazing and hay restrictions for all herbicides and insecticides used on the crop. Some crop chemicals cannot be used on any forage fed to livestock. If there is any question about residue from herbicides or insecticides used on the crop, check the pesticide label and contact your county Extension agent.

Planning the Grazing Season

Pasture management involves more than just grazing grass, so good cattle farmers must also be good grass farmers. Optimum pasture growth seldom occurs naturally over an entire growing season, so advanced planning and management are required. ***A good pasture manager must always plan at least one season ahead*** to increase the chances of producing adequate forage for his/her herd. The climate and forage species options in Arkansas are adequate to make long grazing seasons possible. By combining different forage species and pasture management practices, grazing seasons can extend to nearly year-round. A reasonable forage management goal for a cow-calf operation is to plan for a 300-day grazing season and to feed hay for 65 days or less. There are five basic steps for developing a 300-day grazing season. These are:

Five Steps for a 300-Day Grazing Season

1. Inventory the forage base to find what forages are available for grazing during each season.
2. Improve forage management practices to extend the grazing season with the existing forages.
3. Add complementary forages to fill in seasonal gaps if needed.
4. Plan forage and grazing practices ahead for the year and get the schedule on the calendar.
5. Monitor and adjust forages and livestock as needed by keeping records of each practice.

1. Pasture composition and forage inventories

Some of the most common Arkansas forages and the major season of growth or grazing for each are shown in Table 7-2. A very simplistic example using two forage species to fill a grazing season would be fescue for spring, bermudagrass for summer, fescue and stockpiled bermudagrass for fall, and stockpiled fescue for winter. Adding additional forages improves the reliability and nutritive quality of the grazing system.

For sustained forage production over the growing season, a good balance of forage types is needed. In north Arkansas a mix of ⅔ of the pasture acres as cool-season forages and ⅓ of the acres as warm-season forages is desirable, and in south Arkansas the mix may

TABLE 7-2. Common Forage Species* and Major Grazing Periods for a 300-Day Grazing Season in Arkansas

Cool-Season Forages	Warm-Season Forages	Cool- and Warm-Season Forages	Cool-Season Forages
Spring – 100 days *March 1 – June 8*	**Summer – 100 days** *June 9 – Sept. 16*	**Fall – 100 days** *Sept. 17 – Dec. 25*	**Winter – 65 days** *Dec. 26 – Feb. 28*
• Fescue • Clovers/legumes • Orchardgrass • Annual ryegrass • Small grains	• Millet • Sudangrass • Lespedeza • Bahiagrass • Bermudagrass • Crabgrass • Dallisgrass	• Fescue • Clovers/legumes • Orchardgrass • Annual ryegrass • Small grains • Stockpiled bermudagrass	• Stockpiled fescue • Small grains • Annual ryegrass • Hay/stored forages

*Forages listed are the most common, but many other forage species are grown in Arkansas.

be ⅔ warm-season and ⅓ cool-season forages. However, the proportion can vary for each farm due to the needs of the specific livestock operation.

To determine the proportion of different forage species on the farm, you should make a forage inventory. Forage inventories give a snapshot assessment of the forage species composition in each pasture. Inventories show what is currently growing in a pasture, pasture condition due to the effects of past management and provide information to help plan the forage transition from one season to the next. Some pastures may have mostly warm-season grasses, some may have cool-season grasses, others may have significant amounts of clover or weeds. Making inventories for spring, summer and fall reveals the seasonal profile of forage and weed species and indicates whether sufficient forage species diversity exists on the farm for a season-long grazing system. This information is useful for pasture planning, especially in mixed species pastures, because grazing or fertilizer management can be adjusted to ensure growth of different forages for each season or to reduce competition from weeds.

Making a forage inventory is simple. Walk across a pasture and identify what is found at the end of your toe at every fifth step. Record the information as tally marks on a forage inventory sheet. Inventory sheets, such as the one shown at the end of this chapter, can be obtained through the county Extension office, from the Extension web site, or a simple one can be made by listing categories of grass, weeds, clover and bare ground. That list can be expanded to include as many grasses, weeds or legumes as can be readily identified. Try to get at least 50 tally points in a small pasture or 100 tally points in large pastures.

