

Arkansas 300 Days Grazing System – Getting Started

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The 300 Days Grazing program has helped producers improve their forage systems across Arkansas. The program is based on demonstrating eight different management practices to extend the grazing season and to help reduce hay feeding. The management practices are:

- Improving grazing management
- Stockpiling fescue
- Stockpiling bermudagrass
- Growing legumes
- Growing summer annual forage
- Growing winter annual forage
- Reducing hay losses in storage
- Reducing hay losses during feeding

Demonstrations included as few as 5 head and as many as 500 head for a single farm. This emphasizes that the program fits small and large operations. Successful demonstrations were also conducted for horses and small ruminants, confirming that the program works well for all segments of the grazing livestock industry.

Producers might not achieve a grazing season of 300 days by adding a single management practice or during the first year, but each practice adopted helps get closer to that goal. Getting started is often the biggest hurdle faced by producers. Deciding which practices are most beneficial and in what order to start using them can be confusing. The program employs a simple five-step process

that helps focus efforts on practices that can have the most impact with the existing forage resources. The key is to start with the existing forage base and always **plan at least one season ahead** to ensure timely implementation of practices. This fact sheet outlines examples of how to use this five-step process starting with a fescue-dominant forage base and a bermudagrass-dominant forage base that are common across the state, although the process works with any forage base. Example scenarios provided are composite situations based on many farms enrolled in the program.

Five Steps for a 300-Day Grazing Season

- ❶ Inventory the forage base to find what forages are available for grazing during each season.
- ❷ Improve forage management practices with the existing forages to extend the grazing season (do this before adding any other forage species).
- ❸ Add complementary forages to fill in seasonal gaps as necessary. Plan short-term and long-term forage options.
- ❹ Plan forage and grazing practices ahead for the year, and put the schedule on the calendar.
- ❺ Monitor and adjust forages and livestock as needed by keeping records of each practice.

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Example 1

Fescue-Based System

- The producer has 50 spring-calving cows.
- The producer weans and sells calves in October.
- The average calf weaning weight is 450 pounds.
- Continuous grazing management is used. All the gates are open.
- The forage base is 120 acres of fescue.
- Pastures have very little clover and no appreciable summer forages.
- Summer pasture production is low.
- Buttercup, thistles and hemlock are significant weed problems.
- Soil testing has not been used.
- The producer feeds hay starting November 15 until April 1 and occasionally in dry summers.
- Hay is stored on the ground uncovered.
- Hay is fed by unrolling bales every one to two days.

1. Inventory the forage base to find what forages are available for each season.

In this example, basic forage and livestock inventories are provided. This is a spring-calving herd, which means the cows need the best forage of the year during spring and early summer, from calving through breeding and into early lactation. The forage base is mainly fescue. A seasonal forage production inventory shows that fescue provides good forage production in spring, low production in summer and moderate production in fall. The winter annual weeds suppress early spring grass growth and don't provide significant grazing value. Hemlock presents a potential poisoning hazard as well. Soil fertility levels are unknown since no soil testing has been used. This makes planning economical fertilizer application difficult and haphazard. Hay wasted from storing hay uncovered on the ground and from unrolling up to two days of feed can be as much as 25 to 30 percent.

Though this example herd is listed in the inventory as a spring-calving herd, many herds do not have a well-defined calving season. For many herds, some cows might calve during late winter or spring, but others might calve any time during the year. A defined calving season of 90 days or less makes improved forage management practices more valuable and effective. In fact, a well-defined calving season should be a primary goal along with a 300-day grazing season because it can improve the efficiency of almost all good forage and animal husbandry practices.

