PREMIER TECH

2023

AGTIV®

EFFICACY REPORT

PEA & LENTIL

2.6 bu/ac 178 kg/ha

LENTILS

AVERAGE YIELD INCREASE

65 sites over 12 years
Canada

10%

Lentil split field with AGTIV® PULSES vs competitor inoculant.
Plant growth and health is enhanced on the right,
and row closure occurs sooner in AGTIV® lentil fields.

Enhanced root development leads to thicker stems,
which help lentils stand better and increases ease of harvest.

PREMIER TECH

EFFICACY REPORT
SUMMARY – MYCORRHIZAL & RHIZOBIAL INOCULANT

LENTIL

► PLOT & STRIP TRIALS

Research partners: GMAC's Ag Team, Wheatland Conservation Area, Prairie Ag Research Inc., and Small Plot Inc.

Research sites: Saskatchewan and Alberta

Treatments: a) AGTIV® THRIVE™* PEA & LENTIL;
b) Competitor inoculant A*;
c) Competitor inoculant B*;
d) Competitor inoculant C*;
e) Competitor inoculant D*.

Experimental design: 57 replicated plots per treatment (four trials with 6, one with 7, three with 8 and one strip trial with two replicated) in randomized complete block design

*Products applied according to manufacturers recommended rate.

Table 1. **Summary of Lentil yields (bu/ac) per trial.**

Location	Year	Seed variety	AGTIV® THRIVE™ PEA & LENTIL	Competitor inoculant			
				A	B	C	D
Brock (SK)	2015	N.A.	18.4	13.4	11.4		
Swift Current (SK)	2016	Small Red Lentils, Imax CL	50.1	43.3	41.1	37.7	
Coalhurst (AB)	2017	N.A.	19.5	19.1	19.2	18.5	
Vulcan (AB)	2019	Pedigree CDC Proclaim	32.6	28.8			28.4
Lethbridge (AB)	2021	Proclaim	46.8		46.4		
Vulcan (AB)	2021	Impulse	10.0		8.4		
Lethbridge (AB)	2022	Impulse	32.0		31.9		
Vulcan (AB)	2022	Impulse	38.7		38.3		
Swift Current (SK)	2022	Impulse	35.0		32.6		

Table 2. **Summary of Lentil yields (kg/ha) per trial.**

Location	Year	Seed variety	AGTIV® THRIVE™ PEA & LENTIL	Competitor inoculant			
				A	B	C	D
Brock (SK)	2015	N.A.	1237	901	766		
Swift Current (SK)	2016	Small Red Lentils, Imax CL	3367	2910	2762	2533	
Coalhurst (AB)	2017	N.A.	1310	1284	1290	1243	
Vulcan (AB)	2019	Pedigree CDC Proclaim	2192	1937			1910
Lethbridge (AB)	2021	Proclaim	3145		3118		
Vulcan (AB)	2021	Impulse	672		564		
Lethbridge (AB)	2022	Impulse	2150		2144		
Vulcan (AB)	2022	Impulse	2601		2574		
Swift Current (SK)	2022	Impulse	2352		2191		

EFFICACY REPORT
2022 – MYCORRHIZAL & RHIZOBIAL INOCULANT

LENTIL

► PLOT TRIAL

Research partner: Prairie Ag Research Inc.

Research site: Lethbridge, AB

Treatments: a) Untreated Check
b) AGTIV® THRIVE™ PEA & LENTIL*
c) Competitor inoculant B*

* Granular inoculant applied according to manufacturer's recommended rate

Experimental design: Complete Randomized Block Design, 8 repetitions, 12 m^2 plots

Variety: Impulse

Previous crop: Fallow

Seeding details: Seeded on May 23, 2022, with a cone seeder at a rate of 50 kg/ha in a clay loam soil (pH: 7.4, OM: 4%). Emergence on May 30.

Table 1. **Summary of yields per treatment.**

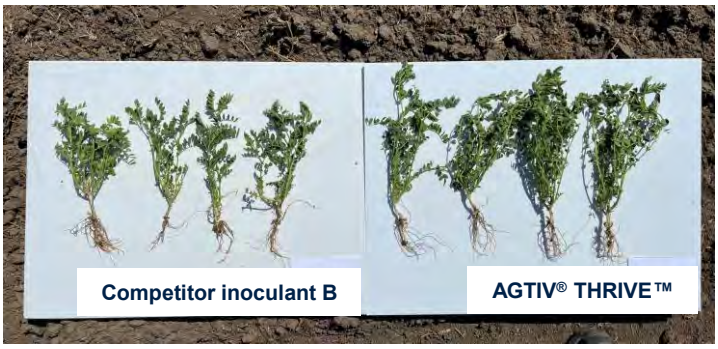
Treatment	Yield (bu/ac)	Yield increase (bu/ac)
Untreated Check	30.1	-
AGTIV® THRIVE™ PEA & LENTIL	32.0	1.9
Competitor inoculant B	31.9	1.8

Plot operational notes and rain fall.

