Fescue Eradication

The number one problem on many farms today for ground nesting and ground-feeding wildlife species is the predominance of tall fescue (Figure 1). Fescue is simply a poor choice for wildlife habitat. KY 31 tall fescue is an extremely competitive plant, which tends to totally dominate fields where it has been established. Tall fescue is a sod-forming turf grass with a thick, matted growth form, which is extremely limiting to the movement of wildlife such as quail and rabbits. This thick growth often eliminates all other species of plants from growing, creating nearly monocultural fields of fescue. These virtually pure stands of fescue lack the necessary diversity to provide the habitat components essential for supporting a variety of wildlife species. In the winter, fescue is flattened by the weight of snow and ice, therefore providing little or no winter cover.

Nearly all stands of KY 31 tall fescue are also infected with a fungus that lives in a mutually beneficial relationship with the fescue. The fungus produces chemicals in the plant, which cause fescue to have toxic qualities. These chemicals act as a feeding deterrent, causing animals not to eat the fescue, except as a last resort. By deterring feeding, the fungus, called an "endophyte", has ensured a place for itself to live while in turn helping the fescue compete with other grasses and forbs (broadleaf plants).

There have been numerous studies in recent years documenting the effects of endophyte-infected tall fescue diets on a wide variety of animal species. This research has shown that a diet of endophyte-infected fescue causes fescue toxicosis or "summer slump" in livestock. Effects include excessive body temperatures, elevated respiratory rates, loss of appetites, reductions in weight gain, lowered milk production, lowered fertility, and absorption of fetuses. Physical signs are cattle standing in ponds and creeks during summer months. Estimates of the loss to the livestock industry are over $500 million annually.

In lab animals endophyte-infected diets have caused lowered sperm counts, lowered egg production, weight losses, abortion and absorption of fetuses, poor lactation, smaller than normal litter sizes, and slow or stunted

Figure 1. Fescue dominates the landscape across most of Kentucky's farms.

The #1 problem on many farms today for ground nesting and ground-feeding wildlife species is the predominance of tall fescue.

45 per cent of quail fed a diet of entirely infected fescue seed died.

Estimates to the loss of the livestock industry are over $500 million annually.

development of young that were born. All of these result in lower production rates for animals. In a University of Kentucky study quail were fed a diet of only infected fescue seed. 45 percent of the birds died in the 12 day experiment.

To greatly improve farms for small game populations, as well as increase the productivity and efficiency of livestock forage systems, it is recommend that efforts be made to eradicate most of the KY 31 Fescue in fields and replace it with other cool season grass/legume mixtures * and native warm season grass/forb mixtures. * Improved hay and pasture field systems will make farms more compatible with wildlife while also providing fresh, succulent pasture throughout the growing season.

Killing Fescue

Eliminating fescue can be accomplished in a variety of ways. The two primary methods of killing fescue are the use of herbicides and conventional tillage. The best results are achieved from a combination of treatments done over several years.

Use of Herbicides

No-till fescue eradication (using herbicides rather than actually breaking ground by plowing or tilling) is suitable for any area, but it is strongly recommended on any slopes with high erosion potential. The advantages of spraying include less time from the landowner and minimal problems with soil erosion. The landowner makes one pass with a spray rig rather than plowing, changing implements and disking or making several passes with a tiller to prepare a seedbed. Since you are not turning over ground soil erosion is limited. If you do not have spray equipment, you can contract with a local farm store or a local farmer to have the spraying done. Low-volume spraying enables you to use fewer chemicals to achieve good coverage. High-pressure sprayers and flat fan nozzles allow as little as 10 gallons of solution per acre to be used (Tables 1 & 2 show spray rates of commonly used herbicides.)

With herbicide treatments, timing of application is critical. Fescue should be sprayed when it is actively growing (late March-late April or mid-September to mid-October) and about 8-12 inches tall. To prepare for herbicide treatment the fescue should first be grazed, mowed, or burned and allowed to re-grow to a height of 8-12 inches. On pasture or hayland, simply remove livestock or cut 2-4 weeks prior to spraying to insure active growth. On fields that have been fallow, it will be necessary to mow 2-4 weeks prior to spraying to accomplish this. Burning * can be used instead of mowing with better results, but requires 3-6 weeks before enough re-growth has occurred for spraying **(Caution: Never attempt to burn an area without consulting your area Kentucky Department of Fish and Wildlife biologist to receive proper planning and assistance. Kentucky has burning laws which restrict time of day and proximity to woodlands in which burning is legal. Contact the Kentucky Division of Forestry at (800) 866-0555 for burning laws and bans in your area.)** Avoid spraying in dry conditions when fescue growth has been slowed.

It may be necessary to spot-spray some areas where fescue may have been missed. Spot spraying should be done 2-6 weeks after the initial treatment, depending on the herbi cide used. Follow up eradication with one of the practices mentioned below. *

Spray Rates of Commonly Used Herbicides

Table 1.
Glyphosate (Roundup® or equivalent) herbicide

Fall Application

2 quart/acre glyphosate
6-7 ounces of nonionic surfactant
Ammonium sulfate at 17 pounds/100 gallons of spray
10 gallons/acre water
Apply with flat fan nozzles at 30-40 p.s.i.
Apply in fall when fescue is 6-12 inches tall and actively growing

Spring Application

2 quarts/acre glyphosate
6-7 ounces of nonionic surfactant
Ammonium sulfate at 17 pounds/100 gallons of spray
10 gallons/acre water
Apply with flat fan nozzles at 30-40 p.s.i.
Apply in spring when most plants have reached boot to early seedhead stage
Wait 7 days before preparing a seedbed for planting. Always refer to the manufacturer's label for specific timing, rates, and weeds controlled.