The proportion of each forage or weed type on your farm is calculated from the inventory results. To calculate the area occupied by each forage, multiply the percentage of each forage in the field based on the inventory by the acres of that field. Do this for each field across the entire farm. For example, if field #1 is 20 acres and has 60 percent bermudagrass, 20 percent white clover and 20 percent fescue, then it contains 12 acres of bermudagrass, 4 acres of clover and 4 acres of fescue. Since bermudagrass is a warm-season forage and clover and fescue are cool-season forages, the seasonal profile would be 60 percent warm-season forage and 40 percent cool-season forage for the field.

2. Improve forage management practices to extend the grazing season with the existing forages

Stocking Rate – A key to an efficient pasture program is having the proper animal stocking rate to match the forage productivity in the pasture. The stocking rate varies across farms due to productivity differences, but a typical stocking rate is 2 to 3 acres of pasture per animal unit (AU) for a year (⅓ to ½ AU per acre). Stock density refers to the number of animals per acre grazing a field at any specific time and can be much higher than the stocking rate. For example, 50 AU on a 100-acre farm is a stocking rate of 2 acres per AU for the year (½ AU per acre), but if all 50 cows were put in a 5-acre pasture for one day, then the stock density would be 10 AU per acre for one day. Using high or low stock density on a pasture for short duration is useful for controlling excess forage growth or to reduce overgrazing. It is important to not maximize stocking rate on the farm based on very good growing conditions because poor weather can cause severe forage shortages quickly. Overstocking the grazing system leads to overgrazing and lower forage and livestock production.

Fertilizer Application and Timing – Fertilizer can be applied in split applications over the year to maintain growth of cool- and warm-season forages, but knowledge of the forages and livestock operation is required to make the best use of the fertilizer recommendations. If the pastures are heavily stocked, then fertilizer rates and forage yield must be high to maintain the livestock. If stocking rate is low, then lower forage yields and fertilizer rates are needed. It is not efficient to apply fertilizer and not utilize the forage. Soil tests are the best tools for determining fertilizer recommendations. The University of Arkansas System Division of Agriculture - Cooperative Extension Service provides fertilizer recommendations for hay production, grazing, forage establishment and wildlife food plots. When submitting soil samples, the correct fertilizer crop code must be selected to get the correct fertilizer recommendation for the specific forage and yield level. Consult your county Extension agent for soil sampling recommendations and to select the correct fertilizer recommendations for your forages.

Selecting a grazing system to manage grazing pressure allows you to plan for the seasonal forage transitions as the grazing season progresses. Growth of cool-season forage species declines as summer approaches while growth rate of warm-season forages increases. The opposite occurs as summer transitions to fall. In mixed pastures, managing the seasonal transition to utilize forages as they grow is important. If spring forages are allowed to become too mature, livestock will refuse them and the resulting mature heavy overgrowth creates excessive shading of underlying summer forages. This shading reduces summer forage growth and grazing for the next season in that pasture. Subdividing the pasture with temporary electric fence or changing the stocking rate allows more control of the forage utilization rate by increasing or

decreasing stock density. Increasing stock density in late spring to remove the spring forage canopy allows more sunlight to reach emerging summer forages such as bermudagrass, crabgrass or lespedeza. This sets up a desirable forage transition from spring grazing to summer grazing in the same pasture. Information gained from forage inventories shows which forages will be potentially available before, during and after each seasonal transition. There are several types of grazing systems, and each system has advantages and disadvantages. Some grazing system options include rotational grazing, continuous grazing, set-stocking, leader-follower, creep grazing and strip-grazing.

