

NEWSLETTER

Diversification Centres



February 2024



Manitoba Diversification Centres' Booth at MB Ag Days

Manitoba Diversification Centres Participated in the Manitoba Ag Days

The Diversification Centres (DCs) participated in the just concluded Manitoba Ag Days (January 16-18), and Manitoba Potato Production Days (January 23-26), engaging various participants in discussions about ongoing research activities. The events provided a platform for the centers to present their latest findings on crop diversification, soil health, water management, and sustainable farming practices. Growers had the opportunity to

participate in discussions at DCs' booth, providing valuable feedback to the DCs.

Some of the discussions revolved around the importance of diversifying crops to enhance both economic and environmental sustainability. The application of precision agriculture techniques and advancements in ag-tech were also discussed to optimize resource utilization and increase overall efficiency in farming operations.

UPCOMING EVENTS*

February 1-2

Manitoba Soil Science Society Annual General Meeting

Holiday Inn Winnipeg-South – Winnipeg, MB

February 6

Cultivate: Sustainability Conference & Trade Show

Victoria Inn Hotel & Convention Centre – Winnipeg, MB

February 6-7

Brokenhead River Ag Conference

Brokenhead River Community Hall – Beausejour, MB

February 13

Canada's Agriculture Day
Across Canada

February 14-15

CropConnect Conference
Victoria Inn Hotel & Convention Centre – Winnipeg, MB

**Click event's link for more details.*

The MB Ag Days, a premier agricultural exhibition, and MB Potato Days, dedicated to the potato industry, served as ideal forums for researchers, farmers, and industry stakeholders to connect and explore innovative solutions. These events brought together farmers, researchers, and industry experts to exchange knowledge and explore technologies in the agricultural domain. By participating in these agricultural gatherings, the DCs aim to bridge the gap between scientific research and on-the-ground farming practices, fostering collaboration to advance sustainable and resilient agriculture in Manitoba. The DCs are set to host the booth at the CropConnect Conference, a gathering for producers and professionals in the agricultural industry, slated for February 14 and 15 at Victoria Inn Convention Centre in Winnipeg.



Manitoba Crop Diversification Centre (MCD) Booth at MB Potato Days
Left to Right: Vikram Bisht (MB Ag), Haider Abbas (MB Ag), Amy Unger (MHPEC), Garth Christison (MHPEC), Faryal Yousaf (MCD), Shawna Derksen (MHPEC).



Diversification Centres' Seed Display at MB Ag Days' Booth



Visit our website: mbdiversificationcentres.ca

PCDF Identifying Best Management Practices for Hay Establishment

When establishing a perennial forage crop, it is common to plant it with a cereal “nurse crop,” such as oats or barley. The nurse crop can be cut in July or August for green feed or harvested for grain for livestock. The benefits of these practices to producers are controlling weeds and providing a harvestable crop in the year of establishment.

Despite the benefits of planting a nurse crop, observations by staff at Ducks Unlimited Canada (DUC) suggest that the practice can have a negative impact on the perennial forage crop, leading to reduced hay yields in Year 2. To address this question, the Parkland Crop Diversification Foundation (PCDF) collaborated with DUC in 2023 to plant alfalfa-brome-timothy forage plots with and without an oat nurse crop. Where present, the oats were seeded at two bushels per acre (100% rate) and half a bushel per acre (25% rate). The oat grain was combined in mid-October.

In 2024, the plots will be tested for vigour and forage yield. The goal of the project is to develop a robust data set that can be used to identify best management practices for hay establishment. The results will be shared with producers by DUC and PCDF at field events and through online resources.



Hay Without Nurse Crop – Source: PCDF



Hay With Nurse Crop – Source: PCDF



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WADO Investigates the Potential of Using Mustard Meal as a Fungicide



The 2023 mustard meal biofumigation project with field pea. Note: Left plot 150 lbs/ac very low emergence, centre plot is 50 lbs/ac with reduced emergence, and right is the untreated check in full emergence – Source: WADO.

