

Glenlea Farm Safety Project

Research and Workplace Innovation Program Project Final Report

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Submitted to:

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INTRODUCTION

The School of Agriculture would like to thank and acknowledge Manitoba's Workers Compensation Board for their commitment to improving agricultural safety. The financial support provided through the Glenlea Farm Safety Project RWIP funding has allowed the School of Agriculture to strengthen and apply their knowledge of Workplace Safety and Health to the Glenlea Research Station, working alongside Glenlea staff to improve and document the way they complete farm and research tasks.

The School of Agriculture would also like to sincerely thank the WCB for their connections to the following experts who provided support and guidance throughout the project: thank you to Jeff Shaw (SAFE Work Manitoba), Morag Marjerison (Manitoba's Farm Safety Program) and Deb Draper (Manitoba Workplace Safety and Health) for their contributions to the success of this project. Through their generous sharing of both time and individual expertise, they helped project workers develop a robust understanding of how the Workplace Safety and Health Act and Regulations applies to agricultural work. Their expert influence is evident in the clear and concise Safe Work Procedures created for this project and submitted as part of this final report.

PROJECT DESCRIPTION

The original project deliverables included the creation of a complete 11-step workplace safety system for the Glenlea Research Station, a working livestock farm managed by the University of Manitoba's Faculty of Agriculture and Food Sciences (FAFS). During the early stages of the project, it became apparent that the initial project goals were too large to complete within the project timelines, and the project deliverable were altered to focus on the creation of (a minimum of) five Safe Work Procedures (SWPs) for each of the eight Glenlea units, including Agri-Research, Beef, Cropping, Dairy, the Bruce D. Campbell Farm and Food Discovery Centre, Feed Mill, Poultry and Swine.

The main focus at the project outset was on building positive relationships between the project workers and Glenlea staff, and creating buy-in with the Glenlea staff who would maintain and grow safety on-site long after the project end date. Discussions about the importance that every worker goes home safely to their families each day after work resonated with the Glenlea staff, and they appreciated the willingness of project workers to help them with this goal.

As the project progressed, project workers met with, interviewed and shadowed various members of the Glenlea staff. To create SWPs, project workers and Glenlea supervisory staff identified tasks involving hazards and worked together to document how the tasks were currently being completed, and how worker safety could be improved through procedural changes and improved control measures.

This information was recorded on SWP templates, and reviewed by Jeff Shaw and Deb Draper. The feedback Jeff and Deb provided in the form of clarification questions was invaluable for the refinement of subsequent SWP versions and subsequent SWP creations. Through the SWP creation->review->revision process, project workers and Glenlea staff developed a better understanding of how to reduce the risk involved with these tasks by identifying hazards and applying effective control measures. Each new batch of SWPs submitted for review were improved in quality over the previous ones as a result of the learning transmitted through the expert review process.

At the project's end over 40 Glenlea SWPs have been finalized, implemented on site, and are ready to be shared as exemplars with the Manitoba agriculture community. In addition to the Safe Work Procedures created, this project was involved with several other workplace safety initiatives at Glenlea Research Station as outlined in the Project Outcomes below.

PROJECT OBJECTIVES

1. To improve workplace safety at Glenlea Research Station by working with the supervisory staff to find the safest ways to complete work on-site, and document this information for others to access
2. To increase Glenlea staff awareness of their rights and responsibilities towards the Workplace Health and Safety
3. To empower Glenlea supervisors and workers to take responsibility for their own and others' safety on site through training, communication, enforcement and modeling
4. To share the knowledge gained through the project with Manitoba producers in an effort to contribute positively towards improvements in worker safety in the agriculture sector

PROJECT DELIVERABLES

In total, 42 Safe Work Procedures were developed and finalized for this project. The SWP creation process involved project workers shadowing and interviewing Glenlea staff to document how tasks were currently being completed on site. From there the hazards were identified at each step of the task and the level of risk was assessed. When risk levels were assessed to be medium to high, new control measures (or corrective actions) were brainstormed and implemented to improve worker safety while completing the task.

Jeff Shaw and Deb Draper reviewed the first drafts of the SWPs, creating a feedback loop to improve the quality of the SWPs and ensure they met provincial legislation. The feedback they provided in the form of clarification questions helped to identify additional hazards that had not been identified or adequately addressed in the rough drafts. Project workers and Glenlea staff collaboratively addressed the

reviewers' concerns by assessing the task, space, processes and equipment involved, and then determining the best strategy to lower the risk. The review feedback cycle created positive changes in the way tasks are completed at Glenlea, and the SWPs were updated several times to reflect the improvements made after each review.