- No fertilization
- Pesticides:
  - May 20, Glyphosate (pre seeding burn off)
  - June 30, Odyssey and Merge (broadleaf weeds)
- Harvested on September 7, 2022

* Plots were irrigated during those months

Month	Precipitation (mm)
May	35.8
June	114.5 *
July	57.4
August	31.7 *
TOTAL	**239.4**



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EFFICACY REPORT
2022 – MYCORRHIZAL & RHIZOBIAL INOCULANT

LENTIL

► PLOT TRIAL

Research partner: Small Plot Inc.

Research site: Vulcan, AB

Treatments: a) Untreated Check
b) AGTIV® THRIVE™ PEA & LENTIL*
c) Competitor inoculant B*

* Granular inoculant applied according to manufacturer's recommended rate

Experimental design: Complete Randomized Block Design, 6 repetitions, 16 m^2 plots

Variety: Impulse

Previous crop: Fallow

Seeding details: Seeded on May 12, 2022, with a plot drill machine at a rate of 89 kg/ha in a loam soil (pH: 7, OM: 3.5%). Emergence on May 30.

Table 1. **Summary of yields per treatment.**

Treatment	Yield (bu/ac)	Yield increase (bu/ac)
Untreated Check	37.1	-
AGTIV® THRIVE™ PEA & LENTIL	38.7	1.6
Competitor inoculant B	38.3	1.2

Plot operational notes and rain fall.

- Fertilization of 11-51-0-0 sidebanded at seeding on May 12
- Pesticides:
  - July 3: Applied Odyssey NXT for post herbicide weed control
  - Applied ZIVATA for grasshopper control twice
- Harvested on August 30, 2022

Month	Precipitation (mm)
May	9.8
June	136.8
July	86.0
August	18.1
TOTAL	**250.7**

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EFFICACY REPORT
2022 – MYCORRHIZAL & RHIZOBIAL INOCULANT

LENTIL

► PLOT TRIAL

Research partner: Wheatland Conservation Area

Research site: Swift Current, SK

Treatments: a) Untreated Check
b) AGTIV® THRIVE™ PEA & LENTIL*
c) Competitor inoculant B*

* Granular inoculant applied according to manufacturer's recommended rate

Experimental design: Complete Randomized Block Design, 8 repetitions, 17 m^2 plots

Variety: Impulse

Previous crop: Wheat

Seeding details: Seeded on May 6, 2022, with a cone seeder at a rate of 67 kg/ha in a sandy loam soil (pH: 6.1, OM: 2.7%) Emergence on May 27.

Table 1. **Summary of yields per treatment.**

Treatment	Yield (bu/ac)	Yield increase (bu/ac)
Untreated Check	32.9	-
AGTIV® THRIVE™ PEA & LENTIL	35.0	2.1
Competitor inoculant B	32.6	-

Plot operational notes and rain fall.

- Fertilization of 11-52-0 sidebanded at seeding (100 kg/ha) on May 6.
- Pesticides:
  - May 2, RT540 (pre seeding burn off)
  - June 7, Centurion + AMIGO (post emergence weed control)
  - June 16, Solo ADV herbicide (broadleaf weed control)
  - July 27, Proline GOLD (sclerotinia control)
  - August 8, Reglone (desiccant)
- Harvested on August 8, 2022

Month	Precipitation (mm)
May	51.2
June	37.7
July	90.4
August	7.5
TOTAL	**186.8**

PREMIER TECH

EFFICACY REPORT
2021 – MYCORRHIZAL & RHIZOBIAL INOCULANT

LENTIL

► PLOT TRIAL

Research partner: Prairie Ag Research

Research site: Lethbridge, AB

Treatments: a) Untreated Check
b) AGTIV® PULSES • Granular*
c) Competitor inoculant B*

* Granular inoculant applied according to manufacturer's recommended rate

Experimental design: Complete Randomized Block Design, 6 repetitions, 12 m^2 plots

Variety: Proclaim

Previous crop: Barley

Seeding details: Seeded on May 19, 2021, with a cone seeder at a rate of 50 kg/ha

Table 1. **Summary of yields and protein content per treatment.**

Treatment	Yield (bu/ac)	Yield increase (bu/ac)	Protein content (%)
Untreated Check	42.7	-	27.5
AGTIV® PULSES • Granular	46.8	4.1	27.8
Competitor inoculant B	46.4	3.7	27.2

Plot operational notes and rain fall.

