

Observations and Treatments at Whiskey Creek Regenerative Farming in Riparian Forest Buffers After Two Growing Seasons

Written by Bobby Whitescarver 2/11/2024

We planted riparian forest buffers in December 2021 on 9.29 acres at a rate of 300 trees per acre. The trees have had two full growing seasons although 2023 was a severe drought year.

Observations:

- Maintenance is critical, especially fescue and weed suppression around the tree shelters. Tree shelter maintenance and bird net removal are also critical.
- Tree shelter maintenance is not the same as tree maintenance, both are needed.
- Seedling mortality is primarily due to improper planting and installation.
- Weeds inside the tree shelter are problems. I wish we had used a preemergent granular herbicide to prevent this.
- Fast-growing seedlings should not be put in a 5' shelter because of tree flopping.

Tree Flopping-when a tree seedling is so tall and top heavy it bends over and crimps the tree shelter.



Example of tree flopping at Whiskey Creek. Photo taken 8/23. Tree was planted 12/21. Photo credit R. Whitescarver

Recommendations for Tree Flopping

1. Do not put 5' shelters on fast growing seedlings, use 4' shelters. Vented 5' shelters are the worst, maybe because there is less material in the shelter. My observation is that we had three times more flopping in the vented shelters versus the non-vented.
2. Once the seedling flops or the shelter is bent, it's best to remove the shelter. If the tree is truly flopped it's best, in my opinion, to prune it back to a straight section of the trunk; it will re-sprout. If the trunk is straight, put a tree bark protector on it because deer will rub it the unprotected bark.
3. We have had two growing seasons (this past one was a drought) and the fast-growing seedlings are going to flop if they have a 5' vented shelter so, I've been removing the shelter before they flop and put bark protection on the seedling. I hope this works.

Mortality

You may recall that we used several different planting techniques on our farm. Vented 5' shelters, non-vented 5' shelters with gravel mulch and non-vented 5' shelters without gravel mulch. We used herbicide around each shelter on all treatments to suppress fescue and weed competition. I conducted a survival count this winter on "known" mortality. Known, meaning that when we encountered a dead seedling this past year, we would take the shelter off and place it upside down over the stake. I simply flagged those shelters with bright ribbon, counted them and divided that number by the total trees planted in that section.

5' vented shelter area 7% mortality.

5' non-vented shelter area w gravel mulch 1% mortality

5' non-vented shelter area 1% mortality.

After the second growing season, we have good survival, above 90% in all areas but, there is significantly more mortality in the 5' vented shelter area. I do not think it's because of the vented shelter. We have more tree flopping with the vented shelters, but flopping is not mortality, it's bad, but not dead.

In my opinion the reason for higher mortality in the vented shelter area was improper installation and improper maintenance. In the vented shelter area, I found many shelters not inserted into the soil the required 2 to 3 inches (Voles killed them), two shelters installed upside down, and many stakes not driven into the ground the proper depth which made them fall over, leaving the tree vulnerable to the voles.

Tree Shelter Maintenance is Not the Same as Tree Maintenance

Both are needed. This picture shows a perfectly well functioning tree shelter, but the tree needs some help.



Pictured here is a Bald Cypress seedling along with a Bradford Pear weed tree. The shelter needs to be removed and the pear taken out. Photo credit R. Whitescarver

Overall Recommendations

1. Increase inspection during and after installation.
2. Increase training for tree planters for both installation and maintenance.
3. Create a certification program for tree planters and maintenance workers.