



Forage Production Newsletter

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Weed Control

Introduction: Many times as agronomists, animal scientists and producers, we get caught up in the production and forget about the family unit and things that are involved in the family. However, these things are very important to us and are becoming even more important in today's economic environment. Therefore, I decided to incorporate a section pertinent for family finance.

Weed identification: Weeds are identified as a plant out of place and compete with forages for nutrients, space and sunlight. Weeds can be toxic to livestock and can reduce forage or hay quality thereby negatively impacting cattle weight gains and reproduction. Weeds can be alleopathic (release of toxic chemicals) to the forage. Weeds are prolific seed producers (Spiny Amaranth can produce 300,000 seed per plant) and have intrinsic abilities to survive during periods of stress.

Weeds can be controlled with herbicides, mowing, grazing management and forage health through soil management.

Mowing is basically a band-aid approach. This process offers a temporary fix especially when dealing with perennial and biennial weed types. Mowing removes the plant top but it will return and all along it is deepening its root system making it more difficult to control. In addition, mowing is one of the most expensive and inefficient form of weed control and greatly disseminates weed seeds.

Grazing management is a good way to control weeds by insuring plant health. This approach entails the use of cross-fencing, rotational grazing, stocking rate control and grazing duration. The worst thing one can do is continuous graze a pasture at high stocking rates where the grass is grazed below a two inch height. This allows weed evasion. Granted some intensive grazing strategies are good when properly managed.

Forage health management is another way to manage weeds, since healthy forages provide conditions that are less desirable for weed establishment. This involves managing soil pH, soil nutrient levels, in-season nitrogen levels, breaking hoof and traffic pans and managed grazing. These methods will allow the development of healthy forages that will better compete with weeds and maintain health better during stresses like severe droughts.

Herbicides: Of course herbicides still provide a foundation to initially correct mismanaged fields and ensure productivity of properly managed fields. The greatest cost in using herbicides is where fields have been neglected and weed populations are high and diverse in species. This promotes the use of expensive chemicals at higher labeled use rates. It also prompts the need for more applications to get the situation under control. In situations like this, I use a three year plan with an aggressive approach in year one. This approach eventually leads to a maintenance program where less expensive chemicals can be used and on a field by field basis. To do this good weed scouting and identification is needed.

Types of herbicides: Herbicides can be classified as post-emerge and pre-emerge herbicides.

- **Post-emerge herbicides:** Most forage herbicides are post-emerge types. These herbicides control specific weeds following emergence. Weed control efficacy with post-emerge herbicides can be affected by plant size and stage, weed type (perennial, biennial or annual) environment and rate. Post-emerge herbicides can be further categorized as **translocated** (move within the plant) or **contact** (kill by desiccation and primarily control annual broadleaf and grass weeds). They can be further categorized as **selective** (kills only selective plants) and **non-selective** (kills all plants). Many post-emerge herbicides do have some soil residual activity offering longer control.
- **Pre-emerge herbicides:** These herbicides control weeds before or shortly after they emerge. Diuron is the only pre-emergence herbicide in forages. It is not recommended for use when sprigging Alicia bermudagrass since severe injury can occur

Improving weed control with post-emerge herbicides involves several items and are listed below.

- **Plant size and stage:** Targeting smaller weeds improves control at a lower labeled use rate. As a weed matures, control becomes difficult since there is a shift to a reproductive mode. Another reason for control difficulty is the leaf cuticle becomes thicker impeding herbicide penetration. When the weed is young, it is actively growing and this growth coincides with chemical movement of the herbicide.
- **Weed type:**
 - **Perennials** live many years and produce deep roots making control very difficult. They are best controlled in the juvenile stage, during spring bud break or in the fall as they prepare for winter dormancy.
 - **Biennials** live for two years producing vegetative growth the first year followed by seed production the second year. Many of these weeds are difficult to control but not as difficult as the perennial type. Control is best in the rosette stage (thistle species).
 - **Annuals** live for one year and rely heavily on seed production. They grow vegetative, flower and bear seed in one year. These weeds (for the most part) are easy to control with timely herbicide applications and proper forage management. In a forage establishment situation, annuals will be the first weeds to colonize followed by biennials and then perennials.
 - Weeds can be further categorized into **grasses and broadleaves**. Therefore, a weed can be classified into many categories as can be seen below.