- No fertilization
- Pesticides:
  - May 19, Glyphosate (emerged weeds)
  - June 28, Odyssey and Merge (broadleaf weeds)
- Harvested on September 14, 2021

Month	Precipitation (mm)
May	33.1
June	16.5
July	10.3
August	35.6
TOTAL	**95.5**

PREMIER TECH

EFFICACY REPORT
2021 – MYCORRHIZAL & RHIZOBIAL INOCULANT

LENTIL

► PLOT TRIAL

Research partner: Small Plot Inc.

Research site: Vulcan, AB

Treatments: a) Untreated Check
b) AGTIV® PULSES • Granular*
c) Competitor inoculant B*

* Granular inoculant applied according to manufacturer's recommended rate

Experimental design: Complete Randomized Block Design, 6 repetitions, 16 m^2 plots

Variety: Impulse

Previous crop: Wheat

Seeding details: Seeded on May 15, 2021, with a plot drilling machine at a rate of 72 kg/ha

Table 1. **Summary of yields per treatment.**

Treatment	Yield (bu/ac)	Yield increase (bu/ac)
Untreated Check	9.1	-
AGTIV® PULSES • Granular	10.0	0.9
Competitor inoculant B	8.4	-

Plot operational notes and rain fall.

- No fertilization
- Pesticides:
  - June 13, Odyssey NTX (broadleaf weeds)
- Harvested on August 25, 2021

Month	Precipitation (mm)
May	3.8
June	42.4
July	27.6
August	38.6
September	41.1
TOTAL	**153.5**

PREMIER TECH

EFFICACY REPORT
2019 – MYCORRHIZAL & RHIZOBIAL INOCULANT

LENTIL

► PLOT TRIAL

Research partner: Small Plot Inc.

Research site: Vulcan (AB), Canada

Treatments: a) ALPINE G22™ Liquid*;
b) ALPINE G22™ and AGTIV® COMBO • Liquid for PULSES*;
c) ALPINE G22™ and Competitor inoculant A*;
d) ALPINE G22™ and Competitor inoculant D*.

Experimental design: 6 replicated plots per treatment in randomized complete block design

Lentil variety: Pedigree CDC Proclaim

Previous crop: Canola

Seeding details: Seeded May 14th, 2019 at 65 lb/ac with a 22.8 cm row spacing. Products were applied in-furrow.

*Products applied according to manufacturers' recommended rate

Table 1. **Summary of Lentil yields per treatment.**

Treatment	Yield[1] (bu/ac)	Yield[1] (kg/ha)
ALPINE G22™ Liquid	25.0 [a]	1681 [a]
ALPINE G22™ and AGTIV® COMBO • Liquid for PULSES	32.6 [b]	2192 [b]
ALPINE G22™ and Competitor inoculant A	28.8 [ab]	1937 [ab]
ALPINE G22™ and Competitor inoculant D	28.4 [ab]	1910 [ab]

[1] Yields followed by different letters are significantly different (LSD Test at p<0.05). Data from bloc 1 were not analyzed due to a high presence of *Kochia scoparia*.

Plot operational notes and rain fall.

- No fertilization other than ALPINE G22™
- One herbicide application on June 6th, 2019
- Plants were dessicated September 22th and combined October 17th, 2019.

Month	Precipitation (mm)
May	16
June	50
July	16
August	25
TOTAL	**107**

PREMIER TECH

EFFICACY REPORT
2016 – MYCORRHIZAL & RHIZOBIAL INOCULANT

LENTIL

► PLOT TRIAL

Research partner: Wheatland Conservation Area

Research site: Swift Current (SK), Canada

Treatments: a) AGTIV® PULSES • Granular applied at 5 lb/ac*;
b) AGTIV® RHIZO • Granular for PULSES in granular form applied at 5 lb/ac*;
c) Competitor inoculant A applied at 3.6 lb/ac*;
d) Competitor inoculant B applied at 3.6 lb/ac*;
e) Competitor inoculant C applied at 5.1 lb/ac*.

