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Filling the Summer Forage Gap

Summer annual forages such as pearl millet, sudangrass and sorghum sudangrass are widely used to fill a void in summer forage production. Summer annuals are also used as smother crop when renovating forage stands. Less common crops that can be utilized include foxtail millet, Japanese millet, or improved crabgrass. When moisture and soil nutrients are readily available, sorghum-sudangrass and pearl millet can produce six tons of forage and crabgrass five tons of forage per acre during the growing season. Plant these summer annual forages in mid to late May when the soil temperature reach 60 degrees.

The key to maintaining high quality forage throughout the summer is to keep the plants from becoming too mature. Harvest or graze sorghum-sudangrass and pearl millet when the plants reach 24 to 36 inches in height and leave a 10-inch stubble to promote regrowth. To maximize production, apply 60 pounds of nitrogen fertilizer at establishment and 40 to 60 pounds after each harvest.

Because it can be difficult to get the coarse stems of sorghums or millets to dry enough to bale as dry hay, making baleage by wrapping bales in plastic at a high moisture content is an alternative. Baleage is wrapped when the moisture content is between 45 and 60 percent compared to 18 percent moisture for dry hay. The keys to making high quality baleage are:

- ▶ Make tight dense bales that are typically smaller than dry hay bales
- ▶ Wrap within 24 hours of mowing
- ▶ Wrap with at least four layers of 1-mil white plastic, six is better
- ▶ Store bales in a well-drained area, near the area where they will be fed

Crabgrass should be grazed or mowed for hay when it reaches 8 to 10 inches, but not more than 24 inches tall. Leave a three-inch stubble for optimum regrowth. Fertilize crabgrass with 40 to 50 pounds of nitrogen at planting and again after the first harvest or grazing for maximum production. To maintain crabgrass in the stand the following season, stop grazing at least three weeks before a killing frost. The following spring lightly harrow the field to improve seed to soil contact.

Use caution when grazing any of these annuals during periods of prolonged drought. Nitrates can accumulate in the lower stems resulting in nitrate poisoning. Make the second application of nitrogen fertilizer only if adequate moisture and growth is available to minimize the risk of nitrate poisoning during drought. Prussic acid poisoning is an additional concern with sorghum-sudangrass following plant injury from frost, hail or stress from drought. To help avoid poisoning, do not graze sorghum species before they reach 18 inches in height and do not graze plants for 14 days after they have been stressed.

More information can be found in MU Guides G4661 Warm Season Annual Forage Crops and G4164 Growing Millets for Grain, Forage and Cover Crop Use.

Source: *Valerie Tate, agronomy specialist*

Importance of Biosecurity

Livestock producers should be familiar with the term biosecurity. The United States Department of Agriculture Animal and Plant Health Inspection Service (USDA-APHIS) defines biosecurity as everything done to keep diseases and the pathogens that carry them (viruses, bacteria, fungi, parasites and other microorganisms) away from animals, property, and people. This would include both structural and operational biosecurity. Structural biosecurity includes measures taken in the physical construction of pens, farms, and other facilities to prevent contamination. Operational biosecurity pertains to practices, procedures, and policies that are consistently followed by employees and visitors to the operation.

The Beef Quality Assurance program states that biosecurity has five major components: (1) Assessment, the potential for a disease organism to enter the operation from outside (new animals, wild animals, pests, contaminated feedstuffs, equipment, etc); (2) Resistance, the animal's ability to reject or contend with an infectious agent. This can be supported with proper nutrition, minimizing stress, and administration of appropriate vaccines; (3) Isolation, prevention of contact between animals within a controlled environment, all new animals should be quarantined for a minimum of 2 weeks before introduction to main herd (4 weeks is ideal); (4) Traffic Control, the MOST important step in disease control is to minimize commingling and movement. It is important to understand traffic control is more than just vehicles. All people and animals (dogs, cats, horses, wildlife, birds, and pests) must be considered; and (5) Sanitation, the cleaning and disinfection of materials, people and equipment. The first objective of sanitation is to remove organic matter due to its inability to be sanitized or disinfected. Once equipment is cleaned, it should be appropriately stored in a clean dry area. Operation management personnel must also acknowledge and consider a basic fact of human behavior: Typically, things that are hard to clean, will not get cleaned. When effectively managed, these five components meet the most important objective – PREVENTION.

