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Final Report to OPVG for SprayHub 2018

OPVG
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Ontario's Processing Tomato Industry once again relied upon the SprayHub App as a worker safety and food traceability system for a second year, following the initial *Growing Forward 2* project that was conducted in 2017. The content within the SprayHub App was updated for the 2018 season by reviewing all of the registered pesticide products that were available for use on processing tomatoes, and confirming their specific label restrictions (i.e. min/max rates, seasonal application limits, re-entry intervals, pre-harvest intervals, etc.) were up-to-date, and any changes incorporated. Growers rely on this information within the "Spray Planning Tool" of the app, which summarizes all registered pesticides and provides links to each product's label (directly from the manufacturer's website). All of the tomato varieties being used by growers for the 2018 season were updated and incorporated into the app.

Further modifications were made to the app for the 2018 season based upon feedback that was received from growers after the previous year. This included changes that gave *growers* the ability to input field names, varieties and acreages. Once they input this information initially, the App would automatically fill in these details for each corresponding spray record against that particular field, making it even faster for growers to enter their spray records. Another step was eliminated, by doing away with the requirement to hit the "sync" button in order to share the information with others in their hub (i.e. processor, agronomist, workers, etc.) each time. We were also able to change the App so it can now accept spray records from *more than* just one grower per operation. This was a very handy change for operations with multiple people in charge, or those that relied on custom sprayer operators.

Another request that a lot of growers and processors had was for growers to be given the ability to edit the records they made. In 2017, the records that growers made were locked, and thus the only way to make corrections to an individual spray record was to make a new separate entry, referencing the incorrect one that it was replacing in the comments section. Although this provided a very good audit trail, it was more work for growers, and made it more cumbersome for processors to determine which of the entries they were seeing were correct, and which ones were simply errors.

A large grower had approached us in 2017, with the suggestion that the App include the ability to "pre-plan" spray events. He felt that not only would this function as a work-order system for his employees (potentially eliminating errors with respect to the right product, the right rate, the right time, etc. by being able to give staff written instructions in real time), but it would also allow his agronomy team to better plan their visits to his fields. We were able to build this tool into the app, in a manner that allowed those who wanted these additional features to have them, but would not "over-complicate" the app for the other users who relied upon its relative simplicity.

The other feature that was developed for 2018 was the ability for growers to generate a copy of their own spray reports (daily, monthly, annually) more easily and efficiently directly from the app. Although we still use real-time individual Google Sheets so growers have an electronic copy of their data, in a form they can work with (i.e. create their own reports and analyses with), the addition of this new feature helps those who are not as comfortable with Google Drive who need the information out of the App quickly. Now, with a press of a button within the App, a grower can email themselves their complete spray records immediately.

Set-up and re-enrollment for the app was similar to last year. Since we made so many fundamental changes to the App, the new version had to be downloaded by each grower and processor. Each processor provided Tomecek Agronomy (TAG) with a list of their growers (with contact information) at the beginning of the season, so users could be re-enrolled. TAG met with each of the four processors individually to give a presentation to their staff about how SprayHub would assist them in the upcoming season to collect/manage their spray records with respect to food/worker safety. During this time, TAG also assisted them with the installation of the App onto their respective devices (i.e. office desktop computers, cell phones, tablets, etc.).

Individual grower set-up meetings were held in both Chatham and Leamington again, where TAG employees would meet with each grower operation to assist with the installation of the App onto their devices. In many cases, there were at least 2-3 people in attendance from each grower operation (i.e. Grower, Partner, Farm Workers, etc.), so there were multiple devices to be set up and users to brief. Every grower left their training session having had the opportunity to make a few "practice" spray entries into SprayHub. Each grower operation was provided the opportunity to use three additional "worker" versions of the App, to encourage them to take full advantage of the worker-safety element that this tool provides. Growers were provided with an instruction manual and a confidentiality agreement that their data would be kept in strict confidence.

A back-end reporting system was developed, one for each grower (where all of their records would flow out to) and also one for each processor. The processors' system captured every entry that their respective growers input into the SprayHub App, allowing the processors to have up-to-the-minute spray records from all of their growers in one real-time document. A monthly report was also sent to each processor, summarizing the records that were made by their growers (sorted according to grower, field, and in chronological order of each spray time). Timeliness of entries and overall participation rates were also summarized, and those results shared with OPVG/OTRI, as well.

One of the fundamental aspects of this project was that ALL processing tomato growers used the App, which streamlined the record-keeping system for processors, as well as ensured the App functioned as a worker safety system (especially for processors' field staff and third party agronomists who regularly visit many of these fields). This was once again achieved by incorporating the requirement to use the SprayHub App directly

into the 2018 contract between all growers and processors, and could be justified by the on-going support that growers had available to them (provided by TAG) for any assistance they required throughout the season, at no further cost to them. Although the overall participation rate from growers with this project was good, the timeliness of reporting could be improved upon by some growers, if the tool is to serve as a worker-safety system, in addition to a food traceability system.

Overall, the second year of SprayHub was successful. For the second year in a row, we did not experience any major technical issues with the App's functionality. Any issues that arose were specific to an individual's device, or were related to the user forgetting their sign-in credentials, which we were there to help with. It was demonstrated again this year that face-to-face and telephone support is a crucial component of this project. In some situations we even did on-site visits to help mid-season when growers were extremely busy. For the most part, once growers were given assistance with the installation of the App, the majority of them found it to be very easy to use. 73 out of 74 growers were enrolled in SprayHub (and had it downloaded on their devices). 70 out of 74 growers used the app to make their spray records, and 57% of operations had more than 1 person (on, or involved-with their operation) using the app.

We are optimistic about SprayHub's future, in terms of the role that it can continue to play in the processing vegetable industry, especially as the *Safe Food for Canadians Act* comes into force in January 2019. With its major focus being on *Prevention*, and for faster removal of unsafe food from the market place through *traceability* (www.inspection.gc.ca). SprayHub can assist both the grower and processor in meeting their responsibilities to consumers. The *Safe Food for Canadians* Regulations suggest food companies/processors have Preventive Control Measures in place for *incoming ingredients*, and source food ingredients from suppliers that can provide records demonstrating a history of safe ingredients. SprayHub's "Spray Planning Tool" gives growers immediate access to information about all registered spray products, helping them ensure they are using the products properly. The app can also help both parties (growers and processors) ensure the food that they deliver/accept meets the regulatory requirements with respect to maximum residue limits for pesticides by easily identifying which fields have harvest restrictions in place, all in addition to its reputation of being a great record-keeping tool.

NOTE: Please see the attached slides from our presentation at the Nov. 2nd 2018 OPTAC meeting for further statistics on SprayHub's 2018 use.