Rotational grazing allows increased utilization of the forage, thus helping extend the grazing season. Research has shown that increasing the pasture rotation frequency from twice a month to twice a week increased the number of grazing days by 40 percent. No harvest system is 100 percent efficient, especially grazing animals. In a pasture system, estimated animal consumption of the forage is between 30 and 65 percent of what is actually grown. In continuous grazing systems cattle are allowed to continually graze a pasture with no restrictions on rotation. Much of what is produced is wasted, or in overgrazing situations pasture growth rate becomes severely reduced. It is estimated that only 30 to 35 percent of the total forage produced is actually eaten by the livestock. The other 65 to 70 percent is trampled, soiled by mud, manure and urine or used as bedding areas. Closing pasture gates or using electric fence to change pasture or paddock size restricts the grazing habits of the cattle, forcing them to consume a higher percentage of the forage. When well-managed rotational grazing is used, forage utilization can be as high as 65 to 70 percent of the forage produced. This level of utilization can be achieved by rotationally grazing animals among several pastures or paddocks. Rotational grazing systems require more fencing and time for the initial setup but less time to manage afterward. Cattle become trained quickly to electric fence and can be moved quickly between pastures or to working facilities.

Continuous grazing and set-stocking are lower input systems than rotational grazing. In continuous grazing, livestock are allowed full access to all the pasture on a continuous basis. Stocking rate and forage utilization are lower and forages with low tolerance of grazing are harder to maintain in the pasture than in rotational systems. However, continuous grazing requires less time for setup and lower management input than rotational grazing. Set-stocking is a variation of continuous grazing in which a set number of animals are placed in a pasture until the available forage is grazed during a specific season. This is often done with stocker calves on small grain pasture where calves are allowed to graze out the forage before moving to a different pasture.

Leader-follower grazing systems are commonly used when herds with different nutritional needs are being grazed. An example would be grazing weaned calves and dry non-lactating cows. The weaned calves are grazed in a paddock or pasture first and allowed to only graze the high quality top portion of the forage before being rotated to a new paddock. The cows are then moved in to graze the remaining lower quality forage after the calves are moved out. The two groups are rotated across the farm with the cows grazing each paddock after the calves. This gives an opportunity for higher weight gains on the calves while maintaining nutritional status for the cows.

Creep-grazing is a variation of leader-follower grazing in which young calves are allowed to graze high quality pastures before the cows. A simple version is to subdivide paddocks with a single electric wire placed at a height to keep cows in the paddock but high enough for the young calves to go under. The calves can then roam to adjacent paddocks to graze. In more permanent systems, creep gates with openings small enough to allow only calves to pass through are placed in the fence between pastures.

Strip-grazing is used for grazing dormant forages, especially during fall and winter. A single electric wire is used to allow cattle to have access to only a strip or portion of the pasture and is moved as the forage is grazed. Most producers prefer to move the electric fence wire twice a week, but the interval can be as long or short as needed for the operation. It is best to start grazing in a strip nearest the cattle water source then advance the wire across the field. Since the forage is dormant and not growing, a back wire is not needed. The concept is similar to feeding hay but using an electric wire to control access to the forage. The fence protects the ungrazed forage and can double the grazing days per acre.

Stockpiling forages to reduce hay feeding may be one of the most cost-effective pasture management practices available. Demonstrations on farms across Arkansas have shown average savings of $20 per AU or more by grazing stockpiled forages compared to feeding hay. In well-managed systems, over 100 animal grazing days per acre are possible on stockpiled forages. Bermudagrass and bahiagrass can be stockpiled in late summer for fall grazing, and tall fescue can be stockpiled during fall for winter grazing. For stockpiling bermudagrass or bahiagrass, clip or graze the pasture short in early August, apply 50-60 lbs N per acre and allow the forage to grow until mid-

