



**Current Status and Future
Outlook for Growing Tart Cherries**



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Michigan State University



Production by the world's top five sour cherry-producing countries, average 1997 to 2006

<u>Rank</u>	<u>Country</u>	<u>production (mt)</u>	<u>% world production</u>
	World	1,103,869	100
1	Russia	177,600	16
2	Poland	165,691	15
3	Ukraine	139,860	13
4	Turkey	121,050	11
5	USA	114,599	10

Source: United Nations Food and Agriculture Organization, *FAOStat*, 2006.

U.S. Cherry Production



Tart Cherry Acreage¹

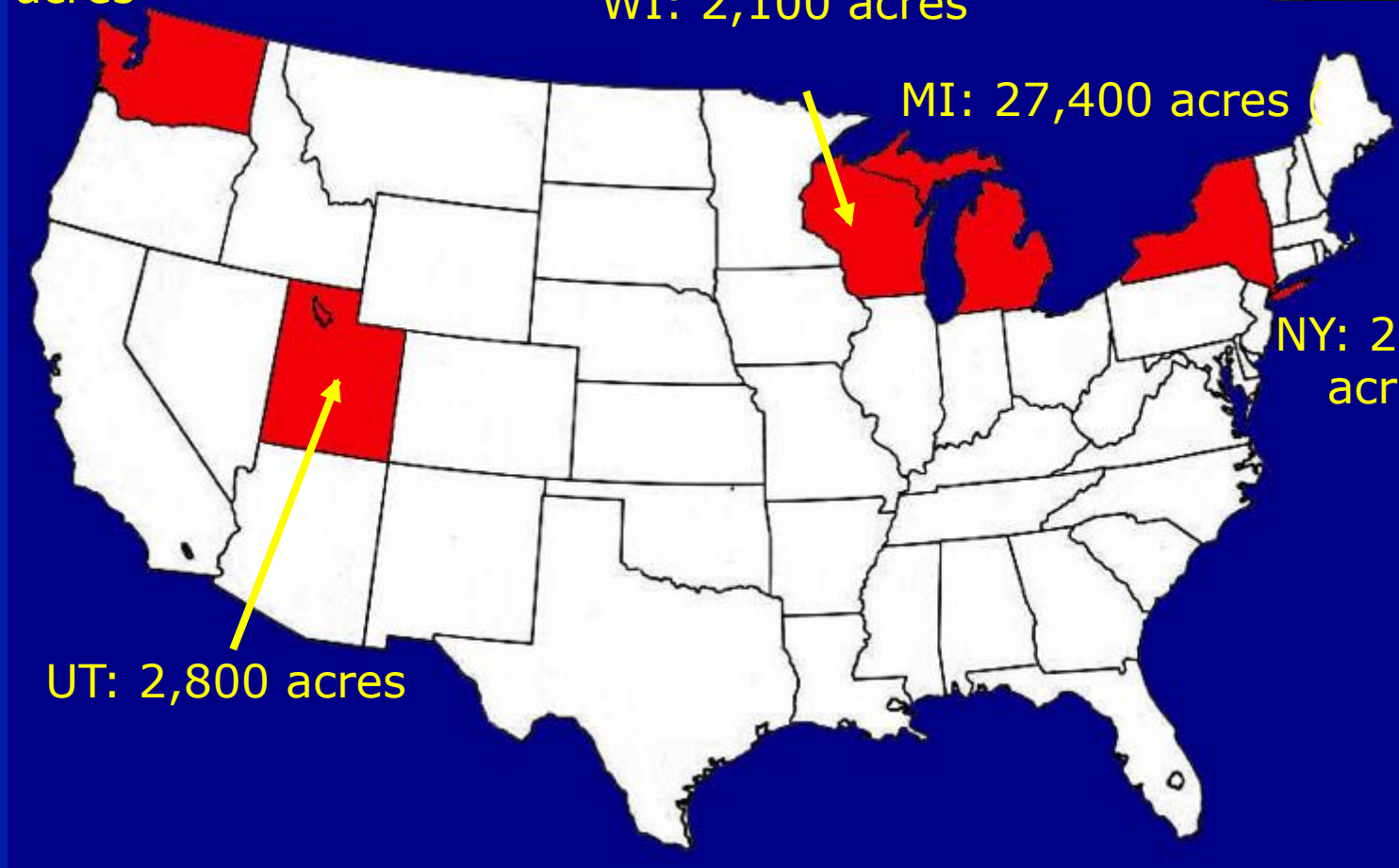
WA: 4,000
acres

WI: 2,100 acres

MI: 27,400 acres

NY: 2,200
acres

UT: 2,800 acres



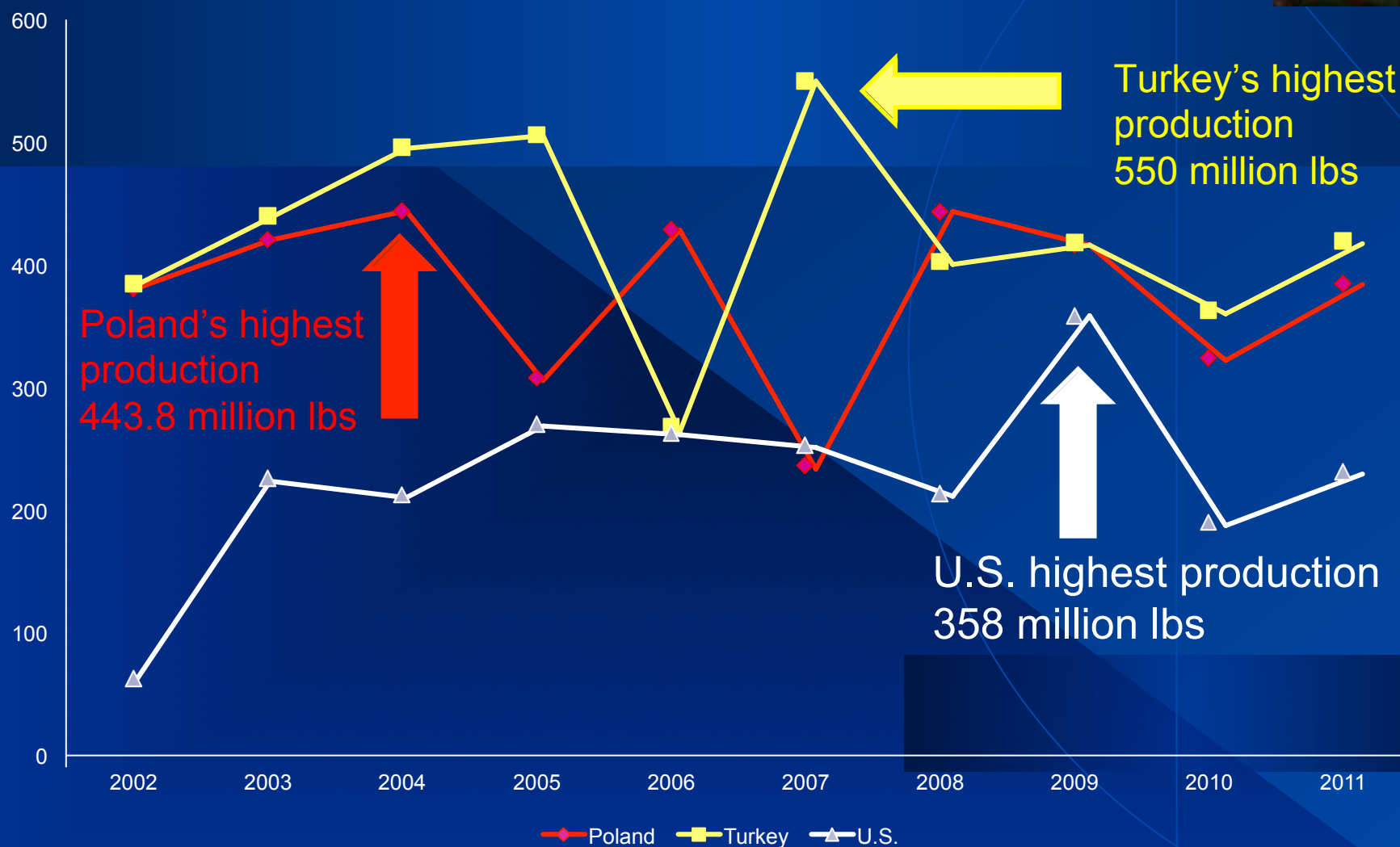
¹USDA, 1999-2001

Mean U.S. Tart Cherry Production 2008-2011



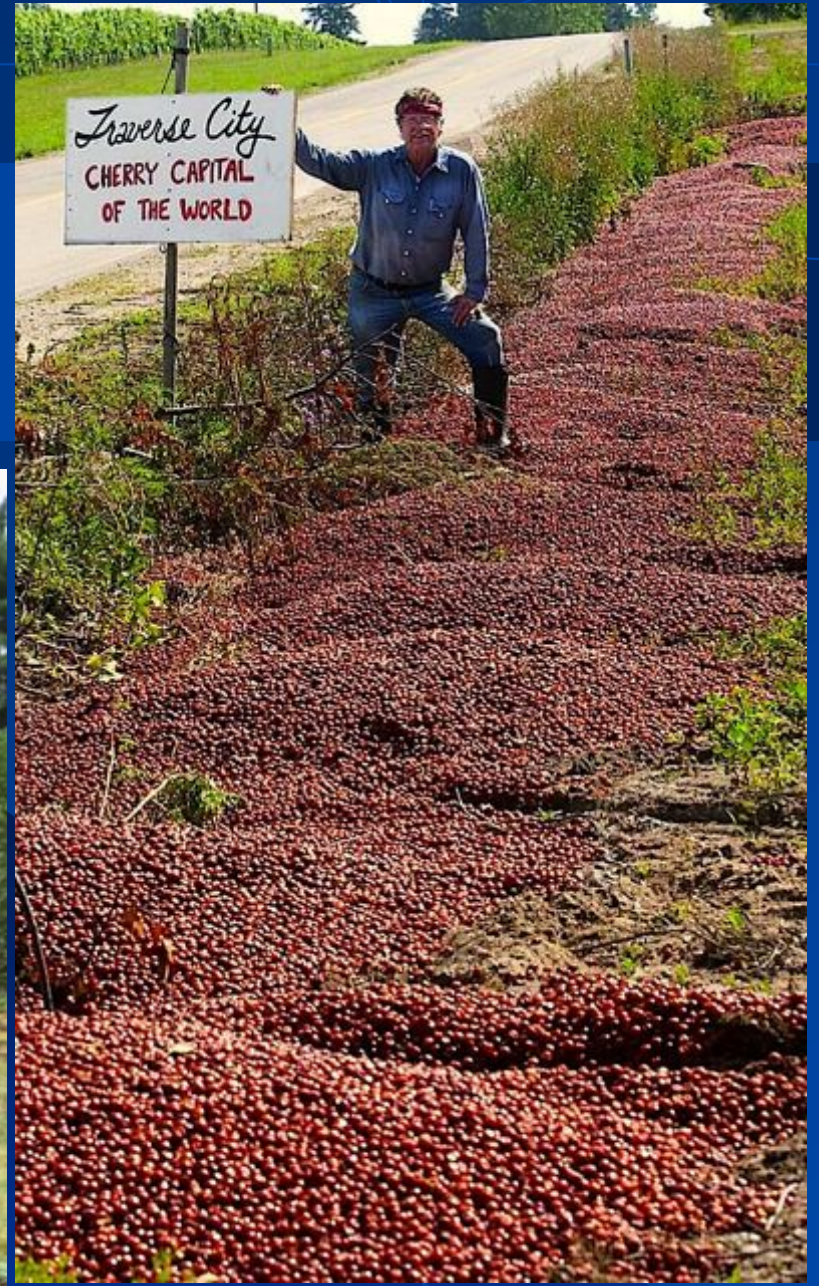
United States	257.5 million lbs	
1. Michigan	194.0	75.3 %
2. Utah	28.5	11.1 %
3. Washington	14.2	5.5 %
4. New York	8.8	3.4 %
5. Wisconsin	6.5	2.5 %
6. Pennsylvania	3.3	1.3 %
7. Oregon	2.2	0.9 %