Key points of this farm's inventory:

- ◆ Fescue-dominant forage base
- ◆ Stocking rate is moderate at 2.4 acres of forage per cow
- ◆ The mention of "gates" being left open implies multiple pastures are available for rotational grazing
- ◆ Poor summer forage production
- ◆ Long hay feeding season
- ◆ No management given to grazing system
- ◆ No soil tests so fertility is unknown
- ◆ No legumes
- ◆ Spring weed problems
- ◆ Calf weaning weights could be better
- ◆ Hay waste during storage and feeding may be excessive
- ◆ No mention of fescue toxicity, but it should be examined in the management plan

2. Improve forage management practices to extend the grazing season with the existing forages (do this before adding any other forages).

There are obvious deficiencies in the current forage system. The pastures are not being managed for seasonal grazing, summer pasture productivity is low and the winter hay feeding season is very long. Spring weed problems exist and may be due to the lack of fertility and grazing management. Management practices that can extend the grazing season of the existing fescue are **rotational grazing** and **stockpiling fescue** for winter grazing.

Rotational grazing can extend the grazing season of fescue later into summer and can protect standing forage that can be grazed during dry periods. This practice by itself will not likely provide grazing for the entire summer, but it will increase the number of grazing days over continuous grazing. Rotational grazing can often be started effectively by closing gates to existing pastures. Livestock water availability for each pasture is a key consideration.

Four pastures in a rotational system can provide more grazing days than one large pasture. As the operator gains experience and confidence, more subdivisions can be added to provide more control of the grazing herd. Resist the temptation to build numerous small permanent paddocks. Use single-wire, high-tensile electric fence to make major subdivisions, then use temporary polywire to make smaller subdivisions as needed during each season.

This approach retains flexibility in the system for changing weather, herd size or management or even for planning enough grazing during your vacation.

Stockpiling fescue is a very effective and consistent method for providing winter grazing. Fescue can produce from 2,000 to 3,000 pounds of forage dry matter during fall if properly managed. To stockpile fescue, clip or graze off the old forage residue to a 3- to 4-inch stubble by late August to early September (delay this schedule by two weeks for far south Arkansas), apply 50 pounds/acre of N fertilizer in early September (do this even if the weather is hot and dry) and defer grazing until early December. Up to one-third of the fescue acreage can be stockpiled, but some producers may opt to stockpile less. One acre of stockpiled fescue with a dry matter yield of 2,000 pounds/acre can provide one day of grazing for 60 moderate-sized cows, so 30 acres would reduce hay feeding by one month for that size herd.

Average forage dry matter yield of stockpiled fescue is about 2,000 pounds/acre. Yield can range from 1,500 pounds/acre in a dry fall up to 3,500 pounds/acre. By adding both rotational grazing and stockpiling fescue, the producer can gain several weeks of summer grazing and several weeks of winter grazing, all with the existing forage base. The system can benefit from complementary forages to fill in some gaps. This will be discussed in the next step.

Improving management also includes weed control and fertility management. Weeds indicated in this example are aggressive species that should be controlled. Serious weed problems should be controlled before legumes are planted. No good herbicide options are available for controlling these specific weeds in established clover stands.

Some weeds are useful as forage and can be controlled with grazing. Mowing or even digging can be effective methods for certain weed species. However, the weed problems indicated in this example inventory are not easily controlled by grazing or mowing, and hemlock is considered to be very toxic. For this example, a well-timed application of 2,4-D herbicide would be very beneficial. Late fall or winter herbicide application is very effective for these weeds. Spraying with low-residual herbicides such as 2,4-D in late November will control weeds and can be followed by overseeding clover in February. To prevent future weed problems, improved grazing and fertility management should be part of the weed control program after the herbicide application.

Soil tests are valuable tools for improving a forage program. It is seldom necessary to fertilize all pastures, but knowing the base soil fertility is as important as knowing the base forage species growing in the pasture. Knowing which fields have the best production potential and which fields could support legumes or other forages is very important.

Pastures can be soil tested any time of year. Taking samples when soil is moist results in more uniform sampling across the field. Fertilization should be targeted by grazing season to extend the grazing period. Building soil P, K and pH to levels that will support legumes based on soil tests can improve forage growth and establishment. Pastures with significant legume content do not need N fertilizer in spring. Pastures intended for stockpiling for fall and winter need N for the stockpiling period.