Experimental design: 8 replicated plots per treatment in randomized complete block design

Lentil variety: Small Red Lentils, Imax CL variety

Previous crop: Canola

Seeding details: Seeded at 68 lb/ac to obtain 12 plants/ft^2 using Fabro plot dill, Atomjet knife openers

Fertility: 98 lb/ac of 11-52-0 side banded

Data analysis: All data from replicate 7 was removed as this area was noted by Wheatland Conservation Area to be a lower part of the field and that the yield was significantly lower than the average in the affected plots. The lower part of the field also had a damaging effect on the first plot of replicate 8, which was the competitor inoculant B treatment, and that data point was also removed for the above analysis.

*Granular products applied according to manufacturers recommended rate.

Table 1. **Summary of Lentil yields per treatment.**

Treatment	Yield (bu/ac)[1]	Yield (kg/ha)[1]
AGTIV® PULSES • Granular (dual inoculant)	50.1 [b]	3369 [b]
AGTIV® RHIZO • Granular for PULSES (single inoculant)	46.6 [b]	3134 [b]
Competitor inoculant A	43.3 [a,b]	2912 [a,b]
Competitor inoculant B	41.1 [a]	2764 [a]
Competitor inoculant C	37.7 [a2]	2535 [a2]

[1] Average yields followed by different letters are significantly different using Duncan's multiple range test at p≤0.1.
[2] The difference in yield is significant at *p= 0.012*, compared with AGTIV® PULSES • Granular (dual inoculant).

Plot operational notes and rain fall.

- Preseed burnoff with RT 540 at 0.67 L/ac
- Applied Edge pre-seed at 15 lb/ac
- Incrop with Odyssey at 17.3 g/ac
  + Poast Ultra at190 ml/ac
  + Merge at 0.5 L/100 L spray solution.
- Priaxor at 180 ml/ac at 10% flower
- Dessicated with Reglone @ 700 ml/ac + agsurf adjuvant at 0.1 L/100 L of spray solution
- Combined with winterstieger

Month	Precipitation (mm)
April	7
May	129.3
June	85.1
July	115
August	58
September	39
October until the 5th	58
TOTAL	491.4

PREMIER TECH

EFFICACY REPORT

2015 – MYCORRHIZAL & RHIZOBIAL INOCULANT

LENTIL

► STRIP TRIAL

Research partner: GMAC's Ag Team

Research site: Brock (SK), Canada

Objective: This field trial will evaluate the performance of competitor inoculant brands with an emphasis on comparing granular formulations against the competitor inoculant D liquid formulation on lentil.

Treatments: a) AGTIV® PULSES • Granular applied at 5 lb/ac*;
b) Competitor inoculant A granular applied at 3.6 lb/ac*;
c) Competitor inoculant B granular applied at 3.6 lb/ac*;
d) Competitor inoculant C granular applied at 3.6 lb/ac*;
e) Competitor inoculant D liquid applied at 76 ml/bu*;
f) Competitor inoculant D liquid applied at 76 ml/bu
+ Competitor inoculant B granular applied at 1.8 lb/ac*.

Experimental design: Site at Brock was laid out using a completely randomized design (CRD) with a minimum of two treatment replicates. See field layout below.

*Products applied according to manufacturers recommended rate.

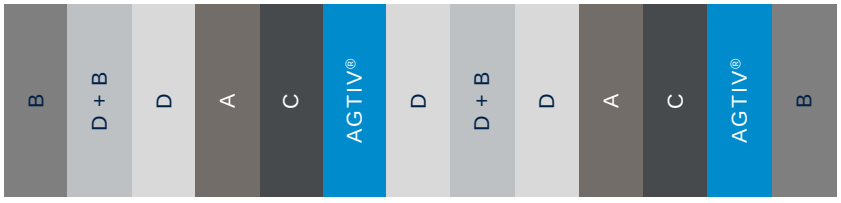
Table 1. **Summary of Lentil yields per treatment.**

Treatment	Yield (bu/ac)	Yield (kg/ha)
AGTIV® PULSES • Granular (dual inoculant)	18.4	1237
Competitor inoculant A	13.4	901
Competitor inoculant B	11.4	767
Competitor inoculant C	11.8	794
Competitor inoculant D	11.3	760
Competitor inoculant D + B	11.1	747

Plot operational notes and rain fall.

Treatments were seeded on May 9, 2015, sprayed, and harvested on August 31, 2015, using the growers' existing machinery. Trial site were managed the same across all treatments, excluding the application of inoculant. In-season herbicide, fungicide, and insecticide, applications were all registered practices and made in accordance with product labels. Harvest data was scaled with weigh wagons then recorded.

