



Your local link to MU for ag extension and research information

<http://aqebb.missouri.edu/aqconnection>

For more information
please contact your
MU Extension Center:

Adair
(660) 665-9866

Audrain
(573) 581-3231

Boone
(573) 445-9792

Callaway
(573) 642-0755

Chariton
(660) 288-3239

Clark
(660) 727-3339

Howard
(660) 248-2272

Knox
(660) 397-2179

Lewis
(573) 767-5273

Linn
(660) 895-5123

Macon
(660) 385-2173

Marion
(573) 769-2177

Monroe
(660) 327-4158

Pike
(573) 324-5464

Putnam
(660) 947-2705

Osage
(573) 897-3648

Ralls
(573) 985-3911

Randolph
(660) 269-9656

Schuyler
(660) 457-3469

Scotland
(660) 465-7255

Shelby
(573) 633-2640

Sullivan
(660) 265-4541

Warm-Season Annual Forage Crops

Cool season grasses grow very well during spring as the optimum temperature for their growth is between 65 and 75°F. As ambient air temperature increases, growth starts to slow down limiting forage production during the summer. Cattle producers look for alternative forages that can grow during summer months. Planting summer annual forages might be a good option. Sorghum-sudangrass and pearl millet are the most common and well adapted summer annuals grown in Missouri. In a trial conducted in Missouri, feeding sorghum-sudangrass and pearl millet hay provided up to 1.8 pounds of gain per day.

Sorghum-sudangrass is a hybrid developed by crossing forage sorghum with sudangrass. The hybrid was developed to increase leafiness and forage production and to minimize seed set. It has good tolerance to drought, poor drainage, and is easy to establish. It grows well in a soil with a pH of 5.5 or higher. Seeding rate should be 20 to 25 pounds per acre for drilling with a ½ to 1 inch seeding depth and 30 to 35 pounds per acre for broadcasting. The optimum seeding time in Missouri is from the beginning of May until the end of June. It is ready for the first grazing 45 to 60 days after planting.

Soil testing is recommended before planting and fertilizer application. The amount of phosphorous and potassium to be applied should be based on soil test results. Apply 60 to 90 pounds of nitrogen (N) per acre at establishment and 40 to 60 pound of N per acre after each cutting or grazing. The majority of production will occur from June to August. It is not recommended to graze until the plant reaches 24 inches to avoid prussic acid poisoning. It is also advised to delay grazing for at least two weeks after frost or drought stress to avoid nitrate poisoning. For hay production, cut only at 30 to 36 inches of growth. Do not cut or graze below 10 inches to avoid nitrate poisoning.

Pearl millet is another good option as an annual warm season grass in Missouri. The crop prefers a soil pH of 5.0 or higher. It has extreme drought tolerant capacity and performs well on poor drainage soils. Unlike sorghum-sudangrass, it is prussic acid free. It should be drilled at 15 pounds per acre at a seeding depth of ¾ to 1 inch or broadcasted at a rate of 20 to 30 pounds per acre. Its optimum seeding time is from the beginning of May until the middle of June and produces forage mostly from June to August. Soil testing is recommended before planting and fertilizer application, especially for phosphorous and potassium recommendations. Apply 60 to 90 pounds of N per acre at establishment and 40 to 60 pounds of N per acre after each cutting or grazing. The recommended first grazing and cutting heights are 18-30 and 36 inches, respectively. The minimum grazing and cutting height is 8 inches.

Heavy nitrogen fertilization followed by adverse environmental conditions that restrict plant growth, such as drought or shading and cool or cloudy weather, can cause nitrate accumulation in forage. Nitrates are typically concentrated in the lower

portion of the stem; therefore, care should be taken to keep animals from consuming large amounts of the lower part of the stalk when nitrate concentrations may be high.

Nitrate testing is recommended. If plants contain more than 1.5% nitrate, it is toxic to livestock. Nitrates will persist in harvested hay, as they do not break down during the curing process. Pregnant and young animals are more sensitive to nitrate toxicity. Care should be taken when feeding forages containing more than 0.25% nitrate to these animals. Forages containing 0.25 to 0.5% of dry matter as nitrate should make up no more than half of the total ration. Forages with 0.5 to 1.5% nitrate should make up no more than one-fourth of the total ration, and livestock should receive supplemental energy, mineral and vitamin A.