Key practices to improve management of the existing forage base:

- ◆ Rotational grazing
- ◆ Stockpiling fescue
- ◆ Weed control followed by better grazing and fertility management
- ◆ Soil testing-targeted fertilization
- ◆ Store hay in a barn or cover hay and store bales off the ground
- ◆ Feed hay in ring feeders or unroll for feeding periods of one day or less

3. Add complementary forages to fill in seasonal gaps if needed.

The next step after optimizing use of the existing forage base is to add any additional forage species that would complement that forage base. Complementary forages add grazing days or quality to the forage base instead of simply substituting for forage already being produced. For example, planting ryegrass on bermudagrass pasture adds spring grazing that was not produced previously in that pasture. In this fescue example, summer production is a major problem because fescue produces little growth during hot weather. And if the fescue is infected with the toxic endophyte, then cattle grazing it in warm weather will have more heat stress, lower milk production and lower calf weaning weight. In this example, the weaning weight of the calves was only 450 pounds. Improving forage quality with complementary forages could improve weaning weights.

Complementary forages that could be easily established into fescue in the short term are legumes, specifically clover and annual lespedeza, and warm-season annual forages like crabgrass. Clover improves forage quality and animal performance on toxic fescue and reduces N fertilizer requirements. White clover is the most persistent grazing clover, but red clover grows longer into summer and can extend grazing. Annual lespedeza grows from mid-June through August, when fescue is mainly dormant, so it is a good forage to complement fescue pastures. Crabgrass can be added to thin fescue pastures and managed to provide significant forage during summer.

Both annual lespedeza and crabgrass are prolific reseeding annual forages and only need to be planted one time if they are allowed to produce seed the first year. Some pastures could be interseeded with crabgrass, and others could be interseeded with clover and lespedeza to help cover the summer grazing gap. Use of rotational grazing will help maintain the mixtures and seasonal productivity. For longer-term planning, bermudagrass or another perennial warm-season forage can be added to the system, but that may require more time and expense for conversion of fescue pasture.

Another option would be to dedicate a single pasture for annual forages within the overall forage system. Planting brassicas, such as forage turnips or forage rape, mixed with ryegrass or wheat in early September could provide significant fall grazing while fescue is accumulating growth for winter grazing. The ryegrass or wheat would provide spring grazing or hay if needed, then pearl millet could be grown during summer for grazing and perhaps a hay crop as well. This could help fill the summer and early fall gaps that often occur on a fescue-dominant base and could provide hay that is not endophyte-infected fescue.

Key complementary forages to improve this grazing system:

- ◆ Lespedeza and crabgrass for summer grazing – short term
- ◆ Bermuda and warm-season grass for summer grazing – long term
- ◆ Clover – to improve fescue quality
- ◆ Consider a dedicated annual forage pasture using brassicas followed by summer annuals

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 so that management is done on a timely basis. Some practices to schedule for the fescue-based example are shown in Table 1. These include grazing practices, planting periods for complementary forages, stockpiling and other forage management practices.

Key practices to schedule for this grazing plan:

- ◆ Rotational grazing – immediately by closing gates to existing pastures
- ◆ Stockpiling fescue – September 1
- ◆ Overseeding lespedeza-clover – February 1 to March 1
- ◆ Planting crabgrass – February or April
- ◆ Weed control – November/December
- ◆ Planting brassicas – August 20 to September 15

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

Keeping records of the successes and challenges associated with different forage management practices is 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 on a computer. Severe droughts or flooding conditions may not occur every year, but good records will provide a reference for practices that worked best in good and bad conditions.

