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Missouri Spring Forage Conference

by David Whitson

I recently attended the Southwest Missouri Spring Forage Conference in Springfield and there were several speakers that addressed economic issues that bear repeating. Fertilizer cost, buying hay and hay storage.

Managing fertilizer cost on forage is complicated by high fuel cost and foreign market competition for the fertilizer.

Issues to consider:

- **A current soil test** will help you tell if you can get by a couple of years without the addition of phosphorus or potassium on pasture land. If it is just grass and the phosphorus and potassium is at adequate levels, then money spent on nitrogen would be well spent.
- **Timing of nitrogen application.** For cool season grasses application of nitrogen in late winter or early spring will bring good benefits. You should consider how much pasture you will need and fertilize for what you will need. Fertilize in September to encourage fall growth for late fall and winter grazing. For warm season grasses the time to fertilize is late spring. Nitrogen applied too early to warm season grasses just encourages the growth of weeds. Application should be made when the night temperatures are at least 60 degrees F for one week. Of course a good alternative to nitrogen fertilizer is clover or other legumes. The speaker said that a 25% stand of legume is needed to provide adequate nitrogen for grass.
- **Whenever fertilizer prices soar**, there are always individuals out there with an untested product that sells for 3-5 dollars per acre that is promoted to replace commercial fertilizer. If you run into one of those, ask for research from a land grant university. If they do not have the research, be aware that it could well be a product of little or no economic value.
- **Buying hay versus raising hay.** We have discussed this issue at grazing school for some time. The major question is can you afford to own equipment for a few acres of hay and take the risk of whether to produce hay that will have variable quality. You may not always get the quality you want at the price you want, but purchased hay does offer that possibility. The other issue that I have not addressed with purchased hay is that there is a value of around 10 for the nutrients that are brought onto the farm from the hay. The issue is how do you spread that nutrient over you land economically? It would involve either confinement feeding with the spreading of manure, or moving the hay feeders or feeding on the ground.
- **As the value of hay increases, we may need to revisit the economics of building hay storage sheds.** Hay is lost during storage, even in good buildings. But the quality of the hay in the outside layer can decrease greatly if it is improperly stored outside.

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The annual costs of storage will depend on years for depreciation, interest rate, taxes, insurance, and maintenance. To determine if barn storage is economical, the annual cost of storage per ton needs to be compared to the benefit (income) of barn storage. The benefit or income due to barn storage will be the reduction of dry matter loss and feed value loss compared to outside storage

This benefit is calculated by multiplying the value of hay times the reduction in loss. For example, if hay is worth \$50 per ton and barn storage reduces hay losses by 20 percent, the benefit of storage would be \$10 per ton ($\$50 \times .20 = \10).

There is not enough room to discuss all of the issues here in this newsletter. If you would like more detail on the economic issues call David Whitson at 417-455-9500.

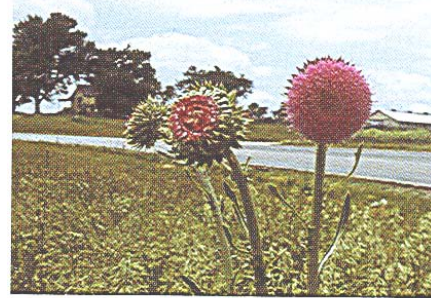
It is Thistle Time Again! Now is the Time for Chemical Control

by John Hobbs

Thistles are still reaping havoc on our farms. Musk thistle and bull thistle are biennials causing major problems in perennial grass crops including pastures, roadsides, conservation reserve and fence rows. Biennials require portions of two growing seasons to reproduce. They grow from seed the first season as a rosette (a taproot with a cluster of leaves on the soil surface). The rosette overwinters and cold causes the rosette to send up a flowering stalk the next season and produce seed. Once seeds mature, the plant dies. Destruction of rosettes prior to flowering is an effective means of preventing seed formation and subsequent spread.

Management of pastures infested with biennial thistle requires special consideration. Since biennial thistles reestablish from seed which is dispersed by wind, it is helpful to prevent seed formation adjacent to pastures. Also it may take two or more years of excellent control before seeds are reduced to the point that allows for legume reestablishment for pasture improvement. One year of poor thistle control will result in having to start the control program over.

Most of the herbicides used for control of bull and musk thistle also kill pasture legumes. Spot spraying individual plants or patches rather than broadcast spraying the entire pasture also spares the legumes.



Musk thistle

Musk thistle normally initiates flower stalks in early May and reaches full flower in early June. Seed production is prolific and usually completed in mid to late June. Rosettes reestablish nearly any time during the growing season. Some rosettes may be three or four feet in diameter during the growing season. Musk thistle is extremely aggressive.