U.S., Polish and Turkish production of tart cherries, 2002-2011

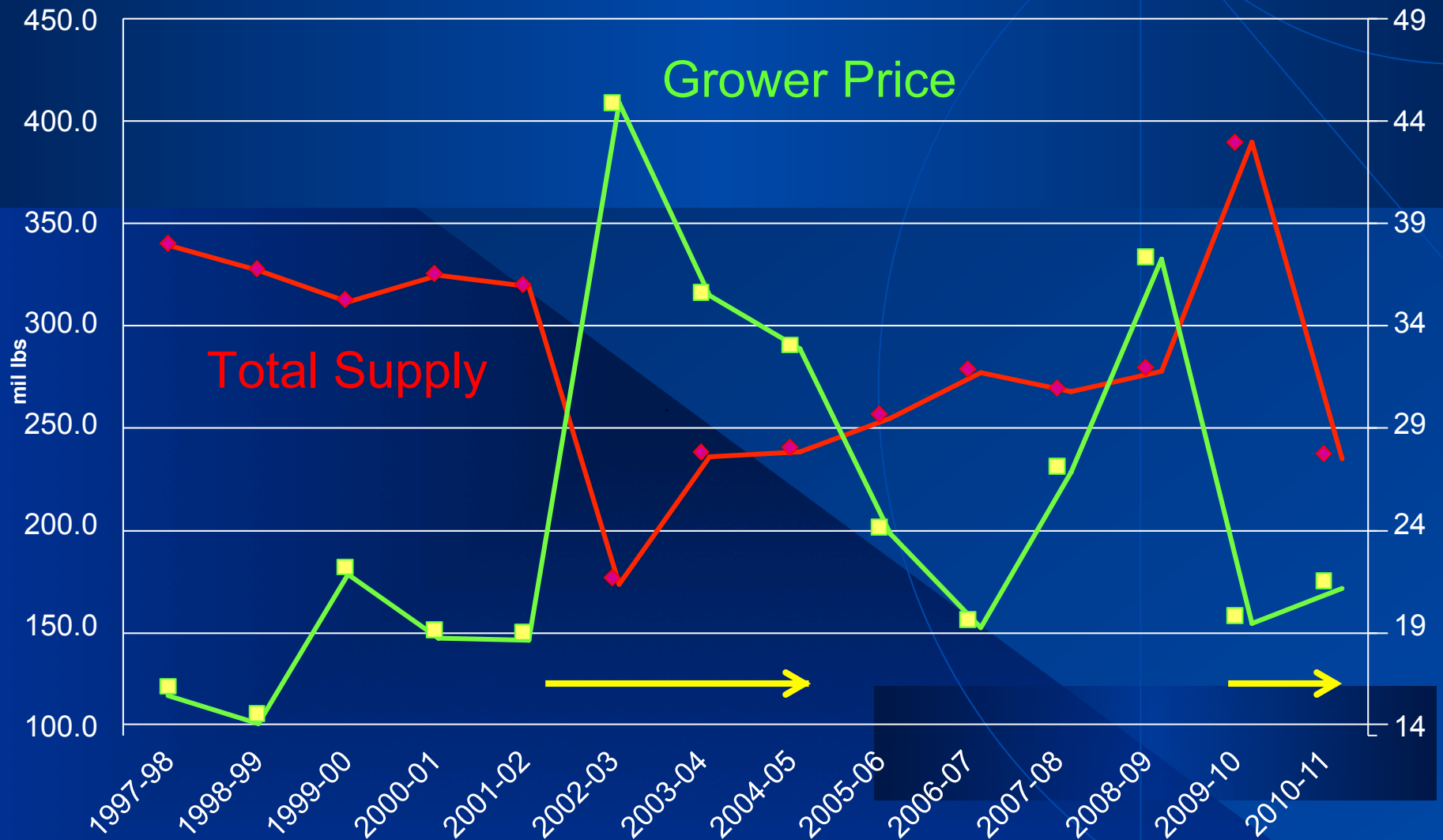


Slide courtesy of Mollie Woods

Tart Cherries in Michigan



Grower Price vs. Total* Supply 1997 - 2011

