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Missouri Chapter News

Walnut Council: Growing Walnut and Other Fine Hardwoods

Weed Control for Hardwood Trees - Killing Toxic Fescue

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Two email messages from Bob Ball (no relation) to Missouri Chapter Walnut Council members recently provided sources for buying glyphosate which is sold under various brands like Roundup and in at least two common concentrations. This article is meant to help remind the reader of the need to control weeds and especially tall fescue if you want to maximize the growth of your hardwood trees. I mention a couple of ideas about how to accomplish this.

In our fall meeting Jerry VanSambeek and I tag-teamed a presentation entitled ***"Killing Toxic Fescue".*** Jerry told us about all the research which illustrates that fescue in combination with walnut trees (and probably all hardwood trees) is a sub-optimal idea. I gave a presentation about how to go about killing the fescue.

The bottom line was if you want the best possible growth for your hardwood trees, control the weeds and especially fescue. We used a slide reproduced here on page 2 that illustrates the point. This slide is from a research project carried out by John Slusher, Extension Forester at the Southwest Research Center many years ago.

We emphasized the need to control fescue because of its toxic nature and its vigorous appetite for nutrients but other sod forming grasses such as Brome and large broadleaf trees can also be a problem that should be controlled. Luckily, we have herbicides which are considered safe to use that will control these weeds if used at the right time of year assuming they are properly applied.

Oust sprayed on dormant fescue (and dormant trees) will result in live trees and dead fescue.

Long-term Effect of Tall Fescue Cover Crop on Black Walnut Growth and Nut Production

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David Brauer:	Dale Bumpers Small Farms Research Center/ARS/USDA, Booneville, AR
Julie Rhoads:	University of Missouri Center for Agroforestry, Columbia, MO
John P. Slusher:	University of Missouri Forestry Department, Columbia, MO. Deceased, 2002

BACKGROUND:

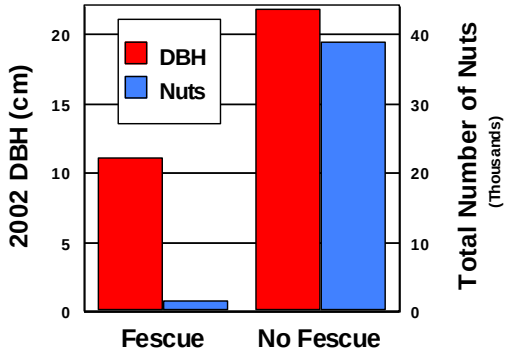
•A black walnut (*Juglans nigra*) agroforestry research and demonstration trial was planted in 1975 at the University of Missouri-Columbia's Southwest Research Center near Mt. Vernon, MO.

•One-hundred sixty seedlings from ten different seed sources were planted in four rows on a spacing of 3.8 m within and 10.7 m between rows.

•The trees were planted into a field of established endophyte-infected tall fescue grass (*Festuca arundinacea*) on a poor, rocky, upland soil.

•Herbicides were used to control the fescue competition in the immediate area of the trees for the first three years, after which the fescue was allowed to re-colonize the area.

•In 1984, at age nine, grass control was re-established in two of the four rows of trees and continued until 1999, at which time Kentucky bluegrass (*Poa pratensis*) was established among the trees where fescue had been excluded for 15 years.



RESULTS:

•Reduction in competition from the tall fescue cover crop resulted in significant differences in average diameter and height growth of the trees, and especially in nut production.

•In 1984, the average diameter and height of trees in all four rows were statistically equal.

•By 1989, after five years of fescue control, the average ground-line diameter of the untreated trees was 9.7 cm whereas the treated (fescue-free) trees measured 16.2 cm. Average heights were 3.3 m and 5.4 m for untreated and treated trees, respectively.

•In 2002, diameter at breast height (DBH) of untreated trees averaged 11.0 cm while treated trees averaged 21.7 cm.

•The first significant nut production year was 1987. Ten years of subsequent nut harvests from all trees yielded 40,425 nuts, with 96% of these produced on trees without fescue competition.

I approach killing fescue from the standpoint of two separate categories where the problems and solutions are different. One situation is with very small trees and the other is where the trees are large enough that glyphosate and some other herbicides can be applied without getting onto green bark and/or foliage.
In both cases, be sure to apply herbicides at least out to the drip line of the trees regardless of their size. View the included photos for examples of proper spraying techniques.