Key points to make note of for each season:

- ◆ Responses of pastures and livestock to each practice
- ◆ When was stockpiled forage or brassicas ready to graze?
- ◆ Clover-lespedeza-crabgrass establishment and summer grazing
- ◆ Hay feeding – beginning and end dates
- ◆ Reduction of hay waste
- ◆ Cost and time savings from management changes

**Table 1. Arkansas 300-Day Grazing Program –
Schedule for Starting With a Fescue-Based System**

Year 1	
Season	Forage Management Practices
Spring	<ul style="list-style-type: none"> • Start rotationally grazing fescue at greenup to control the rotation sequence – March • Determine forage need and fertilize specific pastures for the spring only if needed – March • Select thin pastures to lightly disk and overseed with crabgrass in mid-April to mid-May • Weed control – February-March • Soil sample – when soil is moist • Plan summer grazing sequence and rotation – March
Summer	<ul style="list-style-type: none"> • Rotationally graze fescue to protect accumulated growth in case of drought conditions • Fertilize emerging crabgrass with N fertilizer and rotationally graze – June/July • Graze off or clip fescue pastures that will be stockpiled for winter grazing in late August • Plan fall grazing sequence and rotation – June/July • Decide if perennial, warm-season forages will be needed in the long term, and if so, start planning renovation of specific pastures for planting next spring • Plant brassicas on lightly disked pasture for grazing in fall before fescue is ready – September 1
Fall	<ul style="list-style-type: none"> • Fertilize fescue with N in early September and stockpile for winter grazing • Rotationally graze nonstockpiled fescue pastures during fall – September-November • Graze crabgrass before frost – September-October • Graze brassicas in late October to allow better growth of fescue pastures for fall grazing • Plan winter grazing sequence and strip-grazing for stockpiled fescue – September/October
Winter	<ul style="list-style-type: none"> • Strip-graze stockpiled fescue – December-February • Overseed clover and/or lespedeza on closely grazed fescue pastures – February • Manage hay feeding to reduce hay waste • Apply herbicide for weed control in November/December for thistle, buttercup and hemlock • Plan spring grazing sequence – December/January
Year 2	
Spring	<ul style="list-style-type: none"> • Follow Year 1 plan • Graze fescue-legume pastures early to control canopy to improve legume establishment • Do not apply N fertilizer or litter to fields overseeded with legumes • In late spring, graze fescue-crabgrass pastures closely to allow emergence of volunteer crabgrass. Do not apply N to those pastures until early summer for crabgrass. • Plan summer grazing sequence – March
Summer	<ul style="list-style-type: none"> • Follow Year 1 plan • Plan fall grazing sequence – June/July
Fall	<ul style="list-style-type: none"> • Follow Year 1 plan • Graze pastures with lespedeza and crabgrass before frost • Plan winter grazing sequence
Winter	<ul style="list-style-type: none"> • Follow Year 1 plan • Overseed clover or lespedeza on fescue pastures where needed • Manage to reduce hay waste during feeding • Plan spring grazing sequence

Example 2

Bermudagrass-Based Forage System

- The producer has 50 spring-calving cows.
- The producer weans and sells calves in early October.
- The average calf weaning weight is 450 pounds.
- Continuous grazing management is used. All the gates are open.
- The forage base is 120 acres of bermudagrass.
- Pastures have very little clover and no appreciable spring or fall forages.
- Spring and fall pasture production is low.
- Buttercup and little barley are significant weed problems.
- Soil testing has not been used.
- The producer feeds hay starting November 1 until April 15.
- Hay is stored on the ground uncovered.
- Hay is fed by unrolling bales every one to two days.

1. Inventory the forage base to find what forages are available for each season.

Many points will be similar to the fescue example, except the periods of good and poor forage production are reversed. In this example, the forage base is mainly bermudagrass. A seasonal forage production inventory shows that bermudagrass provides good forage production in summer and low production in spring and fall. The winter annual weeds suppress early bermudagrass growth and don't provide significant grazing value.

