

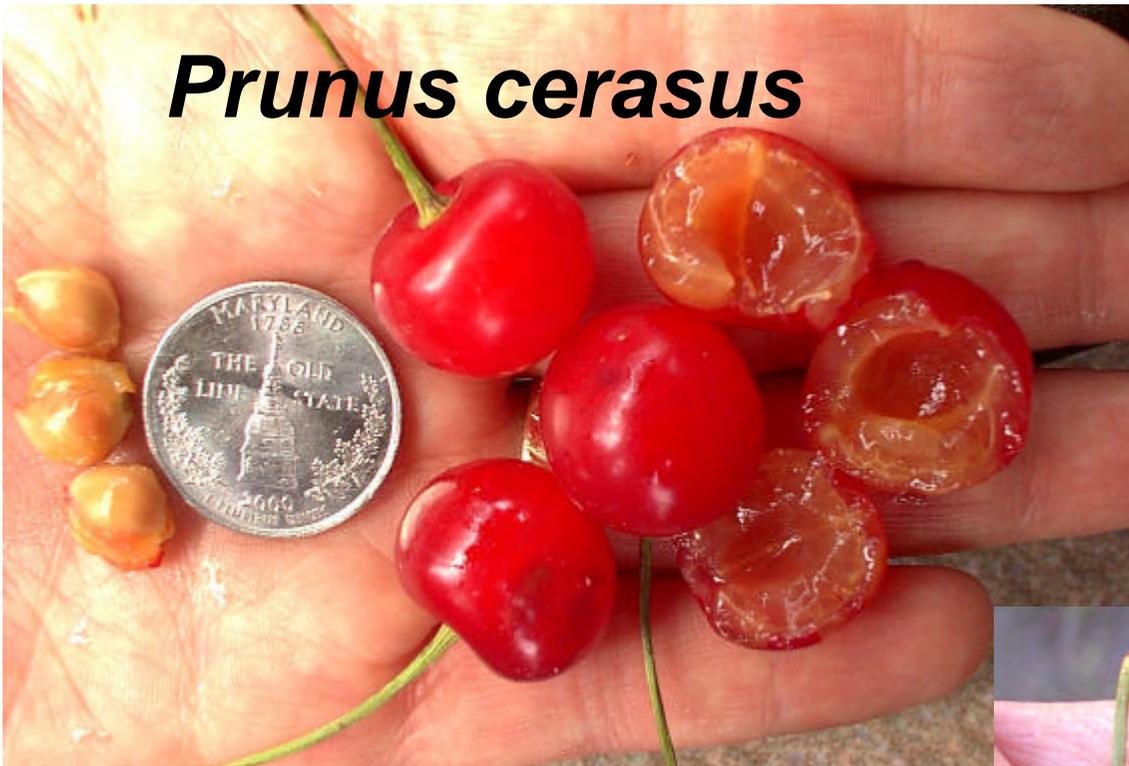
Cold Hardy Cherries



Bob Bors

Quebec
2002

Prunus cerasus



P. pensylvanica

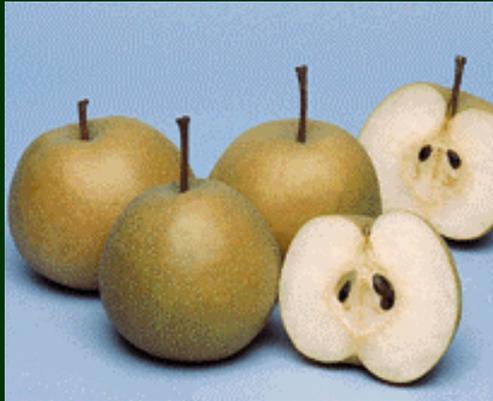


P. virginiana



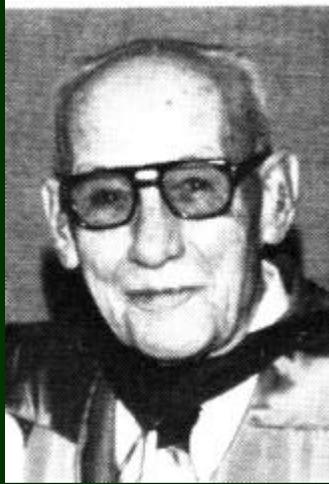
P. avium





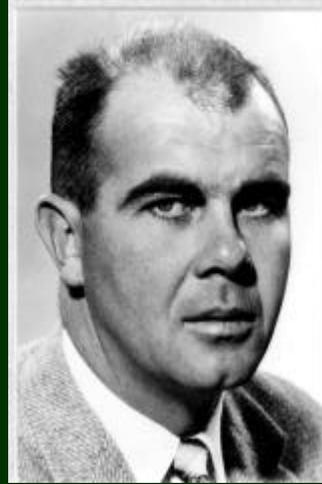


Prairie Sour Cherry Breeding



**1940 -
1982**

Les Kerr



**1968-
1982**

Stewart Nelson



**Cecil
Stushnoff
1983-1989**



→ Rick →

**Bob,
Forrest**