Month	Precipitation (in)
May	0.8
June	1.43
July	2.31
TOTAL	4.54



Field layout

PREMIER TECH

3.6 bu/ac 233 kg/ha

PEAS

AVERAGE YIELD INCREASE

24 sites over 10 years
Canada 6.7%

Pea split field with AGTIV® PULSES vs competitor inoculant.
Plant growth and health is enhanced on the right,
and row closure occurs sooner in AGTIV® pea fields.

AGTIV® pea plants have a better developed root system
with more branching, which leads to increased plant health and growth.

PREMIER TECH

EFFICACY REPORT
SUMMARY – MYCORRHIZAL & RHIZOBIAL INOCULANT

PEA

▶ PLOT TRIALS

Research partners: ICMS, Wheatland Conservation Area and Ag-Quest inc.

Research sites: Alberta, Saskatchewan and Manitoba

Treatments: a) AGTIV® THRIVE™ PEA & LENTIL*;
b) Competitor inoculant A*;
c) Competitor inoculant B*;
d) Competitor inoculant D*.

Experimental design: 51 replicated plots per treatment (five trials with 6, two with 8 and one with 5) in randomized complete block design

*Products applied according to manufacturers recommended rate.

Table 1. **Summary of Pea yields (bu/ac) per trial.**

Location	Year	Seed variety	AGTIV® THRIVE™ PEA & LENTIL	Competitor inoculant		
				A	B	D
Fort Saskatchewan (AB)	2015	Meadow	88.6	86.2	79.5	
Swift Current (SK)	2017	Amarillo	14.0	12.7	12.4	
Saskatoon (SK)	2019	AAC Ardill	65.0	52		63.2
Portage la Prairie (MB)	2021	Carver	45.2		41.3	
Josephburg (AB)	2022	Striker	45.4		46.6	
Saskatoon (SK)	2022	ACC Ardill	36.4		35.8	
Saskatoon (SK)	2022	CDC Spectrum	30.7		28.8	
Swan River (MB)	2022	Inca	91.5		87.1	

Table 2. **Summary of Pea yields (kg/ha) per trial.**

Location	Year	Seed variety	AGTIV® THRIVE™ PEA & LENTIL	Competitor inoculant		
				A	B	D
Fort Saskatchewan (AB)	2015	Meadow	5958	5793	5342	
Swift Current (SK)	2017	Amarillo	941	853	833	
Saskatoon (SK)	2019	AAC Ardill	4371	3497		4250
Portage la Prairie (MB)	2021	Carver	3037		2775	
Josephburg (AB)	2022	Striker	3051		3132	
Saskatoon (SK)	2022	ACC Ardill	2446		2406	
Saskatoon (SK)	2022	CDC Spectrum	2063		1935	
Swan River (MB)	2022	Inca	6149		5853	

EFFICACY REPORT
2022 – MYCORRHIZAL & RHIZOBIAL INOCULANT

PEA

► PLOT TRIAL

Research partner: Integrated Crop Management Services (ICMS)

Research site: Josephburg, AB

Treatments: a) Untreated Check
b) AGTIV® THRIVE™ PEA & LENTIL
c) Competitor inoculant B*

* Granular inoculant applied according to manufacturer's recommended rate

Experimental design: Complete Randomized Block Design, 8 repetitions, 15 m^2 plots

Variety: Striker

Previous crop: Fallow

Seeding details: Seeded on June 20, 2022, with a cone seeder at a rate of 160 kg/ha in a loam soil (pH: 5.7, OM: 8%). Emergence on July 3.

Table 1. **Summary of yields and protein content per treatment.**

Treatment	Yield (bu/ac)	Yield increase (bu/ac)	Protein content (%)
Untreated Check	44.1	-	21.3
AGTIV® THRIVE™ PEA & LENTIL	45.4	1.3	22.2
Competitor inoculant B	46.6	2.5	20.9

Plot operational notes and rain fall.

