
Agroforestry Extension in Saskatchewan

Joanne Kowalski, B.S.A., M.Sc., P.Ag.
Saskatchewan Forest Centre, Prince Albert SK

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Abstract

Although agroforestry has a long history in Saskatchewan, information on establishment, management and economics was hard to come by for most people. As the same lack of accessible information was true for the forest sector, the Saskatchewan Forest Centre (SFC) was established as a technology transfer agency to fill this gap. Since 2001, the SFC has built an extensive agroforestry extension framework and knowledge base that includes research reports, technical sheets, a demonstration network and a two day course on agroforestry management.

Introduction

The mandate for the Saskatchewan Forest Centre (SFC) since its inception in 2001 has been to promote the creation, acquisition and dissemination of knowledge to expand a socially, ecologically and economically viable forest economy. The SFC was established as a knowledge based agency because of the dearth of accessible information in the forest sector in the province. Agroforestry was an area of focus for the SFC because of growing interest and lack of extension services in the subject. In fact, the SFC could be seen as carrying on the tradition of agricultural extension in Saskatchewan.

Agriculture Extension in Saskatchewan

Agriculture extension has a long history in Saskatchewan. It all began with the 1872 *Homestead Act* passed with the intention of opening up the settlement of Western Canada. This caused an influx of settlers that continued for the next 50 to 60 years. Not all of the people who came to homestead in Saskatchewan were familiar with farming, however, and the settlers began to exchange information. By 1884, Agricultural Societies were formed by legislation to assist in this exchange of knowledge among settlers (Kowalski 1998).

Saskatchewan officially became a province in 1905, and the government included a Department of Agriculture with a Fairs and Institutes Branch that was responsible for aiding information flow. In 1907, the University of Saskatchewan was established that included a College of Agriculture; the first College of Agriculture to be part of a university in Canada and Britain.

An agreement was enacted in 1910 between the provincial Department of Agriculture and the Extension Department at the College of Agriculture. This agreement saw that the Province would be responsible for administration and inspection and the Extension Department would be responsible for education.

The responsibility for Agricultural Societies was transferred to the University at this time and became vehicles for education, including the Better Farming Trains that began touring the province in 1914 in co-operation with the railways. Homemakers Clubs became the Women's Institutes in 1911, associated with the University and focused on bringing education to rural women. To bring education to rural youth, the Farm Boys and Girls Clubs became 4-H Clubs in 1914.

The provincial Department of Agriculture hired four district representatives in 1913 to act as a "connecting link" between settlers and the Department. By 1945, the *Agricultural Representatives Act* brought Agriculture Representatives (AgReps) on stream. The Ag Reps eventually became known as Extension Agrologists and were the main source of information on agriculture at the local level.

Extension Agrologist system was disbanded in 2003 and these services were centralized into the Agriculture Knowledge Centre in Moose Jaw. Information on agriculture is now available by phone in only with referral to specialists around the province. Nine Rural Service Centres are left, located in Regina, Saskatoon, Yorkton, North Battleford, Prince Albert, Tisdale, Outlook, Swift Current, and Weyburn.

Forest Extension in Saskatchewan

In 1870, land in what was called the North-West was transferred from the Crown to the Dominion of Canada. At this time, it was deemed essential to plant trees to encourage settlement. In fact large scale plantings were encouraged to improve moisture, control wind (soil conservation) and to provide fuel and building supplies for settlers. The *Experimental Farm Stations Act* in 1886 established nurseries for research for both trees and crops.

The Canadian Forest Service (CFS) was established in 1899 and was responsible for the preservation of timber on Dominion lands and for the development of policies to encourage tree culture in settlement districts. In 1901, tree nurseries at Indian Head and Saskatoon were established. However, by 1914 the enormity of planting trees on the prairie land base was evident and there was a lack of planting stock so the focus shifted to shelterbelts. The 1935 *Prairie Farm Rehabilitation Act* saw the Prairie Farm Rehabilitation Administration (PFRA) of Agriculture Canada take over tree distribution for farms. However, the CFS and PFRA have mainly focused on research and sustainable management of trees and not extension (Van Rees and Belanger 2006).

It was 1990 when the first Professor in Forest Soils was hired in the College of Agriculture at the University of Saskatchewan.

Large scale tree plantings are again being encouraged and for many of the same reasons as at the beginning of settlement in the province. These reasons vary from local to global in nature. For local situations, increased wood fibre can be used for new developments, such as for fuel, as in biofuels and for soil conservation, as farmers face a more complex soil/nutrient management regime. At the global level, world markets dictate grain prices and farmers are seeking diversity for cropping rotations. Climate change means a move to decrease greenhouse gases (GHGs) and improve carbon sequestration to fulfill Kyoto commitments

Agroforestry Extension in Saskatchewan

The first known agroforestry research plots are established in 1997 by the University of Saskatchewan at Meadow Lake. The same site now contains research plots for the PFRA as well. Some of the areas of research include: clonal trials, weed control, spacing trials, fertilizer trials and pruning. By around 2000, the PFRA established an Agroforestry Division, but are not focused on extension.

The SFC was established in Prince Albert in 2001 with three work units: Fire/Forest Science, Value Added and Agroforestry. Its mandate, as mentioned above, is focused on knowledge transfer. With a considerable lack of information on agroforestry in prairie systems, the SFC proceeded to build an extension framework basically from scratch. Assistance was received from the SFC in the form of a secondment to the Agroforestry Unit and from Saskatchewan Agriculture and Food's Extension Agrologists network. With the centralizing of the network in 2003, the SFC became responsible for agroforestry extension for all farmers in the province.

