

**On-Going Research:**

**Progress Report (Year One)**

**The Effects of Band Application of  
Fertilizer on Two Cultural Treatments  
Of Five Christmas Tree Species Grown on  
Reclaimed Mined Land.**

**By:**

**Russell Vicars  
Leslie Ingle  
Billy Carter  
Eric Cope  
Greg Johnson  
Brad Hamilton  
Brad Lewis  
Megan Calhoun  
Jessica Salyers  
Brooke Jones  
Maggie Orr  
Jason Benton  
Dr. Chuks Ogbonnaya**

**Mountain Empire Community College Students  
3441 Mountain Empire Road  
Big Stone Gap, VA 24219**

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### Introduction:

This report provides the results of the first year of a multi-year (five years) analysis (The Effects of Band Application of Fertilizer on Two Cultural Treatments of Five Christmas Tree Species Grown on Reclaimed Mined Land). All the experimental plots were designed by Environmental Science Technology students.

### Multi-Year Objectives:

1. To determine the effects of hand applications of fertilizers in a band around trees
2. To develop the use of demonstration plots for students and the community as a whole
3. To determine if using Brush Blanket® will promote rapid growth by inhibiting unwanted weed growth, increasing moisture retention, and raising soil temperature around seedlings

### Methods and Materials:

This study was started in the Spring of 2005. The funding for the first year study was provided by Powell River Project. The study site, known as the Powell River Project, is located eight miles east of Norton, Virginia. The following tree species were selected for this study:

1. Douglas Fir
2. Blue Spruce
3. Norway Spruce
4. Scotch Pine
5. White Pine

The following treatments were used and the results were compared:

1. Brush Blanket®
2. Plots already treated with slow release fertilizer
3. Bare plots

The height of each tree was measured after planting. This was done by rows and each row was recorded on a separate data sheet by species in the row. After heights were recorded, a garden hoe was used to loosen the soil around every other tree in a row, beginning with the first tree and then skipping the next tree. A five oz. cup was then used to measure the fertilizer that was applied to the seedlings. The fertilizer used had a formulation of 20% nitrogen, 10% phosphate, and 20% potash.

A trench was constructed around each seedling approximately six inches from the base of the seedling and two inches in depth. The measured fertilizer was then applied inside the trench and covered over with the soil that had been removed. The seedlings were re-measured after a period of one year growth and the data compared with data recorded before fertilization.

Results and Discussion:

Table 1 and Figure 1 show the results of the average tree growth for one season. Rabbits and deer feeding on the seedlings contributed to seedling mortality. Overall, the fertilized (F) seedlings grew better than the non-fertilized (NF) except for Brush Blanket® (Douglas Fir and Scotch Pine).

Conclusions:

We cannot draw any definite conclusions from the first year study alone. We will be able to draw a final conclusion at the end of the fifth and last year of study.

We will still continue to use this study and other demonstration pilots in Forest and Environmental Science classes. Students will also use this study as field trips.

Table 1  
Differences in Tree Height After One Growing Season  
Year One

TREATMENTS		SPECIES				
		WHITE PINE	DOUGLAS FIR	BLUE SPRUCE	SCOTCH PINE	NORWAY SPRUCE
		<b>Average Height (inches)</b>				
Previously Treated Plots	F	6.0	7.3	1.8	6.1	1.6
	NF	2.8	3.9	0.4	2.4	2.0
Bare Plots	F	5.4	7.2	2.3	3.1	9.2
	NF	1.5	4.0	0.7	1.0	3.4
Brush Blanket®	F	8.3	8.6	2.9	1.5	4.1
	NF	3.1	10.0	2.4	3.4	2.1

F = Fertilized Trees

NF = Non-Fertilized Trees

Figure 1

Height Distributions for One Growing Season

