GROWER-LED SUCCESSES IN REDUCING PESTICIDE USE AND RISK

Pesticides & Chesapeake Bay Watershed Annual Conference, Dec. 2, 2020

Thomas Green, Ph.D., CCA, president
Peter Werts
Josie Dillon

IPM Institute of North America, Inc.
We work with trusted farmers, distributors and grocers throughout the Northeast, to bring you fresh, locally grown fruits and vegetables.

That's what we call righteous!

**BRINGING LOCAL PRODUCE TO GROCERY STORES NEAR YOU**
We've built relationships with growers across the region to deliver high-quality, sustainably produced local food to grocery stores and kitchens. By arranging trucking, handling the paperwork, making the sale, and marketing their story, we support our growers in doing what they do best - growing healthy, local food.

**FOSTERING A FAIRER, REGIONAL FUTURE TOGETHER**
Building a regional food system is more than just moving produce. We work with everyone involved in the production of regional food to ensure mid-sized growers can thrive.
Supporting Local Farmers Since 1997... When you pick Red Tomato, you're choosing the freshest fruits and vegetables from trusted local and regional farmers—while helping to build a more sustainable food system and a better future. Together, we are righteous produce!
Honeybear growers are farmers with decades of experience invested in growing the very best, healthiest apples possible. But it's also critically important to us as a company and a network of multi-generation, family orchards that we remain good stewards of the land for future generations to come. So we grow mindfully and consciously, using ecological agricultural methods that have the greatest benefits for orchard soils, natural water resources and energy consumption as well as for our employees and customers.
SUSTAINABILITY GOALS

In order to take sustainability a step further, we've partnered with the Sustainable Food Group, an organization dedicated to making positive environmental shifts in the food system and supply chain. Together, we’ve created a sustainability plan with four additional focus areas: climate, food loss, packaging, and pollinators. In doing so, we hope to become part of the transparent and rapid change needed to heal our planet.

CLIMATE
Reduce greenhouse gas emissions by 15% in Honeybear Brands’ operations by 2030, while simultaneously sourcing 100% of our facility electricity from renewable sources by 2025, and eventually achieving brand-wide carbon neutrality by 2040.

FOOD LOSS
Achieve zero food waste (to landfill) from farm to retail by 2025. This will be done through waste diversion to cider, compost, charitable donations, and animal feed at a local farm.

PACKAGING
Use plastic-free packaging in all our branded products by 2030. Meanwhile we will begin offering plastic-free alternatives by 2025.

HABITAT
Install 50 acres of pollinator habitat across the nation by 2025, while simultaneously implementing TruEarth pollinator conservation practices on 100% of our US source orchards.
NE, Midwest grower challenges

• Competition from Washington State
  • 4803 orchards, 328,000 acres vs.
  • 2489 orchards, 15,671 acres in New England

• Competition from year-round apple suppliers with Southern Hemisphere sources.

• Difficult for supermarket buyers to contract with local supply for limited portion of the year.

• Development vs. farmed value of land

• Higher cost of IPM practices and low risk pesticides

• Labor shortages

and...
Climate, weather!

Little rain, more irrigation
No wild trees
More organic apples
Less pesticide use

More rain, less irrigation
More wild trees, more pests enter orchards
Twelve insect pests, seven diseases, weeds
Greater pesticide use

Washington organic apples 2019
- 267 certified farms
- 23,330 acres
- $447 million in sales

New England organic apples
- 61 certified farms
- 78 certified acres
- $0.372 million in sales
Eco Apple

- RED TOMATO distributes; IPM Institute maintains standards, certifies growers.
- IPM, water, energy, waste, LOCAL!
- Learning community: UMass, UConn, Penn State, Cornell, growers, crop consultants.
- Biggest customers? Trader Joe’s, Whole Foods

Minimum requirements:
You must (for example) sample mites and mite predators before applying miticide, use insecticide for tarnished plant bug only if trap captures over threshold.

