WILLOW BLIGHT AND THE SURVIVAL OF SOME SALIX SPECIES IN NOVA SCOTIA[1]

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The old French willow, (Salk alba L. var. C- tellina (L.) Stoke), once one of the beautiful shade trees in Nova Scotia, is now little more than a memory of an older generation. This willow apparently was introduced early in the history of the French settlement of the province and was used extensively around buildings. Willow posts, used to mark property boundaries, often sprouted and in time grew to become impressive rows of trees along roadsides and banks of streams. Now they have almost completely disappeared because of the destructive disease, willow blight. There is no record of how or when this disease was introduced but in 1926 it caused severe defoliation of trees in many parts of the province. It seems most likely that it was introduced from Europe on nursery stock during or shortly after World War I.

Willow blight in Nova Scotia is an expression of the interaction of two diseases; willow scab caused by Pollacia saliciperda (Allesch. & Tub.) Arx, which is related to apple scab, and willow canker, Physalospora miyabeana Fukushi, first described on willow in Japan and later on basket willow in England. Both organisms overwinter in cankers on twigs and sprouts. The scab organism attacks the leaves early in the spring and progresses along the petiole into the twigs. The canker organism enters later through leaves and tissues injured by scab. Twigs and new growth are killed during the late spring and summer. Different species and varieties of willow vary in their susceptibility to each organism. They must be susceptible to both before willow blight is destructive.

Salix pentandra did not thrive on this site but the original clone growing in Greenwich, Kings County, is vigorous and has developed into a striking group of trees. S. blanda was very susceptible and soon died out. S. fragilis has sufficient resistance to survive attacks and is found in some parts of the province.

In 1935 cuttings of the cricket bat willow, S. alba L. var. calva GFW Mey (S. coerulae Sm.), free of water mark disease, was obtained from England through the kindness of the late Prof. W. J. Dowson of Cambridge. This species was first tested in the laboratory for susceptibility to willow blight and then under natural conditions in the field near infected willows. Blight never developed on this willow although other varieties were killed. The species is recommended for replacing blighted willows in Nova Scotia. Cuttings grow rapidly and develop rather quickly into good sized trees.

An original planting of French willows survives in the Grand Pre Memorial Park where it is kept alive by a regular program of sprays. The trees are shorter now than they were originally because of the difficulty of spraying the tops adequately to prevent the blight there. Control was obtained originally with 5 sprays of Bordeaux 8-24-100, starting when the buds first break and repeated every 10 to 14 days. Control is now maintained with 3 or 4 sprays of Phygon, ½ lb to 100 gal water. The early sprays are most effective and in seasons with low rainfall 3 sprays are sufficient for control.

In 1933 a row of willows, obtained from cuttings from various sources, was planted parallel to the highway and along one side of a pastured block of dyked meadow on the Research Station, Kentville. The site was favorable and the willows grew vigorously. Several French willows were near and furnished a natural source of inoculum. Table 1 lists the species planted and the number surviving in 1965.

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Table 1. Willows planted in May 1933 and records taken April 1965

Number planted	Survived	Salix species	Comments
1	0	caprea L.	No trace remaining.
1	1	alba L. var. tristis Gaudin[1]	Tree thriving.
2	0	viminalis L.	No trace remaining.
4	3	alba var. vitellina (L.) Stoke	Trees barely surviving, blighted.
4	3	alba var. tristis Gaudin[2]	Trees badly blighted.
4	0	nigra Marsh	No trace remaining.
5	4	alba var. tristis Gaudin[3]	Trees large, some blight.
3	0	pentandra L.	No trace remaining.
4	0	amygdalina L.[4]	No trace remaining.
5	5	aurita L. x viminalis L.[6]	Thicket of sprouts.
4	4	fragilis L.[5]	Trees large, thriving.
3	0	blanda Anderss.	No trace remaining.
5	3	fragilis L.	Trees large, some blight.
5	2	britzensis[7]	Trees suppressed, crowded by oaks.

1 Received as S. niobe
2 " " S. vitellina var. pendula
3 " " S. babylonica aurea
4 " " S. triandra
5 " " S. fragilis besfordiania
6 As received.
7 Wrongly named; correct name unknown,