Welcome to the 2019 In-depth School on Precision Crop Load Management

Sponsored by the Cornell Fruit Program Work Team
Objectives of the School

1. Help apple growers understand the potential income from each orchard block and how to use precision crop load management to capture that potential.

2. Generate discussion among eastern apple growers about the current and future technologies to precisely manage crop load to improve profitability.

3. Give input to a 2020 federal SCRI grant proposal to fund a national project on precision crop load management.
Precision Crop Load Management

Precision crop load management is a management philosophy that seeks to the number of apples on each tree in a precise manner to obtain the best possible economic outcome.

With apple there are 4 management activities that influence fruit number per tree.
- pruning,
- chemical thinning,
- hand thinning
- return bloom treatments.
Basic Principles of Precision Orchard Management

1. Measure something and acquire data
2. Make management decision based on the data.

• Some things, which must be measured to increase precision, can be done with little effort by the grower but other things will require significant effort by the grower.
• There will be a cost in time money and effort. Nothing is free.
• However, the returns for the extra effort can be very large.
Precision Crop Load Management may Help Capture Profits We Don’t Know We are Losing

An important question to ask is:

• What potential income are we losing or not capturing by not managing crop load more precisely.

• How much money are we leaving on the table and can precision crop load management help capture that money?
The Counter Balancing Responses to Crop Load Adjustment

- As crop load is reduced by thinning or by pruning, fruit size of the remaining fruits increases.
- As crop load is reduced by thinning or by pruning, yield is also reduced.
In most years there is a consistent strong relationship between fruit size and crop load that is defined by the climate.

- Years with stress have a different relationship
Fruit size as affected by crop load varies by year.
The Optimum Crop Load is When Crop Value is Maximized

The best way to evaluate the benefits or costs of thinning is to convert yield/acre to crop value/acre taking into consideration fruit size.
There is a Huge Financial Cost of Over Thinning

Effect of Overthinning an Empire Orchard

Yield/acre (bu)
Is precision crop load management worth the effort

• There will be a cost in time, money and effort.
• However, the returns for the extra effort can be very large.

With Gala – mostly bags returns $11,000 per acre
– mostly 88’s returns $20,000 per acre
With Honecrisp – mostly 100’s returns $24,000 per acre
– mostly 72’s returns $32,000 per acre
Thank You for Your Attention

Questions?