Annual _____	Biennial _____	Perennial
Grass	Broadleaf	Grass
Broadleaf		Broadleaf
Sedges		Sedges

Annual grasses: Broadleaf signalgrass, crabgrass, foxtails, barnyardgrass, goosegrass

Annual broadleaves: Sicklepod, cocklebur, prickly sida, spiny amaranth, horsenettle, may- weed, wooly croton, bitter sneezeweed

Annual sedges: Rice flat sedge & umbrella sedge

Biennials: Thistle species

Perennial grass: Johnsongrass, cogongrass, bermudagrass, bahiagrass, vasey grass

Perennial broadleaves: Chinese tallow, briars, kudzu, yuopon, privet, dew/blackberry, dog fennel

- **Environment:** Herbicide efficacy is improved in environments that favor plant growth. These environments include warm temperatures, adequate soil moisture, low relative humidities and sunny skies. Under extreme drought, weed control is difficult because growth is slowed and the cuticle becomes thicker.
- **Choose the right herbicide:** Tailoring the herbicide for the weed complex and environmental conditions is very important. Price is a big player in selecting a herbicide but a cheaper product can cost you more money than selecting the correct product that might cost more. Remember, if you have to treat a field again for failed control not only is it going to cost more for re-treatment but it will cost you in loss of forage production.

- **Rate:** Rates of herbicides are governed by law and should be followed to avoid violations, crop injury, wasting money, contaminating the environment or damaging livestock. When weeds are young and actively growing or environmental conditions favor plant growth, lower rates as prescribed on the label can be used. However, as weeds get older and tougher, higher labeled rates are necessary. Some difficult to control weeds require higher labeled rates.
- **Additives (Surfactants & Crop Oil Concentrates):** Herbicide efficacy can be improved by using surfactants & crop oil concentrates depending on the herbicide used, weed type, growth stage and environmental conditions. These materials improve leaf penetration by the herbicide. No, dish-washing detergent will not suffice. The use of the correct additive can improve control under adverse conditions but should be used according to label of additive and label of herbicide.
- **Calibration:** Calibration is very important to ensure the correct rate being applied, the correct pressure is being used and spray nozzles and pumps are working properly. Calibration techniques vary for boomed sprayers and boom-less sprayers. Tractor speed should be known (timed over a measured distance) and the amount of water caught for a specific time) are necessary for proper calibration. Calibration takes some time and effort but can save money, reduce off-target movement, offers more efficient weed control, reduce crop injury and reduce environmental impacts.
- **Drift reduction:** Drift can be reduced by using the correct pressure, nozzles, tractor speed, volume and not applying during windy conditions. Tips exist today that allow applications at low pressures. Another item that can possibly minimize drift is Drift Reducing Agents. However, the best way to minimize drift is to not spray during periods of high winds, stay away from sensitive plants (tomatoes and cotton) and make sure the equipment is properly calibrated.
- **Water Volume:** Water is the cheapest thing that you will put in your tank. Water volumes need to range from 20-30 gallons per acre. This ensures adequate coverage and penetration.
- **GPS equipment:** Inexpensive guidance systems can be purchased to improve application efficacy and save money by avoiding skips or overlapping spray swaths. These systems are very accurate and can pay for themselves in a short time frame.
- **Common post-emerge herbicides in established pastures:**
 - **Phenoxy herbicides:** These include 2,4-D amine and low volatile ester. These herbicides are used for broadleaf (annuals, biennials & perennials) weed control. Phenoxy herbicides are selective, translocated herbicides in that they do not harm most of our established forage grasses and move within the plant causing twisted terminals and starves roots of sugars due to blocked transporting tissues. You can see damage in grass crops that are becoming established. A problem is that they will kill clovers and other broadleaf crops (cotton & tomatoes) and can drift and volatilize. They will persist from 1-4 weeks in warm, moist soils and longer in cool, dry conditions.
 - **Characteristics of 2,4-D Ester:**
 - There are two forms of ester a short molecular chain and a long molecular chain.
 - The long chain ester is less volatile but will volatilize.
 - Low Volatile Ester can be used in forages from November to March before temperatures warm and increasing volatility. It can injure young ryegrass.
 - **Characteristics of 2,4-D Amine:**
 - Enhanced resistance to washing off during rain.
 - More rapid foliar uptake.
 - Less volatile.
 - Disadvantage is the higher viscosity during cold weather.
 - Do not apply during long droughts or to annual legumes until after seed production.
 - **Benzoic herbicides:** This herbicide family contains a commonly used forage herbicide called Dicamba. This herbicide offers excellent control of broadleaf weeds but also can kill seedling grasses and clovers. It is a selective, translocated product.
 - **Characteristics of Dicamba:**
 - Sold under the trade name **Clarity**.
 - It is readily absorbed by foliage of many broadleaf weeds and translocated.
 - It can pass from the plant and be re-absorbed by adjacent susceptible plants.
 - Possesses plant growth regulator capabilities and disrupts plant's transport system.
 - Mixture of 2,4-D and Dicamba is sold under the trade name **Weedmaster & other trade names**. Another product containing Dicamba is **Overdrive (Diflufenzopyr + Dicamba)**. Controls annual or perennial broadleaf weeds and control improved by adding nonionic surfactant.