Also in 2003, the College of Agriculture at the University of Saskatchewan appointed a Chair in Agroforestry and Afforestation with funding provided by the Agri-Food Innovation Fund (AFIF). The Chair was instrumental in establishing the Centre for Northern Agroforestry and Afforestation in 2006.

The SFC continues to work closely with the PFRA, CFS and the U of S on agroforestry development. The Centre works and retains connections with other international science and breeding research agencies, as well as agencies focused on investment and business development. In 2005, the SFC was the delivery agent for Natural Resources Canada's Forest 2020 Program on private land.

Before the establishment of the SFC, most extension on trees on agricultural land in Saskatchewan has come through Field Days held at the PFRA Shelterbelt Centre at Indian Head and at U of S research plots.

Extension Studies

A plethora of research studying extension shares the same results. For the purpose of this paper, the following recommendations are used to illustrate how the SFC carries out extension on agroforestry in Saskatchewan (Kowalski 1998):

1. Provide information on wide-ranging issues.
2. Hold local events.
3. Retain and expand demonstrations and field days.
4. Support and promote on-farm research.

Provide information on wide-ranging issues

The SFC Agroforestry Unit is one piece in knowledge transfer for forest and agroforest sectors. Other pieces at the SFC that contribute knowledge include: the Fire/Forest Science Unit, the Value Added Unit, the Niche Area Development Unit and the Virtual Data Warehouse.



University of Saskatchewan students present posters on various issues at *Deriving Diversity through Agroforestry* conference. March 2006.

Hold local events



Agroforestry Management Course session held in Whitewood April 2007

The SFC Agroforestry Unit developed partnerships with existing agencies that are involved with agroforestry and tapped into local, existing knowledge about growing trees on agriculture land. Some events that the SFC undertook to enable this were focus groups, workshops, conferences and field days. In response to client demand, an Agroforestry Management Course was designed and has been delivered in several communities: Prince Albert, Whitewood and Saskatoon.

Retain and expand demonstrations and field days

The SFC has been instrumental in developing the Agroforestry Demonstration Site Network using existing research and producer sites and expanding it with their own research sites. The Network now contains over 40 sites on almost 1400 acres and stretches from Meadow Lake to Weyburn and Carrot River to Swift Current. Field days are held on chosen sites each summer with researchers and farm co-operators present.



The SFC has entered into a partnership with the Conservation Learning Centre (CLC) to develop an agroforestry research farm just south of Prince Albert. It is planned to have at least 80 acres of trees planted by the SFC over the next two years, along with PFRA clonal trials.

SFC Agroforestry Field Day at former provincial tree nursery site near MacDowall, July 2007. (Farmers and researchers are not the only ones interested in agroforestry!)

Support and promote on-farm research

The SFC Forest Development Fund (FDF) allows farm co-operators, researchers and the SFC technology transfer agents to work together on farm based research plots and trials. The SFC's partnership with the CLC will include clonal trials with researchers at the PFRA and sites for varied management regimes that will add to the knowledge base for the SFC and farmers.



SFC Agroforestry Demonstration Site at Rose Valley July 2006. Trees are three-year old hybrid poplar.

SFC Extension Framework

The SFC extension framework is based on a diversity of information sources and delivery that allows for a feed-back loop through producers, researchers and technology transfer agents. These include:

- one-on-one access,
- field days, demonstration sites and a research farm,
- applied research through the FDF,
- focus group meetings,
- research publications, literature reviews and technical sheets,
- small workshop and the Agroforestry Management Course, and
- a two day annual conference.

A central piece to the SFC knowledge base is the Forest Information Centre (FIC), or the library, that is part of the SFC Office in Prince Albert and a partnership with Saskatchewan Ministry of Environment Forest Service Branch.

Adding to the Knowledge Base

The SFC is always looking to add to the knowledge base to meet its mandate of technology transfer and growth for the sector. Some near term activities include:

1. CLC Research Farm: the SFC will plant 80 acres of trees at the CLC farm over the next two years. It will also be the northern clonal trial site for selected clones from the PFRA. PFRA has about 150 clones for trial.
2. Irrigation Studies: have a number of tree species under irrigation including higher value trees (e.g., birch, oak, walnut). This includes an effluent irrigation trial with the Town of Outlook.
3. Biomass Trials: comparison trials of willow and hybrid poplar for future biomass production. The Nipawin Biomass Ethanol New Generation Co-operative is moving ahead on its plant in the area. The SFC also had a Memorandum of Understanding (MOU) with Nipawin to look at fast-growing species and in securing wood fibre in the area to feed the plant.



SFC Forest Information Centre in Prince Albert

Conclusion

The extension framework for agroforestry at the SFC utilizes knowledge and experience gained through a long history of successful extension in agriculture. The agriculture industry has gone through many crises and many changes over the last century. The ability of producers/farmers to adapt and change with economic and ecological problems was greatly affected by diligent and broad based knowledge transfer.

In recognizing agroforestry is a key component for response to climate change, fluctuating markets and rural depopulation, the SFC has established an accessible, extensive and diverse knowledge base for the sector. As the SFC continues to build on its knowledge base, it will continue to adapt its extension framework to be responsive and accessible for farm co-operators, researchers industry and the public.

References

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