

NEWSLETTER

Diversification Centres

November 2023



Calendula (a versatile herbaceous plant) – Source: WADO

Manitoba Agronomist Conference 2023: Scott Chalmers Speaking on Crop Diversification

Manitoba Agronomist Conference, will be taking place at the University of Manitoba in Winnipeg, on the December 13th and 14th, 2023. Scott Chalmers, Applied Research Specialist, with Manitoba Agriculture, will be speaking on “Crop Diversification: What has worked, what hasn’t”. His presentation, will highlight his experience of over 17 years, as it relates to working on some novel special crops, at the Diversification Centre. Scott currently leads and

research program at the Westman Agricultural Diversification Organization (WADO) in Melita. The presentation, will discuss strategies, successes, and challenges in crop diversification, with focus on different crops, including hemp, camelina, calendula, dryland rice, guar beans, flax fibre, hops, and soybeans. For the detailed information about DCs’ project descriptions and results, please visit the website: <https://mbdiversificationcentres.ca/>. or follow us on X @CropCentres.

UPCOMING EVENTS

November 13-15

**MFGA Regenerative
Agriculture Conference**
Victoria Inn Hotel & Conference
Centre – Brandon, MB

November 14-16

**Canadian Hemp Trade
Alliance (CHTA) Annual
Conference**
Holiday Inn and Suites –
Nisku, AB

December 12-13

**Manitoba Beef & Forage
Production Conference**
Victoria Inn Hotel & Conference
Centre –
Brandon, MB

December 13-14

**Manitoba Agronomists'
Conference (MAC)**
University of Manitoba –
Winnipeg, MB

Intercropping in the Peace

Calling all agriculture enthusiasts, researchers, scientists, producers, and businesses, to be part of a day filled with insightful discussions, innovative research findings, and hands-on-experience, at the North Peace Applied Research Association's "Intercropping in the Peace" event on November 23, from 8:30 - 4:30 (MDT). Scott Chalmers (Manitoba Agriculture, WADO), is one of the invited speakers at the event. The event will explore intercropping in the Peace Region. Scott will be speaking about various successes and challenges of intercropping from a southwest Manitoba perspective. He will discuss what has worked, such as pea-canola, pea-oats, and spring cereals with small legumes like clover, to name a few. Other speakers, will include Dr. Linda Gorim and graduate student Jose Correa-Ramos from the University of Alberta, who will be discussing their intercrop research.



INTERCROPPING
in the Peace

AGRICULTURE SUMMIT

📍 **Chateau Nova**
10010-74 Street
Peace River, AB

November 23rd
8:30 AM - 4:30 PM

For more information on the event, Intercropping in the Peace – Agriculture Summit, please visit the NPARA website: <https://npara.ca/events/>

MCDC Testing Yield Potential of Teff Grain & Forage Varieties



The Manitoba Crop Diversification Centre (MCDC), located in Carberry, is exploring the yield potential of teff grain and various forage varieties. Teff, a gluten-free and nutrient-rich grain, is receiving attention, with researchers investigating its adaptability to the Canadian prairie climate. The MCDC aims to determine whether this ancient grain could provide soil health benefits and become a viable and profitable crop in Manitoba.

Teff is known for its rapid growth and tolerance to drought conditions, making it a potentially suitable candidate for the Canadian prairies. MCDC researchers have planted teff in experimental plots, monitoring its growth, yield, and overall adaptability. Preliminary results are promising, and the Centre anticipates that this grain could offer an exciting alternative for local farmers looking to diversify their crops.



Visit our website: mbdiversificationcentres.ca

Wheat and canola with a “Living Legume Mulch”

In May 2023, the Diversification Centres began a two-year project with the Manitoba Crop Alliance (MCA) to examine intercropping for wheat and forage legumes. The project examines the effect of legumes on grain yield and fertility dynamics. The legumes, established beneath the wheat canopy, provide a “living mulch” into which a canola crop will be planted in 2024. A contact herbicide will be applied to the forages prior to seeding the canola, with the goal of setting the forages back enough to allow the canola to establish without killing the forages completely.

Examining nitrogen dynamics in the forage intercrop is a key component of the project’s objectives. Plant root simulator probes from Western Ag allow the research team to calculate the rate of mineralization of nitrogen. Additional plant samples provide information on the amount of nitrogen that the various legume species fix in their roots from the atmosphere. Developing a better understanding of fertility dynamics in wheat-forage and canola-forage intercrops will equip farmers with the information they need to use innovative tools for nitrogen management on their farms.



Jessica Frey, an employee at Parkland Crop Diversification Foundation (PCDF) Roblin, spearheads the project as part of the requirements for a Master’s degree thesis with Dr. Joanne Thiessen Martens with the Department of Soil Science, University of Manitoba.

