

A Kentucky Practitioner's Experience with Fescue Toxicity

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Kentucky 31 Tall Fescue even though it has been incriminated and now found guilty in various problems in animal health and production is still a very valuable forage crop for our beef and dairy farmers in South Central Kentucky. My practice is located in three counties in South Central Ky. (Monroe, Metcalfe, and Barren) in which we have a primary clinic at Tompkinsville in Monroe County and a branch clinic at Edmonton in Metcalfe County. Practice from both clinics extends into a large portion of Barren County which is the largest livestock county in Ky. (#1 in Dairy Cattle and #2 in Beef cattle). Monroe county is sixteenth and Metcalfe county is thirty-ninth in cattle numbers in Kentucky. Our practice is approximately 80% cattle practice with this being about 60% dairy cattle and 40% beef cattle. Our dairy clients average 60 cows in production with the majority of them on the increase in numbers. Most of our dairy clients are semi-drylot operations so we don't see the fescue problem in many dairy herds. Almost 100% of our beef cattle practice involves cow-calf herds which are mostly small herds of less than 40 mature cows. Most of the cow-calf herds are side-line operations that have no organized calving season or any planned marketing programs.

Our practice area encompasses about 555,000 acres of farmland according to the last farm census report. Of this approximately 400,000 acres is land other than cropland of which I feel at least 85% is either totally fescue or fescue mixed with other grasses and/or legumes. Assuming that the last figures reported are correct in that 96% of the fields of Ky. 31 Fescue are infected to a rate that decreased production is noticed, then we have about 325,000 plus acres of endophyte contaminated fescue in our practice area.

The majority of the problems we see associated with fescue toxicity involves the Summer Syndrome or Summer Slump type symptom. All descriptions here are clinical observations of myself or my two associates or observations or comments by our clients—**not controlled studies**.

In 1974 when I first started practice in South Central Kentucky the fescue toxicity problem was unheard of. As a young practitioner in a back-woods wilderness type practice, my first experiences with the fescue toxicity problem were calls to treat cows that hadn't shedded off and stood in either the pond or creek. My diagnosis was usually a low grade respiratory (pneumonia) problem. Treatment with what seemed at that time to be miracle drugs (anti-

histamines, steroids, and any antibiotic) along with confinement to either a dry lot or barn resulted in miraculous cures. The farmers were told of the chronic nature of the problem and that long term treatment (about 1 week) would be needed along with continued confinement to a drylot or barn. Almost all of these cattle returned to normal appetite and seemed to have been totally healed by the new veterinarian, the praise of which I was quick to accept as being all my doing. However when these same cattle were turned back out with the herd they seemed to pick-up this terrible infection again. As I continued to treat these "quote" chronic respiratory problems I also began to read and hear of some problems associated with fescue over the southeast. Over the next few years, I felt that I surely was seeing the fescue syndrome. We are now certain this is the problem as we are in the very heart of the fescue belt and essentially all samples from any fescue field are positive.

As previously stated, we have about 325,000 plus acres of Ky. 31 endophyte infected fescue. Fescue is a very important forage crop to us because about 85% of our land is class III or IV land (unsuitable for cultivation) and fescue has been a salvation for us on these hillsides. The average beef cattle producer in our area when asked about the fescue toxicity problem will respond that it is not much of a problem. This results from basically no un-infected fields or stands to compare to and they feel the production they are getting is normal. Almost all farms that have a viable record system and keep weight records and watch weight gains on pasture see that they are not falling into the area of production they should be. Also those people that have controlled breeding seasons in May, June, and July often experience low conception rates (approx. 70%). Dairy cattle on fescue pasture have trouble making production that is economically realistic.

Problems with fescue toxicity can best be discussed under various classes of livestock and conditions.

1. Cow-calf operations
2. Dairy operations
3. Stocker cattle operations
4. Acceptance of our livestock by out of state buyers
5. Other associated problems

Cow calf operations:

My clinical observations are that about 4-5% of the mature beef cows will show noticeable clinical signs of the

summer syndrome of fescue toxicity which include long haircoat, unthriftiness, increased respiratory rates, and increased body temperature (usually about 104F).

In cow-calf operations in our area, the ideal calving time is February, March, and April which means breeding in May, June, and July. This falls in with Mother Nature's scheme of events, the calf is born in late winter and early spring, the cow starts to get better nutrition from pasture as the grass comes out in April and increases in milk flow as the calf gets large enough to need the extra nutrition and is also flushing for breeding back in May and June as she enters a positive energy balance from the good spring forage. However, even in herds where all things seem right and we are on good health programs, we often see conception rates fall into the 70% area even though grass is lush. In the controlled breeding season herds it seems that we do real well breeding cows in early to mid May but start to lose ground in June and July. This goes along with what the plant pathologists tell us in that the early fast growing stages of the fescue plants aren't infected as fast as it grows and the lush bladey fescue that is consumed at this time is basically free. However, as the grass grows and matures the endophyte spreads to the entire plant and by June and July when many of our cattle are ready to breed, the endophyte is present in all parts of the fescue plant to cause problems.