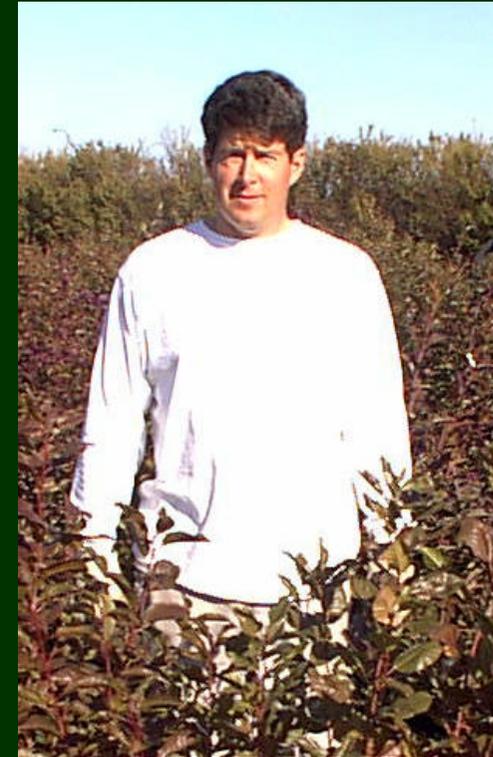
**20,000 seedlings
in last 10 years**



Rick Sawatzky
1971 - present



Bob Bors
1999 - present



Forrest Scharf
1999 - present

Production Sequence

Plant

System

Product

Market

Planning Sequence

Market

Product

System

Plant

PLANTS

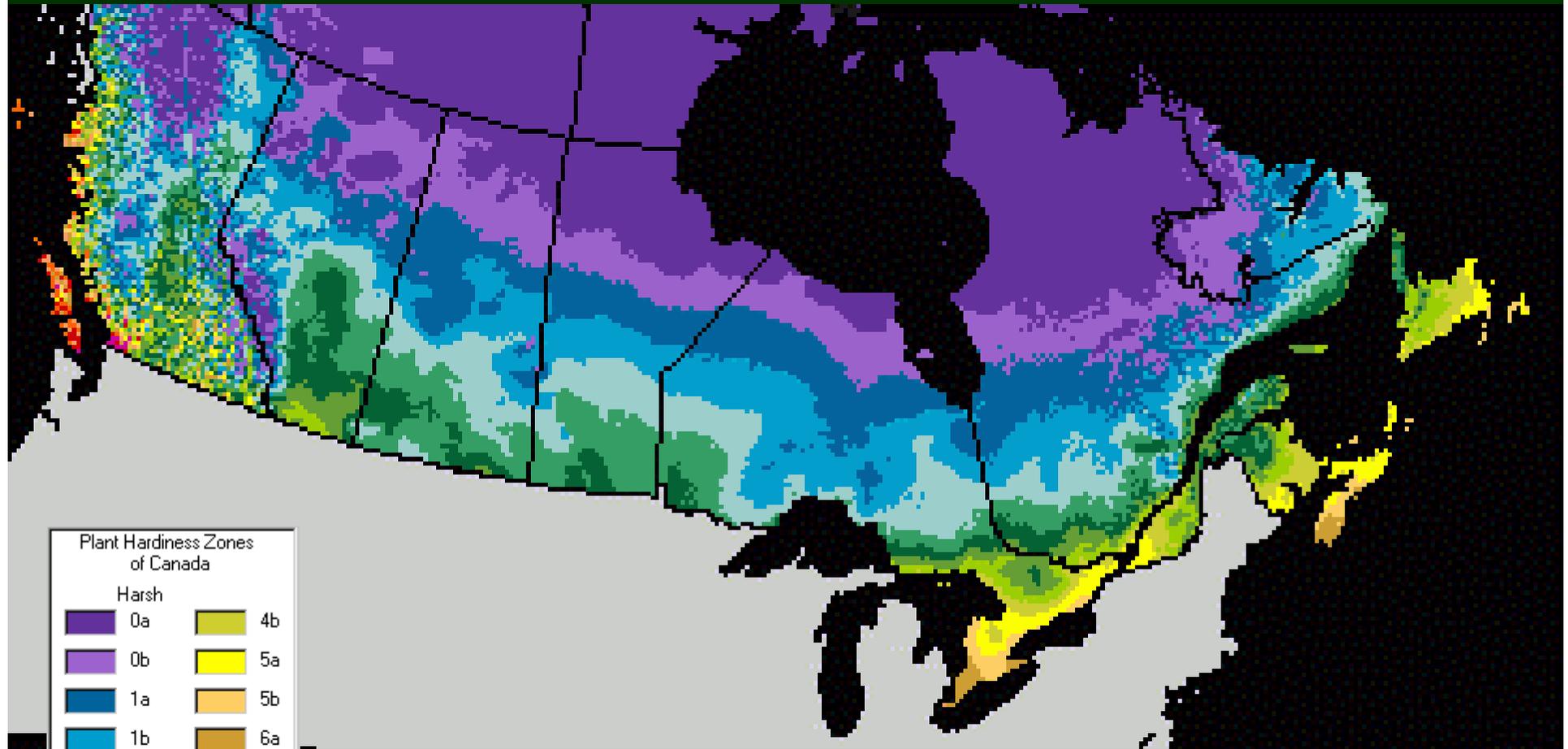
Choosing Cherry Varieties

- **Cold hardiness**
- **Flavour**
- **Tree size**
- **Fruit and juice colour**
- **Time of ripening**