Sorghum-sudangrass also has a possibility of prussic acid or cyanide poisoning if plants are injured or under stress, such as drought stress or frost damage. If sorghum-sudangrass is under drought stress, avoid grazing until the plants have recovered and exhibit at least 24 inches of regrowth. Following a severe frost, avoid grazing sorghum-sudangrass for 14 days or until the leaves turn brown, whichever is longer.

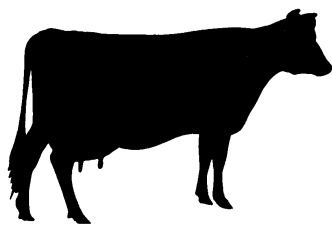
Prussic acid level is highest in young, leafy tissue whether it is initial growth after planting or regrowth after clipping. Avoid grazing until the plant reaches a height of at least 24 inches to allow prussic acid to dissipate. Unlike nitrates, which are persistent, prussic acid disappears during the hay curing or ensiling process. Feeding after 10 to 14 days of storage after harvesting at the proper height should not be a problem.

Source: MU guide G4661,
<https://extension2.missouri.edu/g4661>

Source: *Dhruba Dhakal*, agronomy specialist

Pregnancy Loss in Cattle

Fertilization occurs over 95% of the time, however more than 30% of these pregnancies will be lost. Most of these are early embryonic losses that occur in the first 45 days before many producers know if a cow is pregnant. Producers should watch for lower pregnancy rates, longer than average calving seasons, and a larger portion of cows



calving late in the calving season to know if there is a problem.

The first 45 days of pregnancy are when the embryo is most vulnerable as it moves into the uterus and attaches to the uterine wall through the placenta. Stressors such as disease, genetic defects, nutritional deficiencies, or environmental factors can cause significant pregnancy loss.

Infectious diseases such as trichomoniasis, leptospirosis, IBR, or BVD are often the first suspects when pregnancy loss is observed. Producers should work with a veterinarian to determine the best vaccination plan for the herd to prevent infection.

Genetic defects in the egg or sperm can also cause pregnancy loss. Researchers are looking at possible defects and the effect on the quality of the early embryo. In some cases the genetics of the bull/cow combination may also lead to embryonic defects.

Cows in poor body condition are less likely to get pregnant and more likely to experience pregnancy loss. Cow should be at a body condition score of 5 or greater at calving and should be watched through the breeding season to see that condition is maintained. A rapid loss of condition immediately before or after being bred can change hormone profiles and cause pregnancy loss. Endophyte infected fescue, high nitrates, or feeds contaminated with mycotoxins or molds may also interfere with pregnancy.

Environmental stressors, such as heat stress, can be one of the largest factors in pregnancy loss. Early embryos are especially sensitive to temperatures above normal body temperature. High temperatures may also disrupt normal uterine function and affect the quality of the egg. Other environmental stressors such as transportation and a new environment can also play a role. Research has found cattle loaded on a truck, driven for a few hours, and returned to the same pasture had pregnancy rates 10% lower than those that were not. Producers should wait to move cattle until day 45 of gestation to avoid loss.

Source: *Jenna Monnig*, livestock specialist

Welcome first time writer Jenna Monnig. Jenna is a livestock specialist located in the Mercer County Extension Center. She is a native Missourian. She has been with Extension the past couple of years. She is covering several counties in the North Central part of Missouri.



Boundaries - Not as Simple as One Might Think

It is surprising how a subject as simple as a boundary can be so complex. Spring is the time of year when fences and boundary lines cause the majority of the questions/disagreements. Following are some common boundary issues with clarification:

(1) Property lines and legal descriptions are exact.

Many new landowners think the amount of acres purchased is exact. For example, if a person purchased 160 acres, then the property is 160 acres; however, most legal descriptions of land will state "160 acres more or less." This may be due to a road, creek or other issue included in those acres. Creeks can be a boundary line and over time, may change. Remember, the acres acquired are not guaranteed.