She had the opportunity to present the project at annual field days at the Diversification Centres in 2023.

Please visit:

mbdiversificationcentres.ca/
for the project’s results.



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PESAI Testing Sub-surface Irrigation Potential for Soybean Production

The climate change projections for Manitoba predict warmer and wetter winters coupled with longer, warmer, and drier summers. The excess moisture needs to be removed from the agricultural lands in a timely manner using tile drainage to extend the length of the growing season. With closely spaced drains, there is a potential to use the same tiles to sub-irrigate the field by pumping water back through the tiles. However, in rolling topography, the use of inline control structures to control the drainage outflow and to facilitate sub-irrigation requires a change in the design of the drainage system as it is currently practiced in the Prairies. By tweaking the installation of new tile drainage systems and adding inline



control structures, the same system could be effectively used for sub-irrigation. Overhead irrigation systems lose 30% of the applied water due to interception by and evaporation from the crop canopy. Overhead irrigation systems also wet the leaves, causing increased disease potential. Therefore, adequately managed sub-irrigation systems can save water for increasing production while decreasing disease incidence.

Currently, the University of Manitoba's Department of Biosystems Engineering is conducting a research project on sub-irrigation using the tile drainage facility at the Prairies East Sustainable Agriculture Initiative (PESAI) site. The controlled drainage system has shorter field drains capable of evenly distributing the sub-irrigation water. The PESAI site has controlled drains installed at 15 ft, 30 ft, and 45 ft, with control plots with no drains. The tile drains in the field have been installed at gentler slopes towards the collector drain, permitting sub-irrigation back through the collector drains.

The current study has the following objectives:

- Evaluate the operation of the sub-irrigation system using field data and computer modelling to optimize the water and nutrient retention within the field.
- Assess the economic impact of sub-irrigation in increasing crop yields and decreasing nutrient outflows.

During the 2023 growing season, soybean crop was planted on tiled plots, and these plots were sub-irrigated a few times due to drier crop season. The Arborg site was very dry during the early phase of soybean emergence and growth. From the preliminary results, it is evident that sub-irrigation has resulted in greater soybean yields than yield on non-tiled soybean plots. The detailed report will be published in the 2023 PESAI annual report.

For further details about the project and treatments, please contact Prairies East Sustainable Agriculture Initiative (PESAI) office or write us at info@mbdiversificationcentres.ca.



View our videos on YouTube: www.youtube.com/@manitobacropdiversificatio5457

MCDC Evaluating Goss's Wilt Resistance in Corn

The Manitoba Crop Diversification Centre (MCDC) is collaborating with the University of Manitoba and Agriculture and Agri-Food Canada (AAFC) to conduct a research project focusing on the evaluation of Goss's Wilt disease-resistant corn varieties. Goss's Wilt, a bacterial disease, can cause significant yield losses and is a major concern for corn growers, especially in regions where it is prevalent, such as the Corn Belt in the United States and parts of Canada. This collaborative effort aims to identify corn varieties that exhibit resistance to Goss's Wilt, helping local farmers mitigate the impact of this destructive pathogen. The project selects a range of corn varieties with known or suspected resistance to Goss's Wilt.

The field trial is established at MCDC to evaluate the performance of the selected corn varieties in real-world conditions. The research team inoculates the selected corn varieties with Goss's Wilt bacteria to evaluate their resistance under controlled conditions. The progress of Goss's Wilt disease in the field is closely monitored, with regular assessments of disease severity and resistance levels among the evaluated corn varieties. The field data on plant health, yield, disease resistance, and other relevant parameters is collected throughout the growing season.



Before Inoculation



After Inoculation

Facts about Goss's Wilt

Goss's Wilt is favored by warm and humid conditions. The disease often spreads through rain and wind-driven rain, which can carry bacterial cells to healthy plants. Crop residues and volunteer corn plants from previous years can serve as sources of inoculum for the disease, so crop rotation and sanitation practices are very important in disease management.

Management of Goss's Wilt involves a combination of cultural, genetic, and chemical control measures. These may include planting resistant corn varieties, practicing crop rotation, using appropriate seed treatments, and applying foliar fungicides in some cases. Prevention and early detection are key in managing Goss's Wilt, as the disease can be challenging to control once it has established itself in a field.

Research efforts, such as the Goss's Wilt Disease Corn Nursery Evaluation project at MCDC, aim to identify and promote corn varieties with resistance to Goss's Wilt, helping Manitoba's corn growers better manage and mitigate the impact of this destructive disease in their corn field.



Contact us: info@mbdiversificationcentres.ca