- Fertilization of 80-30-20-20 kg/ha NPKS pre seeding
- Pesticides:
  - June 1, Roundup WeatherMAX (Pre seed burn off)
  - Odyssey + Merge (broadleaf weeds)
- Harvested on September 20, 2022

Month	Precipitation (mm)
June	109.3
July	35.0
August	34.4
September	10.6
TOTAL	**189.3**

PREMIER TECH

EFFICACY REPORT
2022 – MYCORRHIZAL & RHIZOBIAL INOCULANT

PEA

► PLOT TRIAL

Research partner: Integrated Crop Management Services (ICMS)

Research site: Saskatoon, SK

Treatments: a) Untreated Check
b) AGTIV® THRIVE™ PEA & LENTIL
c) Competitor inoculant B*

* Granular inoculant applied according to manufacturer's recommended rate

Experimental design: Complete Randomized Block Design, 8 repetitions, 15 m^2 plots

Variety: ACC Ardill

Previous crop: Wheat

Seeding details: Seeded on May 26, 2022, with a cone seeder at a rate of 225 kg/ha in a clay soil (pH: 8, OM: 8.8%). Emergence on June 15.

Table 1. **Summary of yields and protein content per treatment.**

Treatment	Yield (bu/ac)	Yield increase (bu/ac)	Protein content (%)
Untreated Check	34.8	-	17.5
AGTIV® THRIVE™ PEA & LENTIL	36.4	1.6	18.0
Competitor inoculant B	35.8	1.0	17.1

Plot operational notes and rain fall.

- Fertilization of 80-20-10-20 kg/ha NPKS pre seeding + 28% Urea Ammonium Nitrate on July 4
- Pesticides:
  - July 4, Viper ADV (to control emerged weeds)
  - August 31, Reglone Ion (Desiccant)
- Harvested on September 6, 2022

Month	Precipitation (mm)
May	25.8
June	38.0
July	46.5
August	25.6
TOTAL	**135.9**

PREMIER TECH

EFFICACY REPORT
2022 – MYCORRHIZAL & RHIZOBIAL INOCULANT

PEA

► PLOT TRIAL

Research partner: Ag-Quest inc.

Research site: Saskatoon, SK

Treatments: a) Untreated Check
b) AGTIV® THRIVE™ PEA & LENTIL
c) Competitor inoculant B*

* Granular inoculant applied according to manufacturer's recommended rate

Experimental design: Complete Randomized Block Design, 6 repetitions, 8.2 m^2 plots

Variety: CDC Spectrum

Previous crop: Oats

Seeding details: Seeded on May 27, 2022, with a cone seeder and a techno till drill opener at a rate of 160 kg/ha in a loam soil (pH: 5.8, OM: 3.5%). Emergence on June 3.

Table 1. **Summary of yields per treatment.**

Treatment	Yield (bu/ac)	Yield increase (bu/ac)
Untreated Check	27.2	-
AGTIV® THRIVE™ PEA & LENTIL	30.7	3.5
Competitor inoculant B	28.8	1.6

Plot operational notes and rain fall.

- Fertilization of 11-52-0 side banded (72 kg/ha)
- Pesticides:
  - May 11, Roundup WeatherMAX + Aim EC (Pre seed burn off)
  - June 8 , Centurion (post emergence herbicide)
  - June 21, July 4 & 12, Basagran Forté + Assure II (post emergence herbicide)
  - August 6, Matador herbicide (flea beetle control)
  - August 16, Reglone Ion (Desiccant)
- Harvested on August 24, 2022

Month	Precipitation (mm)
May	27.3
June	37.1
July	41.3
August	15.8
TOTAL	**121.5**

EFFICACY REPORT
2022 – MYCORRHIZAL & RHIZOBIAL INOCULANT

PEA

► PLOT TRIAL

Research partner: New Era Ag Research and Technologies

Research site: Swan River, MB

Treatments: a) Untreated Check
b) AGTIV® THRIVE™ PEA & LENTIL*
c) Competitor inoculant B*

* Granular inoculant applied according to manufacturer's recommended rate

Experimental design: Complete Randomized Block Design, 6 repetitions, 15 m^2 plots

Variety: Inca

Previous crop: Canola

Seeding details: Seeded on May 24, 2022, with a cone seeder at a rate of 286 kg/ha in a clay loam soil (pH: 6.5, OM: 5.3%). Emergence on June 3.

Table 1. **Summary of yields per treatment.**

Treatment	Yield (bu/ac)	Yield increase (bu/ac)
Untreated Check	85.3 [b]	-
AGTIV® THRIVE™ PEA & LENTIL	91.5 [a]	6.2
Competitor inoculant B	87.1 [b]	1.8

[1] Yields with same letter are not statistically different according to a Tukey HSD test (p≤0.1).

Plot operational notes and rain fall.

