Grass Clippings

pasture research you can use

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UW Extension • UW-Madison Center for Integrated Agricultural Systems and College of Agricultural and Life Sciences • UW Agricultural Research Stations

In this issue

Greetings and Happy Spring!

They say colors can affect your moods. Green is supposed to be a calming color, but to a grazier, I believe the color green is energizing and invigorating!

As another year begins to show its promise of green grass, every grazier I've spoken to lately is already talking about the grazing on the way, and plans they've made to improve their management expertise to get the most from their pastures during the "green" season.

One of the less expected comments I've heard is "this year we need to pour more concrete"!

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A new disease found on multiflora rose in Wisconsin

Mark J. Renz, Agronomy Department, University of Wisconsin Extension

Multiflora rose (*Rosa multiflora*) currently dominates many pastures and edges of forests in southern Wisconsin. This perennial shrub is not native to the United States, but was purposely introduced from Japan in the 1930s – 50s to serve as a "living fence" for pastures and other farmlands. Unfortunately, this plant rapidly spread into pastures, resulting in significant reductions in pasture productivity throughout the state. In addition, multiflora rose can produce large thickets with numerous thorns reducing accessibility into forested and other recreational areas. This species' ability to rapidly spread (with the help of birds), establish in a wide range of areas and tolerate management activities are common traits of invasive plants that can dramatically impact pastures.

While several tools have been found to be effective in managing multiflora rose (e.g. herbicides, repeated mowing, grazing by sheep/cattle), these are often not cost-effective for large-scale infestations. Ideally, biological control would be the best management method for reducing these large infestations. Two agents have been found in Wisconsin that have the potential for biological control of multiflora rose. The rose seed chalcid (*Megastigmus aculeatus*) was originally released in much of the Eastern United States where large populations have established. This wasp feeds only on multiflora rose seeds produced in the rose hips and if populations get large enough they can kill more than 90% of the seeds produced in a year (Armine 2002). Unfortunately, large populations of this insect have not yet been observed in Wisconsin and the chalcid does not damage adult shrubs, limiting the impact of this species on multiflora rose populations. The other biological control agent is a disease called rose rosette disease (RRD). This disease is native to North America and has been observed to be very effective at infecting and killing multiflora rose shrubs. While RRD has been present in states to the south of us since the 1970s, its appearance in Wisconsin is fairly recent. Distribution in Wisconsin is limited, but observations indicate that it is spreading rapidly in Vernon, Crawford, Grant, Richland, Sauk, Iowa, Lafayette, Green, Racine, and Dane counties.

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While it's not exactly a pasture improvement, after what seems like a mostly muddy winter, there might be some good reasons to consider more concrete on some farms, including my own. As with other costly inputs, it needs due consideration before pouring begins, so perhaps it will be a topic of discussion at a few pasture walks this year.

But if you are looking for some other ideas to chew on, look over our current issue, pass it out at the next network gathering, and as always, if a question or topic comes up and you'd like us to try and help find some answers, drop me a line so we can look at it for a future issue. Happy Grazing!

Rhonda

Grass Clippings features grazing-related research news from the University of Wisconsin and beyond.

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Multiflora rose *... from page 1*

RRD is fatal to multiflora rose as infected plants have been observed to die within two to five years in other states (Epstein and Hill 1999, Armine 2002). While no tests are currently available that positively verify infection, symptoms on multiflora rose are quite distinct. Symptoms include a red coloration of the underside of leaf veins, elongated shoots, an increased number of thorns, and a proliferation of lateral buds on shoots producing many reduced and malformed leaves (witches' broom). These symptoms are very robust and make identification of infected shrubs relatively easy.

Although it is easily identified, very little is known about RRD. The organism causing the disease is not known, but researchers believe it is a virus that is transmitted by an eriophyid mite (*Phyllocoptes fructiphylus*). This mite has been shown to be able to transmit the disease under greenhouse and field conditions (Armine 2002). Spread of RRD occurs naturally from the mite vector, which can travel by wind and on bodies of small arthropods such as aphids and thrips. Local infections of RRD are isolated as spread has been patchy; and nearby multiflora rose patches (300-500 ft away) can remain uninfected. More research is needed to understand the factors required for infection to occur, but experts believe it is associated with how well mite populations over-winter and survive early spring conditions. Unfortunately, RRD also can infect some ornamental and native rose species/cultivars so it is not recommended to artificially spread this disease.

