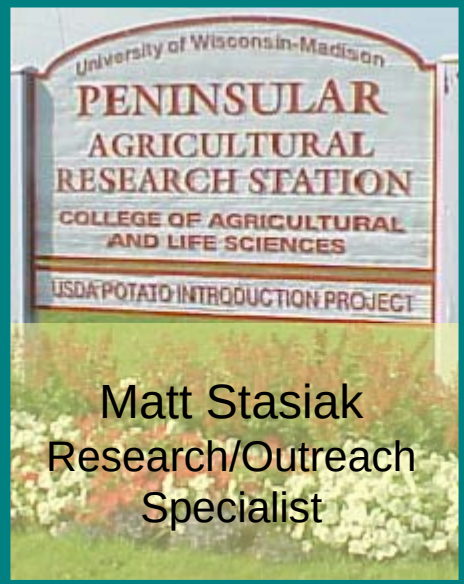
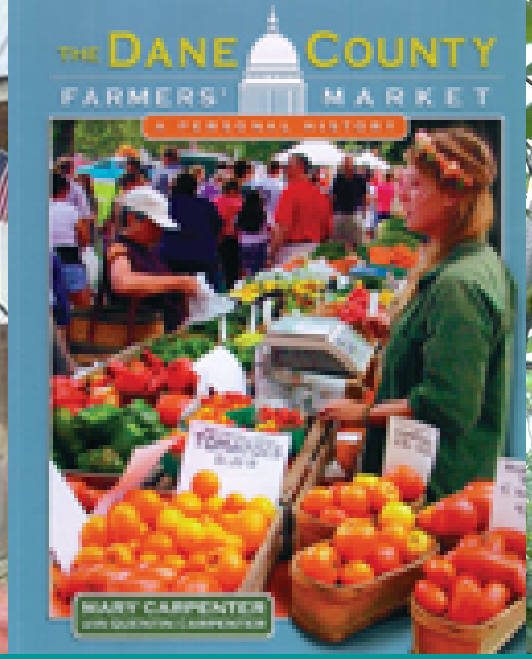
The Challenges and Successes of Developing Fruit Grower Networks

Eco-Apple & EQIP
The Wisconsin Experience

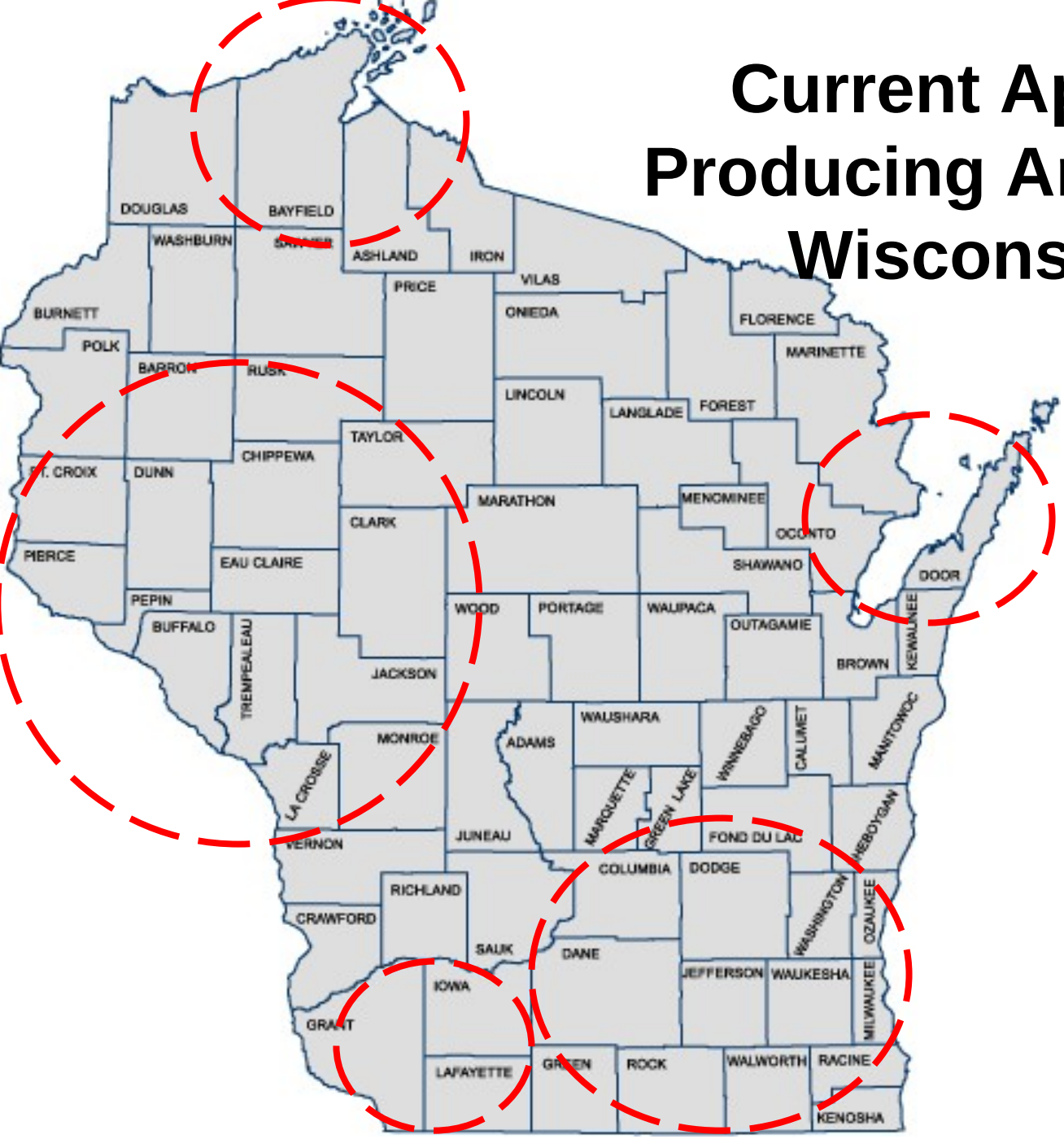


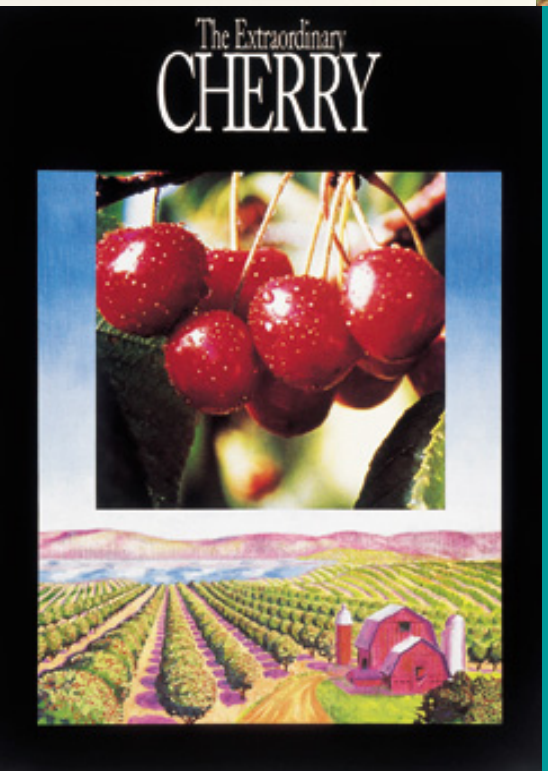
Matt Stasiak
Research/Outreach
Specialist



- $19.3 million in sales
- 6,200 Total Acres
  - ~ 10% wholesale / direct market
  - ~ 90% direct market
- Orchard size wholesale / direct
  - ~ 100 acres
- Orchard size direct market
  - ~ 15-20 acres

