College and Community Innovation Program
Five-Year Innovation Enhancement (IE) Grants

PROGRESS REPORT AT 18 MONTHS

Title of the proposal: *Sustainable Turfgrass Management in the Canadian Prairie Provinces*
File number: *459005-13*

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Due Date: *October 3, 2015*
Covers the Period: *March 3 2014 to September 3 2015*

Progress To Date

Please report on the progress made to date toward the objectives of the initiative funded by the IE grant. Based on the initial work plan and/or milestones for the initiative, please list the key activities/deliverables as well as the current status of each and any comments including an explanation of any delays or changes.

Activity / Deliverable	**Status** *(please select: Completed, In progress, Not started, Cancelled or New)*	**Comments** *(one paragraph maximum)*
1.1 Evaluating Ventilation Systems Under Winter Covers to prevent Injury from Anoxia	Field portion completed. Year one completed on chamber study to determine action thresholds.	Plan is to have chamber study completed before Feb. 2016. First year data showed nice statistical differences.
1.2 Fall applications of N and K and their effect on cold tolerance	In Progress	Year one completed. Year two commenced Aug. 15th 2015.
1.3 Effects of Fall Shade on Cold Acclimation of Turfgrass	In progress	Was set to commence this year, however the structures took longer to build than expected. We have commenced a greenhouse version for this fall/winter in order to determine the best parameters besides LT_{50} tests, to evaluate.
1.5 Efficacy of Novel products for their influence on Cold hardiness.	In Progress	Design and treatments determined this summer. Applications will commence in October.
2.1 Evaluation of Pest Management Products	Cancelled	Phoma macrostroma is unavailable and is locked up in ownership and development paperwork. Have expanded objective 2.2 to make up for this.
2.2 Evaluating Cultural Practices for the Control of Dandelion in Turfgrass	In Progress	Two greenhouse trials were initiated to help determine treatments for the field study that has been commenced with the city of Lethbridge. Study has been expanded to include Dandelion, Black Medic, Plantain, White Clover and Canada Thistle.
3.1 Evaluation of Fine Leaf Fescues for sod production	In Progress	Expanded to include tall fescue and perennial ryegrass entries, as modern cultivar development warrants further investigation of other cool season grasses for sod production in the prairie provinces.
3.2 Determine Drought Tolerance of Fine Leaf Fescues and Kentucky Bluegrass	In Progress	Kentucky bluegrass trial was seeded Aug. 15 2014, the Fine Leaf Fescues were planted Aug. 19th 2015. Both rainout shelters were constructed over the month of July and early August 2015. An acute drought period was performed on the established Kentucky bluegrass trail commencing Aug. 8th and

		completing Sept. 21, 2015.
3.3 Evaluating Various grasses grown under Conditions of high salinity	In progress	Three separate controlled environment experiments to screen 40 species for their ability to germinate under high saline conditions. The second trial evaluated the best 20 performers from the germination screening in soil pots to determine germination ability in pre-charged saline soils. The third trial evaluated the top 5 species from trial two to determine germination in 14" lysimeter field soil trial with varying soil amendments.
Hiring of research staff	Completed	A full research team is in place: Katie Dodson-Research Scientist Laura Chaves- Research Associate Cory Mossing- Research Technician Mark Anderson- Research Technician Barb Bell- Service Worker Krista Pick- Service Worker Student Research Assistants Faculty Researchers- Ken Fry, Jason Pick, Darrel Tompkins Jim Ross- Research Manager (retired Sept 2015)

a) Please provide a brief summary (one paragraph maximum) of the actions taken to address any comments received from the CCI Review Committee or NSERC. If there were no comments proceed to part (c).

The IE grant is being lead by Olds College's Associate Vice President of Research and Learning Enterprises who works closely with the Research Scientist – Turfgrass. The scientist bridges the gap between academia and industry by participating in the Industry Research Advisory Committee formulated under the guidance of the Alberta Turfgrass Research Foundation (ATRF), and giving research updates to the Alberta Golf Superintendents Association (AGSA) and to the Director of the Western Canada Turfgrass Association (WCTA). This ensures that the research goals will continually evolve to meet the needs of industry. Student involvement has been aided with the encouragement of the participating faculty, and the international department at Olds College. We are currently meeting and surpassing some of the goals of having students actively engaged in the research program, primarily due to the engagement and support of the College's faculty and administration.

c) What, if any, problems were encountered to date? Please select all that apply.

