

Canadian Sheep Federation Executive Director’s Report Spring 2022

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Action Items from spring 2022 Board meetings

- The CSF’s Canada Summer Jobs Program application was approved, and the CSF will hire 19 summer students this year.
- The CSF has incorporated a new subsidiary that will seek to commercialize technology products developed by the CSF.

Program Updates

Canadian Sheep Identification Program (CSIP) and Traceability

The [Canadian Sheep Identification Program \(CSIP\)](#) is Canada’s mandatory, national sheep identification program. First introduced into regulations in 2004, CSIP was the first step in the development of a traceback system that will lead to a full-scale traceability system. A fulsome traceability system will help mitigate the spread of livestock diseases, support rapid disease response, address producer concerns about sheep health, provide valuable management feedback to producers, and meet consumer expectations for quality assurance and food safety. CSIP requirements for identifying sheep and recording and reporting certain animal movement/disposal information have remained largely unchanged since they were first introduced in 2004. New technologies in animal identification have been incorporated into the program over the years as we work to modernize the system. The next round of traceability regulations has been in consultation since 2013. These incoming regulations will include requirements that track sheep,

premises where sheep reside, and vehicles that transport animals as sheep move through the value chain. Not only will these regulations increase the amount of work required by farms to collect and report data, but they will also expand the scope of those involved in traceability reporting. The Canadian Sheep Federation is the national industry lead for traceability. We remain committed to ensuring that CSIP and future traceability regulations are affordable, flexible, and effective. To stay up to date on CSIP requirements and incoming traceability regulations, be sure to visit our website at www.cansheep.ca and follow our Facebook page @cansheep.ca.

Here are your spring CSIP and traceability updates:

- Tag shortages continue to plague all sectors, with the exception of the sheep sector outside of Quebec. Luckily, Shearwell CSIP tag inventories across Canada are well stocked thanks to excellent planning by Canadian Co-operative Wool Growers!
- During the May NIDMAC (National Identification Methodology Advisory Committee) meeting, the group agreed to revise the ID approval framework to allow the incorporation of biometrics as an official form of identification. The CSF will contribute to drafting the revisions.
- The CSF wrapped up its project with the University of Toronto's Multidisciplinary Capstone Design program, successfully developing a tool that uses facial recognition to uniquely identify sheep for the purposes of traceability reporting. The technology is also able to assess a sheep's welfare using the same facial measurements, using a binary assessment of 'pain' and 'no pain'. The welfare assessment tool will benefit from further development, planned for this summer.



FaceTrace – Facial recognition for sheep using AI

APS490 – Multidisciplinary Capstone Design (2021-2022)

Supervisor: Prof. Steve Mann
Client: Corlena Patterson (Canadian Sheep Federation)
Team members: William Gerecke, Priyanshu Arora, Yu Xin Cheng, Shenhong Luo, William Jing, Yu Jing Tey

Problem

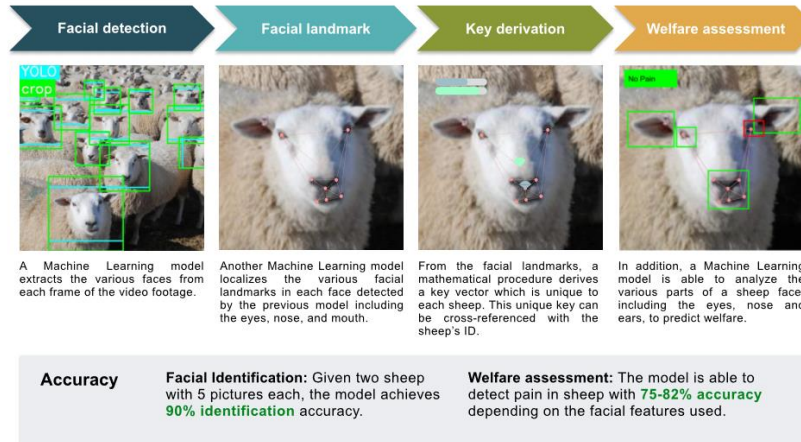
The sheep industry uses ear tags to identify and trace animals. Using ear tags to trace sheep is difficult because it requires close contact with specialized equipment. It also causes sheep ear to tear especially if the sheep is small or the tag is not attached properly. Using facial biometrics to identify sheep saves time, effort and cost, and makes the identification process much easier especially when the sheep are rapidly moving. It also enables further applications in welfare assessment based on changes in facial expressions, which has significant impact on early disease intervention and humane animal transportation.

Objectives

1. To uniquely **identify individual sheep**, and enable automated traceability reporting
2. To leverage the same system to **assess sheep welfare** in real-time



The mobile interface allows the users to easily conduct the scanning of sheep during movement events using their mobile devices, while the desktop interface allows for more detailed data input and reporting.