Current Apple Producing Areas in Wisconsin



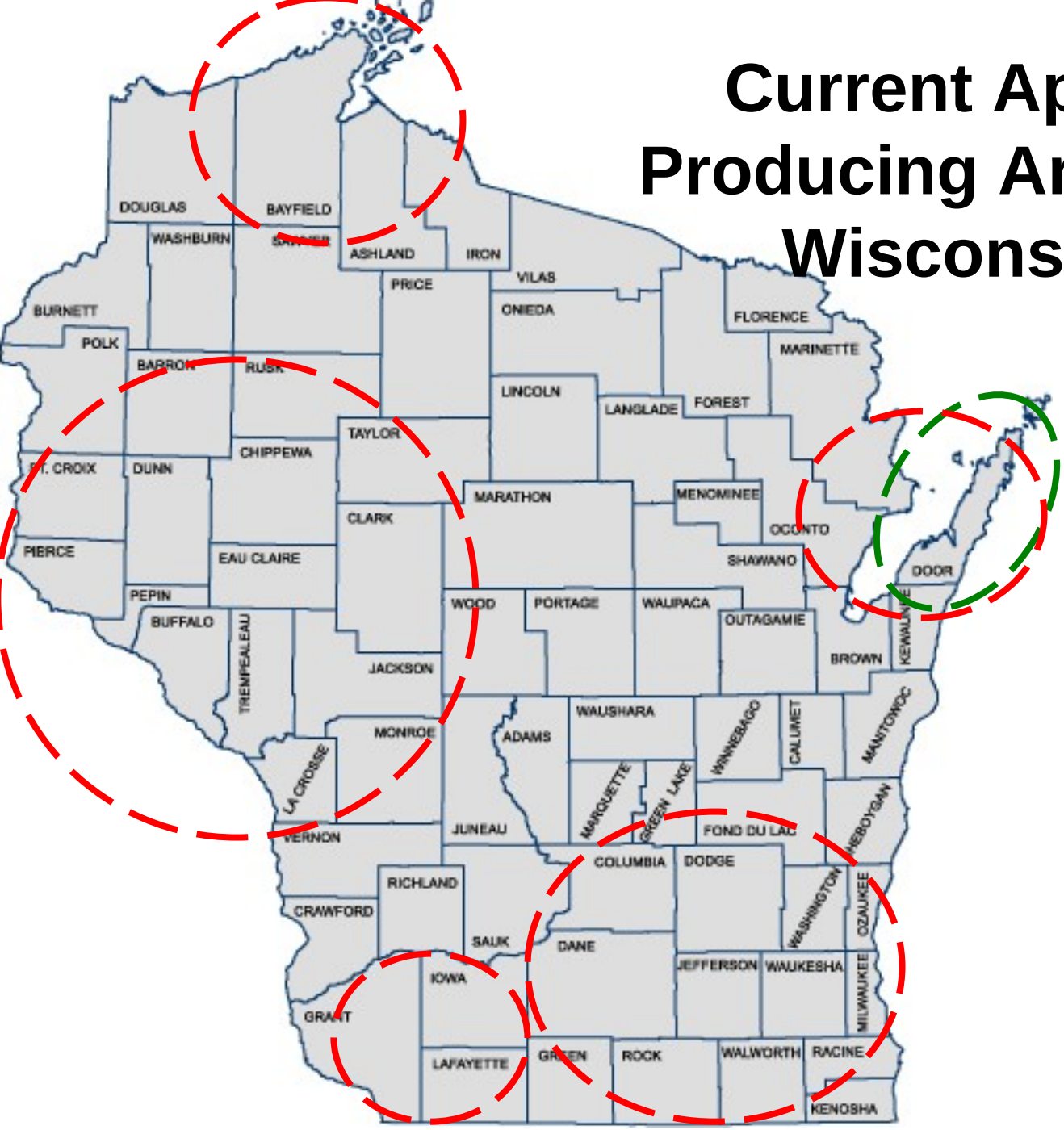


- $5-7 million in sales
- 2,000 Total Acres

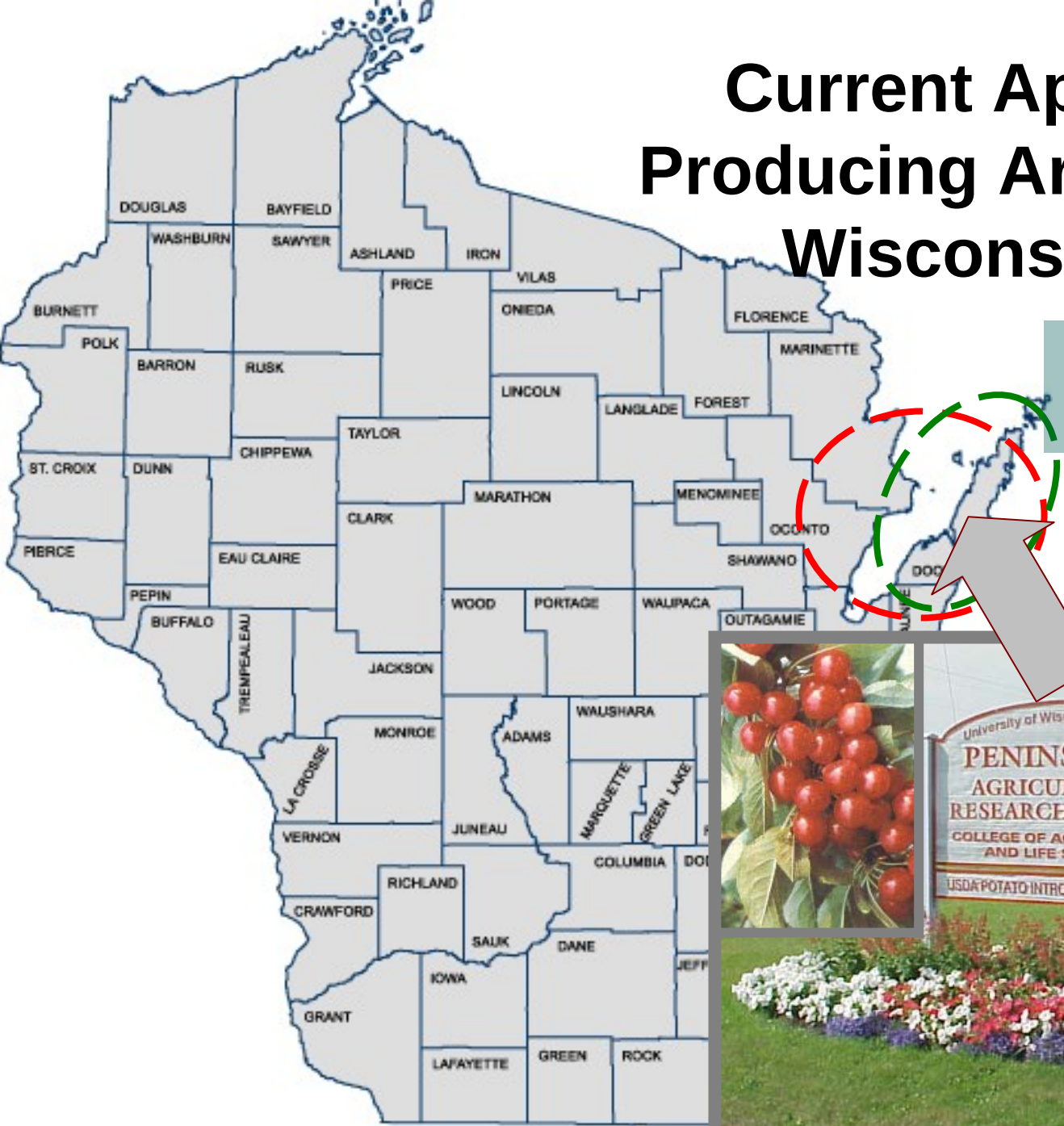
  +95 % wholesale
- Orchard size

  80 acres

Current Apple & Cherry Producing Areas in Wisconsin



Current Apple & Cherry Producing Areas in Wisconsin



1000 Acres Apples

2000 Acres Cherries

Wisconsin Tree Fruit Production Challenges

- Growers facing loss/restriction of key insecticides - Imidan and Guthion
- Newer and safer pesticides & management strategies are more expensive / labor & information-intensive

The Dream

- Build relationships between growers, researchers, other professionals
- Create orchard pest management measurement tool(s)
- Document change over time for pesticide risk/usage
- Enhance/expand grower management skills
- Initiate farmer networks
- Increase professional support for growers

Two Different Approaches

Teach them to fish

- Eco-Apple IPM
  - Spread out across the state
  - NEW Network furthest distance 150 miles
  - Farm size average 14.5A, largest 40A
  - Higher intensity management

Give them fish

- EQIP Orchard IPM
  - Localized production area
  - Furthest distance 30 miles
  - Farm size average 80A, largest +150A
  - Low intensity management

High Value Crops

Eco-Apple Team

- Individual apple growers
- Wisconsin Apple Growers Association
- UW-Madison Researchers / Extension Specialists
- Private consultant
- Peninsular Ag Research Station
- Center for Integrated Agricultural Systems
- Environmental Toxicology Consultants

EQIP Tree Fruit IPM

- Individual apple & cherry growers
- Wisconsin Apple Growers Association
- UW-Madison Researchers / Extension Specialists
- Private consultant
- Peninsular Ag Research Station
- Center for Integrated Agricultural Systems

Eco-Apple Farmer networks

Work with pest management advisor/coach to implement intensive monitoring and scouting practices in their individual orchards

- Collect weather data to help make insect and disease control decisions
- Use scouting, trapping and action thresholds for pest management decisions
- Consider and implement alternative pest control strategies to deal with changes brought about by FQPA (loss of organophosphate insecticides etc.)