	Technical or scientific problems
	Equipment and facilities
x	Staffing issues (including students)
	Funding problems
	Partner withdrew from project
	Partner interaction issues
	Other (Specify) :
	No problems occurred during this portion of the grant

Briefly describe (one paragraph maximum), if necessary, any problems and how they were resolved.

The hiring process to put the Research Scientist and the Research Associate in place took just under a year each to find the right people for the job. The pool of PhD trained turf specialists is small in Canada, therefore we needed to advertise across North America. There are strict guidelines to ensure that all Canadian candidates were considered first before hiring an American candidate, which took considerable time. We were highly successful and now that the staff is fully in place we are hoping to not have any more problems in this area.

d) Overall, to what extent have the applied R&D projects funded by the IE grant been implemented as planned in the full application? Please rate your answer on a scale from 1 to 7, where 1 means "not at all," 4 means "somewhat" and 7 means "to a great extent."

1 – Not at all	2	3	4 – Somewhat	5	6	7 To a great extent	Don't know / Not applicable
☐	☐	☐	☐	☐	X	☐	☐

1. Impact of IE Grant on College Faculty and Staff

(a) In your view, what has been the impact on faculty and staff who have participated in projects funded by the IE grant? Please check all that apply.

x	Increased interest in applied R&D
x	Increased contact with industry
x	Acquired new skills
x	Expanded existing skills
x	Increased expertise
x	Improved teaching/course content
x	Increased knowledge of current industrial issues and challenges
	Other (Specify):
	No impact

(b) Please briefly describe (one paragraph maximum) how faculty and staff at the college have been involved in the projects funded by the IE grant and the impact it has had on them to date.

The faculty that have release time have been working closely with the research scientist in varying capacities. Darrell Tompkins, Instructor in the Land and Water Resource program, is advising on the winter physiology, salinity and cultural weed control trials. Dr. Ken Fry, Instructor and Coordinator of the Horticulture program, has participated in experimental design, data analysis, and results interpretation for the winter covers study, and pest-management studies. Jason Pick, Instructor in the Turfgrass program, has consulted and assisted with the maintenance standards of the research plots, sample and data collection of the fall fertility trial. The open door policy of the research scientist has resulted in open discussions about current experiments, experimental design, and general research-based dialogues that focus primarily on how the applied research program will impact the turfgrass industry. The faculty participated in the TURF research field day, where they had an opportunity to network with 50+ industry partners, alumni, and current students and spend the day learning about the projects underway on the research plots. Beyond the faculty involvement, the facility and grounds staff of the college have participated in the construction of rain-out shelters, shade frames, supplying research areas outside of the research plots, and equipment maintenance. There is a sense of pride of participation from facility staff and often they will come and ask how the projects they have helped on are progressing. Overall the College as a whole is engaged and supportive and believes it is bringing significant impact and benefit.

(c) Please complete the non-shaded cells (Year 1 and Year 2 [to date]) for each performance indicator. If the targets for a performance indicator for Years 3, 4 or 5 have changed, please insert the new targets for the relevant cell of the "Actual" row.

Performance Indicator		Baseline	Year 1	Year 2 (to date)	Year 3	Year 4	Year 5
1. Person hours of faculty given paid release time to participate in IE funded projects.	Proposed in full application	471	540	540	540	270	180
	Actual		164				

Performance Indicator		Baseline	Year 1	Year 2 (to date)	Year 3	Year 4	Year 5
2. Number of faculty participating in IE funded projects.	Proposed in full application	3	3	4	4	5	5
	Actual		3	3			

Performance Indicator		Baseline	Year 1	Year 2 (to date)	Year 3	Year 4	Year 5
3. Number of non-faculty staff (e.g. partner staff, technicians/professionals, etc.) participating in IE funded projects.	Proposed in full application	2	3	4	4	5	5
	Actual		6	8			

