

## Tree and Shrub Survival in Shelterbelt Renovation Dickinson Research Extension Center - Fall 1999

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### Introduction

The data presented in this report is the third year of analysis of the survival of the various coniferous and deciduous plants observed. For this analysis there is included a vigor scale of 1 to 5. Five being the best rating, three average, and one being dead. It should be noted that this vigor scale differs from the previous year in the direction of numbering. Last year a vigor rating of 1 was the best and 5 the worst. Also measured was height from ground level to the highest living part of the plant, and diameter measured in two directions with an average being taken.

In the row of shrubs, the pattern for planting was originally to have been repeating rotation of 2 trees each for 3 species (i.e. 2 nannyberry, 2 cranberry, 2 juneberry, repeat) however, this pattern has been disrupted and noted with (spacing?) In the observations column. This is possibly due to replanting and regrowth. Also, the shrubs farthest east were lost to a drainage project.

In the Rocky Mountain Juniper (east row) there was negative growth in the average height. This may be due to a discrepancy in the number of trees measured, or some minor dieback as the negative growth was only .06".

This year there was an additional measurement of some spruce replants located west of the Siberian Larch, that were not recorded last year. Last year the Black Walnut, Ohio Buckeye, and Bur Oak were differentiated in the measurements, this year they are labeled only as Bur Oak. The Colorado Blue Spruce from last year were increased with replants of Colorado Blue Spruce and Blake Hills Spruce trees. They were labeled simply Spruce in the years analysis so the quantity of spruce trees has increased since the previous year.

### Legend

In the observations feeding indicates insect damage, missing indicates that no tree was present, (replant?) Shows that the plant, due to its different heights may have been replanted, and (spacing?) Or abnormal spacing refers to a break in the regular planting pattern.

## Observations

It was observed that there was a significant difference between the growth of the Eastern Red Cedar and the Rocky Mountain Juniper. This could be due in part that the Eastern Cedar is more tolerant of the shade in which the trees were planted. Also noted is the significant difference in the average height and diameter of the shrubs between the till and no till areas. One should also look at the survivability of the different shrubs. There is a very notable difference between the growth rate, average height and average diameter of the mulched and no mulch trees ([see charts](#)).

Tree	Average Height	Average Diameter	Average Growth Height	Average Growth Diameter
Ponderosa Pine (mulch)	31.37	24.48	8.77	6.28
Ponderosa Pine (no mulch)	20.7	15.04	5.7	3.74
Scotch Pine (mulch)	45.47	34.44	18.57	16.24
Scotch Pine (no mulch)	34.95	25.2	10.55	11.6
Black Hills Spruce (mulch)	33.64	26.65	10.14	6.95
Black Hills Spruce (no mulch)	25.6	19.63	5.8	1.83
Colorado Blue Spruce (mulch)	27.42	26.89	3.92	7.19
Colorado Blue Spruce (no mulch)	19.5	20.98	5	7.58
Rocky Mountain Juniper	36.27	25.67	11.07	10.07
Eastern Red Cedar	23.24	17.02	-.06	1.82
American Cranberry (till)	38.27	40.63	8.47	7.33
American Cranberry (no till)	31.11	26.27	9.61	2.77

Juneberry (till)	35.55	28.01	8.05	3.11
Juneberry (no till)	27.75	22	6.95	3.4
Nannyberry (till)	38.67	23.83	10.07	2.73
Nannyberry (no till)	33.6	16.23	6.3	1.63

<b>Condition Observations</b> (click on tree name for information)
<a href="#">Ponderosa Pine</a> (mulch)
<a href="#">Ponderosa Pine</a> (no mulch)
<a href="#">Scotch Pine</a> (mulch)
<a href="#">Scotch Pine</a> (no mulch)
<a href="#">Black Hills Spruce</a> (mulch)
<a href="#">Black Hills Spruce</a> (no mulch)
<a href="#">Colorado Blue Spruce</a> (mulch)
<a href="#">Colorado Blue Spruce</a> (no mulch)
<a href="#">Rocky Mountain Juniper</a>
<a href="#">Eastern Red Cedar</a>
<a href="#">American Cranberry</a> (till)

[American Cranberry](#) (no till)

[Juneberry](#) (till)

[Juneberry](#) (no till)

[Nannyberry](#) (till)

[Nannyberry](#) (no till)

[Spruce Trees](#)

[Siberian Larch](#)

[Bur Oak](#)

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