Key points of this farm's inventory:

- ◆ Bermudagrass-dominant forage base
- ◆ Poor spring and fall forage production
- ◆ Long hay feeding season
- ◆ No management given to grazing system
- ◆ The mention of "open gates" implies multiple pastures are available for rotational grazing
- ◆ No soil tests so fertility is unknown
- ◆ No legumes
- ◆ Spring weed problems
- ◆ Stocking rate is moderate at 2.4 acres per cow
- ◆ Calf weaning weights could be better
- ◆ Hay waste during storage and feeding may be excessive

2. Determine the best practices to extend the grazing season with the existing grass (do this before adding any other forages).

The deficiencies in the current forage system are similar to the fescue example. The pastures are not being managed for seasonal production, spring and fall pasture production is low and the winter hay feeding season is very long. Two management practices that can extend the grazing season on the existing bermudagrass are **rotational grazing** and **stockpiling bermudagrass** for fall grazing. Rotational grazing can extend the grazing season of bermudagrass later into fall and can protect standing forage that can be grazed during dry periods. Stockpiling bermudagrass is a very effective and consistent method for providing fall grazing.

To stockpile bermudagrass, clip or graze off the old forage residue to a 3- to 4-inch stubble by early to mid-August (delay this schedule by two weeks for far south Arkansas), apply 50 pounds/acre of N fertilizer by August 15 (do this even if the weather is hot and dry) and defer grazing until late October. Stockpiled bermudagrass can be grazed by dry cows until mid- to late December.

Average forage yield of stockpiled bermudagrass is about 2,500 pounds/acre. Yield can range from 1,500 pounds/acre in a dry fall up to 4,000 pounds/acre. By adding both rotational grazing and stockpiling bermudagrass, the producer can gain several weeks of grazing through fall and into early winter with the existing forage base. The system can benefit from complementary forages to fill in some gaps. This will be discussed in the next step.

Improving management also includes weed control and fertility management. The weeds identified in the example are not effectively controlled by grazing. Those weed species greatly suppress early bermudagrass growth and do not provide significant grazing value. Judicious use of herbicide between late November through February can quickly improve potential spring bermudagrass growth. Weed control is very important where legumes will be planted.

Fertilization should be targeted by grazing season to extend the grazing period. If legumes are grown in spring, then summer bermudagrass pastures may or may not need fertilization depending on animal stocking rate. Even when fertilization is needed, it is seldom necessary to fertilize all pastures in a particular season. Doing so would likely produce excess forage that cannot be effectively grazed.

Key practices to improve management of the existing forage base:

- ◆ Rotational grazing
- ◆ Stockpiling bermudagrass
- ◆ Weed control followed by better grazing and fertility management
- ◆ Soil testing-targeted fertilization
- ◆ Store hay in a barn or cover hay and store bales off the ground
- ◆ Feed hay in ring feeders or unroll for feeding periods one day or less

3. Add complementary forages to fill in seasonal gaps if needed.

The next step after optimizing use of the existing forage base is to add any additional forage species that would complement the forage base. In this bermudagrass example, fall and spring forage production is a major problem because bermudagrass produces little growth during cool weather. Complementary forages that could be easily established into bermudagrass in the short term are ryegrass, annual clovers and small grains such as wheat, rye or oats. Winter annual forages extend the grazing season of bermuda pastures.

The annual forages should be overseeded in October and can provide grazing by February in many cases (sometimes earlier). Use of rotational grazing will help maintain the mixtures and seasonal productivity. Well-managed and fertilized ryegrass is a very aggressive forage that can outcompete many annual weeds. In certain cases, use of overseeded ryegrass can be part of an effective weed control program in bermudagrass pastures. For longer-term planning, novel endophyte fescue can be added to the system, but that may require more time and expense for conversion from bermudagrass pasture.

Another option would be to lightly disk a pasture to plant a combination of forage brassicas with ryegrass or wheat between August 20 and September 15. The brassicas would provide grazing by late October to early November, and the ryegrass or wheat would provide spring grazing. Disking and early planting are critical for successful establishment and production of forage brassicas. Stockpiled bermudagrass could be grazed to mid-November and brassica-winter annuals could be grazed November and December. The ryegrass-small grain could be managed to provide grazing in March, reducing the hay feeding period to January and February.