Dairy Operations:

Even though most of our dairy operations are semi-drylot operations with very little pasture influence on the rations, we do still have some herds that pasture totally during the grazing season. These herds receive a large portion if not all of their forage from mainly fescue pasture which almost surely will be contaminated. On lactating Holsteins in Kentucky, milk yield per cow per day on endophyte free fescue pasture was 41.6 pounds per cow per day with a weight gain of 40.9 pounds per cow during the grazing season. On Ky. 31 endophyte infected fescue pasture, milk yield was 34.3 pounds per cow per day with a weight loss of 25.8 pounds per cow during the grazing season. This is over 7 pounds of milk per cow per day loss during pasture time plus a loss in weight of about 65 pounds per cow. These figures are from research on a new endophyte free variety (Johnstone) which has recently become available to our farmers for seeding. Our clinical observations would agree 100% with this research. Our average dairy operation suffers most from the loss of gain on replacement heifers resulting in a later age to breeding and freshening since essentially all of our replacements are pastured to a large degree, probably losing from $\frac{3}{4}$ to 1 pound of gain per day during the pasture season and for some time after being removed from pasture to lots for winter feeding.

Stocker Cattle Operations:

Most of our stocker cattle operations involve home raised cattle on some of our larger farms that are retained for summer grazing and/or rearing to replacement heifer status.

On most operations where we are able to monitor weight gains, about 1-1 $\frac{1}{4}$ pound per day is all we are able to get on basically fescue pasture unless we supplement the pasture. Most of these cattle are on farms with above average management with good health programs with cattle with much above average genetic potential.

Acceptance of Our Cattle By Out of State Buyers:

Some number of years ago we were told by a representative of the high plains feeding area that basically they didn't want our cattle. Figures were quoted and shown that backed this up. A certain portion of this was due to the lack of genetic improvement in many of our herds producing feeder cattle but I feel that a large portion of this is from the slow weight gains that many of these individuals make for a period after entering the feedlots. We are now getting reports back that substantiate the fact that exposure to endophyte contaminated fescue is a factor in slow growth and maybe a factor in increased morbidity of cattle to the Bovine Respiratory Disease Complex after entrance into the commercial feedyards. I feel that this is definitely a factor with cattle in our area because probably 75% of our feeder cattle are shipped directly off fescue pasture which is almost without a doubt endophyte infected.

We are also hearing some feedback from buyers of our dairy replacement heifers that are having problems with replacements after freshening that have come from areas with high concentrations of Ky. 31 endophyte infected fescue. These heifers seem to be poorer producers and in some instances completely go to pieces and have to be culled. At present these are only observations and educated guesses but a lot of evidence points in that direction.

Other Associated Problems:

I feel that the fescue endophyte toxicity syndrome as experienced by our cattle producers is much more involved than we realize. I feel that we have just started to scratch the surface of the problem. I feel that the problem is a multi-factorial problem that will be slow in being unraveled. The problem of endophyte infected fescue in our area is almost universal on all our farms, however the severity of the clinical signs varies from almost none to serious in different herds. It seems that we notice an especially severe problem with respiratory viruses when we get involved in herds that have a concurrent problem with fescue toxicity.

Control procedures are possible but at this time very expensive. At present we know of no medication, supplement, or like product that will negate the effect of the fescue endophyte. At present the recommendations are to totally eliminate the existing stands of infected Ky. 31 fescue and reseed with clean, endophyte free seed. This is a difficult procedure because the persistence of the old Ky. 31 fescue is the one main feature of the grass that has endeared it to the farmers of land that is prone to erosion. The only satisfactory methods to do this are to cultivate the land for one or better two years in a grain crop and then reseed with

clean seed. On most of our land this is an impossibility due to erosion. The only other alternative to completely clean up an infected field is to use chemical kill of the existing stand of Ky. 31 fescue (two applications of Paraquat 3 weeks apart or one application of Roundup) and then reseed with endophyte free fescue using a no till seeder to drill the grass seed into the undisturbed turf with the old dead grass left as cover. This approach is a workable method on our rolling hilly farms but at this time with the farm economy in a depressed state and estimated cost of this procedure being from 70 to 160 dollars per acre, we don't feel that many producers will opt for this choice.

At this time our recommendations to clients who wish to better their position with infected Ky. 31 fescue stands is to dilute the effect of the existing infected Ky. 31 fescue by renovating pastures. This can be done by partial tillage in early fall or early spring to disturb approximately 50 to 70% of the established fescue after grazing very close with cattle. After minimum tillage, seed the endophyte free fescue and legume mixtures and continue to graze with cattle to keep the old fescue grazed down so the new stand of grass and legume can get started.

Because all farms in our area have high amounts of infected fescue and because no operation is able to renovate or clean-up more than a small amount of their farm at any one time, some other means must be used to live with the situation until the long process of clean-up is completed. At this time we like for our farmers to utilize the infected stands

and stands with heavy concentrations of fescue during the cooler seasons of the year when less clinical problem is noticed. By using the bad stands in the cooler seasons of the year, this lets us use the renovated or clean fields during the summer problem times and also cut early hay off the infected stands before the endophyte spreads throughout the entire plant. By cutting the stands in the early spring for hay, this also keeps the stand vegetative which seems to cut down on the concentration of the endophyte as the endophyte may reach a total concentration of up to 3% in the seeds. By cutting down on the seed formation, we accomplish two things—first we cut down on the further spread of the fungus since no other method has been shown for spread except by infected seed and we cut down on the concentration of endophyte that the cattle get because in early June, when the seed is in the dough stage, cattle (especially mature cows) will consume large amounts of the seeds thus getting a rapid exposure to large amounts of the endophyte.

Fescue toxicity is a problem that will continue to plague our livestock for many years to come. Only by gradual clean-up and development of new seed varieties will we eradicate the problem. I hope that a product will be developed that will allow for the clean-up of infected stands without total eradication of the existing stand. At present, new varieties have not become infected but this is always a threat.