In the cattle business, fescue toxicosis is a heavy hitter — and not in a good way.

If you run cattle in the fescue belt, there’s a good chance fescue toxicosis is harming your herd. Researchers estimate 85 percent of the 40 million acres of tall fescue in the United States (mostly the variety Kentucky 31) contains endophyte-infected fungus that causes such poor performance and health problems in our beef herds.

U.S. Department of Agriculture Agricultural Research Service scientists estimate almost 1 in 5 (17.2 percent) of all cows and heifers in the United States in 2009 were exposed to toxic endophyte-infected fescue.

Endophyte-infected fescue limits grazing livestock performance on several fronts, including:
- Elevated body temperatures
- Reduced feed intake and weight gains
- Poorer conception rates and lower calving percentages
- Reduced milk production and lower weaning weights
- Other health issues, including lost hooves and docked tails

Researchers peg the annual financial hit to the cattle industry at $1 billion — $338 million of that comes from reduced weaning weights in the cow–calf sector.

Given today’s cattle economics, producing low-cost pounds of gain is more important than ever. It’s easy to understand why tall fescue management strategies warrant your attention. This special supplement to Range & Pasture Steward discusses seedhead suppression — a new approach developed by Dow AgroSciences to help mitigate fescue’s toxic impact.

Putting hot fescue on ice helps his herd chill out

“That strip stayed green as a gourd and grew like crazy,” the Lorimor, Iowa, cattleman explains. “The cattle grazed it hard. They definitely preferred the treated area.”

The following spring, he had his nephew Zac Grandfield, with Grandfield Application and Mathes Seed and Chemical, treat pastures where tall fescue had gained a foothold with Chaparral™ herbicide. He timed the application to prevent fescue seedhead production.

“Taking those toxic seed heads out of the picture has made a huge difference,” Grandfield says. “Cows don’t overheat. They don’t go in the shade. You don’t see them breathing hard with their tongues hanging out. They’re out grazing. They get fat on it.”

Grandfield started his southwestern Iowa operation about 35 years ago right out of high school. In addition to his spring and fall Angus-based, commercial cow herds, he raises corn, soybeans and hay. But it’s the cattle that make the business go.

“This is not the productive cropland part of the state most people think of when they think of Iowa,” Grandfield says. “We have to have the cows.” As he has watched tall fescue move into his native, mostly bluestem and bluegrass, pastures, he also has watched cattle performance and productivity decline.

“It’s as bad as a weed,” he says of tall fescue. “Toxicosis stresses the cattle. Cows won’t hold their weight; they don’t stay in condition. There are a lot of benefits to preventing seedhead production.”

OTHER OPTIONS

Before using Chaparral to suppress toxic seed heads, Grandfield did what he could to mitigate toxicosis, including feeding a commercial mineral product and clipping the seed heads. Neither provided benefits comparable to seedhead suppression with Chaparral.

“Mineral was our primary defense, but that costs several hundred dollars for the season,” he says. “Mowing isn’t cheap either, and the timing is bad, because we’re busy with our row crops and other spring work.”

CONTINUED ON F3
It’s not often you can implement a single practice that delivers two topline benefits across your cattle operation. But that’s exactly what an early spring application of Chaparral™ herbicide can bring: Effective weed control that grows more low-cost forage and fescue seedhead suppression for fewer toxic effects.

Seedhead suppression can provide the starting point for more effectively managing fescue toxicosis. Alkaloids produced by the endophyte concentrate in the seed head at a rate five times higher than in leaves or stems. Reducing or eliminating those seed heads can help decrease the incidence and severity of fescue toxicosis.

“Research across the fescue belt shows that an early spring application of Chaparral controls a wide mix of broadleaf weeds and prevents most tall fescue plants from developing seed heads,” explains Scott Flynn, Dow AgroSciences field scientist. “By suppressing seed heads to prevent their consumption, Chaparral helps mitigate fescue toxicosis in beef cattle grazing operations.”

Toxins in tall fescue peak in the seed head when the seed head is most palatable (generally mid- to late June). The period of highest concentration does not coincide with the visible symptoms of fescue toxicosis because of the toxins’ residual effects. Animals consume high concentrations in the spring and then suffer from heat stress when the effects are exacerbated by high summer temperatures, resulting in a cascade of effects.

Apply Chaparral as early as three weeks prior to seedhead emergence and as late as the early boot stage, with later applications preferred over earlier applications. This keeps the plants in a high-quality vegetative state, while taking infested seed heads out of the grazing picture.

When applications of Chaparral™ herbicide are timed for optimum seedhead suppression, they will control winter annual weeds and other early season broadleaves — such as buttercup; poison hemlock; biennial musk, bull and plumeless thistle; wild carrot; and buckbrush — says Pat Burch, field scientist with Dow AgroSciences. “The residual control Chaparral provides will control several species that emerge after application, including ragweed, cocklebur, chicory and horsenettle,” he says.

**APPROPRIATE EXPECTATIONS**

Just as producers can expect to see a difference in the appearance and performance of their cattle when they effectively manage fescue toxicosis, they can expect to see a change in their pastures, too.

“The early application timing somewhat intensifies the effect Chaparral has on certain grass species, including tall fescue,” Flynn says.

“Producers will note grass yellowing, which can last at least a couple of weeks,” Burch adds. “However, tall fescue that has been treated with Chaparral for seedhead suppression remains leafy and maintains forage quality longer through the season.”

