Vegetable Pest & Pathogen Monitoring Data Lifecycle

store

Platform — Data is stored in Microsoft Excel

Save — Manually add to spreadsheets, copy and paste or import
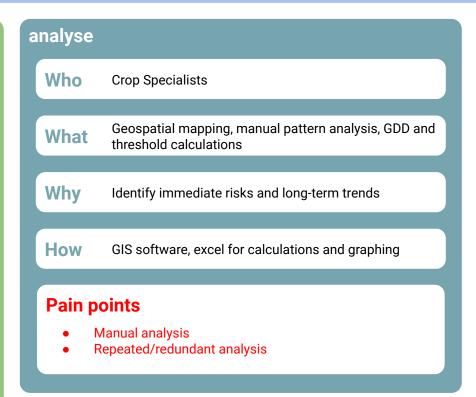
Access — Open sheet in Excel or export .csv

collect

Who — Crop Specialists and summer students

What
- **Pest/pathogen count:** number of pests or plants affected, date/location of collection, ad hoc notes
- **Weather Stations:** OMAFRA owned weather stations' data including leaf wetness
- **External Weather Data:** Environment Canada weather station data

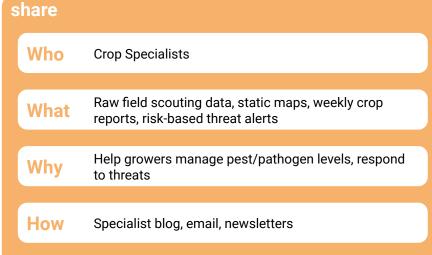**Why** — understand pest/pathogen levels and spread

How
- **Pest/pathogen count:** Field scouting, recording w/ scouting reports (paper or pdf). Digitize report and dictate observations, then email to self
- **Weather Stations:** Download csv from station
- **External Weather Data:** Manually copy paste from web or run script to scrape data

Pain points
- Insufficient staff hours
- Manual scouting
- Analog scouting reports
- Non-standard scouting forms
- Digitizing scouting reports
- Recording ad-hoc notes
- Collecting external weather data
- Saving digitized report (email)
- Manual data entry
- Accessing Historical data
- Manually cleaning weather data

analyse

Who — Crop Specialists

What — Geospatial mapping, manual pattern analysis, GDD and threshold calculations

Why — Identify immediate risks and long-term trends

How — GIS software, excel for calculations and graphing

Pain points
- Manual analysis
- Repeated/redundant analysis

share

Who — Crop Specialists

What — Raw field scouting data, static maps, weekly crop reports, risk-based threat alerts

Why — Help growers manage pest/pathogen levels, respond to threats

How — Specialist blog, email, newsletters

Pain points
- Translation / regulations (time to comply)
- Static publishing
- Lots of one-on-one communications
- Delivering threat alerts in real-time

Herbicide Resistance Data Lifecycle

store

Platform — ARM & Excel spreadsheets

Save — Manually entered, emailed to specialist

Access — Open sheet in excel

collect

Who — Weed Mgmt Specialist & Academic Partners

What — **Efficacy Trials:** Crop, planting date, ground prep, what was sprayed, efficacy of spray, damage to crop

Field Observations: location and observations in field

Why — Assess efficacy and safety (for crop) of herbicides, track occurrence of herbicide resistance

How — **Efficacy Trials:** Controlled trial, pen & paper notes entered into ARM or Excel, photos on mobile phone

Field Observations: grower report or field visit, pen & paper notes, phone photos, etc.

Pain points

- Access to historical data (incl. weather data)
- Analog data collection in field/trial
- Collection of photos
- Recording ad-hoc observations
- Manual data entry into ARM
- Digitize analog notes
- Manual aggregation of different reports

analyse

Who — Weed Mgmt Specialist, GIS specialist

What — Efficacy scores from trial, informal analysis of field reports and observations

Why — Determine safety of treatments and best treatments for weeds and crops, track occurance of resistance

How — ArcGIS, Excel

Pain points

- ARM data is not human readable
- Manual sorting of data / creating pivot table

share

Who — Weed Mgmt Specialist

What — Direct data to stakeholders, herbicide efficacy and recommendations

Why — Minimise risk of weeds to growers, make sure growers know the best options to manage weed levels

How — Pest Manager app

Pain points

- Updating app CMS
- Updating software
- Manually entering data into app

Insect Sighting Data Lifecycle

store

Platform — Excel spreadsheets

Save — Manually entered, emailed to specialist

Access — Open sheet in excel

collect

Who — AICC recording data from the public

What
- **Pest sighting:** location (postal code), photo if possible
- **Trap network:** pest numbers and location

Why — Track occurrences of pest, movement, populations

How
- **Pest sighting:** Reported by phone, recorded manually in spreadsheet
- **Trap network:** collected externally

Pain points
- Access to historical data
- Consistency of collection
- Handling PII (personally identifiable information)
- Collection of photos
- Photo quality
- Lack of traps/cost of trap network
- Difficult to collect data in analysable format
- Must call AICC for access to data

analyse

Who — Entomologist, GIS specialist

What — GIS mapping and manual confirmation of sightings

Why — Track spread and assess threat to high risk areas

How — ArcGIS and manual review of emailed photos

Pain points
- Confirming photos by email
- Time for manual confirmation
- No time for in-depth analysis

share

Who — ?