The SWP creation and review process triggered other improvements in Glenlea's workplace safety; it helped to identify physical site improvements required for worker safety, including new ventilation, fencing, guarding, and use of PPE. Areas where baseline information was required for accurate hazard identification and risk assessment were identified. In some cases, improvements in training and documentation were required, so new training was developed and documentation sheets created for use on site.

Below is a list of all the Safe Work Procedures developed for this project.

Please note- The School of Agriculture will provide you with a memory stick including the electronic copies of all SWP documents

Agri-Research (By-products processing)

1. Collecting liquid swine manure from wells
2. Hooking up the Mixer
3. Liquid manure application
4. Solid Manure application
5. Filling the Influent tank (of the manure Centrifuge)

Beef

1. How to attach and remove the Methane Halter (research)
2. Preparing and using the squeeze
3. Ruminant fluid collection (oral)
4. Sorting individual animals from the herd
5. Vaccination

Cropping

1. Using the Honda 5000SX generator
2. Mowing the lawn with the John Deere 403
3. Operating the Polaris ATP 500
4. Refueling of Farm Equipment
5. Rototilling using the small tractor with 3-pt hitch rototiller

Dairy

1. Feed Preparation
2. Feed Delivery
3. Milking cows
4. Moving cows
5. Vaccinations

FFDC

1. Dairy Barn Tours
2. Operating the Tractor and Trolley
3. Parking access and control at High Volume events
4. Snow removal using the snow blower and shovel
5. Using the wood fired oven

Feed Mill

1. General Diet Mixing
2. Floor mixer
3. Loading totes
4. Paddle mixer
5. Pin Mill

Poultry

1. Breeding flock feeding and care
2. Egg collection
3. Emptying the Progressive Waste Bin (manure)
4. Layer barn feeding
5. Manure removal from egg laying barn

Swine

1. Moving sows or boars
2. Piglet processing (day 0)
3. Piglet processing (day 3)
4. Vaccination- nursery
5. Vaccination- sows and boars
6. Washing swine housing
7. Pit Pulling

PROJECT OUTCOMES

In addition to the Safe Work Procedures created for this project and implemented at Glenlea, the following improvements in workplace safety have occurred:

- Physical changes were made on site to improve worker and visitor safety. These include the installation of an AED on site, new eye wash stations for each unit, new gates installed to slow and control the flow of traffic on site, new fencing/gates installed to restrict access to hazards, new guards fabricated for older equipment that lacked manufacturer guarding, spill kit creation, etc.
- Increased safety labeling and signage on site including confined spaces and restricted areas
- Implementation of new site rules for improved safety. These include the requirement for CSA approved footwear, seatbelts worn at all times, working

- in partners when completing high risk tasks, wearing hi visibility clothing around machinery, increased monitoring, etc.
- New worker orientations were created and delivered for the Glenlea site and for some of the individual units; an orientation template has been created for other units to customize
 - Glenlea staff members have attended a variety of workplace safety training events, including fire extinguisher training, first aid training, supervisor awareness training, hazard identification and controls, tractor safety training, etc.
 - The creation of a self-inspection checklist in is progress that will allow the dairy unit to begin conducting monthly self inspections of their facility to identify and follow up with any safety concerns; this will then be shared as a template for other units to follow
 - An increased awareness of the need for documentation of safety initiatives
 - Mock inspections of the site provided excellent feedback on the hazards present and provided reasonable solutions that are being followed up
 - A binder was created and provided for each unit at the Glenlea Research Station that documents the work completed to date (Orientations and SWPs), provides a roadmap for additional safety information that should be created and included, and features reference material to provide support to Glenlea staff in their future work in agricultural workplace safety.
 - Hosted a working group session to address the hazard of H2S gas at Glenlea Research Station, and developed SWPs for the units and tasks where H2S was identified as a possible hazard
 - Helped to identify best practice through discussion to determine the safest way to complete tasks in question (some variation had existed among workers in past)
 - Development of an on-site forklift training and certification program (training specific to Glenlea)

The positive changes in workplace safety awareness, attitude and on-farm behavior demonstrated by Glenlea Research Station staff signify the best success story of this project. Empowered with new knowledge about farm safety, staff now feels more confident to bring forth safety concerns to supervisors and enforce safety rules on site. Glenlea staff had the opportunity to work with Morag Marjerison on several occasions throughout the project and have developed positive relationships with her, trusting her practical feedback and advice. Morag's current position will allow her to continue to provide support to Glenlea Research Station's follow up actions.