2. Impact of IE grant on College Students

(a) What has been the impact on the students who participated in projects funded by the IE grant? Please check all that apply.

x	Acquired new skills
x	Expanded skills/expertise
x	Increased interest in applied R&D
x	Increased knowledge of current industrial issues and challenges
x	Learned of employment opportunities
	If numbers available at the college, obtained employment (part-time, co-op, summer) during their studies ____ Number hired by one of the firms working with the college on applied R&D __2__ Number hired by other firms to use the skills learned working in applied R&D
	Other (Specify):
	No Impact

(b) Please briefly describe (one paragraph maximum) how the college students have been involved in projects funded by the IE grant to date and the impact it has had on them, providing information on whether students have been involved as part of their coursework or outside of class and the types of interactions they have had with local businesses. Please indicate whether or not these are new initiatives due to the IE grant.

To date, the students involved have primarily been student research assistants, paid for their work on research projects. They have had hands on experience in experimental design, data collection, and monitoring plant health. Some of the students have taken portions of the projects they were working on into the classroom for presentations. Two of the students moved on to work with the Parks and Rec departments of the City of Calgary and City of Cochrane, using the research scientist as a reference. The IE grant funds have increased the amount of turfgrass projects available to support student research assistants, which has enabled us to increase student involvement through employment and for-credit opportunities. Two students performed research projects for credit. Both students who achieved credits went on to work as student research assistants in Year 2 of the IE grant. Other students at the College have come to the research scientist for mentorship and advice as part of their research for assignments. The instructors have encouraged the turf students to come to the scientist as part of their exploratory learning program.

(c) Please complete the non-shaded cells (Year 1 and Year 2 [to date]) for each performance indicator. If the targets for a performance indicator for Years 3, 4 or 5 have changed, please insert the new targets for the relevant cell of the "Actual" row.

Performance Indicator		Baseline	Year 1	Year 2 (to date)	Year 3	Year 4	Year 5
4. Number of unpaid students (e.g. project courses, capstone projects, etc.) participating in IE funded projects.	Proposed in full application						
	Actual		2	0			

Performance Indicator		Baseline	Year 1	Year 2 (to date)	Year 3	Year 4	Year 5
5. Number of students receiving salary from the college to participate in IE funded projects.	Proposed in full application		2	2	3	3	4
	Actual		5	4			

Performance Indicator		Baseline	Year 1	Year 2 (to date)	Year 3	Year 4	Year 5
6. Number of students receiving salary from local businesses and other organizations to participate in IE funded.	Proposed in full application				1	1	2
	Actual		0	1			

Performance Indicator		Baseline	Year 1	Year 2 (to date)	Year 3	Year 4	Year 5
7. Number of college students receiving salary from IE funded projects.	Proposed in full application						
	Actual						

4. Impact of the IE Grant on Curriculum and Courses

(a) Please briefly describe (one paragraph maximum) any impact of the projects funded by the IE grant on teaching activities of college faculty and the curriculum. Give the name of any specific courses impacted.

Funded projects have enhanced the availability of resources for several diploma and degree courses of the turfgrass science department, and horticulture departments. The following have had impact: drought tolerance, fall fertility use, species identification and management, traffic management of selected species, weed control in residential and commercial venues, experimental design, data analysis and result interpretation. The current research activities have created much discussion and assessment by the student cohort. Specific courses impacted: Turfgrass Management Diploma and Degree courses impacted: TRF 2400 - Managing agronomic environments (diploma); TRF 4100 - Environmental management for golf courses (degree); TRF 2700 - Golf Course Construction (diploma); and TRF 1200 - Managing Turfgrass (Certificate). Bachelor of Applied Science Horticulture: BHO 3100- Research Methods. Horticulture Technician Certificate: HRT 1400 – Managing Pests I. Additionally, the results and applications arising from the projects informed technology transfer activities to horticultural societies, industry groups, and continuing education courses.

(b) Please complete the non-shaded cells (Year 1 and Year 2 [to date]) for each performance indicator. If the targets for a performance indicator for Years 3, 4 or 5 have changed, please insert the new targets for the relevant cell of the "Actual" row.