(2) Boundary lines are where the survey says.

Frequently, new landowners believe since a paid survey was conducted, that is automatically the property or boundary line. Surveys done today are very accurate, but are not infallible. Surveys are based on points in several locations. Pins marking these points may have been broken or no longer exist. The farther away the points, the less accurate it could be. Each surveyor does not always come to the same conclusion as to location. For example, one landowner could have three surveys done, two by the same person, and none the same. Another issue that can affect the boundary is "adverse possession" (see more details in # 4 below).

(3) **Boundary lines and roads.** A road, even though included in a legal description, is not part of a property description, in general. However, if the road has been legally closed, it is no longer a road and reverts back to the original land as it was before the road. This is a more frequent issue in township counties. There are 21 township counties in Missouri. The problem is whether the road is closed legally or just abandoned. When closed, many people mistakenly assume the boundary is the middle of the road. That is only true if the original land taken for the road was from both properties so check with the county clerk. A landowner cannot legally close an open road with a gate or obstruction.

(4) **Boundary lines and adverse possession.** Rising land prices over the

years have led to more issues related to adverse possession. Adverse possession is an old legal doctrine that essentially states if a person utilizes land as their own and no one protests it, after ten years it can become theirs. It is a legal process and more complicated than that. It most commonly arises when a fence remains in place, but can occur regardless of a fence.

In conclusion, critical things to keep in mind: (a) a person cannot remove a fence or tear it down just because of a survey. The exception is in general fence law counties where the neighbor does not have livestock. (b) A legal description does not guarantee exact acreage. (c) If a road is involved, check with the county clerk on its status. (d) Do not assume the boundary line is set in stone. Finally, remember this information is for educational purposes and not a substitute for legal advice.

Source: *Joe Koenen, ag business specialist*



Weather Information Helpful for Farmers

Weather events have a large impact on Missouri's farming operations. Given the importance of weather to the success of Missouri's farms, weather stations have been placed throughout Missouri through efforts of the University of Missouri Extension Commercial Agriculture Program.

Data from these stations are reported as menu items on AgEBB (Agricultural Electronic Bulletin Board). The locations are listed by county. In Northeast Missouri, weather stations are located in the following counties: Audrain, Boone, Carroll, Knox, Linn, Monroe and Putnam.

Archived weather information reported is the hourly and daily conditions at each location. The conditions observed are:

- Air temperature
- Relative humidity
- Wind direction and speed
- Soil temperature at the two inch depth
- Solar radiation

The summaries of these weather elements are presented on AgEBB as Menu Items:

- Daily Weather Report
- Hourly Weather Data

Township Counties

Bates
Barton
Caldwell
Carroll
Chariton
Dade
Davies
DeKalb
Dunklin
Gentry
Grundy
Harrison
Henry
Linn
Livingston
Mercer
Nodaway
Stoddard
Texas
Vernon
Worth

- Calculated Weather Indices
- Accumulated Weather Summaries, year to date

Real-time weather (five minute updates) information can be obtained on most weather stations.

Information on the weather stations can be found at: <http://agebb.missouri.edu/weather/stations/>

The weather information is especially useful for crop farmers, as there is information on degree days, rainfall and soil temperature. It is also useful to livestock farmers, as the records on temperature and humidity can be useful in managing ventilation and cooling systems in confinement livestock buildings.

Horizon Point is another service offered by University of Missouri Extension. It is a custom weather analysis system for farmers, which includes site specific information for your location.

Farmers can subscribe to a weed-emergence outlook as part of the MU Horizon Point service. Emails report weeds, insect emergence, soil temperatures, rain runoff risks, weather forecasts and other management information.

To subscribe Horizon Point, go to <http://agebb.missouri.edu/horizonpoint> Farmers must submit email address, location of farm by longitude and latitude, and soil type. More than one farm location can be entered. Forecasts are site-specific to each farm location.

Further weather information can be found at: <http://agebb.missouri.edu/weather/>

Source: *[Kent Shannon](#), natural resource engineer*