Plant Hardiness Zones of Canada 2000



Plant Hardiness Zones of Canada

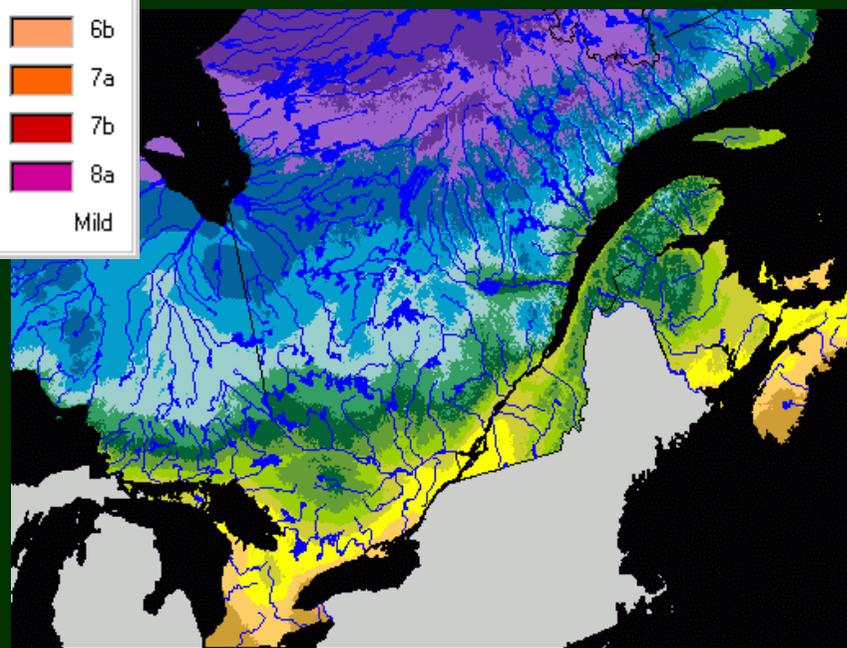
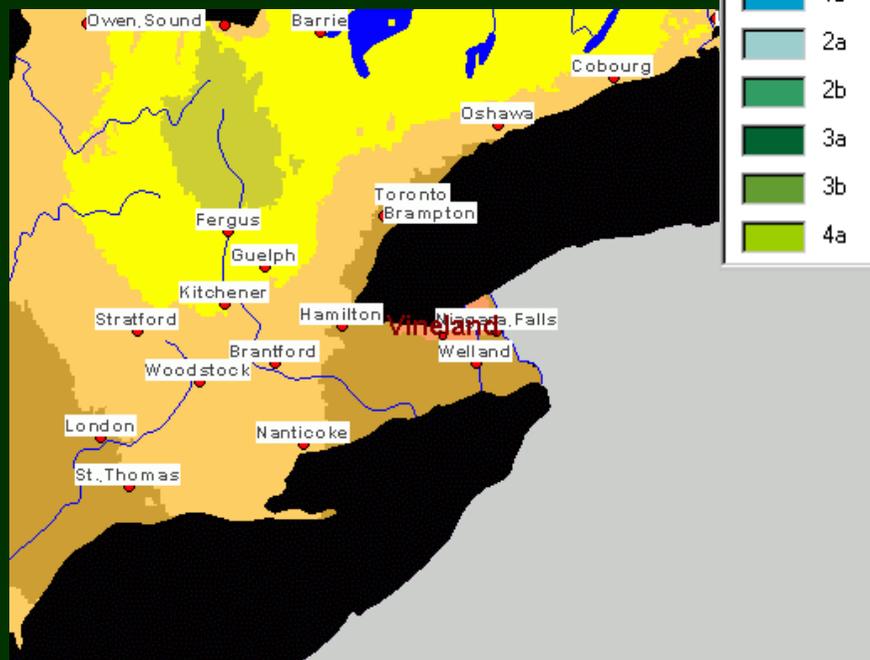