- Fertilization of MAP 11-52-0 on May 25 (47 kg/ha)
- Pesticides:
  - June 9, Coragen & Pounce (for cutworm & flea beetle control)
  - June 22, Viper ADV (post emergence weed control)
  - July 18, Priaxor (white mold control)
  - August 25, Guardsman (Desiccant)
- Harvested on August 31, 2022

Month	Precipitation (mm)
May	14.5
June	80.0
July	32.3
August	48.8
September	58.9
TOTAL	**234.5**

PREMIER TECH

EFFICACY REPORT
2021 – MYCORRHIZAL & RHIZOBIAL INOCULANT

PEA

► PLOT TRIAL

Research partner: Integrated Crop Management Services (ICMS)

Research site: Portage la Prairie, MB

Treatments: a) Untreated Check
b) AGTIV® PULSES • Granular*
c) Competitor inoculant B*

* Granular inoculant applied according to manufacturer's recommended rate

Experimental design: Complete Randomized Block Design, 6 repetitions, 24.4 m^2 plots

Variety: Carver

Previous crop: Wheat

Seeding details: Seeded on June 3, 2021, with a cone seeder at a rate of 200 kg/ha.

Table 1. **Summary of yields and protein content per treatment.**

Treatment	Yield (bu/ac)	Yield increase (bu/ac)	Protein content(%)
Untreated Check	41.6	-	17.8
AGTIV® PULSES • Granular	45.2	3.6	18.4
Competitor inoculant B	41.3	-	17.8

Plot operational notes and rain fall.

- No fertilization
- Pesticides:
  - June 25, Viper ADV (to control emerged weeds
  - July 14, Basagran Forte and Assure II (broadleaf and grassy weeds control)
  - July 27, Cygon (aphids control)
- Harvested on September 1, 2021

Month	Precipitation (mm)
June	90.0
July	78.4
August	68.3
TOTAL	**236.7**

PREMIER TECH

EFFICACY REPORT
2019 – MYCORRHIZAL & RHIZOBIAL INOCULANT

PEA

► PLOT TRIAL

Research partner: ICMS

Research site: Saskatoon (SK), Canada

Treatments: a) ALPINE G22™ Liquid*;
b) ALPINE G22™ and AGTIV® COMBO • Liquid for PULSES*;
c) ALPINE G22™ and Competitor inoculant A*;
d) ALPINE G22™ and Competitor inoculant D*.

Experimental design: 6 replicated plots per treatment in randomized complete block design

Lentil variety: AAC Ardill

Previous crop: Wheat

Seeding details: Seeded with a cone seeder June 1 at 201 lb/ac with a 15.2 cm row spacing. Products were applied in-furrow.

*Products applied according to manufacturers' recommended rate

Table 1. **Summary of Pea yields per treatment.**

Treatment	Yield (bu/ac)	Yield (kg/ha)
ALPINE G22™ Liquid	56.0	3766
ALPINE G22™ and AGTIV® COMBO • Liquid for PULSES	65.0	4371
ALPINE G22™ and Competitor inoculant A	52.3	3517
ALPINE G22™ and Competitor inoculant D	63.2	4250

Plot operational notes and rain fall.

- Fertilizer (Urea 28%) applied at same moment as Viper herbicide at 0.8 lb/ac on July 12, 2019
- Two herbicide applications on July 12, 2019 (Viper) and 29, 2019 (Centurion)
- Two insecticide applications (Matador) on July 8 and 13, 2019
- Combined with a Small Plot Combine on October 11, 2019.

Month	Precipitation (mm)
June	84.8
July	67.6
August	20.3
September	39.5
TOTAL	**212.2**

PREMIER TECH

EFFICACY REPORT
2017 – MYCORRHIZAL & RHIZOBIAL INOCULANT

PEA

► STRIP TRIAL

Research partner: Down to Earth + PAMI

Research site: Saskatoon (SK), Canada

Treatments: a) AGTIV® PULSES • Granular applied at 5.0 lb/ac + Taurus Advanced Acre (TAA) + fungicide application;
b) AGTIV® RHIZO • Granular for PULSES in granular form applied at 4.0 lb/ac + designed fertility.

Experimental design: 2 replicated strips for a total of 610 ft^2 per treatment

Pea variety: Meadow variety seeded at 3 bu/ac

Previous crop: Canola / oats split

Seeding details: Seeded 20 May, at 3 bu/ac at 10 in row spacing using Seed Master plot Drill by Down to Earth

Table 1. **Summary of Pea yields per treatment.**

Treatment	Yield (bu/ac)	Yield (kg/ha)
AGTIV® PULSES • Granular (dual inoculant) + TAA + Fungicide	48.1	3235
AGTIV® RHIZO • Granular for PULSES (single inoculant) + designed fertility	35.8	2408

Plot operational notes and rain fall.

