

**Saskatchewan Alfalfa Seed Producers  
Development Commission  
(SASPDC)**

*Current SASPDC research & development initiatives*

**1. Seasonal distribution of economic pests occurring in alfalfa seed production on the Canadian prairies**

The SASPDC is currently providing in-kind support and funding for a five-year research project being undertaken by AAFC scientists in Saskatchewan and Alberta to determine seasonal distribution of economic pests occurring in alfalfa seed production on the Canadian prairies. This research work involves monitoring of alfalfa seed fields to determine the presence and abundance of important economic pests and their natural enemies, development of a single-step multiplex PCR diagnostic assay to determine levels of parasitism in alfalfa weevil populations, and characterization of mechanisms of insecticide resistance in western Canada populations of alfalfa weevil.

**2. SASPDC alfalfa seed production disease control / agrology monitoring initiative**

The Saskatchewan Alfalfa Seed Producers Development Commission (SASPDC) alfalfa disease research project was initiated in 2001 with producer-cooperators establishing large-scale fungicide treatment plots in alfalfa seed fields at locations throughout the province; the research project was subsequently expanded to include the collection of weather data. The objectives of this research project have been to develop fungicide application recommendations and to utilize weather data in order to predict disease potential / disease severity. Saskatchewan alfalfa seed producers have utilized information from this research project in making fungicide application decisions. The current SASPDC disease control / agrology monitoring initiative, undertaken during the 2009 through 2020 field seasons, has involved evaluation of alfalfa disease risk, and initiatives to control alfalfa disease, in collaboration with alfalfa seed producers throughout the province.

**3. Development of Locally Adapted Alfalfa Cultivars in Saskatchewan**

The objective of this alfalfa breeding project, undertaken by the University of Saskatchewan / Crop Development Centre (CDC), is to create five new synthetic alfalfa populations by intercrossing alfalfa plants collected from several long-term alfalfa seed production and alfalfa grazing sites. Research involves assessment of alfalfa cultivar gene expression in response to grazing, identification of 15 top yielding alfalfa cultivars and 10 top performing creeping rooted alfalfa cultivars in the Western Forage Test (WFT), and evaluation of alfalfa cultivar performance in Saskatchewan. Work also includes intercrossing of the best genotypes from the top 15 performing alfalfa cultivars to create four new alfalfa breeding lines, and testing of the forage yield and performance of these new lines in replicated field plots. This alfalfa breeding project is co-funded by the SMA Agriculture Development Fund (ADF) and the Western Grains Research Foundation, and is also supported by the SASPDC.

**4. Comprehensive initiative in support of the registration of crop protection products**

In order to facilitate the minor use registration of crop protection products required by the alfalfa seed industry, the Saskatchewan Alfalfa Seed Producers Development Commission (SASPDC) is a member of the Prairie Pesticide Minor Use Consortium (PPMUC). This consortium of western Canadian producer organizations works to obtain user-requested minor use label expansions (URMULE) for crop protection products currently registered in Canada on other crops, to obtain user-requested minor use registrations (URMUR) for crop protection products registered in the USA or OECD countries but not in Canada, and to obtain emergency crop protection product registrations. Membership in the PPMUC has allowed the SASPDC to obtain minor use registrations for fungicides, herbicides, and insecticides which are important management tools for use in alfalfa seed production.

**5. Monitoring of parasites and disease in Saskatchewan alfalfa leafcutting bee populations**

Saskatchewan alfalfa seed producers are committed to insuring that the province's alfalfa leafcutting bee populations are free of parasites and disease. The SASPDC supports the Canadian Cocoon Testing Centre (CCTC), which evaluates alfalfa leafcutting bee samples from producers throughout western Canada; the SASPDC encourages Saskatchewan producers to submit samples to the CCTC for determination of bee quality including testing for parasites and disease in order to assist producers in maintaining high quality bee populations. Data collected from Saskatchewan alfalfa leafcutting bee samples evaluated by the CCTC is carefully analysed to assist in alfalfa leafcutting bee quality control.