Sustainable apple production standard

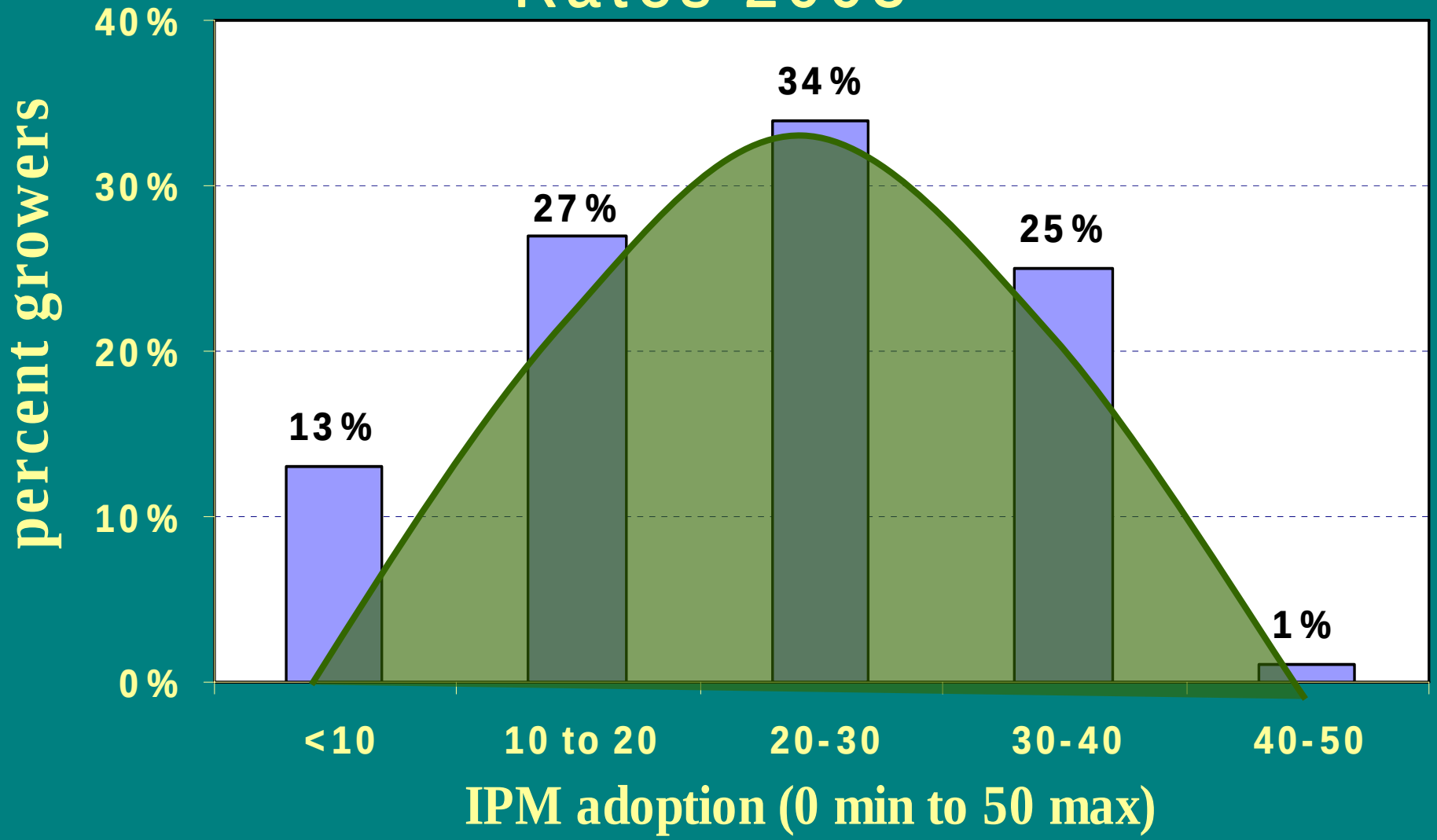
1. 2002-3 industry baseline
   - IPM implementation
   - Pesticide use data
2. Toxicity Index

Growers score orchard IPM implementation and pesticide toxicity to compare between years, orchards, and with industry baseline

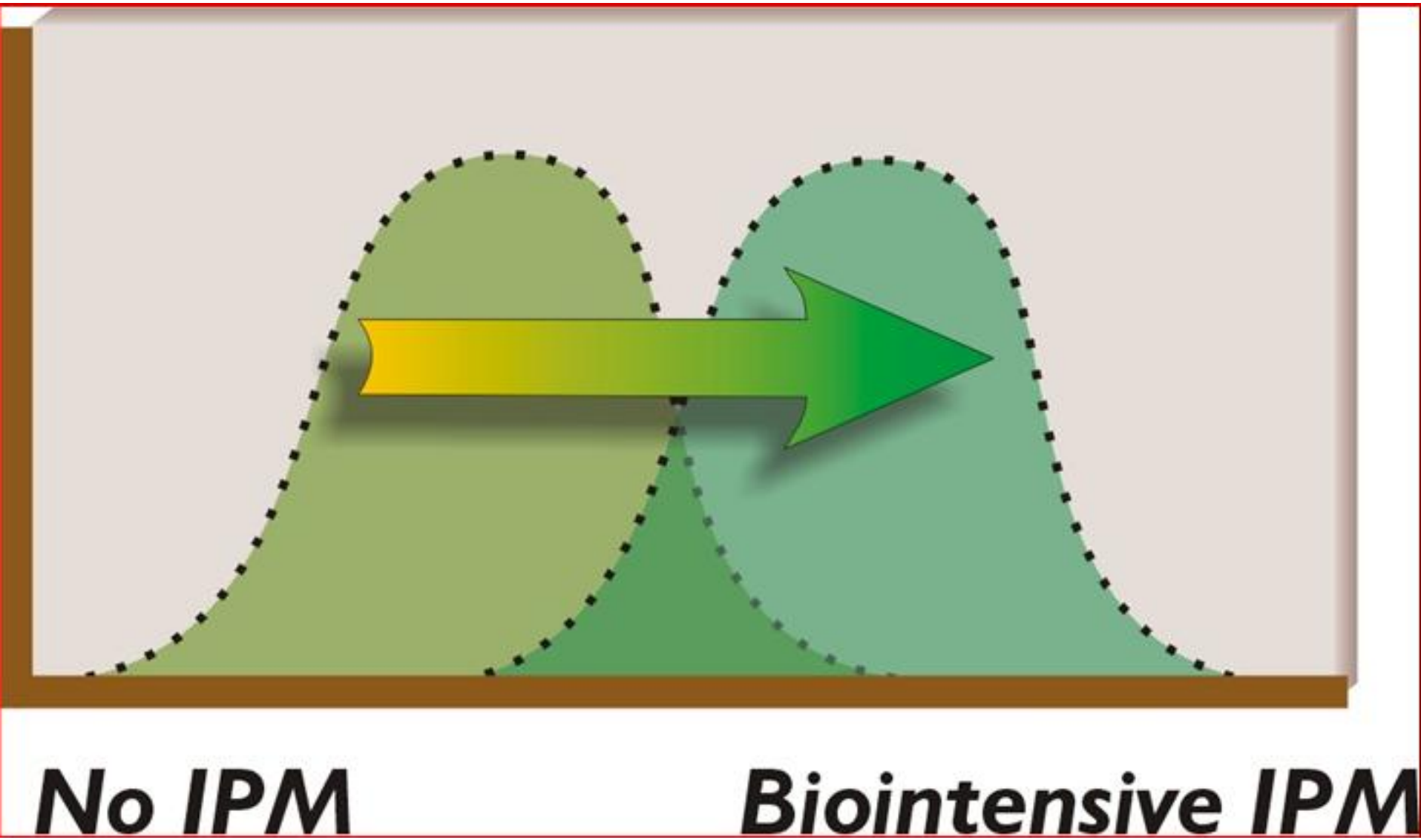
Why a production standard?