Observations were initiated in 2004 near Richland Center, Wisconsin to document the development of RRD on multiflora rose, and to determine length of time for death of infected plants. Twenty plants were selected that varied in size, and that had minor to no symptoms present in 2004. The health of these 20 plants was observed each summer through 2006. Multiflora rose health rapidly declined in marked plants between 2004 and 2006. Ratings were significantly higher (worse) in 2006 compared to 2005 (Figure 1). Size of bushes did not influence injury ratings, and by 2006, 5 out of the 20 plants had died.

While short-term observations indicate that infected multiflora rose populations can be reduced by 90% or more, the long-term results are likely more complex. Observations in other states have shown that as large shrubs die, RRD infected plants dramatically decline, allowing seedling multiflora rose plants to establish and re-infest the site (Armine 2002). Rose rosette disease remains present at the site, but at low levels until conditions that cause its spread reappears and another large-scale reduction in the population occurs (Armine 2002). This cycling of infection and reestablishment is common with biological control programs, and additional management will be required to reduce multiflora rose populations further. If infected plants are observed within your pasture and large-scale death of shrubs is occurring, consider additional management methods that prevent the reestablishment of new shrubs from seeds.

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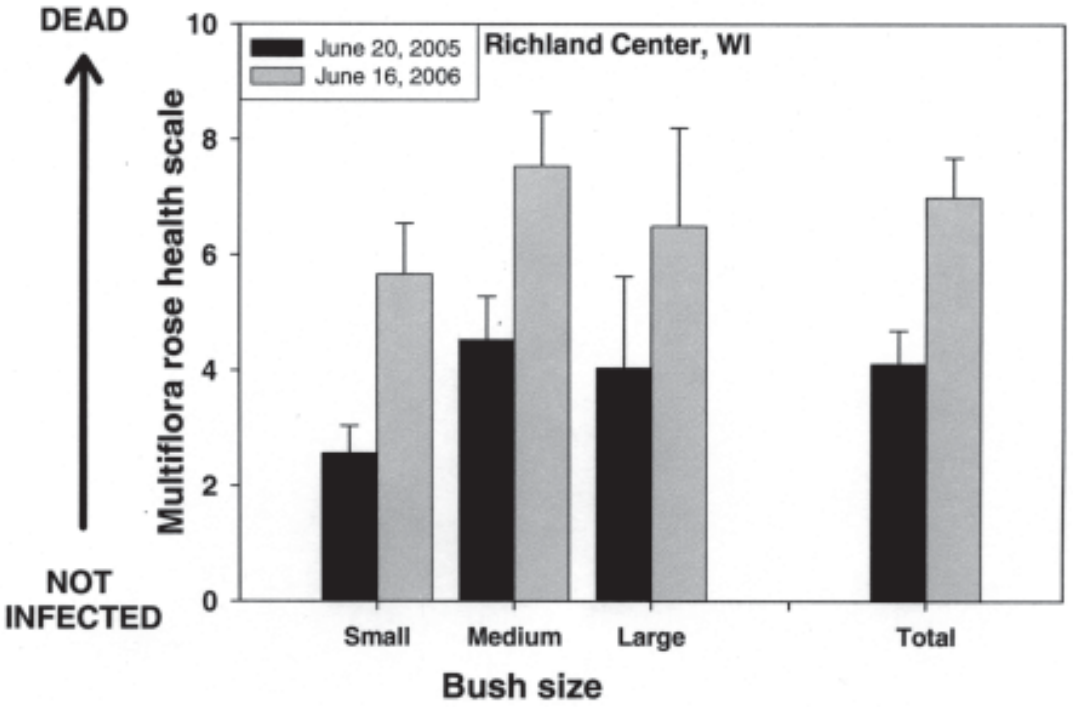

Figure 1. Average visual rating of multiflora rose health 1 and 2 years (2005-2006) after rose rosette disease symptoms appear. 0= healthy plant; 10 = dead plant.