## ***Recent SASPDC research & development initiatives***

### **1. Alfalfa leafcutting bee parasite and disease control research**

The alfalfa leafcutting bee is an important pollinator of alfalfa grown for seed production which has been used by Saskatchewan alfalfa seed producers as a dependable pollinator for over forty years. Factors which may limit alfalfa leafcutting bee reproduction in Saskatchewan include infestations of chalcid parasites and incidence of fungal pathogens. Since these factors have the potential to damage Saskatchewan alfalfa leafcutting bee populations, the objective of research undertaken by the SASPDC was to develop parasite and disease control strategies which will assist Saskatchewan alfalfa seed producers in maintaining high quality alfalfa leafcutting bee populations, thus enhancing bee reproduction and alfalfa seed production. Parasite control research involved investigation into the use of essential oil and volatile organic compounds, along with evaluation of a potential parasite male-killing bacterium. Disease control research involved work with anti-microbial compounds and evaluation of pollinator bio-control vector technology. Utilization of newly-developed parasite and disease control strategies by producers increases the value of Saskatchewan alfalfa leafcutting bees as pollinators in the hybrid canola seed production and blueberry production sectors, and in conventional alfalfa seed production export markets. The SASPDC alfalfa leafcutting bee research project "Development of new strategies for control of parasites and disease in alfalfa leafcutting bee populations" was co-funded by the SASPDC, the SMA Agriculture Development Fund (ADF), and the Western Grains Research Foundation (WGRF Endowment Fund).

### **2. Demonstration Project - Soil nitrogen content following inclusion of alfalfa in crop rotation**

The purpose of this project was to demonstrate that including alfalfa grown for seed in a cropping rotation benefits the nitrogen content of the soil and subsequent annual crops. The results of this demonstration project indicated that seed alfalfa in a crop rotation can increase available nitrogen, soil organic matter, and nitrogen in the crop biomass. This project was undertaken by the Prairie Agriculture Machinery Institute (PAMI) and was supported by the SASPDC through in-kind and co-funding support, and by the SMA Agricultural Demonstration of Practices and Technologies (ADOPT) initiative under the Canada - Saskatchewan Growing Forward 2 bi-lateral agreement.

### **3. Demonstration Project - Sod Seeding of Forage Legumes**

The purpose of this project was to explore cost-effective pasture rejuvenation by sod-seeding forage legumes (alfalfa / alfalfa - sainfoin mixture) into grass pastures. This project was undertaken to demonstrate that alfalfa can be sod-seeded into grass pastures to improve forage quality and yield. Sainfoin was included in this demonstration project since it is a bloat-safe legume which works well for pasture seeding in a mixture with alfalfa. This project was undertaken by the Prairie Agriculture Machinery Institute (PAMI) and was supported by the SASPDC through in-kind and co-funding support, and by the SMA Agricultural Demonstration of Practices and Technologies (ADOPT) initiative under the Canada - Saskatchewan Growing Forward 2 bi-lateral agreement.

### **4. Promotion of alfalfa as a forage crop in North America**

The Saskatchewan Alfalfa Seed Producers Development Commission (SASPDC), with co-funding from Canadian Adaptation and Rural Development Saskatchewan (CARDS), worked to develop a publication for promotion of alfalfa as a forage crop throughout North America. This promotional publication outlines the dependability of alfalfa as a forage crop and also highlights the nutritional, economic, and conservation advantages associated with growing and utilizing alfalfa as a forage crop in dairy and beef operations. By targeting groups including dairy and beef producers throughout Canada and the midwestern United States, many of whom currently grow corn or other crops for silage feed, sales of Canadian alfalfa seed into new Canadian and U.S. markets will serve to increase the value of Canadian alfalfa seed and stabilize alfalfa seed prices over a long-term period.

### **5. Understanding changes in alfalfa seed and forage markets**

In order to better understand the role of alfalfa seed in North American forage markets, the Saskatchewan Alfalfa Seed Producers Development Commission (SASPDC) contracted agricultural economists in the University of Saskatchewan Department of Agricultural Economics to undertake a market research initiative entitled "Understanding changes in the alfalfa seed and forage market". This project was co-funded by the SASPDC, the Alfalfa Seed Commission (Alberta) and the Manitoba Forage Seed Association (MFA).