- Provides feedback in the system so that growers can compare between farms, years, industry standard
- Ahead of the curve as pesticides further restricted
- Differentiate apples from Wisconsin
- One step away from qualifying for an eco-label (Protected Harvest, Food Alliance)
- One step away from qualifying for EQIP money to implement advanced IPM plan

Apple Grower IPM Adoption Rates 2003

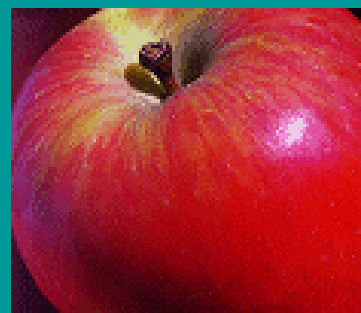


IPM Continuum

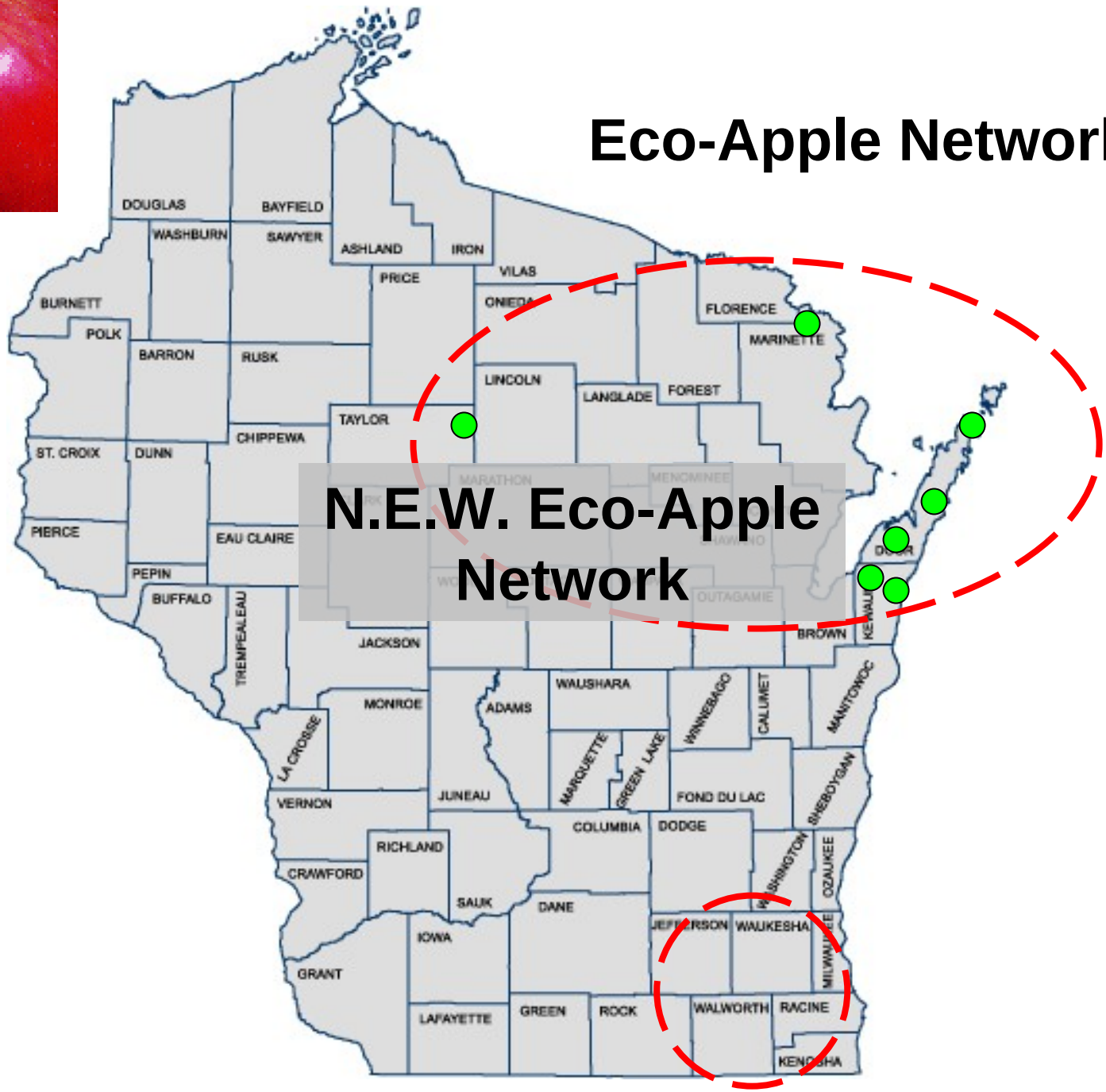


Eco-Apple Farmer Networks

- Two networks formed
- 13 orchards used toxicity measurement tool in 2003-05 / data analysis underway
- Provided with IPM coach
- Network meetings



Eco-Apple Networks



N.E.W. Eco-Apple Network

Eco-apple Project

- Intensifying relationships between growers & others
- Developing measurement tool for IPM implementation and toxicity
- Measuring change in orchard management for pesticide risk
- Up-grading grower management skills
- Initiating farmer networks
- Increasing professional support for growers

Eco-apple Project

- Intensifying relationships between growers & others
- Developing measurement tool for IPM implementation and toxicity
- **Measuring change in orchard management for pesticide risk**
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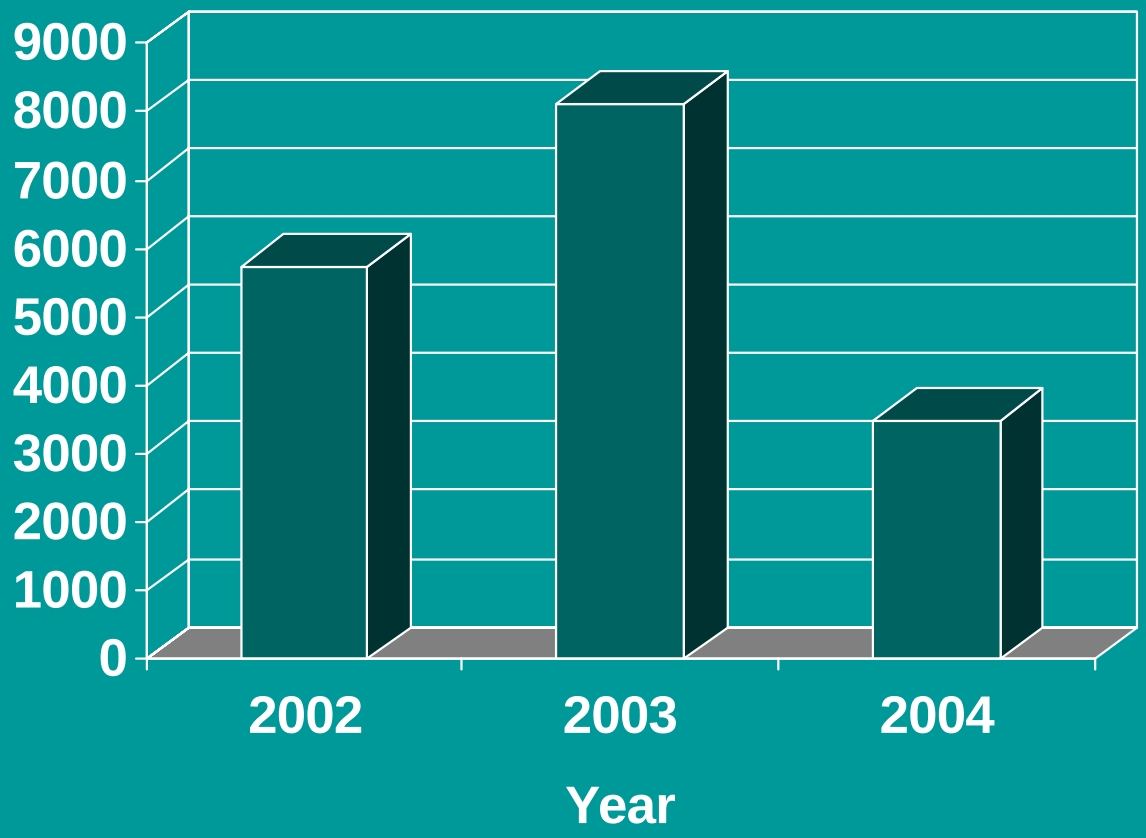
Toxicity Scores



