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## MPSG ANNUAL EXTENSION REPORT

**PROJECT TITLE:** Cover Crop strategies for Dry Bean and Soybean Crops in Manitoba

**PROJECT START DATE:** 1 April 2017

**PROJECT END DATE:** 31 March 2022

**DATE SUBMITTED:** 14 March 2019

### **PART 1: PRINCIPAL RESEARCHER**

#### **PRINCIPAL**

|                     |                            |                     |  |
|---------------------|----------------------------|---------------------|--|
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### **PART 2: EXECUTIVE SUMMARY**

*Outline the project objectives, their relevancy to pulse and soybean farmers, and a summary of the project to date, including methods and preliminary results.*

Pulse and soybean growers are already incorporating cover crops into their rotations in Manitoba and many others are looking for information on how they might incorporate them into their rotation. There is a real need to provide farmers and agronomists in Manitoba with information to guide decision making about cover crops in crop rotations that include both dry beans and soybeans in Manitoba. This project will address some of the most frequently asked questions about cover crop planting date and species selection. Both of these management decisions influence cover crop growth potential when planting cover crops in the fall after harvest.

In the fall of 2017 and 2018, seven cover crop species and one mixture was planted at the University of Manitoba Carman Research Farm targeting planting dates of August 15th, September 1, and September 15th. The cover crops and seeding rates planted are listed in Table 1. The experimental design was a split plot design with four replicates. The main plot was planting date and the sub plot was cover crop species. Measurements include plant stand, cover crop biomass, nitrogen uptake. A wheat test crop will be grown in 2019 to look at the impact of cover crops on subsequent crop yield. The experiment will be repeated in the fall of 2020.

### **PART 3: PROJECT ACTIVITIES AND PRELIMINARY RESULTS**

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*Outline project activities, preliminary results, any deviations from the original project and communication activities. You may include graphs/tables/pictures in the Appendix.*

The fall of 2017 and 2018 had limited rain after very dry growing seasons. Cover crop establishment in 2017 was limited for all three planting dates with negligible amounts of growth. In the fall of 2018 small timely rains allowed for cover crops to establish at for in the August 15 and September 1 planting dates (Figure 1) but not for the September 15 planting date. Cover crop growth was limited by soil moisture for both planting dates that established (Figure 1). As expected, cover crop growth at the earlier planting date was greater. Although growing conditions have been a challenge for this experiment to date, it is important to collect data under a variety of growing seasons and growing conditions in Manitoba to understand the range of growth potential for cover crops.



**APPENDIX**

Include up to 1 page of tables, graphs, pictures.

Table 1: Cover crop species treatments and seeding rates

| Cover Crop                              | Seeding Rate (kg/ha) |
|---|----------------------|
| Rye                                     | 80                   |
| Sorghum Sudan Grass                     | 40                   |
| Soybean                                 | 80                   |
| Oat                                     | 80                   |
| Faba bean                               | 170                  |
| Radish                                  | 9                    |
| Field Pea                               | 124                  |
| Mix of pea, oat, rye, faba bean, radish | 75                   |

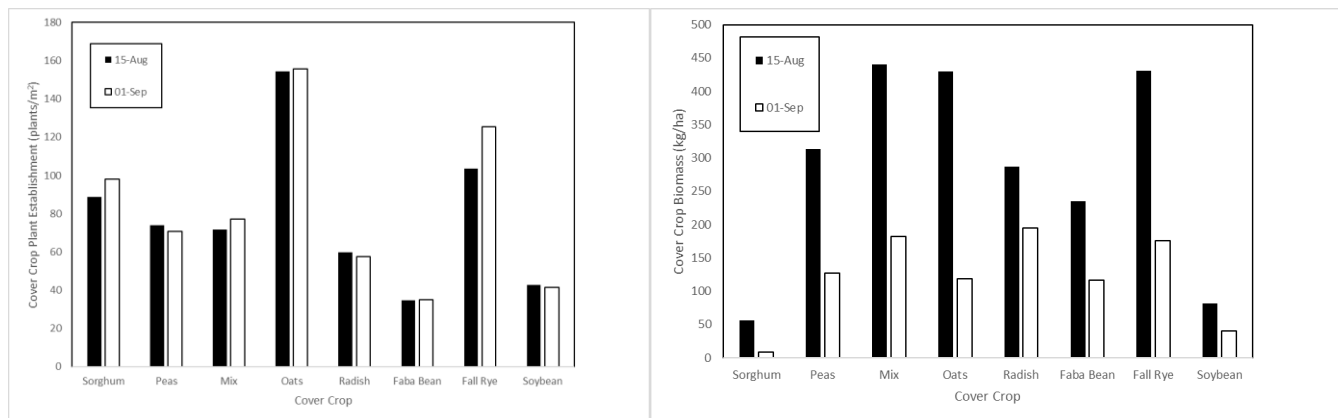


Figure 1: Cover crop plant establishment and biomass in the fall of 2018 for 7 cover crop species and a mix of 5 species when planted on August 15<sup>th</sup> and September 1<sup>st</sup> near Carman, MB.