October before grazing. Early fertilization is important because warm night temperatures are required for good warm-season grass growth rates. Waiting until September to fertilize can reduce potential forage yields by 60 to 80 percent. Forage quality of stockpiled bermudagrass and bahiagrass remains good even after frost occurs. However, continued cold weather will cause deterioration of the forage over time and will cause forage quality to decline. These grasses are best grazed during fall up to mid-December. For stockpiled fescue, clip or graze the pasture to about a 3-inch stubble and fertilize with 50-60 lbs N per acre in early September. Early September application is important. Studies have shown little yield response to fertilizer applied in mid-October. The stockpiled fescue grows during the fall with maximum forage accumulation by December. The grazing period can be from late November through February. Fescue tolerates freezing weather and can remain green with good forage quality late into the winter. Forage quality of stockpiled forage is very good when managed as described. Cattle can be continuously grazed (given full access to the stockpiled pasture) or strip-grazed. In many demonstrations, producers that strip-grazed the stockpiled pastures got twice as many grazing days per acre as those that continuously grazed the stockpiled pasture.

3. Plant complementary forages where needed to extend the grazing period

Complementary forages increase the amount of grazing days in a pasture or farm instead of substituting for another forage. An example would be growing ryegrass in a bermudagrass pasture. The ryegrass grows in spring when the bermudagrass is dormant, thus providing more grazing days per acre. Other complementary forages include annual lespedeza or crabgrass on a fescue pasture to fill in summer gaps when the fescue is dormant. Small grains such as wheat, cereal rye, ryegrass and winter annual legumes are high quality forages that work well in winter and spring stocker calf programs. Mixing ryegrass with wheat or cereal rye provides maximum fall and spring grazing. Cereal rye and wheat are more productive in the fall and early spring while ryegrass will extend spring grazing another 3 to 6 weeks in late spring. When annual forages are grown in perennial grass sod, the transition of forages from one season to the next is important to allow optimum growth of each species. Allowing forage to become too tall and mature in one season reduces growth of the forage in the following season.

Legumes are commonly overseeded into grass pastures to improve nutritional quality of the pasture. Grass/legume pastures containing at least 25 percent legumes usually don't need nitrogen fertilization because legumes have symbiotic rhizobia bacteria in the roots that fix N from the air. Good stands of legumes in pastures can fix 50 to 150 lbs of N/acre per year.

Legumes can be planted in fall or late winter. Planting legumes in bermudagrass or bahiagrass pastures should be done in fall when growth of the warm-season grasses is slowing before cold weather. Legumes established in the fall will have a good root system and can begin growth in spring before the competitive growth of the grass occurs. Interseeding legumes into fescue can be done in the fall if the fescue is grazed short or can be planted during February after the fall fescue growth is grazed down. The key for planting small-seeded clovers is to graze the grass very short and to plant the seed very shallow. Seed planted deeper than ¼ inch may not emerge. More successful establishment occurs from planting right at the soil surface than from planting too deep. Legumes need higher soil pH levels than grasses for optimum persistence and growth. Soil tests should always be obtained for fields where legumes will be planted. To get the proper fertilizer recommendation, ask for Crop Code 116, "Legumes Over-Seeded Into Grass Sod," when submitting soil samples.

4. Plan forage and grazing practices ahead for the year and get the schedule on the calendar

When planning a seasonal grazing system, the schedule for most forage practices can be put on a calendar to help keep management done on a timely basis. Some practices to schedule for the fescue-based example is shown in the forage planning calendar below. These include grazing practices, planting periods for complementary forages, stockpiling, and other forage management practices

5. Monitor and adjust forages and livestock as needed by keeping records of each practice

Record keeping of the success and challenges associated with different forage management practices are important. Records provide a good basis for fine-tuning the system and for maintaining the most effective practices. Records can be simple notations on a calendar or can be more detailed analysis kept in a logbook or computer. Severe droughts or flooding conditions may not occur every year, but good records will provide a reference of the practices that worked best in those conditions.

Grazing System Planning Calendar

Grazing 300 days per year requires advance planning. Those plans need to be made at least one season ahead of the season when the forage begins growing. The following tips outline a 300-day grazing season with forage practices for each season and for the seasonal transitions starting in the spring and going through winter.

