



Aging the Doug Jackson Cores – Set VI

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Abstract

In the summer of 2014, 45 tree cores and 10 sample disks were sampled at various locations across Saskatchewan by Doug Jackson’s crew (University of Saskatchewan). As part of the four-year Agricultural Greenhouse Gases Program (AGGP) these cores were sent to the Mistik Askiwin Dendrochronology Lab (MAD Lab) for analysis. The purpose of this study was to identify the age of each sample.

Introduction

The Agricultural Greenhouse Gases Program (AGGP) is tasked with determining the potential impact that shelterbelts in Saskatchewan have as a greenhouse gas mitigation strategy. The analysis of a variety of tree species present in diverse microclimatic regions across Saskatchewan will ultimately allow for the development of modeled scenarios that will help to maximize carbon sequestration and biomass production through the implementation of different agroforestry practices. In order to allow for the cross-referencing of biomass production data with annual growth increments, tree core samples taken by Team Van Rees/Jackson/Poppy were sent to the MAD Lab for analysis.

Methods

Fifty-five tree core and 10 disk samples were taken at various locations in Saskatchewan by Doug's crew. Fifteen of these cores were Manitoba maple (*Acer negundo*), eight were hybrid poplar (*Populus spp.*), twelve were green ash (*Fraxinus pennsylvanica*), and ten were spruce (*Picea*). Additionally, ten caragana (*Caragana aborescens*) were collected. All samples were sent to the MAD Lab for analysis.

Samples were glued into slotted mounting boards, and subsequently sanded with increasingly finer sanding paper (60, 80, 120, 220, 320, and 400 grit) in order to reveal the annual-growth rings of the wood. Rings were analyzed and counted using a mounted Velmex staging system with an accuracy of 0.001 mm. The age of each core was determined.

Results

Measuring of tree samples provided a ring count for each core. Some samples did not extend to the pith of the tree while others were broken in several pieces, explaining the discrepancies in age count for such trees. The caragana samples were very difficult to count. Crossdating is usually essential to get the correct date of these samples, but it was not done in this case. Instead, the samples were measured by four different operators until we could arrive at a conclusive date. Having said this, there could still be some room for interpretation as the cell characteristics is so difficult to discern, especially in the sapwood of the samples.

Table 1. Age and time span of trees sampled Summer 2013, Saskatchewan, Canada.

ID	Time Span		Age	ID	Time Span		Age
Phillipon A	1962	2014	52	Klisowsky A	1994	2014	20
Phillipon B	1966	2014	48	Klisowsky B	1993	2014	21
Rogers A	1985	2014	29	Loverin A	1993	2014	21
Rogers B	1990	2014	24	Loverin B	1991	2014	23

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ID	Time Span		Age	ID	Time Span		Age
Johnson A	1994	2014	20	Solanik B	1994	2014	20
Johnson B	1991	2014	23	Peckover A	1982	2014	32
Rissling A	1988	2014	26	Peckover B	1984	2014	30
Rissling B	1986	2014	28	Bracken A	2007	2014	7
McPhee A	1971	2014	43	Bracken B	2007	2014	7
McPhee B	1969	2014	45	LaRose A	1947	2014	67
McPhee Origin	1956	2014	58	LaRose B	1949	2014	65
Herzberg A	2002	2014	12	Pickard A	1995	2014	19
Herzberg B	2003	2014	11	Pickard B	1997	2014	17
Woolhouse A	2000	2014	14	Shmale A	1986	2014	28
Woolhouse B	2001	2014	13	Shmale B	1986	2014	28
Smith A	2009	2014	5	Thistlewaite	1989	2014	25
Smith B	2009	2014	5	Jensen A	1930	2014	84
Erdhart A	1994	2014	20	Jensen B	1929	2014	85
Erdhart B	1992	2014	22	Weinbender A	1929	2014	81
Solanik A	1993	2014	21	Weinbender B	1929	2014	81
David A	1998	2014	16	Trobert AGGP B	1990	2014	24
David B	1997	2014	17	Trobert OLD	1936	2014	78
Trobert AGGP A	1995	2014	19				

Caragana

ID	Time	Span	Age	ID	Time	Span	Age
Glass A	1994	2014	20	Glass B	1994	2014	20
Thickett A	2002	2014	12	Thickett B	2002	2014	12
Hango A	1985	2014	29	Hango B	1985	2014	29
Kirchoffer A	1991	2014	23	Kirchoffer B	1991	2014	23
Perkins A	1981	2014	33	Perkins B	1981	2014	33
Kohler A	1985	2014	29	Kohler B	1985	2014	29
Helgeton A	1994	2014	20	Helgeton B	1994	2014	20
Nelson A	1973	2014	41	Nelson B	1973	2014	41
Eslinger A	1982	2014	32	Eslinger B	1982	2014	32
Heavin A	1981	2014	33	Heavin B	1981	2014	33

** See excel file "Doug's Cores Report 6.xls" **