- Fertility – seed placed 2-15-0 -0 actual lb/ac
  - Side band 17-20-15-15 actual lb/ac
- Viper + UAN applied at 400 ml/ac + 81 ml/ac at 5 node Stage
- Combined on August 25, with a Wintersteiger and weighed & moisture averaged by PAMI
- Total rainfall: 100.4 mm

1. **Designed Fertility Program:** a calculated fertility program based on soil tests and targeted yield. Target yield for Peas was 60 bushels/ac
2. **The Taurus Advanced Acre™:** Using the Designed Fertility Program with the addition of key Taurus solutions.

EFFICACY REPORT
2017 – MYCORRHIZAL & RHIZOBIAL INOCULANT

PEA

► PLOT TRIAL

Research partner: Wheatland Conservation Area

Research site: Swift Current (SK), Canada

Treatments:
a) AGTIV® PULSES • Granular applied at 5 lb/ac*;
b) AGTIV® RHIZO • Granular for PULSES in granular form applied at 4 lb/ac*;
c) Competitor inoculant A applied at 3.6 lb/ac*;
d) Competitor inoculant B applied at 3.6 lb/ac*;
e) Competitor inoculant C applied at 4.0 lb/ac*;
f) Competitor inoculant E applied at 5.0 lb/ac*.

Experimental design: 6 replicated plots per treatment in randomized complete block design

Pea variety: Amarillo, seeded at 200 lb/ac

Previous crop: Canola

*Granular products applied according to manufacturers recommended rate

Table 1. **Summary of Pea yields per treatment.**

Treatment	Yield (bu/ac)	Yield (kg/ha)
AGTIV® PULSES • Granular (dual inoculant)	14.0	942
AGTIV® RHIZO • Granular for PULSES (single inoculant)	13.1	881
Competitor inoculant A	12.7	854
Competitor inoculant B	12.4	834
Competitor inoculant C	13.2	888
Competitor inoculant E	12.3	827

Plot operational notes and rain fall.

- Peas were planted on May 24, 2017, at 9 in row spacing using Fabro plot drill
- Preseed burnoff with Clean Start at 1 L/ac and Aim at 30 ml/ac
- Application of 98 lb/ac of 11-52-0 sidebanded
- In crop with Viper ADV at 400 ml/ac + Poast Ultra at 190 ml/ac + UAN at 810 ml/ac spray solution.
- Combined on August 17, 2017 with Winterstieger plot combine.

Month	Precipitation (mm)
May	32.1
June	35
July	4
August	28
September	3
TOTAL	**102.1**

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EFFICACY REPORT
2015 – MYCORRHIZAL & RHIZOBIAL INOCULANT

PEA

► PLOT TRIAL

Research partner: ICMS

Research site: Fort Saskatchewan (AB), Canada

Treatments: a) AGTIV® PULSES • Granular applied at 5 lb/ac*;
b) Competitor inoculant A applied at 3.3 lb/ac*;
c) Competitor inoculant B applied at 3.3 lb/ac*.

Experimental design: 5 replicated plots per treatment in randomized complete block design

Pea variety: Meadows

Previous crop: Canola

*Granular products applied according to manufacturers recommended rate

Table 1. **Summary of Pea yields per treatment.**

Treatment	Yield (bu/ac)	Yield (kg/ha)
AGTIV® PULSES • Granular (dual inoculant)	88.6	5958
Competitor inoculant A	86.2	5797
Competitor inoculant B	79.5	5347

One replication from the competitor inoculant B treatment yielded very low and has a negative impact on the treatment average. The data below represents the average of the competitor inoculant B treatment without the very low yielding rep for a total of four reps for the competitor inoculant B average yield.

Table 2. **Summary of Pea yields per treatment.**

Treatment	Yield (bu/ac)	Yield (kg/ha)
AGTIV® PULSES • Granular (dual inoculant)	88.6	5958
Competitor inoculant A	86.2	5797
Competitor inoculant B	85.8	5770

Plot operational notes and rain fall.

- Peas were planted on May 21, 2015, at 15.2 cm row spacing
- In season maintenance with 17 g/ac Odyssey (35%), 67 ml/ac Equinox and 0.5% Edge
- Combined with Winterstieger Elite plot combine on Sept 25, 2015.

Month	Precipitation (mm)
May	37.3
June	59.7
July	108.6
August	10.3
September	71.1
TOTAL	287

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EFFICACY REPORT 2023

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