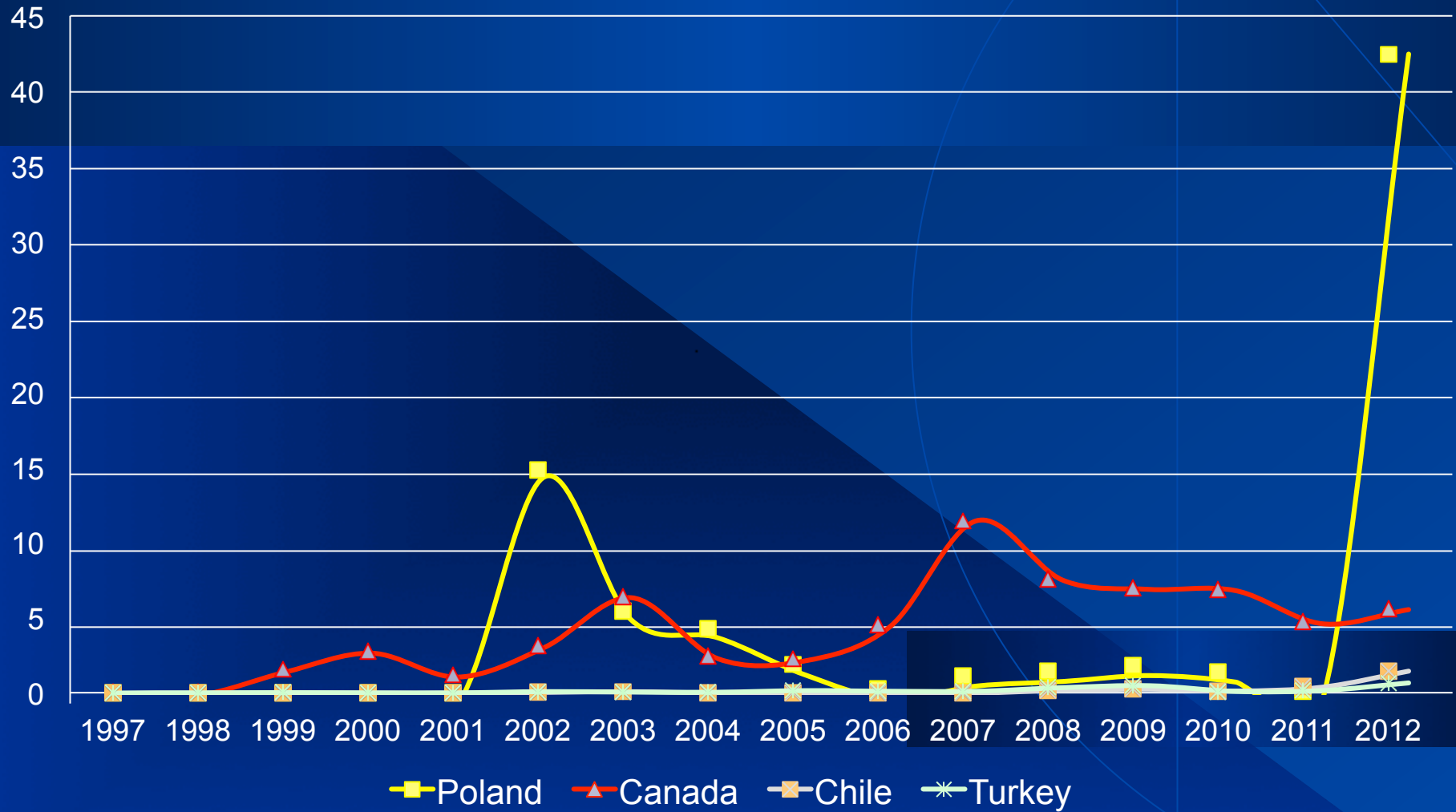


Slide courtesy of Mollie Woods

*Total Supply = new crop + carryover + imports



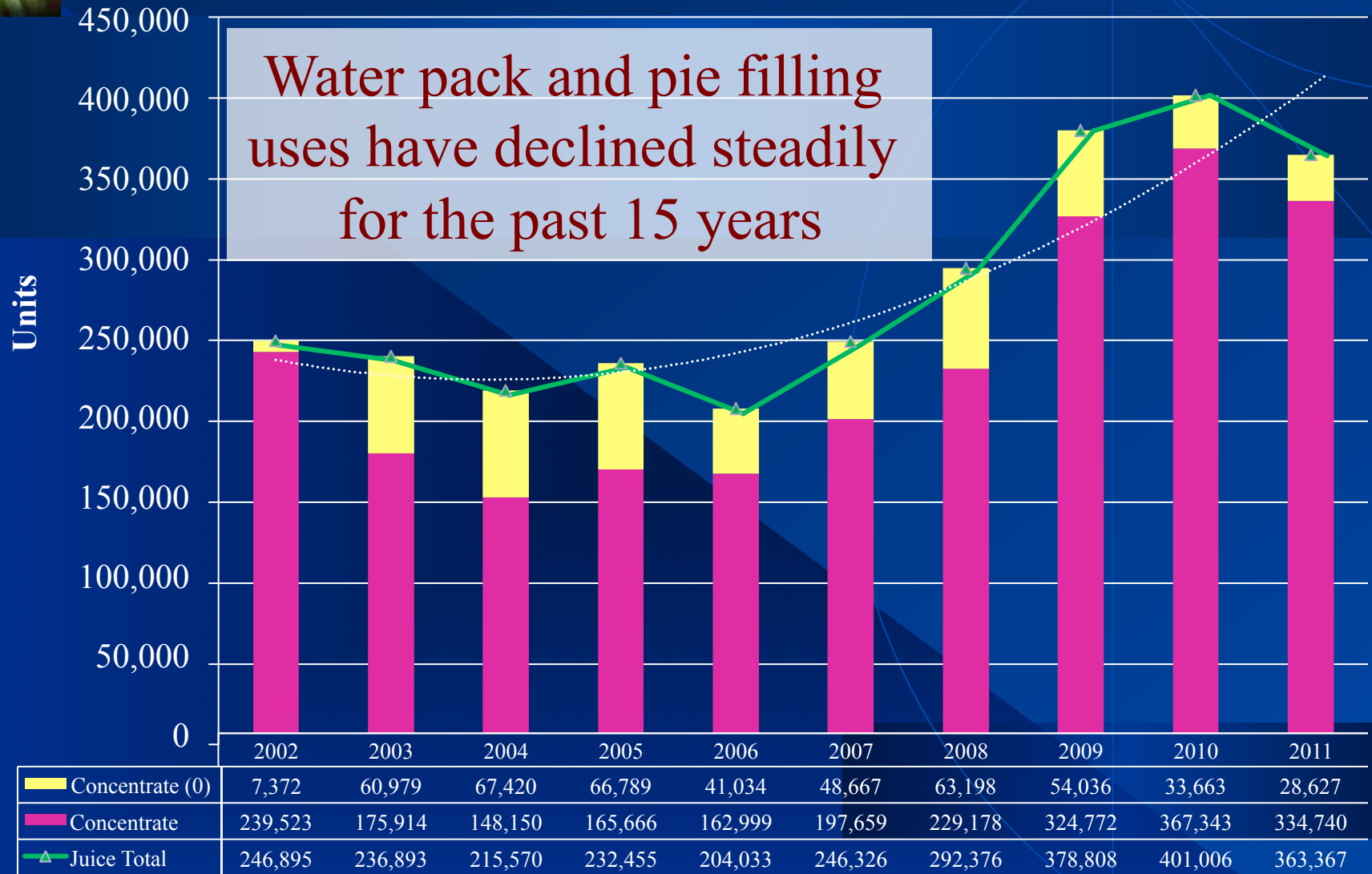
U.S. Imports of Frozen Tart Cherries, 1997 to November 2012 (million lbs)