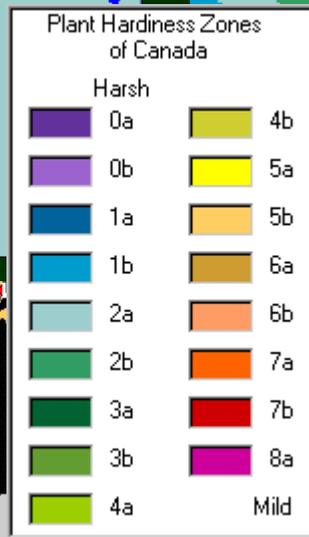
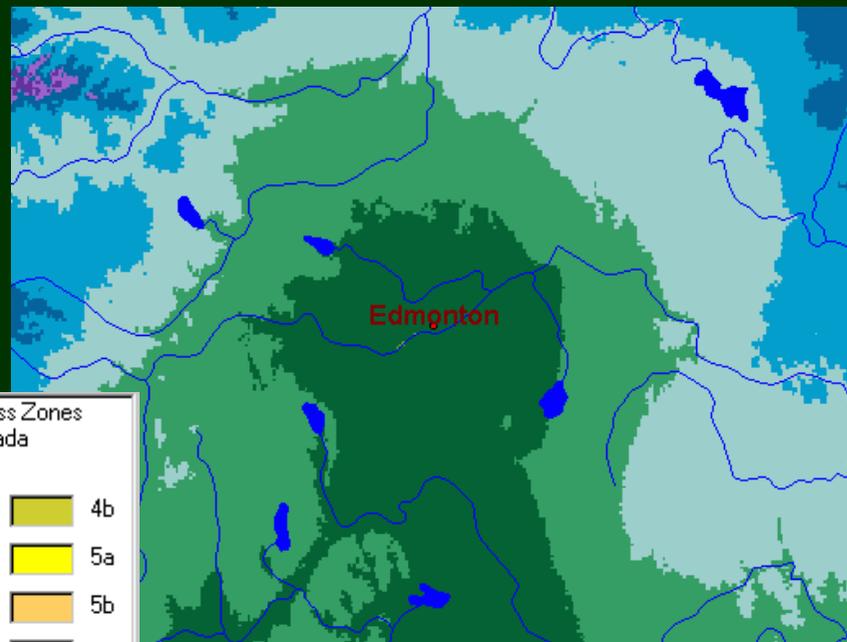
Harsh	
0a	4b
0b	5a
1a	5b
1b	6a
2a	6b
2b	7a
3a	7b
3b	8a
4a	Mild