Bull thistle normally initiates flower shoots in June and reaches full flower in July and August. Seed production is usually completed in late summer. Rosettes reestablish during and early fall.

Chemical Control of Biennial Thistle

by John Hobbs

The best time to treat biennial thistles with herbicides is in late fall or early spring when the rosettes are present but before flowering stalks emerge. Musk thistle and bull thistle plants with seed stalks are more difficult to kill than the rosettes. Thistle rosettes need to be treated when they are actively growing and not under drought stress. The younger the rosette, the more susceptible it is to herbicide.

Foliar Treatments for Selective Removal of Biennial Thistle from Pasture Grasses

by John Hobbs

One properly timed treatment per year should prevent seed formation. Several herbicides provide good to excellent control of thistle rosettes. Fall treatments should be made late enough to kill all rosettes germinated before winter. Late germinating rosettes that establish after early fall herbicide applications could flower the next growing season. Early spring treatments should kill all overwintering rosettes and those rosettes

The following are recommended chemical controls in pastures for thistles.

Herbicides	Per Acre	Per Gallon
2,4-D amine	1-2 Qts.	3-6 Tb.
2,4-D Ester	2 Qts.	6 Tb.
Grazon	1 Qts.	3 Tb.
Surmount RU4	1.5 Pts.	3-5 Tb.
Milestone	4 Oz.	1.5 Tb.

Aphids on Wheat

by Jay Chism

Watch for aphids on wheat that may cause barley yellow dwarf virus. The barley yellow dwarf virus is very wide spread in cereal crops. The virus persists in small grains, corn, and perennial and annual weed grasses. Population levels of aphid, that include greenbug, oat bird-cherry aphid, corn leaf aphid, and the English grain aphid can all vector or infect wheat plants with barley yellow dwarf virus. Symptoms include leaf discoloration ranging from a light green or yellowing of leaf tissue to a red or purple discoloration of leaf tissue. Discoloration tends to be from the leaf tip down and the leaf margin in towards the center of the leaf. Plants may be stunted or may have a rigid, upright growth form.

It is important to monitor aphid populations in wheat fields this spring. Reports of small numbers of aphids being discovered should not alarm wheat producers, but as the weather warms, scouting events should be increased. Mild conditions will also permit beneficial insects such as lady beetles to become active, so the news is not all bad.

Changes in wheat varieties, tillage practices, fertility levels, pest pressure and other factors all affect economic threshold numbers. In recent years disease pressure from barley yellow dwarf on wheat crops caused Wayne Bailey, the University of Missouri Entomologist, to rethink traditional

economic thresholds. Many producers are adopting high performance wheat production systems and the current thresholds may be outdated. Recent research in Missouri suggests that aphid threshold levels may need to be more conservative to better protect loss of potential yield. Treatment may need to be considered if 25-50 aphids are present per linear foot of row during early seedling stage. The old threshold of 100 aphids may not have been an efficient response in Missouri's field conditions.

According to Laura Sweets, Plant Pathologist with University of Missouri, the potential for significant yield loss in wheat infected in the fall with barley yellow dwarf is higher than wheat infected the following spring or summer. However, it is very difficult to estimate the damage that might occur from barley yellow dwarf infection in the fall. Moisture stress may contribute to losses, and disease severity and impact will also be influenced by growing conditions this coming spring and summer.

Crop scouting is an essential part of developing a pest management plan. Through a regular and systematic field scouting program, pest pressure and crop injury can be determined. Information obtained when wheat farmers' scout their fields will help determine if any pest management procedures need to be applied.

Bovine Viral Diarrhea (BVD) Eradication

by Dona Funk

Industry estimates reveal that about one out of 10 beef cow herds have at least one persistently infected (PI) animal BVD, and one out of every 100 to 400 calves born are PI. When these numbers are applied to the financial side, BVD is estimated to cost \$10 to \$24 per breeding animal. Thus, in a 200-head cow herd, losses would reach \$2,000 to \$4,800 per year. In the feedlot, the economic loss can be as great as \$21,000 to \$100,000. That loss isn't a year's loss; it's the economic loss by feedlots in just a few weeks.

Today the cattle industry's BVD Working Group (WG) is leading the charge targeting BVD control and eradication. Focused on biosecurity and biocontainment, the BVD Working Group has identified three disease control fundamentals: 1) prevent transmission; 2) increase immunity; and 3) eliminate the agent.

To enhance communication across the industry, the WG has developed herd and individual animal level categories and have a standardized descriptor for each category. Individual animals have four standardized descriptors and every animal fits into one of these levels: Status 1, tested PI negative and vaccinated; Status 2, tested PI negative and not vaccinated; Status 3, not PI tested and vaccinated; and Status 4, not PI tested and not vaccinated.