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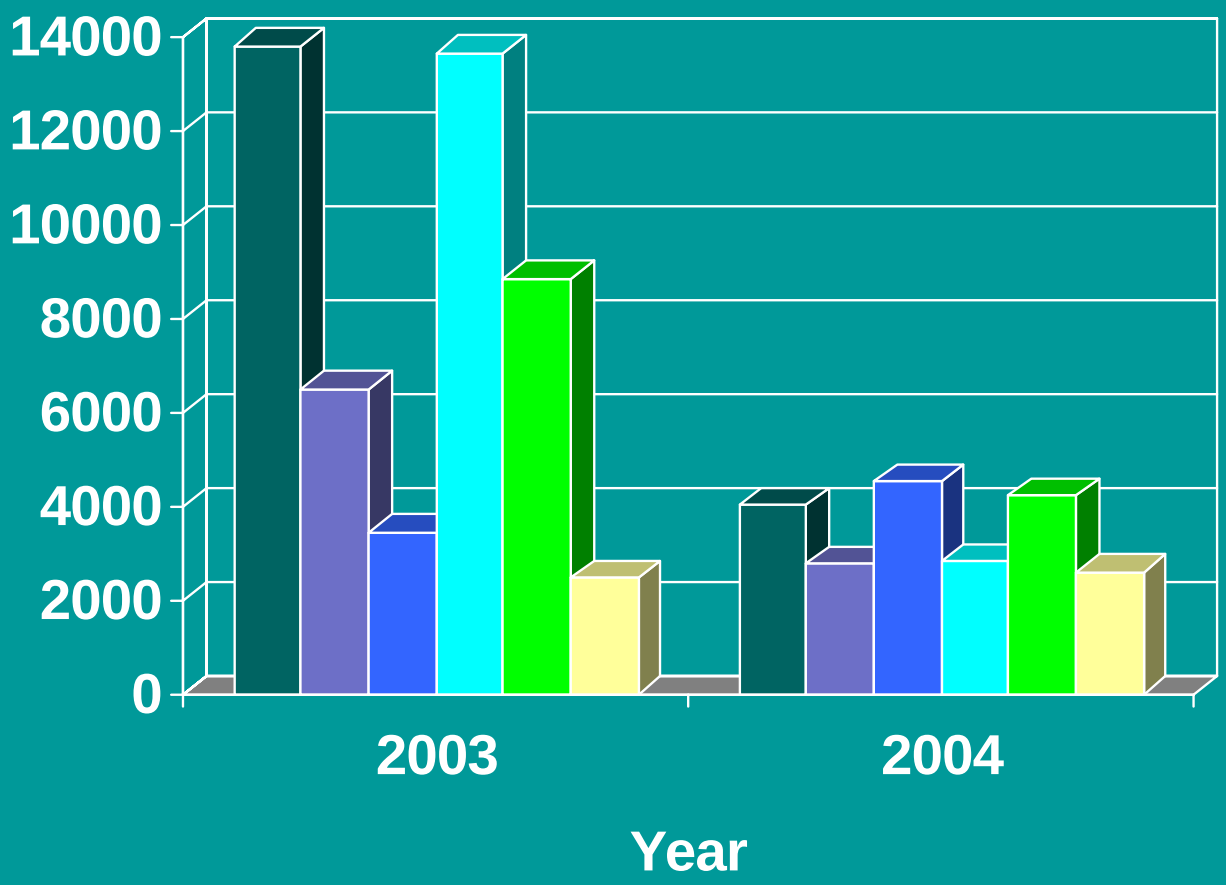

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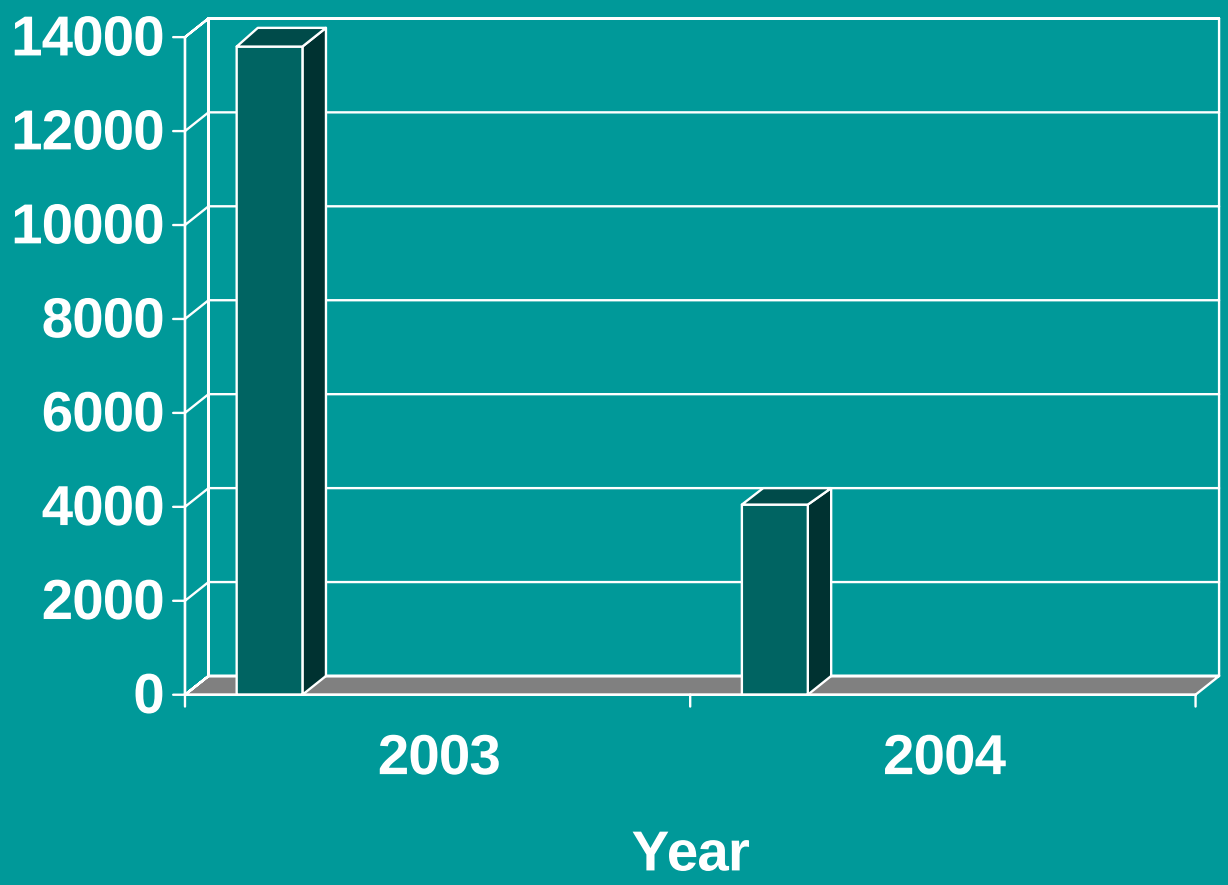