Solution

We are able to use the pipeline we have designed and implemented to identify and detect pain in sheep. The pipeline detects faces in a video and locates landmarks on the face of the sheep. For **identification**, a unique key is calculated using the landmarks. For **welfare assessment**, the landmarks are used to isolate facial features and use a neural network to determine the sheep's wellbeing.

Impact

By replacing the existing tagging system with facial biometrics, the technology can make significant impact on improving the efficiency and accuracy of animal traceability while reducing time, effort, and cost. The technology also opens up great opportunities for further applications in real-time welfare assessment and farm management. This would further facilitate early disease prevention and thereby increase cost savings.

- The goal of this work is to make traceability reporting fast, easy and accurate. The vision is for users to be able to simply open their device camera and capture each animal's ID with a video scan.



AgroLedger

The Canadian Sheep Federation developed AgroLedger to serve as the information management system for the sheep industry traceability program. The message from Canadian sheep farmers and ranchers was clear; if traceability is to become a reality in the sheep industry, it must give value back to its users. If we think of traceability solely in terms meeting regulations, the systems that manage them are nothing more than black holes into which farmers throw data and dollars. Canada's sheep farmers deserve better. The CSF set out to find a traceability solution that fits both future trace regulations and user needs without breaking the bank. We didn't have a lot of luck finding the kind of technology we needed so we built a custom system...we built AgroLedger. With the second phase of AgroLedger development complete, we have a program that can support traceability reporting for incoming regulations AND that provides some added value to users. Right now, AgroLedger lets you share animal records like registrations and performance indexing records, as well as vaccination and treatment records, with future animal owners. Want to scan a new animal's tag and know if it has been vaccinated? There's an app for that! And there is a lot more to come as we move to the next phase of development in 2022 and create even more value for AgroLedger users.

Here's some of the work we did with AgroLedger this spring:

- We met with AAFC's Agricultural Science and Innovation department to discuss their plans to bring 'big data' into agricultural supply chains.
- The CSF is partnering with RMIT University and George Brown College on 2 different projects aimed at adding data analytics and machine learning capabilities to AgroLedger's growing list of valuable functions. End goals include:
 - Capitalizing on data analytics and visualization to improve user experience by generating informative reports for user accounts.
 - Applying machine learning about the understanding of disease investigations (starting with FMD) to AgroLedger datasets to support rapid disease tracing. This will support advanced, real-time response capabilities for managing disease outbreaks.
- The CSF in invited been invited to present information about AgroLedger and our facial recognition technology at the upcoming ICAR 2022 and Inventures Canada conferences.

Scrapie and the Scrapie Flock Certification Program (SFCP)

The SFCP is a national flock/herd scrapie risk management program for the Canadian sheep and goat industries and is available to any sheep or goat producer who agrees to meet the program's requirements. The primary benefit to participating producers is the individual risk protection against scrapie in their flock/herd. Over time, producers will have their flock/herd recognized as being at a much lower risk for scrapie than the rest of the farms in the national flock and herd. This recognition can increase trade opportunities within Canada and considering the recent announcement about the U.S small ruminant rule, allows SFCP Certified Plus farms to export breeding stock to the United States. The long-term goal of the SFCP is to eradicate scrapie from the national flock and herd and to help open market access for export. The SFCP's National Standards (rules) are maintained by the CFIA, and the program is administered through Scrapie Canada, a division of the Canadian Sheep Federation. You can learn more about scrapie and the SFCP on the Scrapie Canada website, www.scrapiecanada.ca.

What's new with scrapie and the SFCP this spring:

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- The U.S export certificate has been finalized! Details of the *Sanitary Requirements for Sheep or Goats for Breeding or Product from Canada to the United States of America HA1944 (Amended 2022-02-24)* certificate are available on the CFIA [website](#).
- Exporters, especially those transporting their own exports, may want to visit the USDA [website](#) for US import requirements.
- We continue to work through finding accredited veterinarians capable of completing export certificates, a necessary final step in physically exporting breeding stock.

Canadian Verified Sheep Program (CVSP)

The Canadian Verified Sheep Program is Canada's quality assurance program for sheep farms. Developed by the Canadian Sheep Federation with support from Canadian farmers and input from veterinarians, industry stakeholders and government, this voluntary program helps farmers and ranchers implement, demonstrate, and validate exemplary food safety, animal welfare and biosecurity management practices. With the help of the CVSP's **FREE** training, you will have the tools to help reduce on-farm food safety, biosecurity, and animal welfare risks.