Point-based advanced practices:
E.g., use trap out to control apple maggot fly

Red (do not use), Yellow (use with restrictions) and Green (use with justification) pesticide list:
E.g., do not use organophosphates, endosulfan, paraquat, permethrin, ziram, ….
What is the Pesticide Risk Tool?

Online Software Application Generates Pesticide Risk Scores

• 13 health and eco concerns
  - Acute and long-term risk
• Scores are probability of an adverse effect based on ingredients, rates, application method
• Many uses
  - Certification programs
  - Metrics tool
  - Run “what-if” and planning scenarios

Risk bands identify negligible, moderate and high risk applications.
PRT users

Supply Chain Programs
• Potato Sustainability Initiative

Certification Programs
• EcoApple
• TruEarth
• EquiTable Food Initiative
• SCS Global Services Sustainably Grown
• Protected Harvest

IPM Information Program
• MyIPM app
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<td>Pollinator</td>
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# Pesticide-specific risk examples

Harnessing Marketplace Power to Improve Health, Environment and Economics

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Average high risks per application: 2.5

**Key**
- Low Risk
- Moderate Risk
- High Risk
### Alternatives to top-risk drivers

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**Key**

- **Low Risk**
- **Moderate Risk**
- **High Risk**

*No data*
Practices

NO MOW

MOW
Practices

100% adoption of 66 practices, e.g.,
Apple maggot, codling moth traps
Plum curculio monitoring
Weather monitoring for diseases

Minimum score required on optional practices
No herbicides in alleys between rows (100%)
Cover crops, compost, crop rotation used before replanting to improve soil health (90%)
Mating disruption for peachtree borer (85%)
Outcomes: Change in high risks

- 47% reduction in average high-risk scores per application
- Certification years range from two years pre-certification (2009) to five years post-certification (2018).

\[
y = -0.0551x + 0.7336 \\
R^2 = 0.9009 \\
P < 0.05
\]
Distribution of total risk

Certification Year

Risk Distribution

-3 -2 -1 1 2 3 4 5

Low
Moderate
High
"We surveyed bees in conventional and Eco Apple orchards and found a striking difference between the two... the Eco Apple orchards host many more species, and many more individual wild bees."

— Dr. Bryan Danforth, Cornell University

Eco-apple has more bees

Wild bees/5 minutes

Conventional

Eco-Apple

p = 0.004
Milestones

2005: First certified Eco Apples
2007: Organophosphate insecticide applications to fruit eliminated
2011: Truearth launched in Midwest modeled after Eco Apple
2014: Carbaryl alternatives for thinning launched
2019: More than half of certified orchards using carbaryl alternatives for thinning
2020: Red Tomato sales reach cumulative $25 million and 1.2 million cases of Eco-certified fruit – peaches and apples—in addition to millions more sold directly by certified orchards through grocery stores, farmers markets, farm stands and pick-your-own customers across the Northeast.
Example current opportunities

- Mating disruption for codling moth
- Diamides and spinosyns as neonicotinoid alternatives for codling moth, leafrollers and plum curculio
Thank you!

Acknowledgements

• Red Tomato, Wescott Agriproducts
• Eco Apple Growers at Blue Hills Orchard, Champlain Orchards, Clark Brothers Orchard, Cooper Farms, Fishkill Farms, Indian Ladder Farms, Lyman Orchards, Mead Orchards, Ricker Hill Orchards, Rogers Orchard, Schlegel Fruit Farm, Scott Farm,
• Truearth Growers at Bremer Orchards, Bushel and Peck Orchard, D&B Orchard, Ecker’s Apple Farm, Ferguson’s Orchards, Hickory Ridge, Oakwood Fruit Farm, Sacia Orchards, Van Lin Orchards, Wescott Orchards, Wood Orchards
• Kelly Adams, Dan Skolnik, Nick Speckman, Maria Weber, IPM Institute
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