

Managing Garlic Pests in Haliburton County

The Community Collaborators
&
Citizen Scientists

Understanding the Context

A Challenged County

- **Haliburton county**
 - Low density pop > 4.2 per km
 - Older > 54 med.
 - Poorer
 - On Canadian Shield
 - Very little agriculture
 - Highest point on Can. Shield
 - Primary industry > tourism
 - Seasonal pop > fluctuates highly
 - No public transportation system
 - No urban centre



www.ec.gc.ca

Understanding the Context: Community Involvement

- High degree of volunteerism & community involvement
 - Skilled retirees
 - Close-knit
 - Sense of mutual dependency
- Local culture > activist



Our story starts:

The conversation in the kitchen...

- Met Emma, U-links researcher, who came to buy eggs
 - We told her about the leek moth issue
- Emma came forward with U-links Grant proposal
 - to seek a remedy for leek moth,
 - ... and a year later another to tackle bulb and stem nematodes
- 2 local Associations eager to participate as collaborators: HC Farmers' Market and Garlic Growers



3 Key Players:

U-links > leadership role

- **Centre for community based research**
 - With community partners, faculty & students delivers research services to Haliburton County
- **Emma was researcher and director**
 - Integrated into community: Member of F. Mkt board
 - Found a suitable grant (AAC GR2)



Key Collaborator: Haliburton County Garlic Growers Association

- **Garlic: One of the few successful crops**
 - Very small scale
 - Passionate growers
- **Growers formed an Association: HCGGA**
 - Increase customers
 - Learn from each other
 - Help new growers
 - i.e., Poised to participate



Key Collaborator: Haliburton County Farmers' Market Association

- **Passionate local food movement in area**
 - Kick-started a mkt in 2009
 - Strong advocates for increasing production
- **Farmers' Mkt Board**
 - Redefined their role
 - Instrumental in directly assisting local agriculture

Joined research project as collaborator to help growers



So, back to our story...

Initially garlic growers experienced very good times!

- Grew beautiful hard neck garlic
- **Commanded a very good price!**
- **Superior to imported**
- **Grows well in Haliburton County**
- **Held Fests and workshops**
- **Seemed too good to be true!**



Troubled times in the garlic patch...

- **2009/10 growers observed damaged garlic plants**
 - Some growers reported entire patch destroyed
 - Also bulb damage observed
- **Production & yields shrunk**
- **Sense of urgency to find remedies...but we learned it was a very widespread problem**



OMAFRA Sept.2014

We
searched
for
answers



Agriculture and Agri-food Canada, June 2014

Timely Opportunity

Knew we had leek moth but had no solution

Plus, our bulbs tested by OMAFRA confirmed very high nematode presence...

We were committed to safe non-toxic remedies so we tried:

- *Neem oil*
- *Hot water bath*
- *Soaking in H₂O & baking soda before planting*
- *And more*

To no avail...

Welcomed research!



OMAFRA Sept.10, 2014

Process Managed by Steering Committee

- Set up a steering committee with reps from each group
- Reps reported progress to their associations
- Growers invited to participate as citizen scientists
- Citizen scientists' role valued by small stipend



GROWERS AS CITIZEN SCIENTISTS!

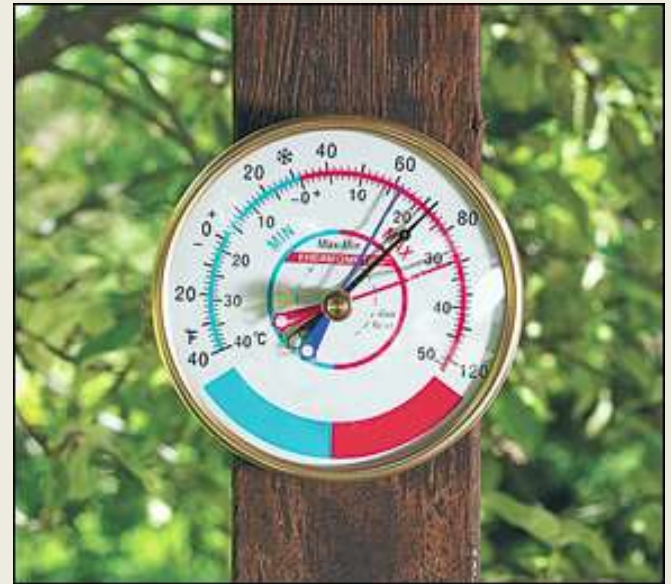
Wonderful opportunity for partnership as a team

- **Mutually beneficial**
 - Values growers' experience
 - & scientists' expertise
- **Dual level Participation:**
 - On Steering committee
 - U-Links
 - Reps from HCGGA & HCFMA
 - In the Field
- **Researchers and growers shoulder to shoulder**



Citizen Scientists & Leek Moth Project

- Our task: collect data on garlic & wild leeks:
 - *Record Max-min temps & Rainfall*
 - *Manage traps with liners*
 - *Install row covers in garlic patch & assess effectiveness in preventing moths from getting to the plants*



Max-min thermometer

Citizen Scientists: Bulb & Stem Nematode Project

- Started summer 2014:
 - Preliminary Site preparation
 - Weed & Roto-til
 - Rake
 - Measure & mark plots
- Next steps spring to fall 2015:
 - Plant seeds, maintain plots
 - Prepare plots for fall planting
 - Plant clean seed
- **Spring, summer 2016**
 - **Weed**
 - **Install row covers**
 - **scape**
 - **harvest**



Reflections on our process

What Made it Work...

- **Small challenged community**
 - Sense of interdependence
 - Shared problems > Spirit of inquiry
- **Absence of resources/infrastructure**
 - Ironically became an asset
 - fostered disposition of active involvement
- **Citizen-science role**
 - Dignity & respect for growers'



Reflections: What Made it Work...

- **Engagement of 2 vibrant grassroots associations**
 - HCGGA and HCFMA boards > very hands-on & participatory
- **U-Links leadership & integration into community**
 - Horizontal management style
 - Steering committee (engaged growers in all aspects of project)
 - Accessible



In conclusion: Research Projects > Multiple Benefits

- Remedy for leek moth/improved production
- More knowledgeable growers
- Member enthusiasm & morale
- Surge of new young member-growers
- Raised profile of HCGGA
- HCFMA participation >
 - novel role
 - redefines farmers' market

