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Pasturing in the Intemperate Zone

by Laura Paine, Crops and Soils Agent

June 18, 2003

The Dictionary defines the word 'temperate' as follows: "moderate, not excessive, not subject to prolonged extremes of hot or cold weather." Lying as it does between the tropics and the arctic, the Temperate Zone is supposed to be characterized by moderation. And although Wisconsin falls within the Temperate Zone, our climate is hardly what I'd call moderate. Over the course of the year our temperatures can vary over 100 degrees, from well below zero to the upper nineties or higher. It's been known to vary 30 degrees in a single day! This is moderation?

If you look at it from a plant's perspective, what would be easier: to adapt to a climate that's extremely cold, but always cold? Or to exist in a climate where you have to adapt to both extreme cold and extreme heat? The Arctic is extreme, but it's consistently extreme.

The unpredictability of our climate is probably harder on plants than some of the harshest climates on this planet. One set of adaptations is enough in a desert, but here, a plant has to be able to withstand the desert and the monsoon. Although we can grow some of the best grass in the world here in the Upper Midwest, our climate really does put plants to the test.

This last year, pastures have been subjected to one combination of these extremes: a severe summer drought and an open, cold winter with record frost depths. Last month in this column we talked about dealing with the winter injury that resulted. By this time, we know which pastures truly winter killed and which were just injured. By observing how different pastures fared, we can gain some insights into how to help our pastures thrive in this 'intemperate' climate.

Ryegrass

This year was certainly a test for the new 'winterhardy' ryegrass varieties. How did they do? I'm not going to say 'I told you so,' but... I've heard from a lot of folks who lost a stand of ryegrass this year. This wasn't necessarily a more 'normal' winter, but the mild winters we'd had for the previous few years weren't either. What IS normal is the variability of our climate. It looks like these varieties have a good degree of winter hardiness, but maybe not enough to get them through our hardest winters.

We like what ryegrass does for the bulk tank, but that has to be weighed against its nature, which reminds me of a spoiled child. It is 'fussy' about growing conditions: it shuts down if it gets too hot, too dry, too cold. It likes to be pampered–requiring extra fertility to maximize growth. It demands special treatment, performing best in a monoculture with ladino clover. Ryegrass 'plays well alone', but is that enough to earn it major place in our pastures?

The standard recommendation is to plant ryegrass as a monoculture on a limited number of acres. The producers I talked with had done this and were pretty philosophical about the loss of these few acres. You weigh the positives and negatives and determine if the risk of winterkill is justified by the benefit in terms of increased milk production. I doubt that this would pencil out for beef or sheep.

Many of those graziers who had ryegrass-clover stands now have a pure stand of ladino. That's ok, but the tonnage isn't going to be there and you might have to guard against bloat. One way to address this situation would be to interseed an annual small grain or wait until August or next April and interseed a perennial grass.

In a well-managed pasture system, the goal is to keep grasses from going to seed, but one grazier found that his 'mistake' of letting the ryegrass pasture get away from him last year became his saving grace this year. What early-on looked like a disaster filled in very nicely from seed.

Orchardgrass

Orchardgrass is considered to be moderately susceptible to winterkill and moderately drought tolerant. It's hard to say whether the harsh winter or last summer's drought conditions had the greater effect on orchardgrass stands. Most of the people who thought they had winter kill in orchardgrass pastures found that most of the plants were just injured and are recovering. The slow recovery we're seeing is probably a result of both the injury and the cool, cloudy weather conditions we've had this spring.

Orchardgrass has become a dependable player in pastures in this area. It's well suited to the workout dairy and beef producers give it, but this year's experience suggests that it's not invulnerable. It would be a good idea to 'baby' your orchardgrass stands this year, and give them a little longer rest period during one or two cycles, maybe mow an over mature stand for bedding or let a couple of paddocks go early in the fall. Make sure they've got good root reserves going into the winter.

Bluegrass Winterkill?

One of the studies we're working on in Columbia County is a simple comparison of three grass species with kura clover. One of the grasses is an improved variety of Kentucky bluegrass. I have to admit that I'm a fan of bluegrass (everything has its place). It can yield remarkably well when managed as part of a rest-rotation system and is a tough grass that stands a lot of abuse–a good thing to have somewhere on the farm.

The new bluegrass varieties apparently came out of turfgrass breeding programs in the Pacific Northwest, where they were weeded out as overly productive for turf use. Some smart person decided that these productive bluegrass strains may have a market among forage producers. Now this is a preliminary observation, but... it looks like some of these new varieties may lack the unquestionable winterhardiness that we expect from the 'native' bluegrass strains. They didn't come through the winter entirely intact. Could this be related to the fact that they were bred in Oregon, where winters are mild?

Festuloliums

In this trial, we're also looking at a couple of festuloliums–a cross between meadow fescue and perennial ryegrass. We know that the ryegrasses are susceptible to winterkill. We also know that fescues tend to be fairly winter-hardy. Unfortunately, neither of the two varieties weathered the extreme conditions we experienced this past year very well. We had significant winter injury in both varieties, and a correspondingly healthy stand of kura clover filling in the gaps.

Take-Home Message

So what is all this telling us? Time for a look at the big picture. We may never again have just this harsh combination of drought and cold all in one year. But remember that climate extremes are the norm around here. Looking around our farms, the pastures that came through the best were those

that had a more diverse mixture of species. In this very intemperate climate, no single species can fit itself into all conditions. Diversity provides insurance. Those species best adapted to current conditions will thrive this year, but they'll also probably survive when conditions change, too. You may not see them all every year, but they're there, ready to take on a more dominant role when climate and management favor them.

Last August I seeded down my first pasture on our farm. For a variety of reasons (educational...curiosity...indecision), I designed a mixture of 5 grasses and 5 legumes. By weight, the bulk of the seed was no different than what most people seed: orchardgrass and red clover, but what's out there now is a very different mix. Right now, orchardgrass appears to be non-existent in the stand. This pasture is currently dominated by smooth brome and alfalfa, two of the more minor species I included. Timothy is also a major component. Red and white clover are visible, but not very prominent and the trefoil I saw last fall is not apparent at all (that's not actually much of a surprise). I don't see any of the festulolium or ryegrass that I planted either.

My reasoning for planting this 'complex mixture' has already paid off. The conditions that argue in favor of such a mixture are obvious in this example: not just our highly variable climate, but an unfamiliar soil type which may favor one species over another, and my own unique, and as yet, poorly defined grazing management style.

The take-home message is that the most resilient pastures are those that have a number of species with a range of adaptations. No individual species can adapt to everything we're up against here in the 'intemperate zone,' but if we have a diverse mix out there, something will always thrive to provide our animals something good to eat.

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