Slide courtesy of Mollie Woods

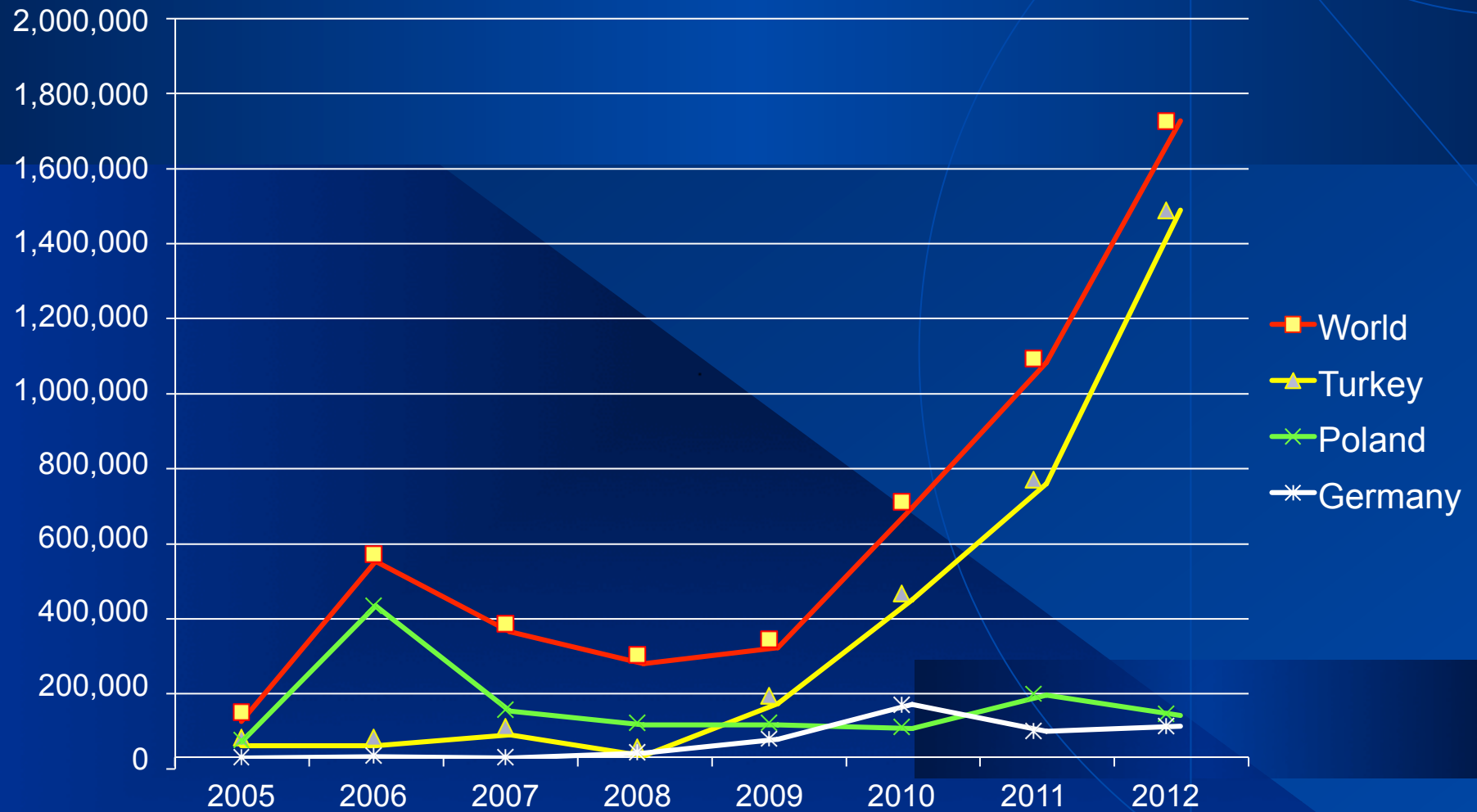


Tart Cherry Concentrate Sales 2002 to 2011



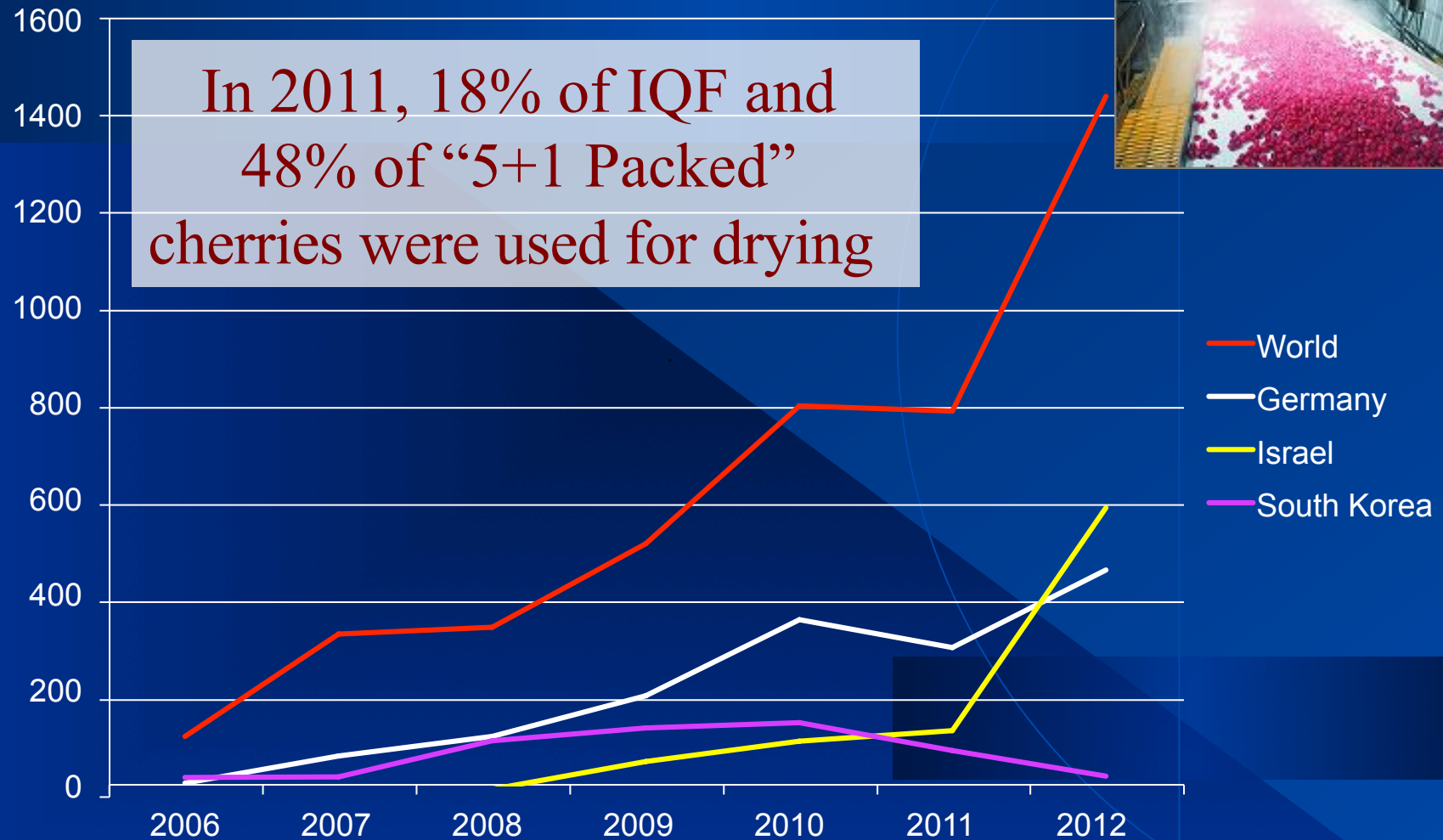
Slide courtesy of Mollie Woods

U.S. Imports of Tart Cherry Juice Concentrate, 2005-November 2012 (gallons)



Slide courtesy of Mollie Woods

U.S. Exports of Dried Tart Cherries, 2006 to November 2012



Slide courtesy of Mollie Woods



Montmorency

A 400+ year old variety, the U.S. industry standard. A multi-purpose tart cherry for processing (canning, freezing, making pies).