Grazing Management for Spring Through Summer:

Key Points:

1. Begin rotational grazing as early in spring as possible. Keeping the gates on pastures closed will actually let more grass grow than letting the cows chase new grass over the whole farm.
2. Don't fertilize more area than can be utilized. It's better to fertilize some pasture for early grazing and wait to fertilize for the next season rather than promoting too much grass that is not utilized.
3. To favor legumes, control the grass canopy by rotational grazing management.

The Transition from Spring to Summer:

1. In mixed cool- and warm-season forage pastures, graze more closely in late spring to release the summer forage. This means removing ryegrass or fescue growth to promote growth of the lespedeza, crabgrass or bermuda underneath.
2. Rotationally graze spring legumes to let the cattle spread the N in the legumes across the pasture to boost forage growth in late spring and summer.

Grazing Management for Summer Through Fall:

Key Points:

1. Rotational grazing will maintain forage availability longer into dry weather periods.
2. Don't fertilize more acres than needed.
3. Don't graze lespedeza or crabgrass too early or too short. Grazing lespedeza before the plants are 8 inches tall causes the plants to grow prostrate forming low-growing plants that cattle can't graze effectively.
4. Keep bermuda rotationally grazed to maintain it in a growing vegetative stage.

The Transition from Summer to Fall:

1. In early August graze bermuda short and fertilize for stockpiling for fall grazing. Stockpiled bermuda is grazed from October through December. Stockpiled forage can save $20 per cow compared to feeding hay.
2. In early September graze fescue short and fertilize for stockpiling. Stockpiled fescue can be grazed from December through February.
3. In September graze other bermuda pastures short to prepare for interseeding winter annuals in late September or early October.
4. Graze crabgrass, johnsongrass and lespedeza before frost.

Grazing Management for Fall through Winter:

Key Points:

1. Managing for stockpiled pasture is cheaper than feeding hay, but feeding hay for a short period in fall may allow better stockpiled forage growth if other pasture runs short.
2 Use temporary electric fence to strip-graze stockpiled pastures. Strip-grazing stockpiled pasture doubles the number of grazing days per acre.
3 Use lower quality forage for dry cows and high quality pasture or hay for weaned calves or lactating cows.

The Transition from Fall to Winter:

1. Graze bermuda and fescue short where annuals or clover will be planted in fall then go to stockpiled pasture.
2. Don't graze winter annuals too early. Small grains or ryegrass should be 8 inches tall before grazing.

Grazing Management for Winter through Spring:

Key Points:

1. Strip-graze any remaining stockpiled pasture.
2. Allow winter annual forages to reach 8 inches before grazing.
3. Limit grazing cows 2 days per week on small grain/ryegrass pasture during late winter with hay feeding utilizes the high pasture quality as a feed supplement.
4. Winter annuals can be grazed earlier if strip-grazing or using paddocks.

The Transition from Winter to Spring:

1. Some early fertilization on only a couple of pastures can jump-start spring grazing.
2. Overseed legumes during February in closely grazed pastures.
3. Graze off winter weeds in bermuda in February/March.
4. Set up spring paddocks for early grazing.

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Pasture and Hay Forage Inventory Sheet

Field ID:		**Number acres:**	**Date:**

Plant species	**Species count**	**Total**	**Percent**
Fescue			
Orchardgrass			
Kentucky bluegrass			
Small grain			
Annual ryegrass			
Other cool-season grasses			
	Percent cool-season grasses		
Bermudagrass			
Bahiagrass			
Dallisgrass			
Crabgrass			
Other warm-season grasses			
	Percent warm-season grasses		
White clover			
Red clover			
Annual lespedeza			
Hairy vetch			
Annual clovers			
Other legumes			
	Percent legumes		
Perennial broadleaf weeds			
Annual broadleaf weeds			
Perennial grassy weeds			
Annual grassy weeds			
Sedge/rush			
Woody or thorny brush			
	Percent weeds		
Bare ground			