- **Picloram and Triclopyr:** Picloram and Triclopyr are sold under the trade name, **Surmount and Remedy** respectively.
 - **Characteristics of these herbicides are:**
 - These herbicides control of a wide range of annual and deep-rooted perennial broadleaf plants. They are selective, translocated, postemerge herbicides.
 - They are translocated following root or foliage uptake moving through the sugar and water transporting systems. They kill by inhibiting the conversion of sunlight into sugars.
 - Surmount should be applied to actively growing weeds. Lower rates are used for small, annual weeds and higher rates for larger annuals or established perennials.
 - **Grazon P + D (Picloram + 2,4-D)** is an older product that is commonly used in established forages that contains Picloram.
 - Triclopyr is sold under the trade name **Remedy** and should be applied to actively growing weeds as a broadcast or spot-spray applications or prior to bud break for control of woody species. Triclopyr offers control of many broadleaf annuals and perennials including many woody perennials. The use of 1-2 quarts of non-ionic surfactant should be used per 100 gal with broadcast applications.
 - Combinations of Triclopyr occur with several other products. **Redeem R&P (Triclopyr + Clopyralid), PastureGuard (Triclopyr + Fluroxypyr), Crossbow (Triclopyr + 2,4-D).**

- **Chlorosulfuron:** This product is sold under the trade name **Telar**.
 - **Characteristics of the product and chemistry:**
 - This chemistry is effective at low rates and offers pre and post-emerge weed control but is primarily used for post emerge control.
 - It is readily absorbed by roots and leaves and translocated through the plant.
 - The chemistry inhibits cell division in the growing points of stems and roots.
 - It persists in the soil for 4 to 6 weeks until it is degraded via microbial activity.
 - Telar should be applied to actively growing annual weeds and while biennial or perennials are still in the rosette form. It will control primarily annuals but offers control of some biennials and perennials.
 - Only make one application per season and do not exceed 1/3 oz/A/season.
 - Control is enhanced by adding nonionic surfactant.

- **Products labeled for established Bermudagrass only:**
 - **Cimaron (Metsulfuron):** Should be applied to actively growing weeds and for control of bahiagrass following green-up and before seed-head formation. The product works best with a non-ionic surfactant. The product offers control of Pensacola bahiagrass, and other broadleaf weeds in established bermudagrass. This product will not control Argentine bahiagrass and **do not** apply this herbicide to bahiagrass pastures or hay fields. **Cimaron Max (metsulfuron + 2,4-D + Dicamba) and Cimaron Plus (metsulfuron + chlorosulfuron)** are examples of products containing metsulfuron.
 - **Journey (imazapic + glyphosate):** Apply to actively growing weeds as a spot treatment or broadcast application. Methylated seed oil is a preferred additive over non-ionic surfactants. Do not apply during spring green-up. Do not apply to World Feeder, Tifton 85 or some hybrid bermudagrass. Do not exceed 21 oz/A on Coastal bermudagrass. Do not apply within 30 days of aeration. Bermudagrass growth will likely be suppressed for 30 days. This is a fairly non-selective herbicide but some bermudagrass species show tolerance but be careful with this product.