Performance Indicator		Baseline	Year 1	Year 2 (to date)	Year 3	Year 4	Year 5
8. Number of existing college courses revised to include results of projects funded by the IE grant.	Proposed in full application			2	4	6	8
	Actual		1	0			

Performance Indicator		Baseline	Year 1	Year 2 (to date)	Year 3	Year 4	Year 5
9. Number of new college courses created resulting from projects funded by the IE grant.	Proposed in full application						
	Actual		0	0			

5. Awareness Building and Partnering Activities with Local Businesses and Other Organizations

(a) Please briefly describe (one paragraph maximum) the activities carried out to date to increase the awareness of local businesses and other organizations of the capacity of the college to undertake applied research projects and R&D contracts.

The turfgrass research team have attended and presented at 7 Industry conferences, written 8 trade magazine articles about projects/themes of the IE grant, visited and consulted with 12 regional golf courses, 3 sod farms, visited with 3 municipal maintenance departments, hosted societal meetings such as the sod growers commodities annual meeting, and the Alberta Turfgrass Research Foundation during the first 18 months of the grant. Other writers for trade magazines (Turf Line News, GreenMaster, and Turf and Rec) have written 5 articles concerning the IE grant, its projects, and researchers. An industry-focused field day called "Turfgrass Under Research Field Day" or TURF Day was held at the college with over 50 participants from the golf course, municipal, sales, and sod farm groups. The formation of the Industry Research Advisory Committee (IRAC) has resulted in continued dialogues between companies and the research scientist. The IRAC committee consists of 4 primary members representing members of the ATRF, AGSA, and Olds College. The committee has had two conference call meetings where sales representatives in the turfgrass industry participated to discuss emerging issues they have seen on their site visits. To further outreach, the research manager, research scientist and research associate have had many sites visits visiting golf courses, sod farms and municipal departments to discuss issues they are seeing in their local environments. The AGSA association has invited a representative of the College to speak at each of their meetings resulting in 7 brief oral updates to their membership (~190 members). At the provincial level we are participating in the CARIN (Central Alberta Research Innovation Network) where companies and entrepreneurs are referred to Olds College for services and we collaborate with other post-secondary institutions on applied research. This has resulted in one consultation by the research scientist with the Southern Alberta Institute of Technology (SAIT) research department in Calgary, AB.

(b) Please complete the non-shaded cells (Year 1 and Year 2 [to date]) for each performance indicator. If the targets for a performance indicator for Years 3, 4 or 5 have changed, please insert the new targets for the relevant cell of the "Actual" row.

Performance Indicator		Baseline	Year 1	Year 2 (to date)	Year 3	Year 4	Year 5
10. Number of activities/events to increase the awareness of local businesses and other organizations.	Proposed in full application		2	3	4	4	5
	Actual		2	1			

Performance Indicator		Baseline	Year 1	Year 2 (to date)	Year 3	Year 4	Year 5
11. Number of partnerships between colleges, local businesses and other organizations resulting from applied R&D.	Proposed in full application	10	10	15	15	20	25
	Actual		11	12			

(c) Please complete **Appendix A**. Include all partners listed in the full proposal whether or not they have continued to be involved and any new partners with who projects are underway or planned.

Appendix B, The Partner Organization Progress Report form, is to be completed by all past or current partners involved in projects supported by the IE grant.

6. Knowledge and Technology Transfer Activities

a) Please indicate how knowledge and technology arising from the projects funded by the IE grant has been transferred to the partners. Please check all that apply.

x	Through informal discussion with partner(s)
x	Through research report(s) provided to partner(s)
	Through patents
	Through licensing arrangements
x	As a result of partner(s) participating in the applied R&D
x	College faculty or staff worked on-site at partner organizations
x	College students worked on-site at partner organizations
x	Personnel from partner organizations worked on-site at the college
	Through the partner hiring college student(s) who worked on the project
	The results *have not* been transferred to the partner(s) to date
	Other (Please specify) :

b) If applicable, please briefly describe (one paragraph maximum) the progress on your plan to transfer the knowledge and technology generated as a result of the projects funded by the IE grant. Please explain how partner organizations are involved and how the intellectual property (IP) generated by the projects funded by the IE grant will be managed.