Multiflora rose... *from page 2*

Additional information on multiflora rose can be found on the following websites: http://ipcm.wisc.edu/uw_weeds/extension/articles/multirose.htm http://www.dnr.state.wi.us/invasives/fact/rose.htm

Most of the weeds in pastures are actually non native invasive plants (e.g. leafy spurge and Canada thistle). These plants are well known to reduce forage amount and quality within pastures. Often these species are also causing large impacts to other cropping and natural areas. To help combat this, Governor Doyle has declared June Invasive Species Awareness Month (ISAM) and has recognized this as an opportunity for all of us to join forces and "take action against the introduction and spread of invasive species." Many educational events are scheduled to be held throughout the state in June. The goals of the events are to raise awareness of the serious threat of invasive species and to provide information about how to prevent and manage specific invasive species throughout Wisconsin. Several field days will be held in the southwestern portions of the state dealing with multiflora rose management and rose rosette disease. Locations for the field days have not yet been determined, but will likely have one in each of the following counties in June: Columbia, Crawford, Iowa, and potentially Lafayette. Please contact your local county agent for specifics about these upcoming events as June approaches. For a complete listing of all ISAM events and to find out more about Invasive Species Awareness Month, visit the Wisconsin Council on Invasive Species website (www.invasivespecies.wi.gov).

Complete the survey on the next page if you would like to help us monitor the spread of RRD on multiflora rose.

References

Armine, J.W. 2002. "Multiflora Rose." p. 265-292. In R. Van Driesche, S. Lyon, B. Blossey, M. Hoddle, and R. Reardon (eds.) *Biological control of invasive plants in the eastern United States*. USDA Forest Service publication FHTET-2002-04.

Epstein, A.H. and J.H. Hill. 1999. "Status of rose rosette disease as a biological control for multiflora rose." *Plant Disease* 83(2):92-101.

Multiflora rose survey

If you are interested in participating in upcoming research monitoring the spread of RRD on multiflora rose, please fill out the survey below and mail it or send me an email with your survey answers.

Multiflora Rose and Rose Rosette Disease in Wisconsin
Dr. Mark J Renz, Extension Weed Scientist
University of Wisconsin-Madison, Agronomy department
Phone: 608-263-7437; Email: mrenz@wisc.edu

If you are mailing your response, please use the following address:

Colleen Smith
UW-Madison Agronomy Department
1575 Linden Drive
Madison, WI 53706

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1. When was the first time that you saw multiflora rose on your property? ***Circle all that apply***
   (A) 1-5 yrs (B) 6-10 yrs (C) more than 10 yrs (D) don't have it (E) purposely planted

2. Is multiflora rose present in any of the following areas : ***Circle all that apply***
   (A) sun (B) shade (C) steep slope (D) in a valley (E) on a ridge

3. Do you have any multiflora rose that you think may be infected with the disease or looks unhealthy:
   Circle one yes no

4. If so, what percentage of the plants are infected? ***Circle one***
   (A) less than 10% (B) 11-25% (C) 26-50% (D) 51-75% (E) over75%

5. Where is the infected multiflora rose located? ***Circle all that apply***
   (A) sun (B) shade (C) steep slope (D) in a valley (E) on a ridge

6. We are looking for research sites for the summer of 2007. Would you be interesting in participating in additional research? ***Circle one*** yes no

Please provide contact information so we may schedule a visit to your property in 2007.

Name(s): _____

Phone #: _____ Email: _____

Location of land: _____

Interseeding legumes versus applying nitrogen fertilizer

Ken Barnett, UW Extension Educator

Introduction

The legume and grass content of a grazed pasture changes over time. This occurs due to a cycling of the grass and legume portions of the pasture. When grasses do better, the competition reduces the legume content. When the legume content and its nitrogen contribution to the grasses decreases, the grass content also declines. As the grass content decreases, the legume content will increase again. In maritime climates in England and New Zealand, this cycle takes about five years. For our temperate climate, the cycle period has not been identified.

A 30 percent stand of legume in the pasture can supply 30 to 50 pounds of nitrogen per year to the grasses in the pasture. The cycling of nitrogen from urine, manure, dead plants, etc. may supply an additional 15 to 30 pounds of nitrogen per year depending on cow numbers and frequency of grazing. While this is significant, recent UW research showed a positive economic return with up to 100 pounds of nitrogen fertilizer per acre applied to mixed pastures (http://www.uwrf.edu/grazing/PNNitrogen.pdf). This article will provide information comparing the cost of interseeding legumes with that of applying nitrogen fertilizers.

Advantages of interseeding

What are the advantages of interseeding legumes in the grazed pasture? The first is a reduced need for nitrogen fertilizers. Second, seasonal distribution of forage dry matter is improved by boosting summer production from the legume in the pasture. Third, protein levels and overall digestibility of the forage are improved.

