Aging the Doug Jackson Cores – Set IV

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Abstract

In the summer of 2014, 36 tree cores were sampled at various locations across Saskatchewan by Doug Jackson crews (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

Thirty-six tree core samples were taken at various locations in Saskatchewan by Doug Jackson's crews. Six of these cores were Manitoba maple (*Acer negundo*), eight were hybrid poplar (*Populus spp.*), four were green ash (*Fraxinus pennsylvanica*), six were spruce (*Picea sp.*), two were white spruce (*Picea glauca*), and eight were Scots pine (*Pinus sylvestris*). The remaining two cores were not labeled with an identifiable species code, but wood characteristics suggest maybe Siberian elm (*Ulnus pumila*). 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.

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

ID	Time Span		Age	ID	Time Span		Age
Chukwudi_hort_pine A	1974	2014	40	Chukwudi_outlook_ mixed B	1973	2014	41
Chukwudi_hort_pine B	1976	2014	38	Chukwudi_outlook_ scots 1 A	1998	2014	16
Chukwudi_CLC_HP A	1987	2014	27	Chukwudi_outlook_ scots 1 B	1999	2014	15
Chukwudi_CLC_HP B	1987	2014	27	Chukwudi_outlook_ scots 2 A	1998	2014	16
Chukwudi_outlook_ mixed A	1973	2014	41	Chukwudi_outlook_ scots 2 B	1995	2014	19

Table 1 con't.

ID	Time Span		Age	ID	Time Span		Age
Chukwudi_CLC_WS A	2001	2014	13	Janzen A	1970	2014	44
Chukwudi_CLC_WS B	2001	2014	13	Janzen B	1970	2014	44
Babchishin (67303) GaVal A	2000	2014	14	Gallon A	1996	2014	18
Babchishin (67303) GaVal B	1993	2014	21	Gallon B	1992	2014	22
Begnall A	2008	2014	6	McQuarrie A	1990	2014	24
Begnall B	2008	2014	6	McQuarrie B	1993	2014	21
Lefort A	2001	2014	13	McKenna A	1993	2014	21
Lefort B	2003	2014	11	McKenna B	1993	2014	21
Walde A	2006	20014	8	Irwin A	2005	2014	9
Walde B	2005	2014	9	Irwin B	2005	2014	9
Grigo A	1978	2014	36	Tratchie A	2003	2014	11
Grigo B	1979	2014	35	Tratchie B	2007	2014	7
Fink A	2010	2014	4				
Fink B	2010	2014	4				

** See excel file "Doug's Cores Report 3-4-5.xls" for more detail **