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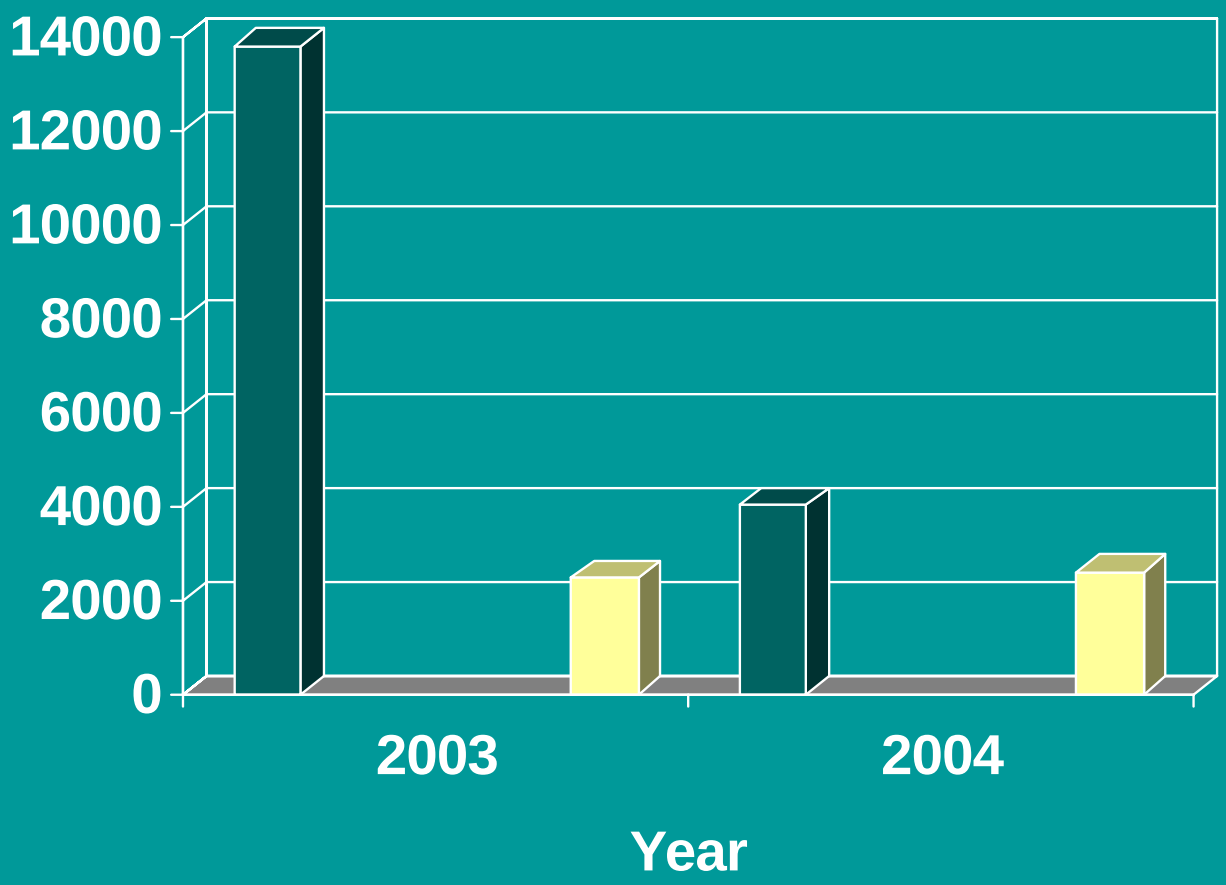

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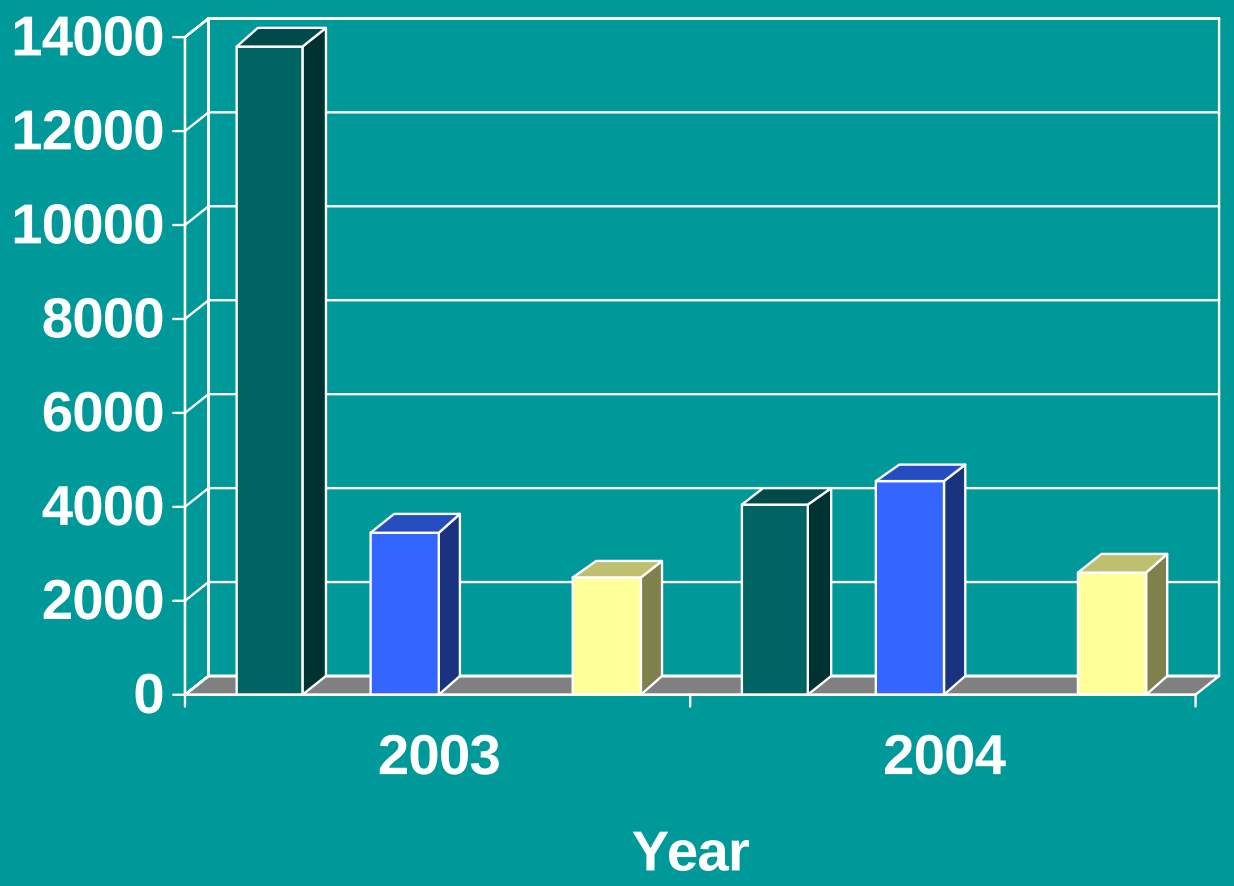
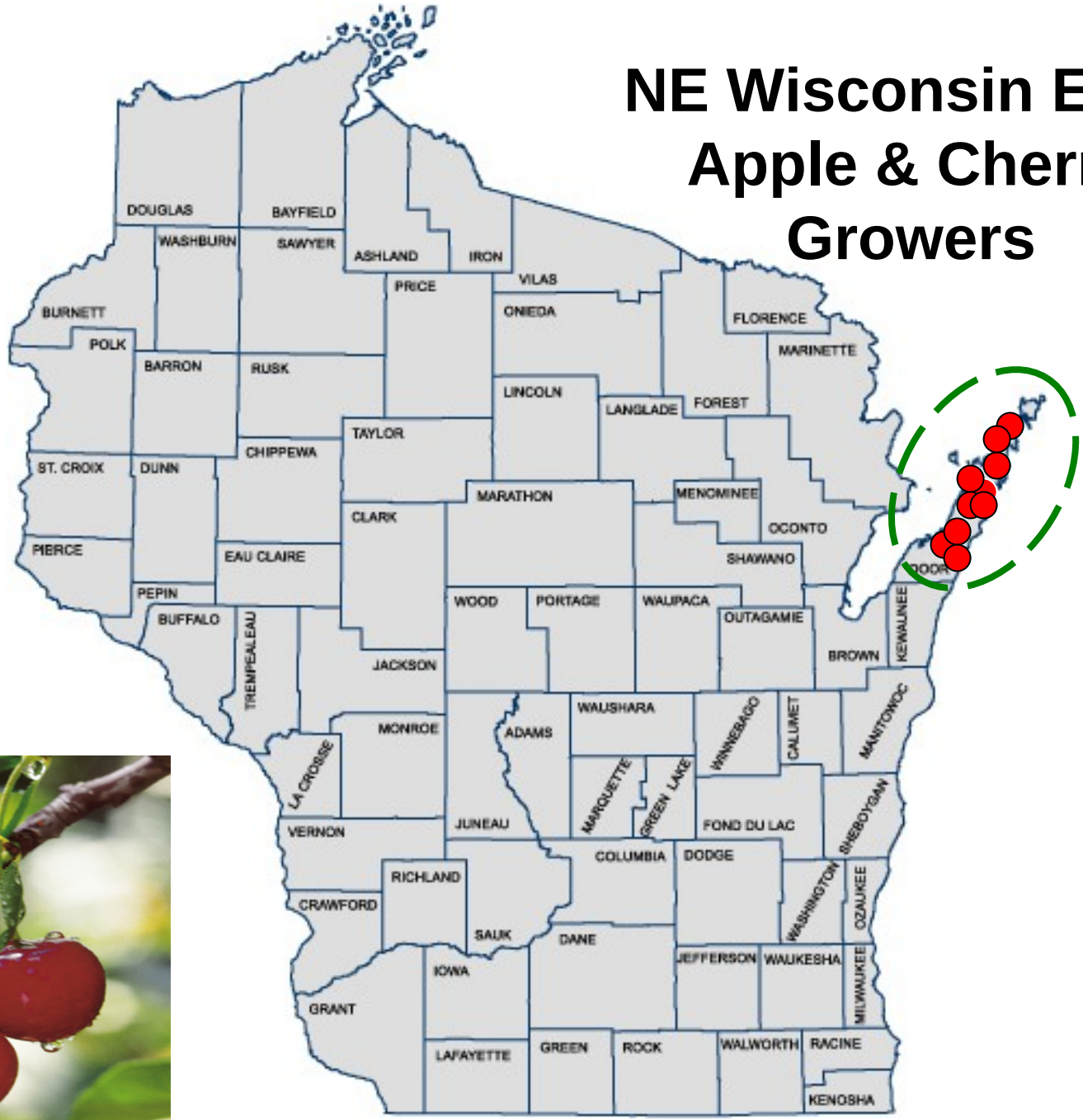