Some of the practices recommended before interseeding legumes are:

1. Do a soil test to determine if there is a need to apply lime or other nutrients. The soil pH should be near 6.3 to help maintain the legumes in the pasture. If needed, fertilize with phosphorus or potassium. Phosphorus and potassium are important in maintaining legumes in pastures. When phosphorus and potassium are low, the grasses, which are more efficient at extracting nutrients from the soil, can out-compete the legumes.
2. Do not apply nitrogen fertilizer either in the fall before or during the year of establishment to avoid stimulating grass growth.
3. Suppress the existing vegetation. Overgraze the pasture the previous fall to open up the sward or seed in the early spring before much growth has occurred.
4. Frost seed or drill in the seed in early spring.

After legume emergence, bring animals back in to graze as part of the normal rotational grazing cycle. Keep animals on an area for less than a day and remove them just before the new legume seedlings are grazed. Leave about three to four inches in the grazed pasture.

Costs for nitrogen fertilization versus interseeding legumes

Let's look solely at the economics of nitrogen fertilization versus interseeding. Based on a cost of $0.487 per pound of nitrogen ($448 per ton for urea), the cost per acre for applying 50, 100, and 150 pounds of nitrogen per acre would be $24.35, $48.70, and $73.05 per acre, respectively.

The costs for interseeding legumes into the grazed pasture are less than applying nitrogen fertilizers. Red

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Reflections on Past Research: Performance of birdsfoot trefoil in Northern Wisconsin

Summary from Research Report 64, October, 1970, Research Division, UW CALS
G.H. Tenpas and J.M. Scholl with comments on current day conditions from Geoff Brink

Background: In the late 1950s through the early 1970s, researchers at the UW examined birdsfoot trefoil as a pasture legume in Northern Wisconsin. The research was designed to find out lime needs and soil drainage requirements for birdsfoot trefoil, and compare its productivity to that of alfalfa. Alfalfa faces some challenges in Northern Wisconsin. Alfalfa grows best in fertile soils with pH values of 6.5 to 7.0 and with good internal and surface drainage. The summary from the original 1970 research report below is followed by some current-day comments from Agronomist Geoff Brink.

Summary: Birdsfoot trefoil was compared to alfalfa under hay and pasture managements in field experiments at the Ashland agricultural experimental farm in northern Wisconsin. The response of these legumes to soil pH and to internal soil drainage conditions was studied over a ten-year period. Three experiments were conducted.

In the first experiment, birdsfoot trefoil was as productive as alfalfa when managed for hay (two cuttings) and slightly more productive when managed for pasture (three cuttings). In this experiment the soil pH, even with the six-ton rate of lime, did not reach the most favorable level for alfalfa (pH 6.5-7.0). The slow internal soil drainage on the site was also considered unfavorable for alfalfa. Under these conditions and in this area, trefoil can be expected to be equal to or superior to alfalfa; the yields in 1959-1961 proved this to be true.

The same site was later used for the second experiment, which compared the effect of three pH levels on the performance of alfalfa and trefoil when grown on a soil with slow internal drainage. The experiment again evaluated alfalfa and trefoil for hay and pasture management. In this experiment, trefoil was significantly more productive under both managements; it did not respond to pH levels. On the other hand, alfalfa showed significant responses to lime levels under both managements.

In the third experiment, two sites similar in pH and soil nutrients, but varying in internal soil drainage, were compared for growing alfalfa and birdsfoot trefoil for hay. The legumes were grown alone and in combination with bromegrass. Trefoil on poorly-drained soil, over all treatments, was 89% as productive as on the well-drained site; alfalfa produced only 68% in a similar comparison. The yields of alfalfa and trefoil were similar during the first year within each site. Alfalfa showed superiority on the well-drained site after that, but trefoil consistently produced more under the poorly drained conditions.

Both legumes benefited by association with grass in this study. Grass-legume mixtures are preferred to legume seedings alone for several reasons. Trefoil begins growth very slowly in the spring; bromegrass starts early and complements first harvest yields. Also, bromegrass is a sod-forming species and tends to fill in when legume populations decline. In most instances, the grass contribution to mixtures is high in first growth, with legume growth dominating later harvests. Bromegrass is a satisfactory companion for alfalfa, and timothy combines well with trefoil.