Over the past month, a break down in any one of these areas can create worldwide panic. Livestock producers have the responsibility to maintain a safe healthy food supply even in difficult times.

Breeding Season Must Go On

Prior to the start of the breeding season cattle producers must consider a very important examination of their natural service bulls, the breeding soundness examination (BSE). This exam should be conducted on an annual basis at least 60 days prior to the start of the breeding season, to allow for retesting or replacement. The BSE is made up of three components; structural soundness, reproductive exam, and semen quality. Veterinarians will evaluate these areas and determine if the bull is satisfactory, unsatisfactory, or if the bull needs to be re-evaluated. This examination could potentially assist in avoiding a disaster, by eliminating infertile bulls which would result in open females. Another

heavily weighted component to a BSE is libido. Due to the veterinarians limited availability, libido is not typically assessed chute-side by a veterinarian. Monitoring of satisfactory bulls during the breeding season is strongly encouraged to ensure that libido is satisfactory. If bulls are purchased it would be wise to ask for a copy of the BSE to insure optimal fertility.

Tools that cattle producers can use during the breeding season are estrus synchronization (ES) and artificial insemination (AI). These technologies offer beef producers the means to introduce proven superior genetics into their herds, shorten the calving season, and increase calf age and uniformity.

Advantages of using AI

- Shorter calving season resulting in a more uniform calf crop when also synchronizing estrus
- Ability to use superior bulls that otherwise could not afford or have access
- Improve production traits (mating cows to specific sires)
- Reduce the number of herd bulls needed
- Potentially safer as less bulls are housed on farm
- Increased genetics for replacement heifers

Additional benefits include: increased weaning weights, improved post-weaning performance, enhanced carcass value and more productive replacement heifers.

Starting an AI program will likely call for more involvement in the management of the cow herd. The following are some helpful management tips:

- Pre-breeding vaccinations or de-worming should be completed at least 30 days prior to breeding
- Keep a steady to increasing plane of nutrition (rations less than 16 percent protein)
- Cows should average 45 days postpartum prior to artificial insemination (AI)
- Cows and calves should be clearly and individually identified with legible ear tags and/or brands
- Individual calving dates should be recorded for each cow
- Only use natural service sires that pass BSE
- Only use AI sires proven to perform effectively in a fixed-time AI program
- Use AI sires that are genetically proven (EPD's)
- Ensure AI technicians are scheduled for AI date and capable to perform task
- Check corrals, alleys, and chutes to ensure proper functionality

Poor management in one or more of these areas could result in lower success rates.

In the past, AI involved twice daily estrus (heat) detection, with time and labor being noted as the biggest reason for not adopting these technologies. Researchers at the University

of Missouri have developed fixed-time artificial insemination (FTAI) protocols. These protocols minimize the number of animal handlings (times through the chute) and inseminate cows at a predetermined, fixed time, eliminating the need to “heat” detect. In turn, the FTAI protocols minimize the time and labor for producers.

The cost of an AI program varies, depending on the method of estrous synchronization used, cost of semen and need to hire an AI technician. A reference to AI protocols can be found in any Beef Sire Directory. These reference sheets are put together by the Beef Reproductive Task Force based on several universities’ research.

Recent studies indicate several estrous synchronization/AI programs cost less than natural service, especially when accounting for the increased costs of bull replacement and bull maintenance.

As a reminder AI breeding barns are available: contact Daniel Mallory at 573-985-3911 (malloryd@missouri.edu) to make arrangements for your operation.

Source: *Daniel Mallory, livestock specialist*



Financial Assistance Under the CARES Act

On March 27, 2020, the President signed into law H.R. 748, the Coronavirus Aid, Relief, and Economic Security (CARES) Act. The CARES Act contains several relief provisions.

The Paycheck Protection Program, implemented by section 1102 of the CARES Act, expands the Small Business Administration (SBA) 7(a) loan program to provide \$349 billion initially in federally-guaranteed loans to small employers and eligible self-employed individuals impacted by COVID-19. The Paycheck Protection Program (PPP) loans are designed to be partially forgivable. Under the expanded SBA program, the definition of eligible small businesses and organizations includes many not ordinarily eligible for an SBA loan.