The fruit is bright red, medium in size, with a clear, juicy, soft flesh. The trees are self-fruitful, winter hardy, precocious, very productive (fruit on 1-year-old shoots), somewhat resistant to European brown rot, but very susceptible to leaf spot.

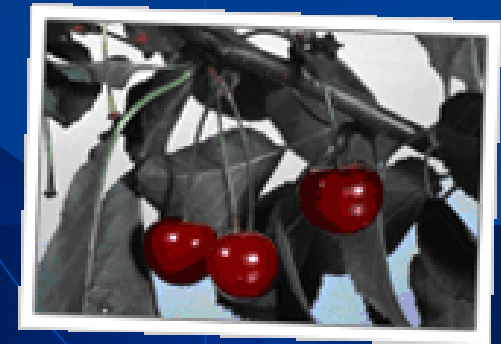
Machine harvested into water-filled tanks.

Other Cultivars



English Morello / Schattenmorelle—hardy, productive (fruit on 1-year-old shoots), dark red-juiced, a week later than Montmorency, somewhat resistant to European brown rot

Surefire – from Cornell (1999), larger than Mont, not as productive but crops regularly (more spur habit), red flesh, late bloom, ripens 2 weeks after Mont, chemical-sensitive in early MI tests



Other Cultivars (very hardy)

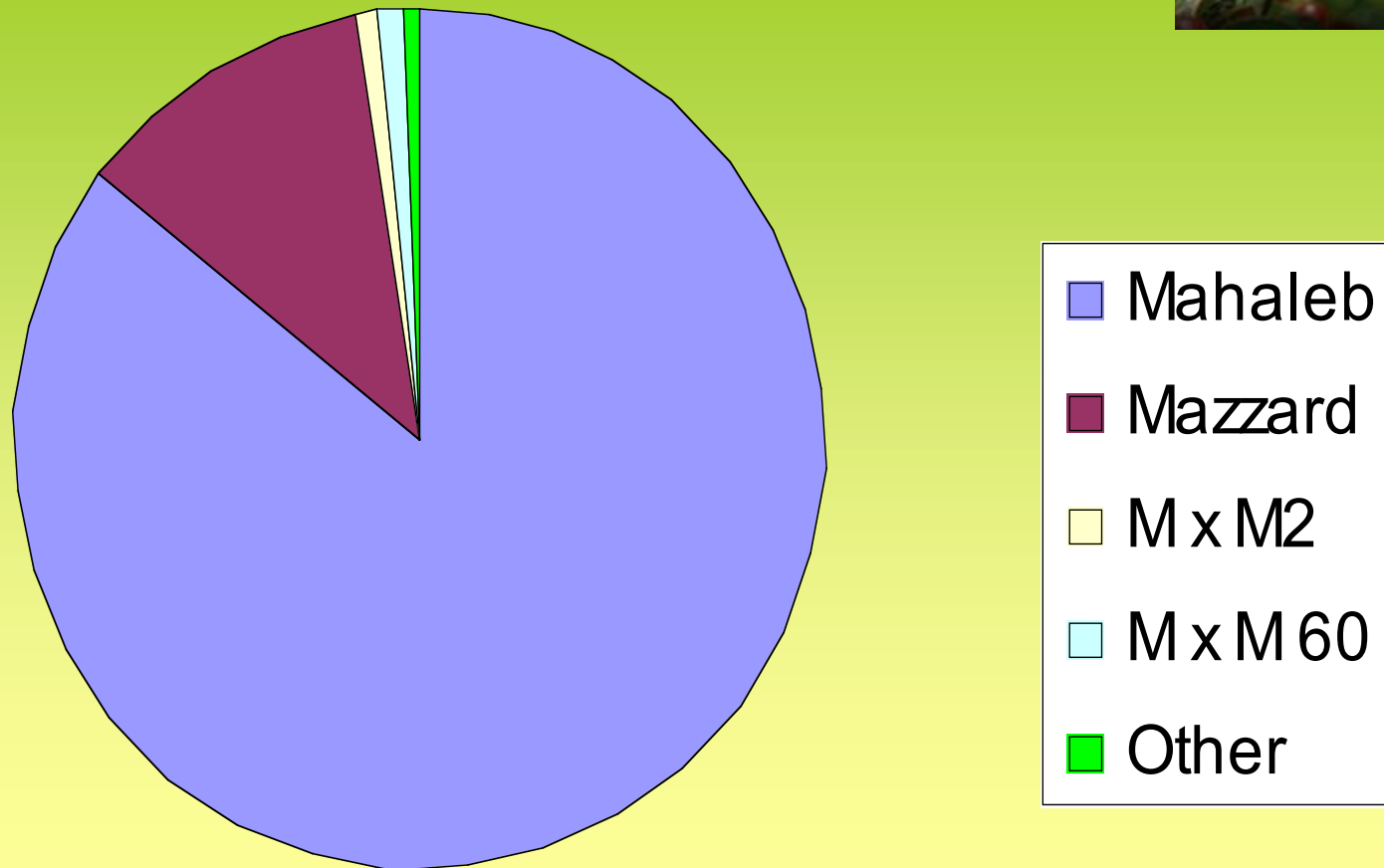


Meteor – from Minnesota, Mont-type (red-yellow) fruit is larger and ripens 5 days later than Mont, compact tree, spur habit, leaf spot resistant, susceptible to brown rot, good for juice and wine, oblong pit