Industry partners are highly engaged in the individual projects they are funding and knowledge transfer occurs through regular communication with research scientist and through the final project reports. To date, progress on the projects outlined in the grant have been written up and reported in Trade Journal articles (GreenMaster, A Touch of Green, and Turf Line News) written by the turfgrass research staff. Presentations have been given at several industry conferences that have outlined the objectives and the year one data results. Thus far, the only results that may be considered IP is with the fungicide performance testing. The College has signed NDAs with the participating companies, which outline that the results of these trials may only be shared with interested parties if the participating companies have given their consent to share the results publicly. Tours of the turfgrass research facilities to highlight current active projects have included: ATRF Executive board, the LANTA- Sod Growers of Alberta Commodity Group, CARIN, 6 visiting golf superintendents and sales representatives; and the TURF day.

c) To what extent is the plan for transferring knowledge and technology to local businesses and other organizations described in your original proposal been implemented? Please rate your answer on a scale from 1 to 7, where 1 means "not at all," 4 means "somewhat" and 7 means "to a great extent."

1 – Not at all	2	3	4 – Somewhat	5	6	7 To a great extent	Don't know / Not applicable
☐	☐	☐	☐	☐	X	☐	☐

d) Please complete the non-shaded cells (Year 1 and Year 2 [to date]) for each performance indicator. If the targets for a performance indicator for Years 3, 4 or 5 have changed, please insert the new targets for the relevant cell of the "Actual" row.

Performance Indicator		Baseline	Year 1	Year 2 (to date)	Year 3	Year 4	Year 5
12. Number of new/existing **products** developed / improved as a result of the IE grant.	Proposed in full application						
	Actual		0	0			

Performance Indicator		Baseline	Year 1	Year 2 (to date)	Year 3	Year 4	Year 5
13. Number of new/existing **processes** developed/improved as a result of the IE grant.	Proposed in full application	7	7	10	13	14	14
	Actual *(some completed and some in development)*		9	8			

Performance Indicator		Baseline	Year 1	Year 2 (to date)	Year 3	Year 4	Year 5
14. Number of new/existing **services** developed/improved as a result of the IE grant.	Proposed in full application						
	Actual		0	0			

7. Additional Performance Measures

Please complete the table below if you have identified additional performance measures for your IE grant. Please add extra performance indicator tables as necessary.

Performance Indicator		Baseline	Year 1	Year 2 (to date)	Year 3	Year 4	Year 5
	Proposed in full application						
	Actual						

8. Financial Information

The purpose of this section is to provide additional specific details; it cannot be substituted with a Statement of Account (Form 301) – that statement is also required annually.

a) Please report the total amount remaining in grant account.
$_____150,483.40_____ Date:____Sept 2, 2015_____

d) Please complete the following table providing the proposed expenditures for Year 1, the actual expenditures for Year 1, the % variation, the proposed expenditures for Year 2, and the actual expenditure for Year 2 to date as well as the planned expenditures for the remainder of the grant. Please indicate if the budget information for Years 3, 4, and 5 is different from that in the original proposal.

Budget Item	Budget for Year 1 (from original proposal)	Actual Expenditures for Year 1	% Variation	Budget for Year 2 (from original proposal)	Actual Expenditures for Year 2 to date	Planned Expenditures for Year 3	Planned Expenditures for Year 4	Planned Expenditures for Year 5
1) Salaries								
a) Students	20,350	7,994	-61%	20,750	17,142	31,750	32,385	33,030
b) Course load reduction for professors	42,000	10,962	-74%	42,000	0	42,000	21,000	14,000
b) Technical /professional	267,935	149,366	-44%	273,300	179,596	278,760	284,335	290,020
c) Other (part time faculty)	52,160	43,580	-16%	46,250	31,881	21,990	0	0
2) Knowledge Dissemination / Networking								
a) Travel	12,000	6,721	-44%	14,000	9,269	14,000	14,000	14,000
b) Networking meeting	5,000	0	-100%	5,000	0	5,000	5,000	5,000
c) Communications activities	5,000	295	-94%	5,000	0	5,000	5,000	5,000
d) Workshops/ seminars	6,000	351	-94%	6,000	1,358	6,000	6,000	6,000
e) Other								
3) Research and Technology Transfer support Services								
	5,000	0	-100%	5,000	1,068	7,000	7,000	7,000
4) Operating and Equipment (no more than 20% of the total NSERC annual award)								
a) Equipment	60,000	27,390	-54%	60,000	35,631	54,000	0	0
b) Material, supplies and other expenditures	38,055	24,804	-35%	36,200	60,258	42,000	20,780	21,450
5) Overhead and Administration (no more than 20% of the total NSERC annual award)								
	100,000	56,566	-43%	100,000	64,847	100,000	60,000	60,000