SMALL TREES

Depending on where your trees are in Missouri, there may be two different situations at this late date in March. In some northern areas, such as where my trees are, bud break has not happened yet but may do so in the next few days. The first stage to watch for is bud swell when new tender tissue might be exposed. If this has happened, it is too late to apply any "contact killing" herbicide that might hit those buds. To be on the safe side, consider it is too late to apply glyphosate in that situation. In that case there are pre-emergent herbicides, and later, for use after full foliage. A couple of grass herbicides can be used, but both of those are beyond the scope of this article.

If bud swell has not happened yet, even in North Missouri, it is probable that cool season grasses are starting to grow. This is an excellent time to apply herbicides with a contact killing chemical (like glyphosate) or a combination contact and pre-emergent herbicide like Oust.

I have finished my small tree spraying for this year, but I think I would have had a few more days before it would have been too late. I used Oust because of its dual action, but glyphosate along with a preemergent would have been OK to use as well.

The photo on page 1 shows an application I did last year prior to bud break that shows the effectiveness of Oust. According to how vigorous the weed competition might be later on with species like giant ragweed or mares tail that can over grow and shade the little trees, you might want to consider a second spraying of a preemergent herbicide about 30-45 days from now. Most preemergents continue to be effective for only about 60 days so plan accordingly. I failed to do this last year on a couple of small CSP (USDA - Conservation Stewardship Program) plots, and it was a very prolific year for weeds. By midsummer those weeds overshadowed what looked like a perfect stand of trees and, by fall, resulted in probably the worst survival rate I have experienced in my 29 years of tree planting.

LARGER TREES: Meaning those trees having enough bare brown bark where herbicide can be sprayed and not in contact with foliage.
We have more spray options with larger trees. You can apply preemergent herbicides any time that common sense and the labels tell you is appropriate. You can apply contact herbicide anytime you like, but it is better to spray after the grasses have started to grow. Just do not spray so late you could kill the late budding broad leaf species that are not especially harmful to trees. Those species of weeds help prevent erosion and they have wildlife benefits. For me there seems to be enough seed in the seed bank of ragweed and foxtail millet which quickly repopulate the more desirable weeds.

When spraying with a hand-held sprayer, apply the herbicides in a circle out to the dripline using this guideline: If the DBH (diameter at breast height) is 4 inches, the crown width in a healthy situation should be 4" x 2 + 5 = 13 feet. Landowners often spray circles that are simply too small to have an impact.

STUDY THE LABELS
All herbicides under consideration here have labels on the container. Labels include pertinent information on safety, which weeds are controlled, the recommended dosage, and the issues relative to protecting your trees.

The dosage will usually be expressed in ounces per acre which is used for electric or PTO driven sprayers with booms. If you are going to use this volume formula, it is necessary to calibrate your sprayer which is not difficult, and the instructions are readily available. However, if you are using a hand-held sprayer powered by an electric pump, like on an ATV or even a manual sprayer like a back-pack or pump-up sprayer, follow label rates ***"Hand-held % Solution".*** Often those labels provide different percent solutions for different targeted species. You may also find the percent solutions for different weed heights. Be sure and read the whole label not just the tables. If the grasses are small you may be able to cut back on the amount of herbicides illustrated in the following example.

A ***Tomahawk*** brand label has 53.8 % active ingredient and, for instance, calls for a 1.5 % solution (in water) for fescue. Simply multiply the volume of water in your spray container, say 15 gallons, convert it to ounces = 1920 oz. Multiply 1920 X .015 to get the number of ounces of Tomahawk = 28.8 ounces or less than 1 Quart. The ***Tomahawk*** label also gives examples to help you determine how much of their product to use.

In all circumstances you should study the label and follow label warnings and recommendations. I also suggest adding a small amount of surfactant to improve efficiency, but you should check with your chemical supplier for their recommended dosage. Some labels include a suggested percent of surfactant to include, but many labels do not mention surfactants.

TIME IS OF THE ESSENCE!
Spring is here. The time is now, or very soon, for you to be using herbicides to help maximize the growth of your hardwood trees to kill toxic tall fescue.