Lake Ontario Fruit Program **Educational Publications and Events**

"Fruit Notes"

Newsletter.

22 issues per year with enrollment,

by email or mail.



Time sensitive pest & horticultural reminders by fax or email for tree fruit and berry

Apple Maturity Report

Reports fruit ripening indicators for over 20 apple varieties. Helps growers schedule harvest of specific varieties for best quality.



Events:

- Winter Fruit School
- EXPO Educational Sessions
- Pruning workshops
- Field meetings
- Summer tours
- Labor workshops Special Topic workshops Pesticide safety
- trainings
- Farm visits

Our website!

http://lof.cce.cornell.edu/

Building Strong and Vibrant New York Communities

Diversity and Inclusion are a part of Cornell University's heritage. We are a recognized employer and educator valuing AA/EEO, Protected Veterans, and Individuals with Disabilities.

The work of the Lake Ontario Fruit Program is supported by partnering **Cornell Cooperative Extension** Associations, the USDA National Institute of Food and Agriculture Smith Lever Funds, Industry, and State and Federal grants. Program generated income is the balance of the budget generated through grants, industry participation fees and contributions. CCE is a non-profit organization.

2014 LOF BUDGET - \$441, 203



LIST OF ACTIVE GRANTS FOR 2014:

Smith Lever – Orchard IPM for Beginners (Breth, et al.)

NYSDAM SCBG - Testing Budwood for Fire Blight (Cox/Breth)

ARDP– Critical Timing of Weed Control in High-Density Apples (Breth)

ARDP– Perennial Weed Mgmt/Fall Weed Control (Breth)

SCRI – Brown Marmorated Stink Bug (Agnello/Breth) Hatch- Detecting & Responding to Ambrosia Beetle/ Apple Orchard (Agnello/Breth)

USDA/NEIPM-Canopy Delivery Systems (Agnello/DeMarree) NYFVI - Berry Growers Building a Better Bottom Line (Pritts/ DeMarree)

AFRI – High Tunnel (Robinson/DeMarree)

NYSDAM SCBG – Specialty Crop Markets (Rickard/ DeMarree)

NYFVI -- Test DA Meter for Apple Harvest Maturity (Kahlke) **GVRMA** – GAPS (Claypoole/Kahlke)

NYFVI – Apple Orchard Pruning (Robinson/Miranda S.)

ARDP – Orchard Management Systems (Robinson/Miranda)

NYFVI – Precision Orchard Management

(Robinson/Miranda S.)

ARDP - Hort Science Communication (Miranda S.)

Cornell Cooperative Extension Lake Ontario Fruit Program The Team...



Integrated Pest Management Deborah I. Breth, Team Leader 12690 NYS Rt. 31 Albion, NY 14411 Email: dib1@cornell.edu Cell: 585-747-6039 Fax: 585-798-5191



Production Economics & Business Management Alison M. De Marree retired 6/14 Matt Wells-hired Jan. 16, 2015 1581 Rt. 88 North Newark, NY 14513 Email: maw377@cornell.edu



Fruit Quality Management Craig J. Kahlke 4487 Lake Ave. Lockport, NY 14094 Email: cjk37@cornell.edu Cell: 585-735-5448 Fax: 716-438-0275

Cultural Practices Mario Miranda Sazo 1581 Rt. 88 North Newark, NY 14513 Email: mrm67@cornell.edu Cell: 315-719-1318 Fax: 315-331-8411

Kim Hazel Administrative Support Phone: 585-798-4265 x 26 Email: krh5@cornell.edu

Elizabeth Tee Program Aide Phone: 585-798-4265 Email: emt44@cornell.edu



Cornell University Cooperative Extension

Lake Ontario Fruit Program 2014 Year in Review



Objectives:

- \Rightarrow Maintain competitiveness and profitability of NY fruit farms in a global market.
- \Rightarrow Evaluate new technology for potential increases in efficiency through applied research.
- Assist in the adoption and implementation of appropriate technologies.
- Reduce financial, legal, labor, environmental, and health risks.
- Improve production and delivery of high quality fruit to consumers.

Your Trusted Source for **Research-Based Fruit** Production Knowledge.

We partner with Cornell Cooperative Extension of Wayne, Orleans, Niagara, Monroe, and Oswego Counties, Cornell University Cooperative Extension and faculty to provide educational programs for the commercial fruit industry, using research-based information to help the tree fruit and berry industries in New York compete in the world market and provide safe, high-quality produce for consumers.

Highlights of 2014

The 2014 season was a year of retirements of many co-workers in fruit. We celebrated the very "fruitful" careers of Drs. David Rosenberger, Harvey Reissig, and Alan Lakso. Fruit extension specialists, Kevin lungerman and Mike Fargione moved on to new phases of their lives. We held a celebration for Alison DeMarree retiring from CCE-LOF after more than 32 years of service and Steve Hoying, a former teammate of the LOF team. They were all valuable contributors to the fruit industry and will be missed. We wish them all a happy, healthy future!

We also feel a tragic loss with the death of Cathy Heidenreich who was a valuable resource in berry crops.

The good news is we have filled the Production Economics / Business Management position—Matt Wells will start in Mid-January, 2015.

NEW PRUNING CONCEPTS, TECHNOLOGIES, AND MECHANIZATION TOOLS ATTRACTED **COMMERCIAL FRUIT GROWERS AND ORCHARD** WORKERS

Orchard mechanization to make orchard work easier will expand the pool of potential orchard workers. CCE LOF targeted apple growers in the Lake Ontario fruit region to show new equipment. In late February we conducted the first "Winter Pruning and Orchard Mechanization Tour" in Wayne County.