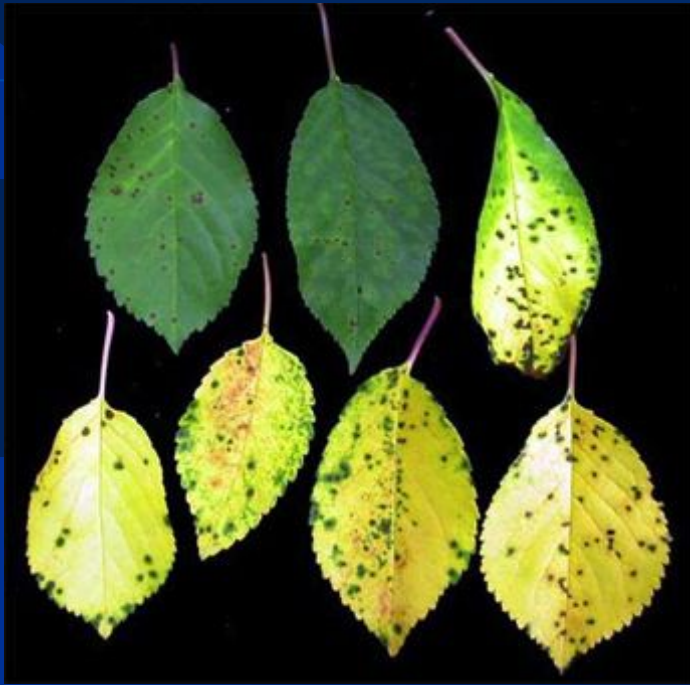
Northstar – from Minnesota, very hardy, very productive, red to dark red, similar in fruit size to Mont, ripens up to 2 weeks later, very compact tree, leaf spot resistant

Mesabi – from Minnesota, similar to Meteor (compact tree) but higher sugar

Rootstock Use in Michigan Tart Cherry Production (2003)



Vigorous rootstocks suitable for trunk-shaking



Cherry Leaf Spot (*Blumeriella jaapi*)



Fungicides must be applied from budbreak through the end of summer. Premature defoliation can reduce cold hardiness.

Key insects: Plum curculio, cherry fruit fly, spotted wing drosophila





Continuous “Beside-the-Row” (BTR) Harvester Prototype

Don Peterson Harvester (USDA)

- Prototype harvester fingers 6” apart and ~20” long
- Harvester is 7’ high, with total finger-spindle length of 48”
- Spindles tilt and move side-to-side



Continuous Harvest at 1-2
mph, 6 hedgerow trees/minute





Fruit Quality Comparable to Trunk Shaker



BTR Harvester Action

Berry Harvesters best on non-spur willowy fruiting shoots



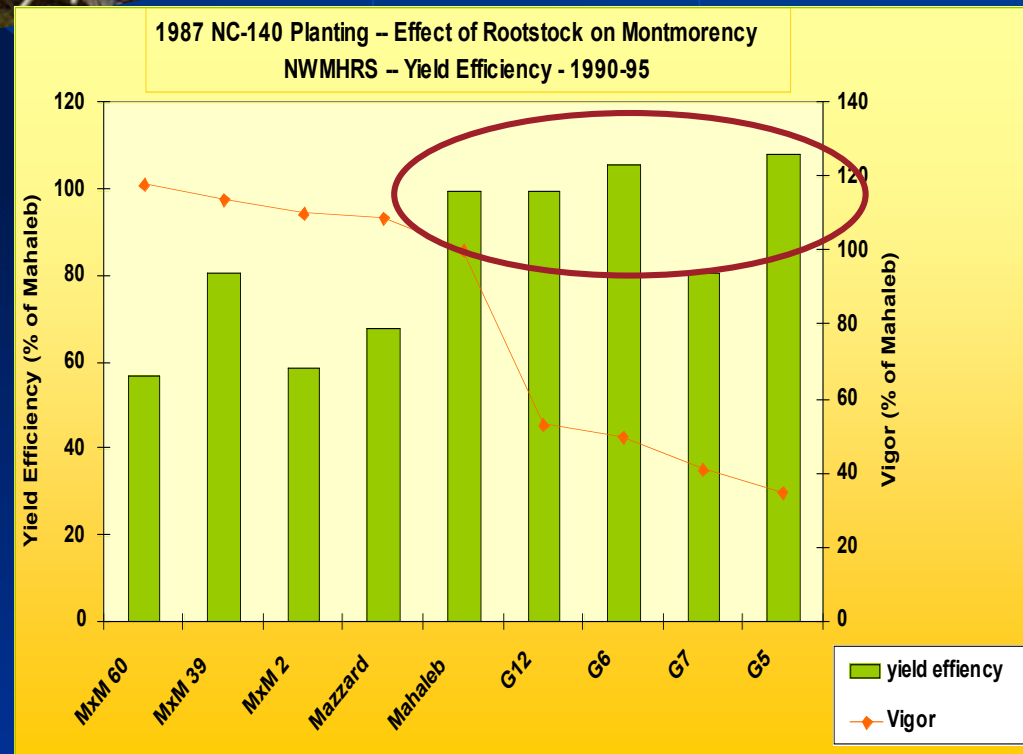


Grant's
BTR
Prototype

**BTR Continuous Harvest
Hedgerow Tree Prototype:
requires high-yielding trees
having reduced stature**



**Gisela 5, 6, and 12 were
all similar to mahaleb in
yield efficiency on trees
half as large**



Over-the-Row (OTR)
Berry Harvesters
(Oxbo, BEI)