The steps to implementing the Canadian Verified Sheep Program are straight forward. The Canadian Verified Sheep Program Manual has everything you need to implement the program on your farm. The steps for implementation are:

1. Participate in a producer training session either online or in person. In person sessions are delivered by trained trainers, usually associated with provincial sheep organizations. You can start your **FREE** online training by visiting the CVSP website at fsfp.cansheep.ca
2. Review the CVSP Producer Manual which contains all the practices and record keeping requirements for the program.
3. Adapt the material in the manual to fit your operation. While there are various "must do" good production practices in the program, they may not all be applicable to your farm.
4. Utilize the good production practices and records on your farm, and train workers to follow practices.
5. Record mishaps when they happen and keep notes on how they were corrected.
6. After completing steps 1-5 for one full production cycle, you can apply for an audit to become fully Certified on the program.

Did you know that the CVSP is recognized by the CFIA's Food Safety Recognition Program? The [Food Safety Recognition Program \(FSRP\)](#) is a program led by the Canadian Food Inspection Agency (CFIA), with the participation of provincial and territorial governments, that provides government recognition of on-farm and post-farm food safety systems developed and implemented by national industry organizations. The FSRP is a multi-step process that consists of a review, an assessment, the recognition and ongoing monitoring of the technical soundness and administrative effectiveness of national industry organizations' implemented food safety system.

- If you haven't taken the CVSP training program, you should. The material is helpful for managing on-farm food safety, biosecurity and animal welfare risks. The record keeping documents help you organize critical information, and the training is completely, **100% FREE** courtesy of the Canadian Sheep Federation. Did we mention training is **100% FREE**?

National Maedi Visna Program

- The CSF re-invigorated its National Maedi Visna Working Group, with support from the Canadian Sheep Breeders Association and Canadian National Goat Federation, to pick up with work plans last considered in late 2018. The Working Group met first in early October and again in November. From the last workplan, the WG expects to focus on establishing testing, biosecurity, and status assessment protocols, evaluate testing methodologies and standardize testing costs, and propose a future program administration framework.
- The National Maedi Visna Working Group is accepting new members including members from the veterinary community interested in helping improve maedi visna control measures in Canada.

Canada's Small Ruminant Ultrasound Pregnancy Assessment Training and Certification Program

- Canada's small ruminant industries have finalized their Ultrasound Pregnancy Assessment Certification program, which offers two programs 'pathways': Trained and Certified.
 - The *Trained* pathway requires completion of the theory training unit as outlined in the program documentation with the option of completing the practical training unit. The practical training unit is not required to be deemed Trained. This pathway is intended for those whose goal is to perform their own on-farm pregnancy ultrasound assessments. Trained individuals who wish to upgrade their program status to Certified will need to demonstrate practical training or experience equivalent to that required of Certified individuals and will be required to successfully complete the examination process outlined in the program's documentation.
 - The *Certified* pathway requires completion of the theory and practical training units as outlined in the program documentation, as well as an examination to evaluate skill level. This pathway is intended for those who wish to provide commercial ultrasound pregnancy assessment services. *Certified* technicians endorsed by the SRUOC are deemed to be proficient in conducting pregnancy ultrasound assessments in keeping with the expectations of Canada's small ruminant industries. *Certified* program status does not necessarily confer the right to practice.
- Plans are underway for a series of ultrasound training events to be delivered by Progressive Animal Services Ltd, happening the week of August 22nd at various locations through Ontario. These include:
 - A 2-day pregnancy ultrasound scanning course designed for beginners. Participants will spend half of day one learning ultrasound scanning theory and the remaining time gaining practical scanning experience. This 2-day course is limited to 8 participants who will work in pairs with the support of two trainers.
 - A producer field day where Progressive Animal Services will talk about the benefits of scanning, show producers how to set up for a successful day of scanning, and demonstrate scanning the host flock.
 - A 1-day refresher course for individuals, veterinarians and technicians interested in honing their scanning skills. The focus of this refresher course will be scanning for multiples. Participation is capped at 12 trainees who will work in groups of 3 under the guidance of 2 trainers.

More details including finalized dates, locations and cost will be circulated in June.

Chronic Wasting Disease Herd Certification Program (CWD HCP)

Chronic wasting disease (CWD) is a progressive, fatal nervous system disease that affects cervid species. It is a transmissible spongiform encephalopathy, or prion disease. It is contagious amongst cervids, like scrapie in sheep. Chronic Wasting Disease (CWD) belongs to the family of diseases known as transmissible spongiform encephalopathies (TSEs), or prion disease. Though it shares features with other TSEs, such as bovine spongiform encephalopathy (BSE) in cattle and scrapie in sheep and goats, it is a distinct disease only known at this time to naturally affect members of the deer (cervid) family. In 2002, the CFIA established national standards for a Voluntary Herd Certification Program (VHCP, now the HCP) to provide cervid owners with tools to help mitigate the risk of developing CWD and the opportunity to have their herds identified as minimal risk with respect to CWD.