- Over 70 growers learned about the benefits of partial orchard mechanization and proper pruning for high density plantings.
- We introduced two new low cost machines for smaller growers, encouraged and demonstrated the importance of work safety with the correct use of fall protection harnesses and electric shears for higher pruning efficiency.





2014 LOF SUMMER TOUR

The LOF Summer Tour, sponsored by CCE-LOF and various supporting businesses, was held in Orleans /Niagara counties.

- 250 members of the fruit industry saw new technology and practices that can increase profitability.
- Focused on the horticultural aspects of the establishment, and early bearing years of NY-1 and NY-2 apple trees.
- Growers learned strict crop load management techniques.
- Growers saw the cost/benefit of deer fencing.
- Dr. Greg Lang (MSU) showed growers how a VOEN canopy system could increase quality and profit in sweet cherries.
- Growers saw reduced tree growth resulting from early season weeds in new high-density apples.
- Growers saw the leaf and fruit skin damage caused by mixing many pesticides and adjuvants.



HARVEST MATURITY PROGRAM IMPACTS HUNDREDS **OF FARMS & 20 M BUSHELS OF APPLES**

The Harvest Maturity Program (HMP) tests apple ripening indicators for over 20 varieties. The HMP helps growers determine when to pick apples in a short harvest window that maximizes quality, storability, and profit. Apple samples are collected across the region each week during apple harvest. Ripening indicators are measured including internal ethylene production, firmness, sugars (brix), and starch index. Data is compiled and sent to fieldsmen, growers, and storage operators for weekly conference calls. Harvest timing recommendations for each variety are made in weekly Harvest Maturity Reports (HMR's) and sent to 70 subscribers. Subscribers say that the reports help them "get a handle on harvest maturity to pick apples for maximum returns and fruit quality." An incorrect decision regarding harvest timing and duration of storage can reduce the value of apples from premium fresh fruit worth \$9-\$25/bushel to \$1-\$2/bushel, the value of juice. The HMP impacts on guality and value of over 20 million bushels of apples produced by 300 farms, including over 11.5 million bushels of apples in storage, with a utilized value of ~ \$160 million.

INCREASING FARM EMPLOYEES' SKILLS

DEC Special Permit Training – Three commercial Ag teams in WNY worked together in March and early April, 2014 to train non-certified pesticide applicators to understand the human, environmental, and other non-target risks when working with EPA Restricted-use pesticides. Libby Gaige, NWNY Field crop, Dairy, Livestock Program, joined us this year to develop the Spanish training materials.

- 316 non-certified applicators learned how to mitigate risks with proper personal protective equipment and drift management.
- At the Hudson Valley program, we trained 127 non- certified applicators and a team of trainers in ENYCHP to train Lake Champlain applicators.

Precision Thinning is a strategy to manage the number of apples on a tree to optimize fruit size. 30 farms conducted precision thinning methods for Gala, Honeycrisp, and Fuji.

- 10 farm employees learned how to count and measure fruitlets for the precision thinning project.
- 300 growers and employees learned the steps in thinning
- fruit to the optimal number for optimal size.
- Growers who learned to prune to a target bud number per tree prevented the cost

of fruit thinning manually.

Winter Fruit School session for Spanish employees

 45 participants learned about the use of rootstocks in a modern apple orchard, how to prune out and recognize fire blight cankers in the orchard, how to fit test a respirator and other safety regulations.

PROTECTING APPLE ORCHARDS FROM DEER DAMAGE

Fruit growers commonly invest an average of \$13,000 per acre to plant an acre of high density apples. On young trees, deer remove growing points, reducing shoot and bud growth, damaging tree development and increasing the time it takes for the tree to get into full production. On mature trees, deer remove fruit buds on lower limbs which can reduce yields up to twenty five percent or more. Alison DeMarree analyzed deer fence economics and construction methods and presented it to NY growers at many venues. In 2013 and 2014 growers in WNY installed over 70 miles of deer fencing to protect a minimum of 600 acres of orchards. This investment can increase the profitability of this acreage by over \$7,000/acre over a 20 year lifespan. This represents a total of a \$4.2 million increase in profitability of the total acreage protected from deer damage.



NEW TECHNOLOGY TO TEST APPLE RIPENESS.

A new tool called the DA meter measures chlorophyll content in the apple peel rapidly which may help determine ripeness of apples. Varieties such as Honeycrisp and Gala do not reliably produce ethylene, a test used in other apples to

determine when to pick. For these 2 varieties, color change is being used as the primary maturity indicator. Color is highly variable and if apples are



picked too late, they will not store well. Honeycrisp can have a very low packout due to disorders that develop after harvest. It is generally agreed that apples from newer, more modern high density planting systems have less variability in maturity as compared to fruit from older, less dense planting systems. Craig Kahlke is testing this theory with a NYFVIfunded project with this experiment and data from the other harvest maturity indices, along with packout data of the remaining fruit from the sampled bins, to see if the DA meter indeed does show promise as a reliable indicator of harvest maturity. Work with the DA meter could lead to better Harvest timing that may increase packout of high quality fruit & continued sustainable grower returns. Three packers, and 21 growers are participating in this project. Increasing packout by as little as 7% would return an additional \$1,000/A to the grower.

EMERGING PEST!

Black stem borer was found in 6 sites in Western NY for the first time in 2013. This is a tiny Ambrosia beetle which drills into the bark and develops brood chambers in the heartwood to raise its young. It is suddenly associated with collapsing trees in high density apple orchards.

- 400 growers and their employees learned how to identify the signs of infestation.
- Nearly 30 sites in WNY have had reports of BSB detected.
- 100's of trees were removed and burned on each farm costing growers \$1000's.
- 200 fruit extension workers learned how to identify BSB, learned the biology of BSB, and can disseminate the information to other growers in New England, Mid-Atlantic, Cumberland-Shenandoah, and Michigan apple regions.