Schmidt and Tenpas concluded that timothy was more productive than bromegrass and orchardgrass when grown in pure stands without N fertilizer, and when grown in association with trefoil-red clover at the Ashland experimental station. Trefoil apparently is not as effective as alfalfa and red clover in supplying N to the associated grass through symbiotic N-fixation; so timothy may be a better companion grass for trefoil than others that may outyield it under higher N fertilization.

Brink's observations: Trefoil is a legume that, more than most legumes, has a real niche in terms of where it will

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Birdsfoot trefoil ... *from page 6*

work best. It seems to exhibit reasonable productivity and persistence in many soils, but does best where other legumes are less adapted due to soil drainage and/or climate.

These experiments are a case where quality may make a real difference. Considering what we know about the role of tannins in ruminant nutrition, it would be better to know how animals perform on trefoil vs. alfalfa, and not just make a comparison strictly on the basis of dry matter yield.

In the first two experiments, the researchers used three cuttings to simulate the effects of grazing. As scientists, we are sometimes forced to impose treatments in a manner that simulates a process. In my opinion, this approach may be more unrealistic when applied to birdsfoot trefoil because of its growth habit. I have only observational evidence, but mowing appears to remove a much larger proportion of the leaf area than grazing would. Thus, the treatment biases against trefoil because the plant is more dependent on residual leaf area for regrowth.

The consistent higher production of the trefoil on the poorly drained site is a relevant result, even today.

Timothy is mentioned as a good companion grass for birdsfoot trefoil, and this makes sense. Timothy is likely less competitive than bromegrass and orchardgrass and is better adapted to the soils and climate of the area.

Geoff Brink is an agronomist at the U.S. Dairy Forage Research Center in Madison, WI (608-890-0052, gebrink@wisc.edu). Current research objectives are to determine: 1) the influence of pasture sward characteristics (availability, density, quality, animal preference) on intake and 2) the influence of grazing management (timing, extent and frequency) on grass morphology, yield distribution and persistence.

Interseeding legumes ... *from page 5*

clover and white clover are the legumes most often interseeded in Wisconsin pastures. In the following example, the cost for red clover seed is $2.70 per acre at a seeding rate of three pounds per acre (cost averaged over two years). The cost for a custom seeding using a no-till drill is $15.65 per acre. The total costs are $18.35 per acre. Frost seeding with a cyclone-type seeder mounted on an ATV or tractor would cost less.

Table 1. Comparison of costs for applying nitrogen fertilizer versus interseeding red clover

Amount of nitrogen applied	Nitrogen application cost per acre	Interseeding red clover cost per acre	Difference
50 lbs nitrogen per acre	$24.35	$18.35	-$6.00
100 lbs nitrogen per acre	48.70	$18.35	-$30.35
150 lbs nitrogen per acre	73.05	$18.35	-$54.70

Regardless of the amount of nitrogen fertilizer applied, interseeding red clover was less costly. This difference would increase with additional yearly nitrogen applications.

Summary

Interseeding legumes into a grazed pasture is cheaper than applying as little as 50 pounds of nitrogen per acre. While nitrogen applications are more effective at increasing total dry matter yields, interseeding legumes improves the seasonal distribution of forage dry matter by boosting summer production in the pasture and improves the protein levels and overall digestibility of the forage. It is a long-term management tool for improving pasture productivity. If the legume content of a pasture drops below 25 to 30 percent, you should consider adding more legumes to the pasture or adding nitrogen fertilizer.

Fertilizing with nitrogen is a short-term management tool since its effect is usually immediate and does not last more than one grazing cycle. Additions of nitrogen fertilizer may cause a shift to more grass content in the year of application.

How much grass seed do we need?

Dan Undersander, UW Extension Forage Agronomist

This is this time of year when many begin to think about seeding pastures. April is an excellent time to seed because we tend to have good soil moisture and cool conditions that are excellent for grass and legume germination.