In the summer of 2023, the Westman Agricultural Diversification Organization (WADO) attempted to investigate the potential of using mustard meal as a fungicide, using its powerful spicy tasting isothiocyanates chemical properties to reduce the incidence of root rot in field peas via biofumigation. Based on research from Sarhan et al. (2020), the WADO staff attempted to apply these methods to field conditions in hopes of assessing the effects on root rot caused by *Fusarium*, *Rhizoctonia* and, most importantly, its hypothesized effect against *Aphanomyces* in addition to the effects on pea nodulation. The mustard meal was applied at 150, 100 and 50 lbs/ac rates with the seed at seeding. The WADO found out soon after emergence, or at least the crop's attempt thereof that the mustard was more powerful than anticipated. Emergence of peas was nearly non-existent due to the presence of mustard meal within the seed row despite even low rates of 50 lbs/ac applied. Unfortunately, since no pea plants were available to sample, thus results were not achieved. However, it is promising that mustard at low rates of even 50 lbs/ac could inflict such a strong response on emergence. This is sort of good news logistically, as lower rates would be preferable from a farmer's point of view as well as a manufacturer's. For 2024, the WADO plans to modify the 2023 field methods by reducing treatments by having applied rates of 50, 25, and 13 lbs/ac, respectively.

Reference: Serhan et al. 2020. Influence of biofumigation with mustard or canola seed meal in controlling soil-borne pathogenic fungi of chickpea. *Egypt. J. Agric. Res.*, (2020), 98 (1), 40-51.



Contact us: info@mbdiversificationcentres.ca

Featured Updates from PESAI

PESAI Aims to Facilitate the Arborg Grain Day

The Arborg Grain Day holds significant importance as an extension event, providing producers from the North Interlake region with valuable insights into the latest crop research, market trends, and agricultural funding programs. This event has not happened since 2019 due to the COVID-19 pandemic and staff changes in Manitoba Agriculture. The Prairies East Sustainable Agriculture Initiative (PESAI) staff met with the MB Ag Extension Specialist, Veronica Owusu, to discuss the possibilities of organizing the Arborg Grain Info Day in the very near future. PESAI plans to facilitate this event by communicating with local sponsors, making food arrangements, etc.

PESAI Builds Sampling Chambers for GHG Emissions Studies at Diversification Centres

The Diversification Centres (DCs) have recently taken up research projects on greenhouse gas (GHG) emissions. Although collaborators like University of Manitoba and Ducks Unlimited Canada have provided the necessary equipment to collect emissions, the DCs have decided to build their own GHG chambers for future use. The DCs are expecting to conduct more GHG research work in the future. The PESAI has built these chambers for all DCs and expects to deliver them by mid-February.



COMPANY / ORGANIZATION

BOOTH#

MB Diversification Centres

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Manufacturing of GHG Sampling Chambers at PESAI



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

PESAI Comparing Rainfall and Temperature Data from Two Types of Weather Stations

Weather plays a crucial role in farming, directly impacting crop growth, yield, and many farm management decisions. Manitoba Agriculture operates a network of over 100 weather stations across the province, which provide hourly information on many weather parameters, including precipitation and temperature. Weather parameters, like precipitation, sometimes vary greatly over short distances. In the current study, we compared data on average daily temperature and precipitation from Automatic Weather Stations (AWS) & Manitoba Ag Weather stations (MAWS) to find any correlation.

PESAI sites in Arborg and Beausejour had automatic weather stations installed around MCVET cereal plots. Arborg's AWS was stationed almost 700 m from Manitoba Ag weather station, whereas, in Beausejour, both AWS & MAWS were separated by almost 7 miles. Pearson correlation coefficient (r) was used to assess the strength of association between the measurements from both types of weather stations. The values of r range between +1 and -1, with 1 showing a perfect/positive linear correlation, 0 showing no linear correlation, and -1 showing a negative linear correlation. The data was analyzed using Minitab 18 software. We also calculated differences in average daily temperature and precipitation values using data from both sites.

Results

Arborg site

The average daily temperature (from May 10 – October 25) was measured slightly higher by AWS (16.2°C) than by MAWS (15.8°C). However, the differences were insignificant. A highly positive correlation coefficient ($r = 0.984$, $p < 0.0001$) depicted agreement between both types of weather stations for temperature measurement. Daily differences in temperature were less than 1°C for most days, with only six days when the differences were more than 2°C. The highest difference was 4.6°C on October 25.

Precipitation measurements (in mm, from May 10 – June 20) were quite similar by both types of weather stations with a highly positive correlation coefficient ($r = 0.980$, $p < 0.0001$). AWS stopped measuring precipitation after June 20, so the results are only for May 10 – June 20. There were 12 days during this period when at least one weather station recorded precipitation. The daily differences for precipitation were less than 1 mm, except for only two days when the differences were close to 2 mm. During the period of study, the Arborg site received significantly less precipitation than 30-year normal values, with the highest daily precipitation (15.6 mm) on June 20.

