

O C T O B E R 1 9 9 9

# SNCC

***Swiss Needle Cast  
Cooperative***

A N N U A L R E P O R T

1 9 9 9



OREGON STATE  
UNIVERSITY  
COLLEGE OF  
FORESTRY

Forest Research Laboratory



***MEMBERS OF THE SWISS NEEDLE CAST COOPERATIVE AND  
THEIR 1999 CONTRIBUTIONS***

Boise Cascade Corporation	\$15,000
Champion International	\$5,000
Coos County Forestry Department	\$5,000
Confederated Tribes of the Grand Ronde	\$5,100
Confederated Tribes of the Siletz	\$700
Davidson Industries	\$5,000
Hampton Resources, Inc.	\$20,000
Longview Fibre Co.	\$45,000
Menasha Corporation	\$15,000
Miami Corporation	\$5,000
Oregon Department of Forestry	\$45,000
Port Blakely	\$15,000
Rayonier	\$3,000
Rosboro Lumber Co.	\$10,000
Simpson Timber Co.	\$45,000
Starker Forests	\$45,000
Swanson Superior Forest Products, Inc.	\$10,000
The Timber Company	\$45,000
Weyerhaeuser Corporation	\$5,000
Willamette Industries	\$45,000
USDA Forest Service	In kind
USDI Bureau of Land Management	\$45,000
OSU Forest Research Laboratory	\$30,000 (salary)



*Swiss Needle Cast  
Cooperative*

**A N N U A L R E P O R T**  
**1 9 9 9**

*Edited by Greg Filip, SNCC Director  
Layout by Gretchen Bracher, FRL Publications*

# **SNCC INCOME SOURCES AND EXPENDITURES 1999**

---

<b>Income</b>	
Membership Dues	\$433,800

---

<b>Expenditures (as of 9/99)</b>	
Salaries and Wages	\$129,545
OPE	24,125
Supplies and Services	54,964
Travel	13,263
Indirect Costs	22,189
Total Expenditures	\$244,086

---

<b>Balance</b>	<b>\$189,714</b>
----------------	------------------

# CONTENTS

---

HIGHLIGHTS OF 1999	5
PLANS FOR 2000	5
SWISS NEEDLE CAST AERIAL SURVEY, 1999	6
Survey procedures:	6
Results of the survey:	7
Acknowledgments:	9
GENETICS OF SWISS NEEDLE CAST TOLERANCE -EARLY SCREENING AND FIELD RESULTS	10
IMPACTS OF SWISS NEEDLE CAST ON THE PHYSIOLOGY OF DOUGLAS-FIR NEEDLES	12
Goal I.	12
Goal II.	13
Goal III.	24
References	27
Appendix I. A/Ci Curve Analysis and Calculations	29
Appendix II. Abbreviations and Gas Exchange Parameters.	30
Appendix III. Abbreviations and Spectrophotometric Rubisco Activity Parameters	31
Appendix IV. Abbreviations and Chlorophyll Fluorescence Parameters	31
IDENTIFICATION OF ALTERNATIVE FUNGICIDES AND APPLICATION TIMINGS TO REDUCE SWISS NEEDLE CAST DAMAGE IN STANDS OF DOUGLAS-FIR TIMBER	32
Assessment Methods and Scales	33
Protectant Studies	34
Inoculum Disruption Studies	35
Additional Studies and Observations	37
Acknowledgments	38
EFFECT OF FERTILIZATION AND VEGETATION CONTROL ON SWISS NEEDLE CAST	
INFECTION AND GROWTH OF COASTAL DOUGLAS-FIR SEEDLINGS	39
Study #1	39
Materials and Methods — Study #1	39
Study #2	42
Materials and Methods — Study #2	42
Expected Study Outcomes	43
GROWTH IMPACT STUDY	44
Tree size	44
Stand density	44
Swiss needle cast severity	49
SWISS NEEDLE CAST INFECTION STUDIES	50
Summary of Specific Studies in Progress	51
Preliminary Results	52
PART 2	58
Genetics of Phaeocryptopus	58
Molecular Systematics	61
SWISS NEEDLE CAST RISK ANALYSIS AND MODELING	69
Introduction	69
Methods	70
Results and Discussion	71
Conclusions	75
References	75
Objections and notes	76





































































































































































## ***BACKGROUND AND ORGANIZATION***

The Swiss Needle Cast Cooperative (SNCC) was established in January 1997. Damage caused by Swiss needle cast, a native foliage disease that affects Douglas-fir, has made it imperative that new research be conducted to learn practical methods of disease detection and management to maintain the health and productivity of Douglas-fir plantations. A well-run cooperative is an efficient means of increasing and accelerating the level of forest disease research in the region. Because members participate directly in problem identification and research solutions, communications of results is speeded and results are applied more rapidly and effectively.

SNCC is located in the College of Forestry at Oregon State University. The Membership is comprised of private, county, state, and federal organizations. Membership dues vary depending on forestland ownership. One annual report, project reports, and newsletters are distributed to members each year. All projects are carried out in cooperation with specific members on their land holdings.

## ***PURPOSE***

The focus of SNCC will be Swiss needle cast research for forest land owners in western Oregon and Washington. The purpose of SNCC is to provide the following services:

1. Conduct research on the biology, detection, and management of Swiss needle cast in coastal Douglas-fir as related to basic infection biology and genetics, tree physiological dysfunctions, aerial and ground survey technology, disease hazard and risk rating, growth and yield impacts, and strategies for control.
2. Conduct training and workshops on reassert and survey results
3. Provide newsletters and reports on research and surveys, and
4. Serve as a focal point for information on Swiss needle cast.