Seeding rates of pasture grasses and legumes

Species	seeds/lb	seeds/sq ft/lb	seeding rate
Bluegrass	2,200,000	50	15
Clover, red, in mixtures	252,000	6	6 to 8
Clover, white, in mixtures	784,000	18	1 to 2
Meadow Fescue, in mixtures	426,000	18	10
Orchardgrass, alone	653,000	14	10
Orchardgrass, in mixtures		14	2 to 4
Ryegrass, Italian, alone	270,000	6	20 to 25
Ryegrass, perennial, alone	230,000	5	20 to 25
Ryegrass, in mixtures		5	2 to 4
Smooth bromegrass, alone	136,000	3	16
Smooth bromegrass, in mixtures		3	3 to 6
Tall fescue, alone	229,000	5	10
Tall fescue, in mixtures		5	4
Timothy, in mixtures	1,234,000	28	2 to 4

Many people do not consider the particular grass and legume species and varieties to be seeded but simply buy a pasture mix. This can cost less per acre for seed but can be a very expensive mistake for the following reasons:

- You may not be selecting the best varieties for your purpose. For example, are the ryegrass, orchardgrass, and/or fescue in the mix rust resistant? If not, cattle and sheep will not eat them.
- Mixes can be expensive such that, because they are developed to give general coverage over a broad region, they seldom are best suited for specific needs.
- Mixes may contain uncomplimentary grasses such as an early maturity orchardgrass (because it is less expensive than late maturity varieties) and smooth bromegrass which should be matched with a late maturing variety of orchardgrass.

Specific recommendations pasture grass and legume varieties and for mixtures can be found in the Forage Variety Update for Wisconsin. UW Extension publication A1525 is available from county extension offices or you can view it on the web at: http://www.uwex.edu/ces/forage/pubs/A1525-2006.pdf. Consider making your own mix to get what best suits your needs at least cost.

The table at right will help you chose a mixture and seeding rate. This can be used to compare pastures mixes or to develop your own mix. Consider that 75 seeds per square foot of the total mix are generally adequate for a good stand. Seventy-five to 150 seeds per square foot will give quicker ground cover but no yield advantage. Higher seeding rates than 150 seeds/sq ft will tend to favor the fast establishing grass species and put the slower establishing grasses and legumes at a disadvantage. For example, if a high seeding rate of Italian ryegrass is used, it will germinate quickly and provide good ground cover to reduce erosion and give early forage yield, but may out-compete the slower establishing timothy or smooth bromegrass. This is why we recommend no more than 4 lbs/acre of Italian ryegrass (24 seeds per square foot).

The table above gives recommended seeding rates for common pasture species. The numbers in the **seeds per sq ft per pound of seed** column multiplied by your seeding rate (lb/acre) will tell you how many seeds per square foot you are seeding. This information is also available from the Forage Seeding Rate Calculator, a spreadsheet located at www.uwex.edu/ces/forage.

Grazing fun sheet for kids

Have an event or field day that will include younger kids? Know a teacher that is interested in grazing? CIAS and GrassWorks have a fun worksheet geared at third through sixth graders that explains managed grazing and includes a crossword puzzle and a maze. *Cows Turn Pasture into Milk* is available at the CIAS website at www.cias.wisc.edu. Look at the bottom of the page for the link, or type "cow turn pasture" into the search box.

Soil quality and the grass farm (part 3 of 3): putting it all together

Mark Kopecky, Price County UW Extension Agriculture Agent

In the first two articles in this series, we introduced the topic of soil quality and talked a bit about the indicators of soil quality and how to measure some of those. As a quick review, soil quality can be thought of as "how well soil does what we want it to do." Some of the characteristics of soils that indicate its quality include soil pH and fertility, organic matter content and form, the amount and stability of aggregation in the soil, how well air and water can pass into and through the soil, the biological activity of a soil, and its general tilth.

With the growing season coming on fast, now is a good time to consider our objectives in managing for high soil quality. Even though a lot of these are interrelated, it's helpful to think of our goals in terms of six simple ideas:

- Add/ conserve organic matter
- Avoid excess tillage
- Prevent soil compaction
- Keep the ground covered
- Diversify cropping systems
- Carefully manage fertilizer and pesticide use

Notice that we didn't specifically mention something about preventing soil loss (erosion). It's probably obvious, but if we are doing the six things listed above, we should be automatically addressing the issue of soil conservation. If we are losing soil, that problem has to be addressed before any of the fine points of soil quality can be managed.

In grazing systems, farmers have many advantages in managing for soil quality that can be harder to achieve in other cropping systems. To begin with, a permanent cover of grass, legumes, and forbs will address most of the six items listed above. For instance, the constant growth and sloughing off of roots as a sward grows and is grazed back, as well as ungrazed plant residue on the surface, contribute substantial quantities of fresh organic matter to serve as a feast for all the living things in the soil food web. This is the basis for all the biological activities that need to happen in order to have good soil quality.