The Working Group has also stated that vaccinations must be administered per label, and vaccine administered to breeding animals must carry a fetal protection label.

Through the years, control efforts have zeroed in on identifying PI animals since they are the primary source of BVD infection. Extensive research shows that PI animals are born persistently infected and that calves not born persistently infected cannot become persistently infected. Nevertheless, PI animals are an unwanted commodity in any bovine herd. PI calves come from two sources. Fewer than 10 percent of PI calves are born to pregnant BVD-PI females. More than 90 percent of PI calves are the result of a non-PI pregnant female becoming infected with the BVD virus during the first half of gestation. And the BVD virus that infects the non-

PI pregnant female can easily come from PI animals within the herd, as PI animals constantly shed BVD viruses to herd mates.

Identifying PI animals is just the start of a larger problem. That challenge is the disposition of PI animals.

The Academy of Veterinary Consultant's stand on the disposition of PI cattle is summarized in this position statement: "The cattle industry has a moral and ethical obligation not to sell known diseased or damaged animals to other parties without full disclosure. In support of the AVC BVD ad hoc committee's mission of BVD control, we recognize that responsible disposition of animals with BVD (PIs) will be an important component of BVD control."

"The dilemma of how to deal with known PI cattle becomes more critical as BVD testing becomes more widespread. Appropriate disposition of known PI cattle must take into account the adverse impact those cattle have on health, welfare and the economic return of other cattle and cattle operations they may expose to BVD," the statement continues.

"It is widely recognized that a PI animal is defective, and, once confirmed, their PI status should thereafter be disclosed as exposure to these cattle has health ramifications for all cattle, especially those intended for reproductive purposes. Therefore, marketing and movement of PIs in any manner that potentially exposes at-risk cattle is strongly discouraged."

States that have implemented state BVD programs are at work addressing this PI animal disposition challenge. States agree that PI animals should not be sent to a sale barn, as that only exposes other animals to the BVD virus. Alternatives include donating the animal for research or, if the PI animal is at market weight, selling it directly to slaughter since BVD poses no threat to humans. PI animals below market weight should be euthanized or isolated and fed to market weight then sold for slaughter. **Source – Cattle Health Report Fall/Winter 2007, National Institute for Animal Agriculture*

Check Stored Grain

by Ed Browning

Grain stored on the farm should be checked frequently to insure its condition isn't deteriorating. Temperature fluctuations this winter may have caused moisture migration within a grain bin to the point that mold growth could begin if it hasn't already. Grain that went into storage in good condition should have been checked about every two weeks. Poor quality grain should have been checked every week. There are a variety of ways to check grain.

Ideally temperature monitors placed in the grain would give instant indications of a potential problem. This can be quite costly and many bin manufacturers (at least at one time) would not guarantee a bin roof if such equipment was suspended from it.

Sample probes can also be used to take samples at various depths for moisture content. A little bit of moisture in the grain causes enough resistance to the probe that it's difficult to get the probe much deeper than two or three feet and that won't give enough representative samples to know for sure if grain below that point is in good condition or not. Typically, mold growth will either appear on the top of the grain mass in the center of the bin or at the very bottom.

One good way to check grain condition is to climb up the outside bin ladder, open the roof hatch and have someone turn on the drying/aeration fan. By smelling the exhausting air, you can get a pretty good idea about the grain quality. If the air smells fresh, then the grain is probably okay. If the air smells musty or moldy, there's a serious problem in the bin.

Another way to check grain quality is to open the bin unloading sump and run a little grain out the

unloading auger and test the sample for moisture content, monitoring and recording it from each sampling. Tracking it in this manner lets you know if the moisture content is changing. Because fines generally find their way to a column in the center of the bin, this would be the area involving a worst-case scenario. You must remember to open the sump, allow it to fill with grain then close it before running the unloading auger. Otherwise, the next time you try to sample the grain in this manner, you'll have to close the sump and empty the unloading auger before resampling. Grain that smells musty or tests high in moisture content needs to be taken care of as soon as possible.

Now, that's pretty much what you should have been doing all winter. Since the temperature will be changing more or less on a permanent basis, you'll need to begin warming up the mass to within 10 degrees of average outdoor temperature

By determining the airflow from drying/aeration fans in cubic feet of airflow per minute (cfm) and dividing it by the number of bushels then dividing that number (cfm per bushel) into 12 to 15, you can determine how many hours it will take to change the conditions in the bin. For example, a 10,000 cfm fan blowing air on 7,500 bushels gives 1.3 cfm per bushel. Dividing 12 by 1.3 and 15 by 1.3, it can be determined that it would take 9 to 12 hours. However, if there's a pocket of wet grain somewhere in the mass that's causing the problem, it'll take longer to eliminate the source of trouble.



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