c) Please provide **detailed explanations** for any **budget line deviation** in the expenditures from the original budget. (Note that deviations from the budget of greater than 20% require pre-approval from NSERC).

The deviations in year one actuals from the budget are the primary result of the long hiring processes for finding the right people for the positions of research scientist and research associate. Both positions required several month long searches due to the small pool of formally trained scientists that focus on turfgrass maintenance and science. Most of the research initiated in year one did not commence until after the scientist was in place to review and develop appropriate methodologies to reach each research objective outlined in the proposal's timeline. As the projects are ramping up currently we foresee minimizing deviations in the future and catching up on the unused funds as required. New projects with new industry partners are being initiated, and this is increasing the materials and supplies budget but the excess will be covered by industry funds to ensure that we do not exceed the 20% rule for the NSERC funding.

Appendix A: Partner Organization Progress Report Form

Please complete the following table for <u>all partners</u> (past, current, planned) that have become involved in the five-year IE Grant funded projects. Please complete one row for each partner adding extra rows if necessary.

1. Business Partners			
Name of Partner Organization	**Status of the Partnership**	**Nature of Collaboration**	**Partner Contributions** (Total contribution up to 36 months)
Business Partners listed in the original proposal			
AGSA	O collaboration not started. O partner left the collaboration. X collaboration underway. O collaboration finished.	X Applied R&D collaboration. O Provision of technical services to organization. O Provision of training to partner personnel. O Student co-op project. O Other, please specify: _____	X Cash:$10000 OIn-Kind:$____
ATRF	O collaboration not started. O partner left the collaboration. x collaboration underway. O collaboration finished.	x Applied R&D collaboration. O Provision of technical services to organization. O Provision of training to partner personnel. O Student co-op project. O Other, please specify: _____	x Cash:$30000 O In-Kind:$_____
CTRF	O collaboration not started. O partner left the collaboration. x collaboration underway. O collaboration finished.	x Applied R&D collaboration. O Provision of technical services to organization. O Provision of training to partner personnel. O Student co-op project. O Other, please specify: _____	x Cash:$82750 O In-Kind:$_____
Eagle Lake Turf Farm	O collaboration not started. O partner left the collaboration. x collaboration underway. O collaboration finished.	x Applied R&D collaboration. x Provision of technical services to organization. O Provision of training to partner personnel. O Student co-op project. x Other, please specify: Land space for research plots for sod production	x Cash:$2500 x In-Kind:$6000
LANTA-Sod	O collaboration not started.	x Applied R&D collaboration.	x Cash:$5000