During the covered period (Feb. 15 - June 30, 2020), in addition to "small business concerns" meeting size standards under current SBA regulations any business, concern, 501(c)(3) nonprofit, veterans’ organization, or Tribal business concern will be eligible to apply for a covered loan if they employ 500 or fewer employees. The term “employee” includes full-time, part-time or others such as seasonal workers. Businesses with a North American Industry Classification System (NAICS) code beginning with 72 (lodging and restaurant businesses) are eligible to receive a loan. Multi-location businesses qualify if there are less than 500 employees per physical location. Sole proprietorships, independent contractors, and self-employed individuals may also be eligible. Supporting documentation may include payroll tax filings, Forms 1099

-MISC, and income & expenses as determined by the SBA.

The loan amount is generally the *lesser* of: (1) \$10,000,000 or (2) 250 percent of the average monthly *payroll costs* incurred during the one-year period before the date on which the loan is made, plus any refinanced Economic Injury Disaster loans received after January 31, 2020. Startups that were not in business between Feb. 15, 2019 and July 30, 2019 need to calculate average monthly payroll costs based upon the period beginning Jan. 1, 2020 through Feb. 29, 2020. Seasonal employers may calculate the average monthly payroll costs based on the 12-week period beginning on Feb. 15, 2019 or March 1, 2019 through June 30, 2019.

Recipients may use the proceeds of a covered loan for:

- Payroll costs
- Costs related to the continuation of group health care benefits during periods of paid sick, medical or family leave, and insurance premiums
- Employee salaries, commissions, or similar compensation
- Interest on any mortgage obligation (not including principal)
- Rent (including rent under a lease agreement)
- Utilities
- Interest on any other debt obligations that were incurred before February 15, 2020.

Non-forgiven portions of these loans have a maturity of two years from the date the borrower applies for loan forgiveness. The interest rate on the loans is 2.75% for nonprofits and 3.75% for businesses, and lenders must provide complete interest and principal payment deferment relief for at least six months (and up to one year). The non-recourse loans require no personal guarantee or collateral. Borrowers are not required to prove they cannot obtain the funds elsewhere, and there is no prepayment penalty or SBA fee.

These loans prioritize small business concerns and entities in underserved and rural markets, including veterans and members of the military community, small business concerns owned and controlled by socially and economically disadvantaged individuals, women, and businesses in operation for less than two years.

Generally, a borrower is eligible for loan forgiveness on a covered loan in an amount equal to the sum of the following costs incurred and payments made during the covered period: payroll costs any interest payment on any covered mortgage obligation (which shall not include any prepayment of or payment of principal on a covered mortgage obligation). “Covered mortgage obligation” means an indebtedness or debt instrument incurred in the ordinary course of business that (a) is a liability of the borrower, (b) is a mortgage on real or personal property, and (c) was incurred before Feb. 15, 2020. “Covered rent obligation” means rent obligated under a leasing agreement in force before Feb. 15, 2020. “Covered utility payment” means payment for a service for the distribution of electricity, gas,

water, transportation, telephone, or internet access for which service began before Feb. 15, 2020. Amounts forgiven are cancelled indebtedness by the lender authorized under section 7(a) of the Small Business Act. Within 90 days after the date on which the forgiveness is determined, the SBA Administrator will remit to the lender the amount of the forgiven loan, plus any interest accrued through the date of the payment. The amount of loan forgiveness cannot exceed the principal amount of the financing made available. The forgiveness amount is subject to reduction if there is a reduction in employees or a reduction in the salary or wages of any employee.

Borrowers must apply for forgiveness with the lender servicing the loan. Applications for forgiveness shall include:

Documentation verifying the number of FTE equivalent employees on payroll and pay rates, including:

- Payroll tax filings reported to the IRS and State income, payroll, and unemployment insurance filings; Documentation, including cancelled checks, payment receipts, transcripts of accounts, or other documents verifying payments on covered mortgage obligations, payments on covered lease obligations,

and covered utility payments;

- A certification that the documentation is true and correct and the amount for which forgiveness is requested was used to retain employees, make interest payments on a covered mortgage, make payments on a covered rent obligation, or make covered utility payments;
- Any other documentation the SB Administrator determines necessary.
- No forgiveness will be granted absent the required documentation. Lenders have 60 days to review and make a determination on the forgiveness application. The lender will be held harmless for decisions made based upon erroneous documentation. Any portion of the loan that is forgiven will be excluded from the gross income of the borrower.