NE Wisconsin EQIP Apple & Cherry Growers



NRCS - EQIP for Apple & Cherry Growers

- Offer realistic incentive payment to growers for implementing a pest scouting program
- Secured $100,000 in 2005, $200,000 in 2006 for three payments over four years at $39 / acre
- Need to increase availability of technical assistance to growers

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Give them fish

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  - Localized production area
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  - Farm size average 80A, largest +150A
  - Low intensity management

High Value Crops

NE Wisconsin EQIP

Work with pest advisor and scout who provide intensive monitoring and scouting information to make sound pest management decisions

- Collect weather data to help make insect and disease control decisions
- Use scouting, trapping and action thresholds for pest management decisions
- Comply with mitigation practices to reduce environmental risk as defined by NRCS Environmental Risk Assessment (WIN-PST)

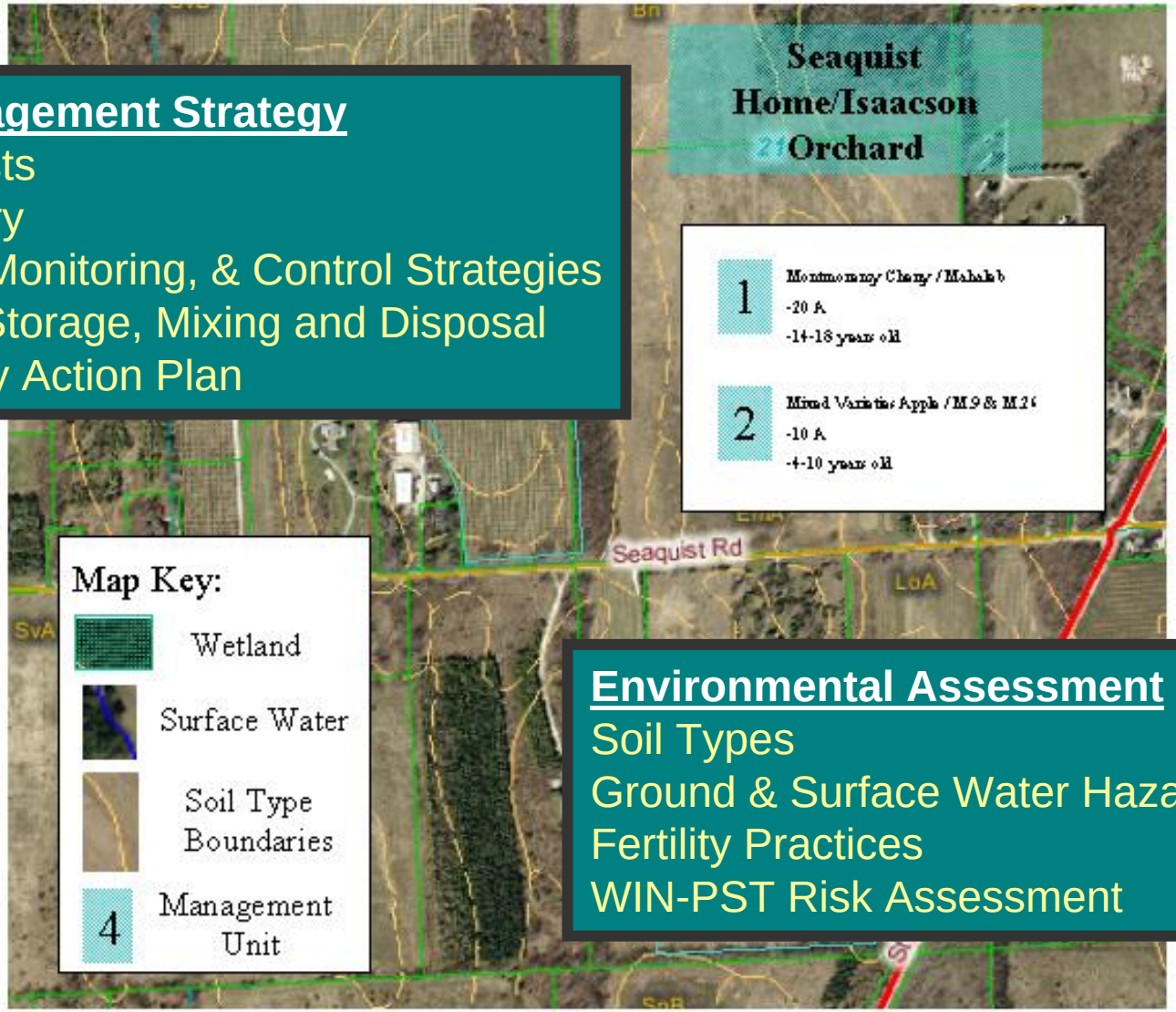
NRCS Mitigation Practices

Pest Management Plan - PMP

- Pest management strategy
- Environmental assessment
- Implementation records
- Planning Issues -
  - upcoming season & beyond

Pest Management Plan

Pest Management Strategy
Target Pests
Pest History
Scouting, Monitoring, & Control Strategies
Pesticide Storage, Mixing and Disposal
Emergency Action Plan



Environmental Assessment
Soil Types
Ground & Surface Water Hazards
Fertility Practices
WIN-PST Risk Assessment