- **Herbicides for dormant bermudagrass:**
 - **Gramoxone Inteon (paraquat)**
 - This is a non-selective, contact herbicide that kills by desiccation.
 - Controls annual grasses and broadleaf weeds. Control improved with non-ionic surfactant.
 - Remember, Gramoxone is very high in mammalian toxicity.

- **Bermudagrass and Bahiagrass sod suppression:**
 - **Gramoxone Inteon** can be applied during the early fall to sods not exceeding three inches in height to suppress summer perennial grasses for planting of annual grasses.

- **New Herbicides that were sold in 2009.**

Grazon Next: This herbicide is a combination of aminopyralid + 2,4-D and is recommended for use on established grass pastures. It controls many broadleaf weeds with the primary target being tropical soda apple and horsenettle. Grazon Next will severely damage legumes and do not plant legumes in treated areas until bioassay proves that herbicide residues will not damage legumes. Manure should not be used in areas where sensitive broadleaf plants will be grown.

Chaparral: This herbicide is aminopyralid + metsulfuron. This combination will **kill bahiagrass** due to the metsulfuron and will harm legumes and fescue. It has many restrictions like don't plant ryegrass for four months following treatment, don't rotate to any crop within one year following treatment, don't plant legumes until after bioassay and others so consult label.

Outrider: This herbicide contains sulfosulfuron and should be applied to actively growing weeds in established Bermuda and Bahiagrass. Its primary targeted weeds include Johnsongrass, sedges, ryegrass, mustards and buttercup.

Many of these herbicides carry plant back restriction's, grazing and haying restrictions and other use restrictions so please consult the label or call your local Extension Office for more details.

Setting Financial Goals in 2010

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(Family Resource Management Area Extension Agent)

As a new year begins, take the time to set financial goals. Many New Year's resolutions are never achieved; however, Mississippi State University Extension Service can provide information, strategies and motivation to help you reach your financial goals.

Goals to strive for this year include:

- * **Spend less than you earn.** Make a budget and keep track of spending. This allows you to see where money is going, allows you to examine how to reduce expenses and show where you can find the money to save, invest or prepare for future needs.
- * **Have a plan by setting financial goals.** Set short term goals (immediate to one-year), intermediate goals (up to five years) and long-term goals (five years or more). For example, maybe you have a goal of \$1,200 for a new refrigerator at \$100 a month for a year. This becomes a line item in your budget. Once the goal is met, the \$100 can then be allocated toward other goals.
- * **Get organized.** Make a financial information binder by using a 4-inch ring binder with page dividers. Examples for the sections include a personal directory, professional directory, personal property inventory, net worth statement, tax papers, loan information, insurance policies, social security and pension benefits statements and credit reports.
- * **Save for expected events** like retirement, vacation, holidays, birthdays and anniversaries.
- * **Financially prepare for unexpected events** like repairs, job loss, illness and accidents.
- * **Always know your interest rates.** Avoid paying anything higher than 13 percent interest on loans.
- * **Keep a healthy credit report.** Go to <http://ftc.gov> to learn how to improve your report. Receive a free annual credit report at <https://www.annualcreditreport.com/cra/index.jsp>. You may want to check on your credit score every year or so, at the above Web site. The cost is usually under \$10. A good credit score is in the mid to high 700's.
- * **Avoid waste.** Reduce dining out (eat as a family unit at home), clipping coupons and buying on sale can greatly help the bottom line.
- * **Take advantage of tax breaks.** Request your tax credits, use the volunteer income tax assistance program (VITA). To find the site in Mississippi nearest you dial 211.
- * **Fill in financial gaps** by selling used items at garage sales or consignment sales. Recycle where possible. Don't discard items until they are completely used up. Learn how to do repairs.
- * **Give back to your community.** Donate when you can, but do it carefully. Go to <http://www.sos.state.ms.us/> to learn more about charity fraud. There are also many volunteer opportunities. Check with your local non-profit agencies.

You can contact Randy Smith at 601-765-8252 or 601-813-7166 or Susan Cosgrove at 601-635-2267 or your local Extension Office.

Remember don't guess call someone who knows not some who pretends to know.