Outcomes that go beyond the Glenlea Research Station

Because the cropland owned by the Glenlea Research Station is currently being privately rented, the decision was made to work with Carman Research Station (also managed by the University of Manitoba Faculty of Agriculture and Food Sciences) to complete the Cropping unit Safe Work Procedures. By involving both FAFS research

stations in the project, consistent safety information was shared throughout the faculty, and more University of Manitoba staff became involved with, and benefitted from, the project.

This is important for two main reasons. The first is that in addition to the station's staff, the 2 research stations play host to researchers, students, and a wide variety of visitors (on field trips, tours, conferences, etc.). The research stations model and teach safety in a variety of ways to the people that visit them. Through the project, changes in physical and procedural safety were made and implemented on site. Visitors to the site have commented on how they see safety in action when research station staff consistently put on their seatbelts and wear hi visibility gear around moving equipment.

The second is that the project helped to identify leaders in safety working at each research station. These leaders worked closely with project workers to create Safe Work Procedures that clearly depict the work they complete regularly. The research station staff members involved in the project hold supervisory positions, and will train the workers under them with what they have learned. These leaders will also continue to lead safety initiatives in their unit using the road map provided in the Workplace Safety Binder each unit received.

KNOWLEDGE TRANSFER AND EXCHANGE

Sharing what was learned and created through this project does not end with the project's completion; in addition to the KTE that took place within the project's duration, the School of Agriculture will continue to share, collaborate and disseminate project information with the following groups:

Glenlea staff- The project involved 15 FAFS staff members including operation managers, livestock unit supervisors, Glenlea farm staff members, and research technicians (from several departments). The project allowed for the on-going collaboration between the project workers (who brought knowledge in the area of safety) and the FAFS staff (who brought expert knowledge about the unit and tasks). This collaborative time spent creating SWPs together also involved actively teaching the FAFS supervisory staff about the rationale and decision making involved with lowering the risk and creating safer workplaces. These FAFS staff members are the leaders that will continue to promote workplace safety and develop future safety materials for the site.

Upon project completion, each of the eight Glenlea units received a Workplace Safety binder that documents the work done to date, and provides a roadmap for future safety initiatives on site. The binder contents are specifically designed to provide support and guidance to Glenlea staff as they continue to develop a full farm safety system on site. Please see below for more information on the content of the

binder (*In Lessons Learned- Future Plans*).

Glenlea Visitors- Visitors to the Glenlea Research Station will have the opportunity see and experience farm safety in action. The staff and site model safety in a variety of ways, including using properly guarded machinery, posting clear signage and labels, proper use of PPE on site, and implementing safe work procedures. Glenlea visitors will be exposed to practical methods to improve farm worker safety.

Glenlea has hosted a full day workshop for 80 students focused on tractor safety, and will continue to host safety-oriented events on site.

University of Manitoba Agriculture students- Students have several opportunities to visit, learn, volunteer and work at the Glenlea Research Station during their agricultural program of study. Watching or working alongside Glenlea staff and researchers who are mindful and informed about workplace safety helps students gain the needed skills and awareness levels for a long and safe career in the agriculture industry. Whether students return home to a family farm, or gain employment in the agriculture industry after graduation, they take with them the safety lessons from these hands-on learning experiences.

University of Manitoba Faculty of Agriculture and Food Sciences staff- The work completed in the project has been shared with the University of Manitoba FAFS LASH committee members. Project workers have created a web-based object repository for sharing templates, information and resources about Farm Safety. These project resources are accessible on-line by all LASH committee members to add to, modify, and share with others.

The completed SWPs from this project will also be shared with the University of Manitoba academic staff teaching related courses (including Farm Safety, Beef, Dairy, Swine, Poultry, and Farm Machinery) to use as teaching tools and disseminate to students as they incorporate safety information into their existing courses.

Manitoba's Farm Safety Program- The School of Agriculture has had several meetings with the new provincial Farm Safety Program, and has informed the program director of the School's work and resources created to date in the area of Farm Safety that could support the Program's goals. The School of Agriculture looks forward to continuing their partnership with Manitoba's Farm Safety Program and envisions disseminating project materials to Manitoba producers under the Farm Safety Program's leadership.