A pasture system implies that excessive tillage isn't being done, it keeps the ground covered, and helps prevent a lot of the mechanical traffic that can compact soils. The pasture system also recycles a large percentage of the nutrients that the plants and other organisms need to grow, so it also helps address the issue of fertilizer use. Of course, having properly inoculated legumes in the system will contribute a lot of nitrogen, so most pastures could function effectively without adding much of this very expensive nutrient. This recycling of nutrients also helps to maintain the pH of the soil and in some cases can even raise the pH of acidic soils.

Because most pasture systems have a wide variety of plants growing in the sward, a pasture can almost be thought of as a diverse cropping system in itself, without having to actually disturb the ground to implement cropping diversity through conventional crop rotations. This diversity often also helps natural pest control systems to work effectively without having to resort to pesticides as commonly as under conventional cropping systems.

From my observations, compaction can be a common problem on grazing farms. Compaction can be caused by hoof traffic as well as by mechanical operations. It squeezes the air out of otherwise well-aggregated soils and reduces the large pores in the soil that also help precipitation and air to enter and move through the rooting zone. Again, there are a number of interrelated problems that occur when any aspect of soil quality is

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Soil quality ... *from page 9*

degraded. In this case, plant roots don't grow as well in less aerated soils, so pastures will yield less dry matter, milk, and meat. Since less water can enter the soil, more will run off, increasing the threat of erosion and reducing the amount of water that can be stored for drier times of the year.

Most compaction on pastures probably occurs in the spring of the year and after periods of heavy rain. Soils that are very wet from either just thawing out or getting lots of rain have less physical strength. That means that they can't support the amount of hoof traffic that they can at other times of the year. When even the upper few inches of soil becomes compacted, it seals off the surface and can create problems that can last several growing seasons. In cases where the compaction is caused by hoof traffic, the problems usually seem to be focused near the surface of the soil. The bright side of this is that dense plant growth and earthworm activity can help open the surface up again in short order, but when structure is destroyed it takes a long time to rebuild stable aggregates.

Soil quality and soil ecology are scientific frontiers that are receiving a lot of attention in the research communities of several disciplines. Every month in the scientific journals there are new research articles that address a wide variety of findings, and to be real blunt, a lot of these are way over my head! Even so, everyone involved in agriculture ought to have a basic understanding and appreciation for the life in the soil and how our management affects so many things we've probably never even dreamed of. Many aspects of soil quality can be monitored or measured on the farm with very simple tools and by taking the time to observe what goes on in the soil. A little quality time with a number two shovel out in the paddocks, taking a close look at cow pies of various vintages, and standing out in the rain watching the hydrology of your fields might not become America's newest leisure activities, but if you give these a try, you might be amazed at what's going on out there.

Note: If you're interested in learning more about soil quality, our Wisconsin Soil Quality Team will be conducting more soil quality field days at several locations around the state this year. We'll publicize these in the state farm papers when the schedule is set up.

Upcoming events

Lancaster field days
UW Lancaster Agricultural Research Station
July 25, 2007: Cow-calf
August 10, 2007: Profitable Pastures
To register: Contact Rhonda Gildersleeve, 608-935-0391 e-mail rhonda.gildersleeve@ces.uwex.edu or contact Arin Crooks, 608-723-2580 e-mail aecrooks@wisc.edu

Wisconsin grazing schools
River Falls: May 15-16
East Troy: June 26-27
Neillsville: July 24-25
Ashland: TBA
Includes sessions on economic considerations in grazing, agronomics, soil fertility, pasture monitoring and grazing systems layout and design. Registration fee: $75 per person ($35 for second person from same farm). Includes meals. Contact: Dennis Cosgrove, UW-River Falls, 410 S. 3rd Street, River Falls, WI 54022, 715-425-3345, dennis.r.cosgrove@uwrf.edu

Upper Midwest Grazing Conference
Midway Best Western Motel, Dubuque, Iowa
August 1-2, 2007
Includes sessions on low cost parlors, organic milk production, crossbreeding dairy cattle, and pasture finishing beef and farm tours.
Contact Dave Wachter, 608-723-2125, dave.wachter@ces.uwex.edu or visit www.cias.wisc.edu/uppermidwest for more information.