growers commodity group	O partner left the collaboration. x collaboration underway. O collaboration finished.	O Provision of technical services to organization. O Provision of training to partner personnel. O Student co-op project. O Other, please specify: _____	O In-Kind:$_____
Manderley	O collaboration not started. O partner left the collaboration. x collaboration underway. O collaboration finished.	x Applied R&D collaboration. O Provision of technical services to organization. O Provision of training to partner personnel. O Student co-op project. O Other, please specify: _____	x Cash:$10000 O In-Kind:$_____
Glendale Golf and Country Club	O collaboration not started. O partner left the collaboration. x collaboration underway. O collaboration finished.	x Applied R&D collaboration. x Provision of technical services to organization. O Provision of training to partner personnel. O Student co-op project. x Other, please specify: Land space to do research on in-use putting greens	O Cash:$_____ x In-Kind:$6000
Business Partners, not listed in the original proposal			
ADAMA	O collaboration not started. O partner left the collaboration. x collaboration underway. O collaboration finished.	X Applied R&D collaboration. O Provision of technical services to organization. O Provision of training to partner personnel. O Student co-op project. O Other, please specify: _____	O Cash:$4500 O In-Kind:$_____
Syngenta	O collaboration not started. O partner left the collaboration. x collaboration underway. O collaboration finished.	X Applied R&D collaboration. O Provision of technical services to organization. O Provision of training to partner personnel. O Student co-op project. O Other, please specify: _____	O Cash:$ 3750 O In-Kind:$_____
Business Partners Planned			
Telfer Seed	O collaboration not started. O partner left the collaboration. X collaboration underway. O collaboration finished.	X Applied R&D collaboration. O Provision of technical services to organization. O Provision of training to partner	O Cash:$_____ X In-Kind:$1000

		personnel. O Student co-op project. O Other, please specify: _____	
Living Soils Solutions	O collaboration not started. O partner left the collaboration. X collaboration underway. O collaboration finished.	X Applied R&D collaboration. O Provision of technical services to organization. O Provision of training to partner personnel. O Student co-op project. O Other, please specify: _____	O Cash:$_____ X In-Kind:$1500
Nufarm	x collaboration not started. O partner left the collaboration. O collaboration underway. O collaboration finished.	x Applied R&D collaboration. O Provision of technical services to organization. O Provision of training to partner personnel. O Student co-op project. O Other, please specify: _____	O Cash:$ 6075 O In-Kind:$_____
Residex	x collaboration not started. O partner left the collaboration. O collaboration underway. O collaboration finished.	O Applied R&D collaboration. O Provision of technical services to organization. O Provision of training to partner personnel. O Student co-op project. O Other, please specify: _____	O Cash:$ 6075 O In-Kind:$_____
Earthly Matters	X collaboration not started. O partner left the collaboration. O collaboration underway. O collaboration finished.	X Applied R&D collaboration. X Provision of technical services to organization. O Provision of training to partner personnel. O Student co-op project. O Other, please specify: _____	O Cash:$_____ X In-Kind:$1500

2. Other Partners (e.g. Regional Economic Development Organizations, Government Departments, etc...)

Name of Partner Organization	Status of the Partnership	Nature of Collaboration	Partner Contributions
Other Partners, listed in the original proposal			
City of Lethbridge	O collaboration not started. O partner left the collaboration.	X Applied R&D collaboration. X Provision of technical services to	O Cash:$ 4000 O In-Kind:$ 2500

	X collaboration underway. O collaboration finished.	organization. X Provision of training to partner personnel. O Student co-op project. O Other, please specify: Land use in municipal parks	
	O collaboration not started. O partner left the collaboration. O collaboration underway. O collaboration finished.	O Applied R&D collaboration. O Provision of technical services to organization. O Provision of training to partner personnel. O Student co-op project. O Other, please specify: _____	O Cash:$_____ O In-Kind:$_____
Other Partners, not listed in the original proposal			
	O collaboration not started. O partner left the collaboration. O collaboration underway. O collaboration finished.	O Applied R&D collaboration. O Provision of technical services to organization. O Provision of training to partner personnel. O Student co-op project. O Other, please specify: _____	O Cash:$_____ O In-Kind:$_____
Other Partners, Planned			
City of Calgary Parks and Rec	O collaboration not started. O partner left the collaboration. X collaboration underway. O collaboration finished.	O Applied R&D collaboration. X Provision of technical services to organization. O Provision of training to partner personnel. O Student co-op project. O Other, please specify: _____	O Cash:$_____ O In-Kind:$500
	O collaboration not started. O partner left the collaboration. O collaboration underway. O collaboration finished.	O Applied R&D collaboration. O Provision of technical services to organization. O Provision of training to partner personnel. O Student co-op project. O Other, please specify: _____	O Cash:$_____ O In-Kind:$_____

Note: Appendix B is in separate documents.