PROJECT NO.: 4678

TITLE: Epidemiology and Control of Cytospora Canker of Sweet Cherry

YR INITIATED: 1985 **CURRENT YR:** 1992 **TERMINATING YR:** 1992

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JUSTIFICATION:

Cytospora canker is a major cause of degeneration and death of cherry trees in Washington. The disease is distributed throughout Washington cherry orchards with affected trees showing stem cankers, gumming, and death of branches and eventually entire trees. Currently, satisfactory methods to manage cytospora canker are not available. A knowledge of environmental effects (temperature, rainfall, humidity, etc.) on disease development will aid in controlling Cytospora canker. The purpose of this project will be to develop management practices for this disease.

PROGRESS:

Free water was found to be necessary for the release of spores from the asexual fruiting bodies (pycnidia) of Cytospora cincta. Spores (conidia) were not released at 100% and lower relative humidities when free water was absent. However, a wide range of temperatures (35 to 90° F) was conducive for release of spores when moisture was present on tree branches. Once spores were released from the pycnidia they remained viable for over 30 days as long as they were held together within the dried cirrhus. Thus, moisture is needed for release of spores as well as infection; spores that are released from pycnidia and are not disseminated or germinated, because of drying conditions, are capable of dissemination and infection when wet weather returns.

Asexual spores (conidia) did not germinate at 40 and 50° F when incubated for 24 hours, whereas they did when the incubation period was extended to 48 hours. Sexual spores (ascospores) germinated at 50° F at an incubation period of 24 hours.

Inoculation of leaf scars on 20 October with spores of Cytospora cincta failed to initiate infection on 6-year-old Rainier cherry trees. Observations in cherry orchards also indicate that leaf scars are not a major avenue of infections in Washington. Pruning wounds and wounds caused by various means are important avenues of

infection. Pruning wounds were found to lose their susceptibility to infection three days after the wound was initially made.

The pattern of infected trees in three cherry orchards was tightly clustered. Analysis of the pattern of infected trees in orchards indicated that spread is mainly from infected to adjacent trees. Possible methods of spread are rain or sprinkler splashed spores (conidia) and contaminated pruning tools.

Canker expansion was measured at 12 monthly intervals on trees that were inoculated every month throughout the year. Infection occurred every month from conidia being applied to wounds and from wounds being made with a contaminated cutting tool. Data are being analyzed to determine time of year when canker expansion was the greatest.

BUDGET:

	1991	1992-1993
00 - Salaries	$ 0	
01 - Wages	2,000	
03 - Goods and Services	600	
04 - Travel	550	
05 - Computer Services	650	
07 - Fringe Benefits	200	
TOTAL	$4,000	0