Potential borrowers should evaluate and compare other options provided by the CARES Act, including the employee retention credit and the option to defer payroll taxes. Businesses should consult with their lenders regarding specific program requirements. Another source of assistance is the Small Business Development Centers. Find the nearest location at: <https://americassbdc.org/small-business-consulting-and-training/find-your-sbdc/>.

Source: *Darla Campbell, ag business specialist*



Tips for Gardening in May

Ornamentals

The ideal time to plant warm-season annual flowers is mid-May, after the threat of frost is past. Pansies and other cool-season flowers start to fade as the weather warms, and can be replaced with warm-season flowers like petunias or other favorite annuals. Lantana is an annual flower that thrives in heat and drought, blooms profusely until the first frost and attracts butterflies. Milkweed and other native flowers which are food source for monarch populations, should also be planted.

Foliage on spring bulb foliage flowers should not be removed until the foliage turn brown and dies back. The foliage needs to photosynthesize to build up energy reserves in the bulb for next years' blooms. Start pinching back chrysanthemums in May to encourage bushy growth. Pinching is a type of pruning that encourages branching on a plant. When a plant is pinched, the main stem or shoots are removed, forcing the plant to grow two new stems from the leaf nodes below the pinch or cut. Typically, 2-4 inches of a shoot is pinched. Continue pinching through mid-July.

Vegetables

Cool-season vegetables like spinach, lettuce, radishes, broccoli an asparagus should be at the peak of harvest in May. Keep asparagus picked for continued spear production. Snow peas are usually ready by late May

into June. They make a great snack that can be eaten off the plant. As cool-season crop production slows, replace plants with those that prefer warm weather. This is called succession planting. Mid-May is the ideal time to plant warm-season vegetable crops. The threat of frost has past and the soil has warmed enough for successful germination. Tomato plants are often a challenge for gardeners to grow due to disease and disorders. To help alleviate these issues, place straw mulch 3-4" thick around tomato plants to hold in moisture and provide disease control. Straw keeps fungus in the soil from splashing onto the lower leaves of the plant. Stake or cage tomato plants, and remove lower leaves that touch the ground. If necessary use a fungicide containing the active ingredient chlorothalonil to control fungal disease like Septoria Leaf Spot or Early Blight. Daconil is a brand available for home garden use.

Fruits

Follow a spray schedule starting in April for fruits susceptible to disease and insects. Do not spray any fruits while in bloom. Spray trunks of peach trees and other stone fruits for peach tree borers in June. Refer to local Extension publications for fruit spray schedule. Prune and train young fruit trees to eliminate poorly positioned branches and establish proper crotch angles. Thin overloaded fruit trees which will result in larger and healthier fruits at harvest time. Thinned fruits should be a hands width apart. Enjoy the strawberry harvest in late May through mid-June. Excess strawberries can be frozen for future use.

Disease/Insects

Disease will be a problem for many plants during a rainy spring. Peach Leaf Curl is a common disease of peach and nectarine trees and is caused by the fungus *Taphrina deformans*. The fungus causes the growing cells at the leaf margins to multiply quickly and randomly, which results in the puckered, curled, distorted appearance. Properly timed fungicidal sprays during the dormant season (once in November and again in March) will help prevent this disease. Once a tree has Peach Leaf Curl, fungicide sprays will not help.

Growing grapes in the Midwest can be a challenge. Black Rot, a serious disease of grapes is quite common in wet springs. To prevent it, use a fungicide spray as new shoots are 2 to 4 inches long, and again when they are 10 to 15 inches long, just before bloom, just after bloom, and when the fruit has set.

Anthracnose is a common leaf disease on shade trees in Missouri during a cool, wet spring. It is caused by fungus and development is favored by cool, wet conditions. Primary hosts in Missouri include: Ash, Birch, Elm, Hickory, Linden, Maple, Sycamore, Tulip tree, Walnut, and White Oak. Anthracnose fungi typically create dead, brown areas that form around the leaf veins and margins. Over time these areas tend to fall out, giving the leaves a very ragged appearance. Most of the time, it is nothing to be concerned about, but fungicides are available and are most appropriate and economical for younger, newly transplanted trees that may not be able to withstand defoliation.

Source: *Jennifer Schutter, horticulture specialist*