OTR Harvesters In
Poland



Poland



Saskatchewan



Photo by Bob Mason

Small-scale



Black Ice

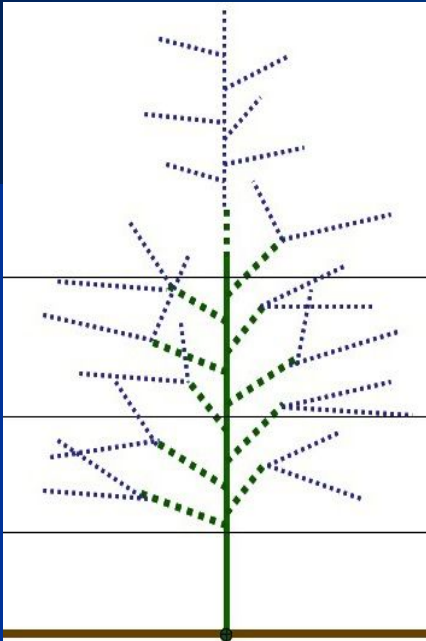


Continuous Hedgerow OTR Harvester



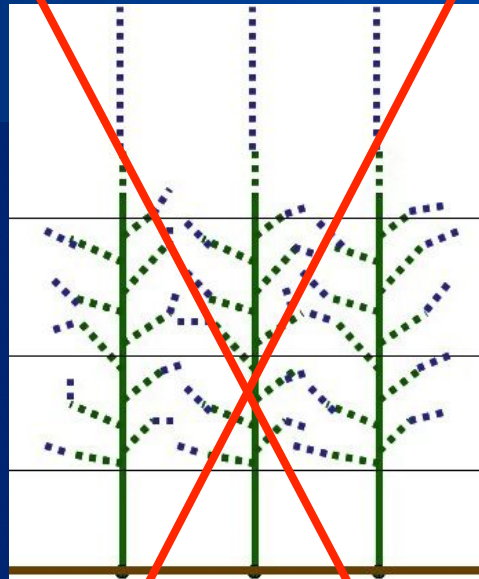
New System Template: Sweet Cherry Training

TSA



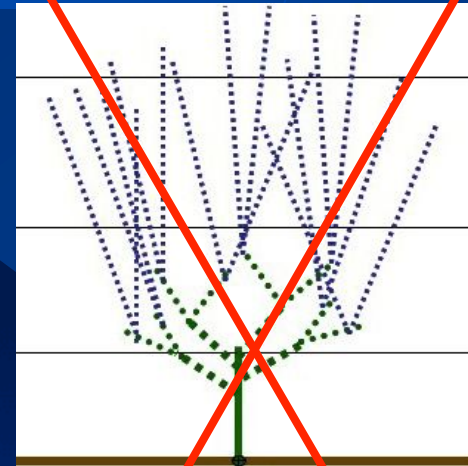
Tall Spindle
Axe

SSA



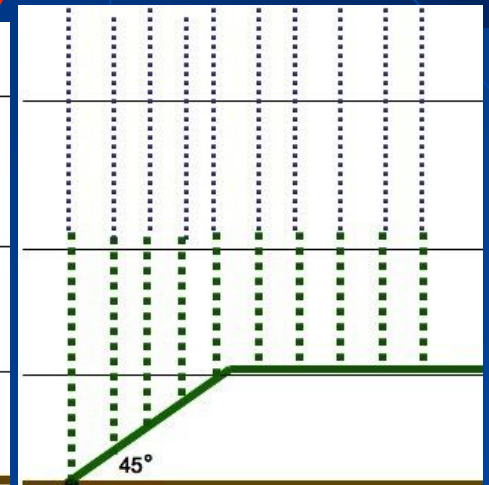
Super Slender
Axe

KGB



Kym Green
Bush

UFO

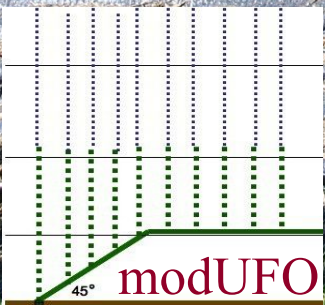


Upright
Fruiting
Offshoots

Testing dwarfing rootstocks, own-roots, system effects



Montmorency/mahaleb
2011 / Year 2: Initial Fruit

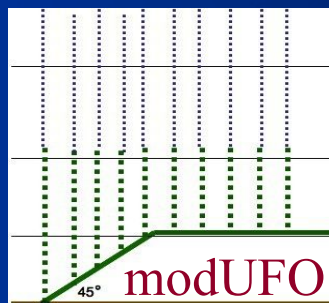




Evaluating 3-Year-Old Canopy Architecture

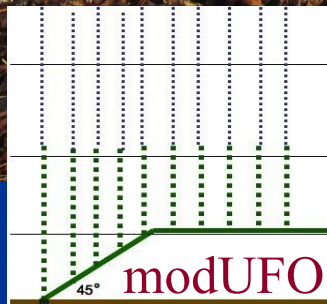


Planting too horizontal created two strong upright leaders, others were weak



Even when planted at an angle, strong upright leaders can arise if not managed early

Balanced fruiting zone from five balanced leaders developed in Year 2





Balaton (Ufjihertos fuertes)

Late maturing, ripening 7-10 days after Montmorency.
The fruit is dark red, large and very firm with a red
juicy, sweet-tart flesh.

Recommended for fresh markets and processing.

Blooms later than Mont, seems to need cross-pollination
(tart or sweet), as productivity can be a problem.



Danube (Erdi Botermo)

Dark red, medium to large, sweeter than Montmorency (good fresh), can be picked with a dry stem scar.

Ripens about a week before Montmorency.

The trees are very productive, however, are more susceptible to winter injury than Montmorency.

Planted widely in Europe.



Jubileum (Erdi Jubileum)

An very early maturing, dark red tart cherry variety for the fresh market.

Ripens five days before Danube and ten days before Montmorency.

Large fruit with good keeping qualities, hangs well on tree.

Univ. of Saskatchewan Compact Series – Bob Bors

Carmine Jewel
and the
Romance Series
(2004):
Juliet, Romeo,
Cupid, Valentine,
Crimson Passion



Carmine Jewel (1999)

Dark red,
Good flavor,
Very productive,
Small fruit (3.5 g),
Early ripening



Crimson Passion

Dark red,
High sugar and
excellent flavor,
Very firm,
Low productivity,
Low vigor,
Fruit size (6.0 g)



Romeo

Dark red,
Similar to Carmine
Jewel but much later,
Good sugar & juice,
Very productive,
Small fruit (4.0 g)



Juliet

Dark red,
High sugar and excellent
flavor while still tart enough
for pies,
Very productive,
Fruit size (5.0 g),
Earlier bloom

Valentine

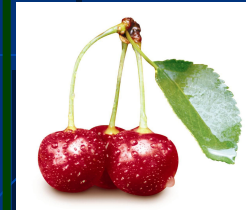
Medium red (Mont type but
light red flesh),
Fruit size (4.5 g),
Average bloom time



Cupid

Very dark purple red,
Good flavor,
Late bloom,
Good productivity,
Large fruit (6.5 g)

MSU Tree Fruit Research



Questions ?

*For additional information,
check out:*

Greg Lang's MSU Website:
www.hrt.msu.edu/greg-lang

The MSU Cherry Website:
www.cherries.msu.edu



MICHIGAN STATE
UNIVERSITY