Because most seedhead production is suppressed, plants won’t produce stems — resulting in a noticeable
Where Chaparral shines especially bright as a tool to help manage fescue toxicosis, Grandfield says, is through the added benefit of residual broadleaf weed control. “With Chaparral, we don’t have weeds,” he says. The residual control Chaparral™ herbicide provides stops early weeds at the time of application, plus those that germinate after application. Forage grasses can get up and growing to compete with later-emerging weeds. That’s important to helping Grandfield keep his grazing program on track.

He’s subdivided one of his largest pastures into several paddocks where he aims to graze year-round. “It’s native prairie that’s never been broken,” he says. “The paddocks are large, so we’re not on an intensive rotational grazing program, but they do allow us a rest phase.”

With the pasture being such a critical component of his grazing program, Grandfield has treated with Chaparral each of the last three years. “We just can’t afford not to,” he explains. “By midsummer, we can see any spray skips. The cows won’t touch those untreated strips. We know we won’t get rid of tall fescue, but it looks like the bluegrasses are increasing. We also know we don’t have the toxicosis problems we used to have.”

### Summary of the effect of endophyte-infected tall fescue on cattle.

<table>
<thead>
<tr>
<th>Performance Metric</th>
<th>Effect on Production</th>
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<tbody>
<tr>
<td>Pregnancy rates</td>
<td>Decreased 15 to 40 percent</td>
</tr>
<tr>
<td>Milk production</td>
<td>Decreased 25 percent</td>
</tr>
<tr>
<td>Weaning weights</td>
<td>Decreased 65 to 85 pounds</td>
</tr>
<tr>
<td>Time spent grazing</td>
<td>Decreased 20 percent</td>
</tr>
<tr>
<td>Forage intake</td>
<td>Decreased 25 to 40 percent</td>
</tr>
<tr>
<td>Average daily gain</td>
<td>Decreased 0.3 to 1.2 pounds per day</td>
</tr>
<tr>
<td>Water usage</td>
<td>Increased 25 percent</td>
</tr>
<tr>
<td>Body temperature</td>
<td>Increased 1 to 4 degrees</td>
</tr>
</tbody>
</table>

‡Patterson et al., 1994
Data derived from multiple research trials where pastures contained 70 percent or more endophyte–infected tall fescue.

Ten weeks after an application of Chaparral™ herbicide on a Missouri ranch, the treated fescue (left) remains in its vegetative state, while the untreated fescue has produced stems and seed heads where the harmful endophyte is most prevalent.

**Fescue on ice**

**THE WEED CONTROL ADVANTAGE**

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At first, Dick and Betty Bryan didn’t know what was wrong with their cattle. Then their research pointed to the fescue that had taken over some of their mixed grass pastures.

The Bryans had leased the grass for more than a decade as part of their 250-cow operation near Wellston, Oklahoma. But in recent, wetter years, fescue had begun to crowd out the bermudagrass.

“Ten years ago, there wasn’t near that much fescue,” Dick says. By 2014, though, the Bryans’ cows were showing classic signs of fescue toxicity:

- Fuzzy hair coats in the summer
- Bad hooves and limping
- Reduced conception rates
- Lost tail switches

Bulls were among the first to show symptoms. One set of bulls turned out for heifers lost a substantial amount of weight in just two to three weeks on fescue. “Another bull lost his tail — the switch and more,” Betty says. “We call him Bob now,” Dick adds.

Worse, though, was the decline in conception rates. “We had 75 to 80 percent conception rates on fescue. Before, we were getting almost 100 percent,” Betty says. “I keep good records, so we knew. I looked at the cows on fescue and said something’s wrong.”

Last spring, they considered killing the fescue with glyphosate and starting over with a new establishment of bermudagrass. “We hated to kill it, but we were having so many problems,” Dick says.

Then they read about fescue seedhead suppression with Chaparral™ herbicide. Most of the toxic endophyte fungus in fescue is in the seed head. Betty called Dow AgroSciences Range & Pasture Specialist Ron Courtney to discuss the idea. The Bryans decided to experiment.

**NOVEL WAY TO MANAGE FESCUE**

In mid-March, Dick applied Chaparral at the rate of 2 ounces per acre on 65 acres of fescue. He treated one pasture and a little more — “one sprayer load,” he says. The Bryans buy their herbicide from Lincoln County Farm Center in Chandler, Oklahoma.

Courtney had warned the couple that the fescue might turn yellow for a period after spraying. Dick likened what he saw to the browning after he applies liquid fertilizer. After a rain, the fescue looked fine.

The visual signs of fescue toxicity — hair coats, bad hooves, limping, lost tails — didn’t show in 2016. The fescue stayed in a vegetative state with few seed heads — or weeds. As a broad-spectrum weed and brush herbicide, Chaparral provided excellent weed control. From March through September, the 60-acre treated pasture carried 65 cows, even without its usual fertilization. “We just didn’t get around to it,” Dick admits.

The bigger mistake may have been not spraying more fescue last year, Betty says. The couple plans to do more in 2017. Without seed heads, the cool-season fescue makes a nice complement to the warm-season bermudagrass.

“It doesn’t hurt bermudagrass, so we can go in a field and spray the whole thing,” Dick says. “What I like about fescue is that it makes a lot of pasture. It makes early pasture and late pasture.

“I like it a lot better now that we can manage it.”