Agricultural Commodity Groups- Through this project, the Glenlea Research Station and the School of Agriculture were identified as leaders in the area of farm safety in the swine industry and were asked to present at the Manitoba Pork Conference (February 2017). The presentation focused on how improvements were made in workplace safety within the swine unit, and what was learned through the project. The School welcomes and will seek out future invitations from other

Manitoba commodity groups where we can share what we learned and achieved through this project.

The above-mentioned Manitoba Pork presentation prompted an e-mail inquiry from an Alberta Pork attendee about the School's ability to provide training in the area of farm safety to their staff. Project workers have responded to this request by creating an on-line pilot course that blends the materials from the School's two RWIP projects (Curriculum and Glenlea), to create a self-directed on-line course focused on gaining the basics of how WSH applies to agricultural businesses. This course was offered in conjunction with a tour of the safety in place at Glenlea Swine unit provided by the unit supervisor.

Workplace Safety and Health- This project was successful because of the clear and helpful feedback from Deb Draper throughout the SWP review and revision process. In conversation with Deb Draper about the project she commented on how her involvement in the project was also helpful for her own learning in the area of farm procedures, which will benefit Manitoba farmers as they interact with WSH.

LESSONS LEARNED – FUTURE PLANS

At Glenlea Research Station- Creating high quality SWPs requires the investment of both time and expert knowledge. It is not just the process of writing down how a farm task is completed, but instead involves analyzing every step of the task for possible hazards to worker safety and identifying practical strategies that can be adopted to reduce the risk involved. This results in making actual changes to how a task is completed by developing and implementing new control measures at the farm level. The language and terminology employed in the SWPs must be easily understood, and images are often incorporated to improve clarity. Although the SWP creation process was complex, the result has been the creation of exemplary documents that can be used as models, teaching tools and templates to assist Manitoba farms in achieving their farm safety goals.

Through the process of creating SWPs at Glenlea, many action items were identified that require improvements. Changes in physical space were made, including installing new guarding, ventilation and signage. Procedural changes included additional PPE requirements, greater use of partners, and improvements in livestock restraint methods for worker safety. Although the focus was on creating and implementing SWPs at Glenlea, the process generated a list of follow up tasks to guide each unit's future work in farm safety. Each unit has taken action on the follow up list and will continue to do so even after the project ends.

The project workers created nine Glenlea Workplace Safety binders, one for each unit and a comprehensive one for the Operations Manager. The binder is designed to be a receptacle for workplace safety information relevant to each unit, including the work done to date (the SWPs and orientations), while also providing a road map

for future action and select resources to support these safety initiatives. The project workers envision that Glenlea staff will complete the suggested items over time and include them in the binder, which is already filled with helpful materials for emergencies, training, and documentation. In this way Glenlea will continue to develop a comprehensive workplace safety plan over time, which was the original goal of this project.

Many documents were specifically created for this project to provide clear and straightforward instructions to Glenlea staff as they continue to develop workplace safety resources for the site and their respective units. These include:

- How to create a self-inspection checklist
- How to create a Safe Work Procedure
- How to reduce the risk
- Risk assessment grid for farming (adapted from SAFE Work MB)

The binder also includes several resources developed by SAFE Work and SAFE Farms Manitoba, printed off and included as reference materials to guide the development of future farm safety initiatives. SAFE's wide variety of farm-specific on-line resources have been used extensively in this project as they provide succinct and accurate information that interprets the WSH Act and Regulation for farm workplaces.

Below is the list of documents included in the Glenlea Workplace Safety binder. Those developed by SAFE Work and SAFE Farms Manitoba have been indicated by the text "(SAFE)". Documents that were printed off and included in the binder by project workers are in [blue text](#), while the items that Glenlea unit supervisors will need to complete and include in the future are written in black text (road map for future development).

Workplace Safety Binder for Glenlea Research Station

Each section in the binder has existing information included and can be added to with the following items shown in (as they are developed)-

- 1) General safety information
 - Glenlea's site policy on the commitment to worker safety
 - Any site-wide safety rules
 - Any specific unit safety rules
 - [SAFE Work MB Farm Responsibility grid FYI \(SAFE\)](#)
 - [Worker rights/responsibilities \(SAFE\)](#)
 - [Employer/manager/supervisor responsibility information \(SAFE\)](#)
 - [Safe and Health Guide for Manitoba Farms booklet \(SAFE\)](#)
 - [Worker and employer responsibility tip card \(SAFE\)](#)
- 2) Contact information
 - [Name and contact information for unit supervisor, Glenlea safety rep, and Glenlea manager](#)

