

 UI Extension Forestry Information Series

## Concolor Fir Field Trials Reveals Some of the Best Seed Sources for Nursery and Christmas tree Production

*Don White*

One of the most beautiful conifers in the world is concolor fir (*Abies concolor*) which also bears the common name white fir. Don't confuse this tree with our grand fir which is also erroneously called white fir here in the Inland Empire area.

Concolor fir, with the largest range of any of the western firs, is scattered throughout the south central Rocky Mountains, the Siskiyou Mountains, the Cascades of southern Oregon, and the Sierra Nevada and coast range of California. Its altitudinal distribution is 6,000-10,000 feet in the Rockies, but elsewhere its lower limit is sometimes below 3,000 feet. Its leaves are usually 2-3 inches long and can range from silvery blue to silvery green. The blue varieties remind me of what we typically think of as the color of Colorado blue spruce. Concolor fir is a magnificent tree.

This tree makes a fine ornamental and outstanding Christmas tree when good color and form can be attained. The problem has been that when nurserymen and Christmas tree growers have tried to reproduce concolor fir the results have been erratic. One grower may produce an entire field of excellent quality trees while others are having trouble with poor color, frost damage, diseases, or poor form and growth rates.

In 1989 a project was begun to determine the suitability of concolor fir for commercial Christmas tree production. It was a cooperative venture between the Sandpoint Research and Extension Center (then under the direction of Dr. Harry Menser; and now under Dr. Dan Barney), John Kayler of Fantasy Farms Nursery, the Inland Empire Christmas Tree Association, and University of Idaho Extension Forestry.

Seed sources from seven locations ranging from California to New Mexico were selected and grown to seedling size by Fantasy Farms Nursery and then out planted at the Sandpoint Center. The trees received standard Christmas tree cultural operations such as weed control, fertilization, insect and disease control, and shearing.

Seed was collected from four locations in New Mexico designated as Rio Grande, Santa Fe, Lincoln and Cibola. The other three sources were Siskiyou, California; San Isabel, Colorado; and Kaibab, Arizona.

Out of the four seed sources from New Mexico, three of them ranked in the top three for the entire study. I place them in the following order:

Area	State	Average Height (inches)
1. Rio Grande	New Mexico	66"
2. Santa Fe	New Mexico	67"
3. Cibola	New Mexico	61"
4. Kaibab	Arizona	55"
5. Lincoln	New Mexico	77"
6. San Isabel	California	53"
7. Siskiyou	California	42"

One would be hard pressed to tell Rio Grande from Santa Fe. They are both outstanding. The Rio Grande seems to be a little more blue-green than the Santa Fe, but there were individuals within each group that were almost identical.

The Cibola was also very good in both color and form but was a little slower in height growth.

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None of the remaining trees would be desirable for several reasons. The Lincoln, although the fastest growing, has twisted branches and needles, double tops and poor color. The Kaibab were slow growing compared to the top three. The trees from San Isabel had irregular form, slow growth and inconsistent needle color.

None of the trees suffered from any serious insect or disease problems except the Siskiyou source. Every tree in the row had a physiological disorder called "current season needle necrosis". The disorder turns the needles brown. This tree also suffered almost every year from frost damage and was the slowest of all the seed sources.

The results of the study appear to have been convincing enough that several of our local seedling nurseries have the top three available for purchase this year. Perhaps now we can give Concolor fir the prominent position it deserves in both the ornamental and Christmas tree markets.

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