



ECOLOGICAL SCIENCES–FORESTRY TECHNICAL NOTE

Use of Woven Fabric for Weed Control in Conservation Tree/Shrub Plantings

Purpose: Disseminate information about the use and management of synthetic weed control fabric.

Miles of woven fabric have been applied for weed control in conservation tree/shrub plantings. The use of woven fabric has resulted in improved survival and growth in these plantings. There are issues of tree girdling and reduced suckering with the use of fabric. Attached are two articles: 1) Points out the advantages/disadvantages and management recommendations for the use of woven fabric in conservation tree/shrub plantings, and, 2) Shares the results of some studies involving degradable fabric and the significance of how the fabric opening is cut.

The main point is we need to be aware of these issues when we are developing conservation plans that use these tools. We need to make the producer aware of the advantages and disadvantages of these products and the subsequent management/maintenance issues that need to be addressed with the use of fabric. Some of these issues can be addressed at the time of installation if we are aware of them and make the necessary changes. Other situations in which the fabric has already been installed will require inspections and adjustments to the fabric if an issue has developed. This type of information must be a part of the Operation & Maintenance (O&M) plan that is given to the producer and a copy is placed in the plan folder.

The use of woven fabric for weed control is just one method or tool to control competing vegetation. It is still very effective and I still recommend the use of it. However, all methods have their advantages and disadvantages. The use of fabric does pose some management/maintenance considerations that we need to express to the users of the product if we are going to suggest it in our conservation plans.

If you have any questions regarding this technical note, please contact Bob Logar, State Staff Forester, at 406.587.6836, robert.logar@mt.usda.gov; or Martin Jiminez, State Resource Conservationist, at 406.587.6998, martin.jiminez@mt.usda.gov.

Synthetic Weed Control Fabric Advantages and Disadvantages

Craig Stange, Forester
Natural Resources Conservation Service, Bismarck, North Dakota

Thousands of miles of polypropylene woven fabric have been applied to conservation tree plantings for weed control throughout the Great Plains, resulting in improved survival and growth. Fabric both eases and complicates subsequent management of conservation plantings, even when properly applied.



“Ideal” fabric installation.

Fabric Advantages

- Applied only once.
- Greatly increased tree and shrub establishment and survival. (Increases survival from 20% to 80%+).
- Increased growth rates immediately following planting.
- Easier and more timely weed control.
- Long lasting weed control.
- Comparable cost to other weed control methods averaged over 5 to 10 years.

Fabric Disadvantages

- Initially expensive.
- Requires specialized machinery and trained crew to install properly.
- Proper installation is critical to prevent pulling loose in high winds.
- Does not break down, especially within the shade of trees and shrubs.
- Stems may be girdled by fabric as trees and shrubs grow.
- Suckering of some shrub species is greatly restricted within first 10 years.
- Dense sod can become established on top of fabric, negating benefits and complicating future maintenance.



Sod growing on top fabric.

Fabric Management

- Inspect annually or more often if needed.
- Ensure edges are firmly anchored.
- Ensure openings are not parallel to the grain of the fabric to avoid stem damage. (X, C, J, or L shaped)



Reduced suckering outside fabric. Chokecherry roots on top of soil immediately under, and parallel to fabric edge. Fabric has been removed.

- Keep soil and organic matter off fabric.
- Control aggressive weeds that may establish in fabric openings.
- Enlarge openings as needed to prevent stem girdling.
- Consider alternative weed control where dense shrub thickets are desired.



Stem girdling after 8 years.

Conclusion: Fabric has greatly increased tree planting success and vigor in conservation plantings. However, it requires regular maintenance to prevent future damage to the planting. Since fabric can inhibit suckering of some shrub species, another weed control method may be more appropriate for certain types of plantings and/or landowners. Researchers continue to develop weed control materials that will provide effective initial control with minimal long-term negative aspects. New fabric types with varying amounts of photo degradation have been released to address potential girdling problems. Conclusions as to the success of these new fabric types are not expected for several years.

Degradable Fabric Is Not the Answer for Tree Girdling

Last year a woven fabric company experimented with fabric with a degradable green center strip. They put no UV resistance in the green ribbons going vertically, and used normal black ribbons with UV resistance going horizontally. In the space of four months, the green ribbons deteriorated in the sunlight, BUT the green ribbons did not deteriorate when shaded or covered with dirt or sand. Now obviously, the green ribbons could have UV resistance added to make them deteriorate more slowly, but this would not impact the fact the degradable fabric WILL NOT DEGRADE in the shade.



Experimental FadeAway Lumite being installed in 2002.



*Green degradable fabric is gone...
except under the seedling!*

The impact of this is enormous. Without sunlight, degradable fabric will not degrade around the base of the tree. You may still experience tree girdling, AND you will have lines of weeds between the trees where the fabric does degrade.

So what is the answer? Well, how the fabric is cut makes a huge difference in tree girdling.



How the Fabric is Cut Makes a Huge Difference in Tree Girdling

Those who say, “No, we do not really have a problem with tree girdling,” are cutting their fabric differently than most of those who do have tree-girdling issues. The majority of people who have cut single slits or arcs (C-cuts) are now finding that as the tree matures, some trees do not have room to grow in the opened area.

The majority of people who have cut X’s or triangle cuts and made sure that the tree is in the center of the opened area are not noticing much of a problem. This can vary somewhat if the X cut or triangle is less than 6–8 inches in length. But what if the solution is as easy as being particular about the size and shape of the cut based on the expected circumference of the mature tree?

What about weeds at the base of the tree. It is also possible to make a larger X cut and then pin the flaps together with wire staples pushed only part way down. As the tree grows, the staples by the tree normally push up out of the soil, or if necessary can be removed with a pry bar, thus allowing the flaps to open and make room for the growing tree.