Beausejour Site

Weather data were compared at this site for 87 consecutive days from June 14 to September 8. Daily average temperature measurements were similar from both types of weather stations, with a highly significant correlation ($r = 0.984$, $p < 0.0001$). There was only one day during the entire study period when the temperature



differences were more than 2 °C between both types of weather stations.

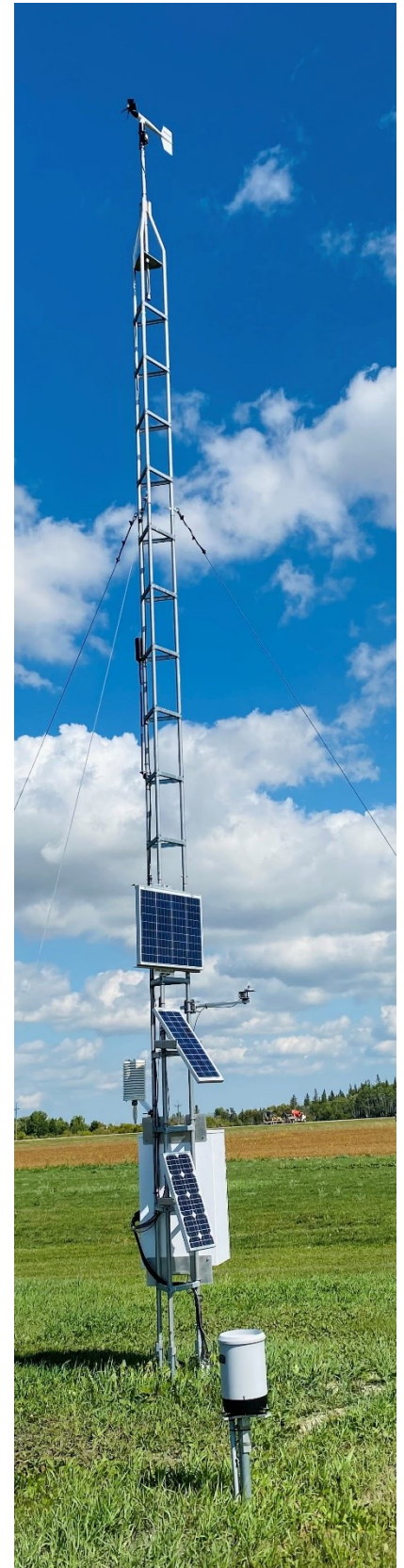
Precipitation measurements, however, vary a lot between AWS and MAWS. AWS recorded 203.3 mm of precipitation during the 87-day period, while MAWS had only 74.5 mm. There were six days when the precipitation differences were more than 5 mm, with the highest daily difference (24.9 mm) on August 24. Ironically, there was a significant positive correlation ($r = 0.684$, $p < 0.0001$) between both types of weather stations in estimating precipitation.

Conclusions

1. Both types of weather stations consistently measured the average daily temperature at both sites.
2. However, precipitation estimates seem quite unreliable as the distance between two weather stations increases (Beausejour site). AWS at the Beausejour trial site reported almost three times more precipitation than MAWS located 7 miles away.
3. Arborg precipitation values were quite comparable from both types of weather stations, but very low precipitation (a total of about 30 mm) during the study period and closer proximity (0.7 km) of AWS and MAWS might be the reasons for the lack of differences.
4. This emphasizes the need for more localized weather stations to be installed to correlate weather parameters with research plots.



WatchDog 3240 Wireless Weather Station – Source: Spectrum Technologies



MB Ag Weather Station



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Prairies East Sustainable Agriculture Initiative Inc.



Summer Research Assistants - Arborg, MB

POSITION

PESAI is seeking flexible, motivated and hard working Summer Research Assistants (SRA) for the 2024 field season. These four month terms (May—Aug) are based out of Arborg. SRAs will assist in all aspects of the field research program, including site preparation, plot seeding, plot/site maintenance, harvest, data/sample collection, record keeping and operation of field equipment. These positions will require working outdoors, occasional travel and extended hours during seasonal peaks.

QUALIFICATIONS

Farm experience and experience in operating farm equipment is an asset but not necessary as training will be provided. Must have a valid Class 5 driver's license, a Class 3 license will be an asset. Preference given to those planning to be or currently enrolled in post secondary education. The position is compensated with a competitive salary that may increase with education and experience.

DEADLINE: February 16, 2024



Resumes can be emailed to Dr Nirmal Hari.

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To know about PESAI, please scan QR code or visit @
<https://mbdiversificationcentres.ca>.