- [Name and contact information for First Aid trained workers on site](#)
 - Name and contact information for all unit workers (in case of emergency)
- 3) Maps and location
- [Location of Glenlea Research Station \(legal land description, GPS coordinates and routing information\) and specific unit description on site for summoning first responders quickly](#)
 - Map or diagram showing the layout of the Glenlea site with safety features, hazards and restricted areas labeled
 - Map or diagram showing the layout of the specific unit with safety features, hazards and restricted areas labeled
- 4) Orientation
- Glenlea general site Orientation
 - [Unit-specific Orientation](#)
 - [Orientation documentation template \(who received orientations\) \(SAFE\)](#)
 - [Orientation checklist- what to include \(to guide orientation development\) \(SAFE\)](#)
 - [Tips on developing and delivering orientations](#)
- 5) Training and Safe Work Procedures
- [The SWPs created for each specific unit](#)
 - [Documentation sheets to record workers trained on the task using the SWP](#)
 - Additional training documentation (Examples- who attended fire extinguisher training, forklift training, H2S safety training from ACC, Supervisor training from EHSO, Bovine Wet lab training, etc.)
 - Any SOPs that your unit uses or refers to
 - [How to Create Safe Work Procedures \(and top 10 tips\)](#)
- 6) Risk
- [Risk Assessment Grid](#)
 - [Guide to Reducing Risk of farm tasks by controlling hazards](#)
 - [SAFE Farms Identifying Hazards brochure \(SAFE\)](#)
- 7) Safety Records
- Print off any safety information shared with workers including agendas or notes from your toolbox talks, e-mails about safety, etc.
 - A list of who is responsible for any specific safety issue on site or in your unit (Examples- who completes the monthly self-inspections, who checks to ensure fire extinguishers are charged and recently inspected, who will perform an incident investigation, etc.)
- 8) Inspections
- [Guide on how to create a self-inspection checklist](#)
 - Create and print off a self- inspection checklist for the unit
 - Place all completed unit inspection checklists here as a record that monthly self-inspections have taken place
 - Also include any other inspection records here like those conducted by EHSO, the Fire Department, Workplace Safety and Health, etc.
- 9) Investigating Incidences
- [How and when to report Serious Incidents \(SAFE\)](#)

- [How to investigate an incident at work and sample template documentation \(SAFE\)](#)

10) Emergency information

- [Location of Glenlea Research Station for summoning first responders](#) (Note- located on the cover page of binder)
- List of emergency supplies in your unit including PPE, telephones, fire extinguishers, eye wash stations, AED (on site), etc.
- Muster point for the unit and how they know to meet there
- Statement about emergencies- “Stay on site and connect with your unit supervisor” to avoid people leaving and their whereabouts become unknown
- Any unit or site-wide plan for emergencies including plan for fire, plan for flooding, plan for chemical spills, etc.

11) Injured at work?

- The procedure for reporting at-work injuries
- Copies of forms to be filled out in case of injury at work

12) Resource Information- templates and tips (Examples- [SWP template \(SAFE\)](#), [JHA template \(SAFE\)](#), [hearing protection information chart](#), etc.)

At the School of Agriculture- The resources created for this project will be integrated into the School of Agriculture’s existing Farm Safety course, offered annually as an elective for agriculture diploma students. This course will be converted to on-line delivery for January 2019 to extend the reach and availability of this vital information to students and farmers across Manitoba. The Glenlea project has provided excellent practical experience in farm safety and the project learning will be incorporated into the course. Over 200 students have completed this course to date and many have taken their safety training home to their family farms and agricultural workplaces.

The School of Agriculture has recently hired Pam Bailey to work and teach in the area of Farm Safety. Pam has observed the completion of this project and will be team-teaching the Farm Safety course in January 2018 with Thea Green. The School of Agriculture anticipates future opportunities to share the knowledge and resources developed to date with a variety of partners through farm safety training and education. Adding Pam to the School’s farm safety team has strengthened our ability to communicate with Manitoba farmers about farm safety and offer programming specifically designed to meet their needs.

The School of Agriculture will continue to seek out opportunities to partner and collaborate with interested parties in an effort to share what we have learned and created through this project. In closing the School would like to thank the WCB for the gains made in workplace safety at Glenlea Research Station through RWIP project funding, and acknowledge their strong support of collaboration between various groups that together promote improvements in agricultural safety.