What — ?

Why — ?

How — ?

Pain points
- ?

Fireblight Prediction Data Lifecycle

store

Platform — Excel spreadsheets, ArcGIS

Save — Python script, manually entered

Access — Open sheet in excel

collect

Who
Farmzone data: Automated, GIS specialist
Historical Data: Summer student

What
Farmzone data: GIS polygon weather data
Historical Data: Historical weather data
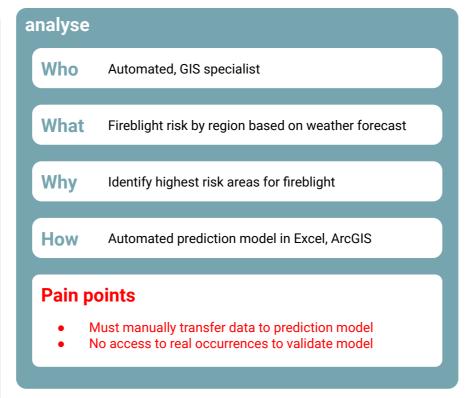
Why — Feed cougar blight prediction model

How
Farmzone data: Python script
Historical Data: Manually copy & paste

Pain points
- Script must be manually triggered
- Must manually copy & paste historical data
- Occasional script proxy errors

analyse

Who — Automated, GIS specialist

What — Fireblight risk by region based on weather forecast

Why — Identify highest risk areas for fireblight

How — Automated prediction model in Excel, ArcGIS

Pain points
- Must manually transfer data to prediction model
- No access to real occurrences to validate model

share

Who — GIS specialist

What — Interactive map of fireblight risk by "farm zone"

Why — Allow growers to respond to risk when spraying

How — ArcGIS online hosted on gov.on.ca

Pain points
- Manually updating tables of data (representing map data) to comply with AODA
- Mobile map display
- Time for translation

Field Crop Trial Data Lifecycle

store

Platform	Email, Excel spreadsheets

Save	Receive email/email to self, enter into spreadsheet

Access	Search email, open sheet in excel

collect

Who	Grower, Crop Specialist
What	Trial results, ad-hoc notes, yield data, satellite imagery
Why	Assess efficacy of different treatments and strategies
How	Pen & paper notes, GIS yield data from precision Ag machines, internet satellite imagery

Pain points

- Saving photos of observations
- Pen & paper notes
- Access to historical data w/ context
- Lack of staff hours for larger projects
- Email as filing system
- Manually enter data to Excel
- Lack of data standards
- Data storage
- Impermanent data storage

analyse

Who	Crop specialist
What	Non-standardized analysis
Why	Identify effect of different treatments and strategies
How	Excel and visual comparison of imagery

Pain points

- Working with shape files
- Lack of GIS resources
- Computer slow, barrier to work
- Data analysis knowledge, no time/resources to learn

share

Who	Crop Specialist
What	Presentations, articles, informal convos
Why	Improve economic outcomes for growers
How	Conferences/meetings, Field Crop News

Pain points

- Public facing publications

AICC Data Lifecycle

store

Platform — Salesforce CRM

Save — Manually enter data

Access — View in salesforce or export csv

collect

Who — AICC call center rep

What — Sighting info, location (1st 3 digits of postal code), photo, data specified by specialist or best guess

Why — Respond to public concern or seek data on new or high risk events (pests, pathogens, etc.)

How — Receive phone call from public seeking more info or responding to a request for info made in the media. Record data and enter into Salesforce CRM

Pain points
- Short staffed
- Inconsistent data standards
- Not always given specialist criteria
- Manual process can be streamlined
- Lack of automated follow-up (based on status)

analyse

Who — -

What — -

Why — -

How — -

Pain points
- Underutilization of salesforce data vis capacity

share

Who — AICC call center rep

What — CSV of sighting data recorded or photos for manual confirmation by specialist

Why — So specialists can identify areas of greatest risk and gain better understanding of event spread/movement

How — Email csv exported from Salesforce

Pain points
- Must manually export data from Salesforce on request
- Data transfer by email
- No ability to share real-time data or automate notification