Table 2.
Imidazoline (Plateau® or equivalent) herbicide

Fall Application

Apply imidazoline at 8-12 oz. + 2 pints of methylated seed oil (MSO) per acre
Or a mix of 4-12 oz. imidazoline + 16-32oz. glyphosate + 2 pints MSO per acre

Spring Application

Apply imidazoline at 8-12 oz. + 2 pints of MSO or
Imidazoline at 4-12oz. + 16-64 oz. glyphosate + 2 pints MSO per acre

Always refer to the manufacturer's label for specific timing, rates and weeds controlled.

Note: Mention of tradenames does not constitute an endorsement of specific products. Consult your local farm supply store for availability of equivalent herbicides.

Conventional Tillage

On areas of little to no slope where the threat of soil erosion is not a concern, conventional tillage can be an effective means of eradicating fescue. This involves either fall or spring plowing and disking, or roto-tilling, to prepare a seedbed. It should be noted, however, that on areas where the threat of soil erosion is significant, conventional tillage should be avoided, or done on the contour with unplowed buffers left between tilled areas until the plowed strips have become adequately vegetated (six months to one year). If you have your own equipment plowing and disking, as opposed to spraying, require little out of pocket expense. Plowing and disking also can be useful tools for generating valuable native vegetation that results from soil disturbance, such as foxtail, ragweed, annual lespedezas and partridge pea.

Once a seedbed is prepared you have several options. One option would be to simply use a smother crop to suppress any fescue that may have survived tillage. A smother crop is a planting of a small grain such as millet, oats, or wheat, which is planted dense enough to compete with and shade out fescue seedlings. Another consideration would be planting corn, soybeans, or native warm season grasses in a prepared seedbed to allow the spraying of selective herbicides to control any undesirable competition. If erosion is not a concern, it is not necessary to plant anything after the fescue is first killed. This is especially true when managing for quail.

Many high quality food plants such as ragweed, foxtail, or annual lespedezas will volunteer into treated areas the first year and provide excellent brood-rearing habitat. More grasses usually volunteer in during subsequent years and produce both good nesting and brood-rearing habitats. Finally, consider going to a more beneficial cool season grass/legume mixture and/or a native warm season grass/forb mix* after a year or two of smother cropping.

A very effective step-by-step method of fescue elimination is provided below.

Step 1: Mow and rake, hay, graze, or preferably burn

Figure 2. Fescue that has been treated with herbicide.

Eliminating fescue allows fields to support other forms of vegetation, through natural succession or plantings, which will meet habitat requirements of a variety of wildlife.

SUMMARY OF OPTIONS:

Sight pre-treatment:
Graze, Mow, Burn
Method of Kill:
Conventional Tillage, Herbicide, Combination
Planting method:
Broadcast, No-Till Drill
Management:
Burning, Plowing, Mowing, Spraying

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the fescue in late winter (February-March) for a spring kill or late summer for a fall kill.

Step 2: Allow the fescue to grow to a height of at least 6-12 inches. Spray when the plant is actively growing; rapid green-up periods are best.

Step 3: Spray the field with 2 quarts per acre of Roundup® (or equivalent) or 8-12 oz. of Plateau® (or equivalent). **[Caution: Do not use Plateau ®(or equivalent) if cool season grasses, pure stands of switchgrass or eastern gamagrass are to be planted to replace the fescue.]** For spring kills with Roundup ® (or equivalent) wait 2 weeks after initial spraying; if there is still green fescue re-spray or spot spray the problem areas. Spring kills with Plateau® (or equivalent) will require 4-6 weeks before spot spraying. For fall kills, spray during fall green-up, and then wait till the next spring and spot spray as needed.

Step 4: After a good kill is achieved and if the ground is erodible or unsuitable for conventional tillage, a no-till seeder can be used to drill directly into the dead fescue sod. Best results are obtained when dead fescue duff is burned off with prescribed fire prior to planting. If the terrain allows, plow and disk the area to prepare a seed bed and plant a wildlife friendly grass/legume mixture*.

Burning, re-plowing, or re-spraying portions or the entire field after two growing seasons may be needed if fescue is widely scattered in the field or reaching 30 percent coverage.

Two practices that should be avoided in the first two or three years after initial control are fall disking and late-winter burning. These practices can increase the coverage of fescue in a fallow field.

Remember that it is impractical and unnecessary to keep all fescue out of a field. The real goal is to keep it suppressed. This allows the field to support other forms of vegetation, through natural succession or plantings, which will meet the habitat requirements of a variety of wildlife.

***Related *Habitat How-To* references:**

Annual Grains
Cool Season Grasses
Legumes
Warm Season Grasses
Prescribed Fire