Pest Management Plan

Pest Management Strategy
Target Pests
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Scouting, Monitoring, & Control Strategies
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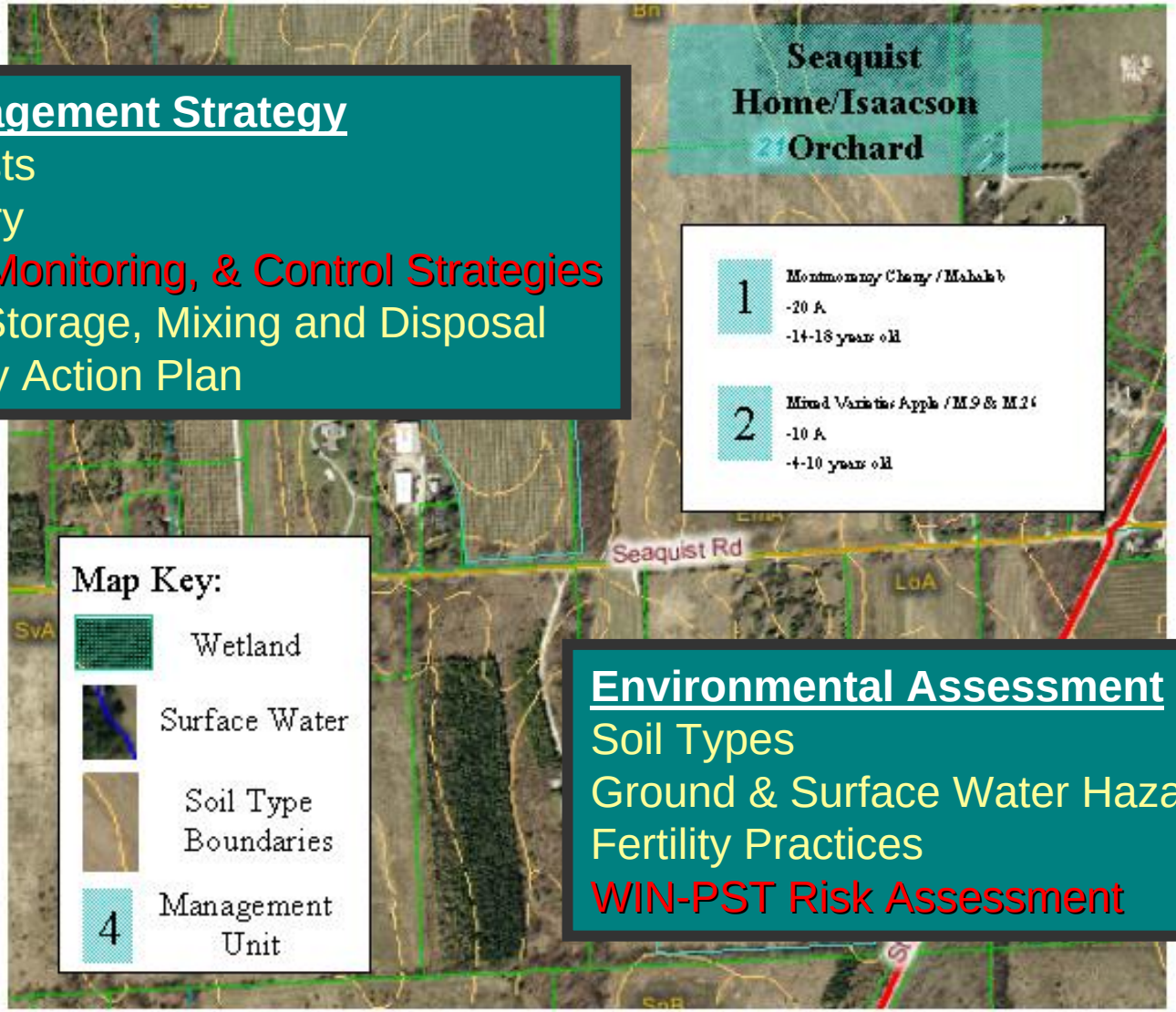


Environmental Assessment
Soil Types
Ground & Surface Water Hazards
Fertility Practices
WIN-PST Risk Assessment

Pest Management Plan

2005 Apple Pest Trapping & Scouting - NE Wisconsin

MITE - WINTER EGG SAMPLING

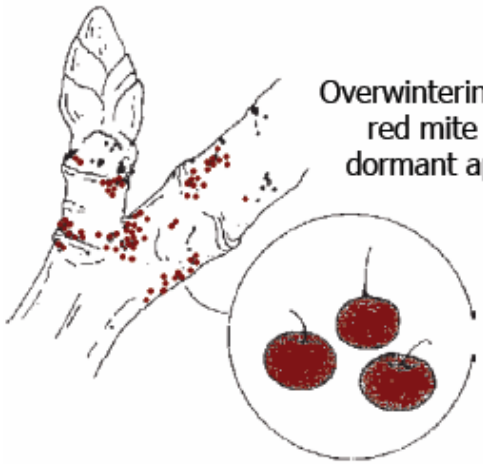
The following method is used to make early season mite control decisions.

Sampling: Collect 1-2 sample spurs from each of 20-30 trees. A sample spur is defined as approximately $1^1/_4$" of wood around a spur or bud from at least two-year-old wood of $<^3/_4$" in diameter.

Assessment of winter egg abundance: A scoring of the abundance of winter eggs on each sample spur is based on a 5-point scale from 0-4, as in the table below. Spurs can be examined on the trees or removed and brought indoors during the mid- to late-dormant period. Tally the scores for each spur in a sample, and then calculate an average score by dividing the total tally by the number of spurs examined.

A five-point scale for scoring European red mite winter egg abundance on spurs of apple trees.

SCORE	NUMBER OF EGGS
0	0
1	1-10
2	11-50
3	51-100
4	>100



Overwintering European red mite eggs on dormant apple spur.

Thresholds & Treatments: Low numbers of dormant eggs can still result in significant mite populations later in the season. Compare your sample average score to the threshold guide below to help make an early season mite control decision.

n completed. Then fill out appropriate record sheet and date.

Pest Management Plan

WIN-PST SOIL / PESTICIDE INTERACTION LOSS POTENTIAL and HAZARD RATINGS REPORT
APPLE & CHERRY Door County, Wisconsin: WI029

Pesticides Missing From WIN-PST List

Apple: Agri-Mycin 17 Ag, Chanp Folrmula 2, Kocide 101, Lime Sulfur Solution, Acramite 50WS, Assail 70WP, Calypso, Esteem 35WP, Nexter, Sunspray Ultra-fine, Zeal

Cherry: Cabrio, Chanp Folrmula 2, Elite, Kocide 101, Lime Sulfur Solution, Pristine, Nexter, Sunspray Ultra-fine

PESTICIDES:	SOIL - EmB: EMMET		
ACTARA REG_NO: 0001000093825.00% Thiamethoxam	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	H	H	L
Solution Runoff (ISRP):	H	H	L
Adsorbed Runoff (IARP	I		V
AVAUNT INSECTICIDE REG_NO: 00035200597	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	L	V	I
Solution Runoff (ISRP):	I	V	H
Adsorbed Runoff (IARP	H		L
AZINPHOSMETHYL 50W REG_NO: 0510360016450.00% Azinphos-Methyl	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	L	L	H
Solution Runoff (ISRP):	I	I	X
Adsorbed Runoff (IARP	I		I

Hazard Rating	X – eXtra high	H – High	I – Intermediate	L – Low	V – Very low

Pest Management Plan

Direct Fruit Feeders - Trap Catches

Implementation Records
Scouting history
Disease infection history
Pesticide application records

								Pest	Treatment Application	Date
5/							Trees			
5/							season)			
6/1/05	1	0					CM traps (2nd scout)			
6/8/05	11	12					CM above threshold 1st gen.			
6/17/05	11	5					CM above threshold 1st gen.	PC/STLM	Assail	6/12
6/23/05	9	3					CM above threshold 1st gen.	CM/PC	Imidan	6/24
7/7/05	6	4					CM above threshold 1st gen.	CM	Imidan	7/6
7/14/05	4	8					Changed CM traps; CM above threshold 1st gen.			
7/21/05	1	2	0	0	0	0		CM	Imidan	7/15
7/26/05			0	0	0	0	also			
7/28/05	0	2	0	0	0	0	new			
8/4/05	19	9	1	0	0	0	1st			
8/10/05	18	9	0	0	0	0	new			8/9
8/18/05	5	14	0	0	0	0	CM			
8/26/05	0	2	0	0	0	0	also			8/26
9/1/05	0	0	0	0	0	0				
9/8/05	0	0	0	0	0	0				
9/15/05	x	0	0	0	0	0				

Planning Issues
Pesticide selection & application timing
Pesticide storage
Nutrient mamagment

The Dream & $150A $30A

GOALS	ECO-Apple Teach them to fish	EQIP Give them fish
Build relationships between growers, researchers, other professionals		
Create orchard pest management measurement tool(s)		
Document change over time for pesticide risk/usage		
Enhance/expand grower management skills		
Initiate farmer networks		
Increase professional support for growers