The Canadian Sheep Federation began administering the CWD HCP in Ontario back in 2009, because both its National Standards and the program's administration closely mirrored the Scrapie Flock Certification Program. Now the CSF serves as CWD HCP Regional Administrator and Status Assessor for cervids farms located in Saskatchewan, Manitoba, Ontario, and Quebec.

What's new with CWD:

- The CFIA met with cervid industry groups to discuss the future of the CWD HCP. A review of CWD positive cases on enrolled farms has identified sources of CWD exposure not mitigated in the current program, namely through close contact with wild cervids (through fencelines) and through infected feed sources, both forages and grains. The CFIA has indicated that they can not continue to endorse the program as it is currently written. They would continue to do so if the program's National Standards are revised to include measures that prevent direct contact with wild cervids (additional fencing requirements) and measures that control risks through feed. It has been left up to the cervid industry to decide if they want to revise the program or abandon it altogether. The CSF continues to administer the program until the cervid industry decides on the CWD HCP's future.

Other Updates and Working with Industry Partners

- The CSF Chair and ED participated in the American Goat Federation's Vaccine Roundtable in March. The goal of the roundtable was to prioritize needs and identify vaccine access issues in AGF's preparation for a meeting with U.S. regulators. Barbervax and Q-Fever remain top of their list, along with sore mouth vaccines.
- Two Global Sheep Producers Forum working groups are undertaking ambitious bodies of work in 2022, with the CSF contributing to both.
 - The Next Generation WG is hosting a series named *Next Generation 2022 – Showcasing Success Stories in the Sheep Industry*. Once a month, two countries will partner, one as host and one as guest, in delivering a webinar on one of a number of suggested topics. Each month will see a different pairing of countries and a new topic, all aimed at encouraging and inspiring you people to get into and stay in the sheep industry. The hope is to spark new ideas, share experiences and network globally. Learn more by visiting the Global Sheep Forum Next Generation [website](#).

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- The Global Sustainability Framework WG has a lot of work ahead of them, developing a sustainability framework for the global sheep industry. The group has pulled together guiding principles (flexible, trustworthy, ambitious, collaborative) and goals (environmental sustainability, animal welfare, responsibility for the health of rural communities) as important first steps. Work is continued to carry on over the next 1-2 years.

Any Canadians interested in contributing to either of these initiatives are welcome to contact the Canadian Sheep Federation or any of its members for information about how to get involved.

This spring's meetings

- Animal Health Canada X 5
- CAFÉ Animal Care Committee X 3
- Canadian Food Inspection Agency X 7
- Canadian Livestock Transport Advisory Committee X 2
- Canadian Food Innovation Network
- Acer Consulting
- Government of British Columbia – AgroLedger
- Veterinary Drug Directorate X 3
- Chronic Wasting Disease Feeds Working Group X 6
- Health Canada
- Agriculture and Agri-Food Canada – Science and Innovation
- National Farm Animal Care Council X 5
- Agriculture and Agri-Food Canada Supply Chain Roundtable
- FMD Working Group X 2
- CAHSS (Canadian Animal Health Surveillance System) AMU (Antimicrobial Use) Surveillance Network
- Animal Health Emergency Management
- PrüfIT Technologies Inc Board of Directors X 3
- University of Toronto Capstone Team X 7
- Agriculture and Agri-Food Canada – NPF consultation
- ICS Training
- American Goat Federation Vaccine Roundtable
- Canadian Livestock Market Information Advisory Committee
- Centre for Emerging Zoonotic Diseases X 2
- University of Calgary
- Global Sheep Producers Forum Sustainability Working Group X 2
- Global Sheep Producers Forum Next Generation Working Group

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- Canadian Cattle Identification Agency – Executive Committee
- Canadian Cattle Identification Agency Special Members and Annual General Meeting
- Canadian Cattle Identification Agency Board of Directors
- Capstone Showcase
- NIDMAC (National Identification Methodology Advisory Committee)
- Ontario Sheep Farmers Inter-Provincial License Fee Challenge Hearing
- Agricultural Trade Negotiation Consultative Group
- Agriculture and Agri-Food Canada post-NPAC debrief
- Farmed Cervid Health Team
- University of Wyoming
- Public Health Agency of Canada
- Canadian Animal Health Institute
- CAHSS Vector-borne disease network
- RMIT University
- Agriculture and Agri-Food Canada – vPUSA consultation X 2
- Animal Health Canada Finance Committee
- CgFARAD Advisory Board
- Agriculture and Agri-Food Canada – sustainability workshop