Key complementary forages to improve this grazing system:

- ◆ Winter annuals (ryegrass, wheat, rye) – short term
- ◆ Novel-endophyte fescue or other cool-season grass – long term
- ◆ Clover – to improve pasture quality
- ◆ Brassicas – for grazing in fall before winter annual grasses are ready

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

Practices and approximate schedules that can be used effectively for a bermudagrass-based system are shown in Table 2.

Key practices to schedule for this grazing plan:

- ◆ Rotational grazing – immediately by closing gates to existing pastures
- ◆ Stockpiling bermudagrass – August 1 to 15
- ◆ Overseeding clover – October 1 to November 1
- ◆ Planting winter annual grasses in bermuda sod – October 1 to November 1
- ◆ Planting forage brassica in disked sod – August 20 to September 15
- ◆ Weed control – November to February

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

Just as with the fescue example, record keeping of the successes and challenges associated with different forage management practices is important. Records provide a good basis for fine-tuning the system and for maintaining the most effective practices and will provide a reference of the practices that worked best in various conditions.

Key points to make note of for each season:

- ◆ Responses of pastures and livestock to new practices
- ◆ When was stockpiled forage ready to graze?
- ◆ Brassica growth and grazing period
- ◆ Winter annual establishment and winter-spring grazing
- ◆ Hay feeding – beginning and end dates
- ◆ Reduction of hay waste
- ◆ Cost and time savings from new practices

**Table 2. Arkansas 300-Day Grazing Program –
Schedule for Starting With a Bermudagrass-Based System**

Year 1	
Season	Forage Management Practices
Spring	<ul style="list-style-type: none"> • Start rotationally grazing fescue at greenup to control the rotation sequence – March • Determine forage need and fertilize specific pastures for the spring, only if needed – March • Select thin pastures to lightly disk and overseed with crabgrass in mid-April to mid-May • Weed control – February-March • Soil sample – when soil is moist • Plan summer grazing sequence and rotation – March
Summer	<ul style="list-style-type: none"> • Rotationally graze bermudagrass to maintain forage quality and to protect accumulated growth in case of drought conditions – May-August • Target-fertilize bermuda pasture to ensure grazing in June, then more in July if needed • Fertilize bermudagrass in August and stockpile for grazing in October-December • In late summer, graze bermuda pastures short where ryegrass will be overseeded in fall • Determine if perennial cool-season grass is needed and start planning for conversion of bermudagrass • Plan fall grazing sequence – June
Fall	<ul style="list-style-type: none"> • Strip-graze stockpiled bermudagrass pasture from October to December • Overseed ryegrass in pastures that were closely grazed previous to grazing the stockpiled bermudagrass; plant clover with ryegrass if needed – October • Fertilize the ryegrass after emergence to improve fall and winter forage production – October • Plan winter grazing sequence – September-October
Winter	<ul style="list-style-type: none"> • Manage to reduce hay waste during feeding – December-March • Begin limit-grazing ryegrass two days per week at 6- to 8-inch height – February • Control winter weeds in bermuda in late winter if needed – February • Fertilize specific ryegrass pastures in late winter to jump-start spring grazing – February-March • Plan spring grazing sequence – January-February
Year 2	
Spring	<ul style="list-style-type: none"> • Follow Year 1 plan • Plan summer grazing sequence – March • Start conversion of bermudagrass for planting perennial cool-season grass in fall – April
Summer	<ul style="list-style-type: none"> • Follow Year 1 plan • Plan fall grazing sequence – June • Store hay under cover off the ground
Fall	<ul style="list-style-type: none"> • Follow Year 1 plan • Plant novel-endophyte fescue in renovated pastures – September-October • Plan winter grazing sequence – September-October
Winter	<ul style="list-style-type: none"> • Follow Year 1 plan • Plan spring grazing sequence – January-February

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