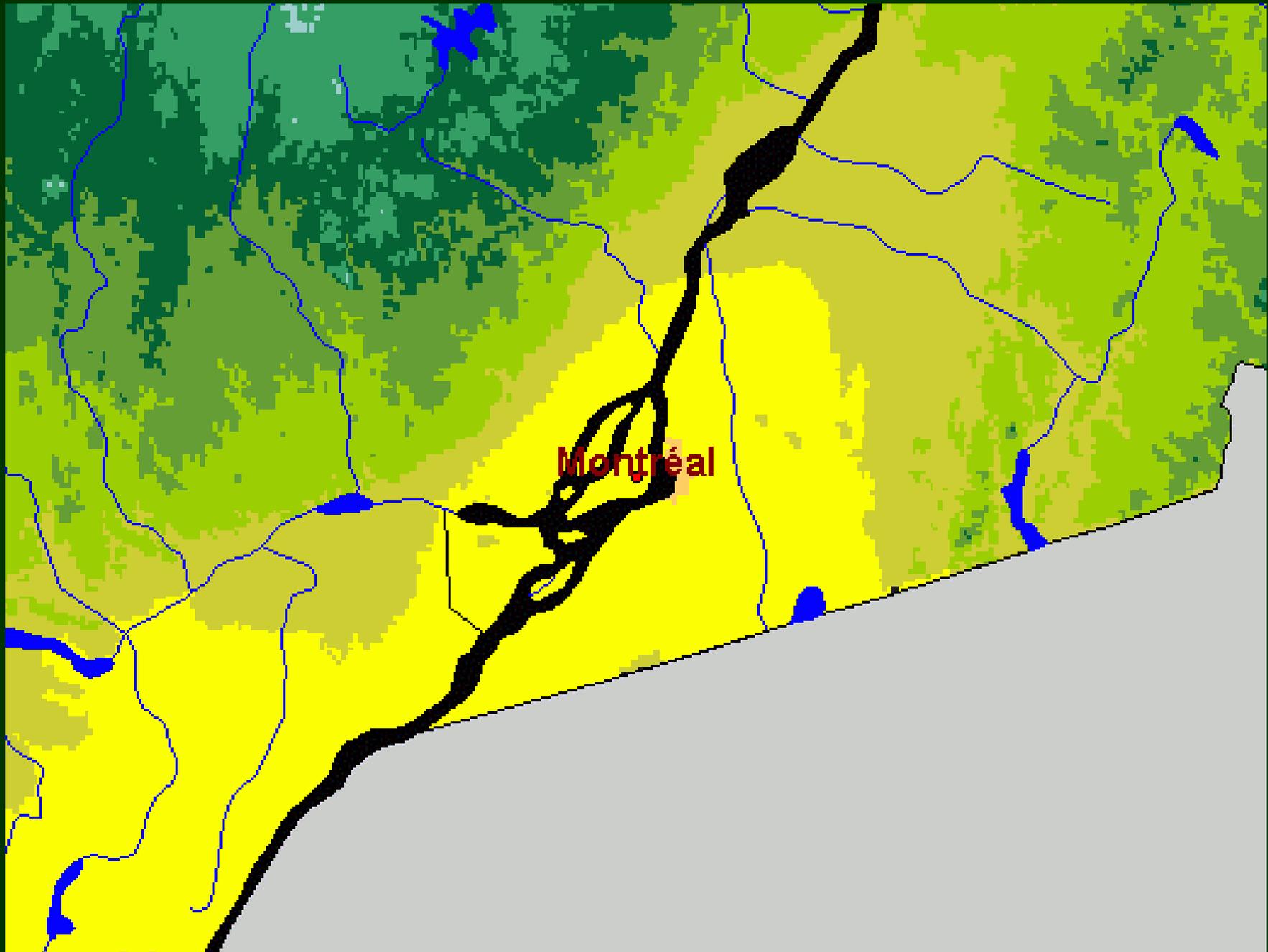


Agriculture and
Agri-Food Canada

Agriculture et
Agroalimentaire Canada

<http://sis.agr.gc.ca/cansis/nsdb/climate/hardiness/intro.html>





U.S. Cherries:

Cultivar Remarks



Standard:

Early Richmond early, productive, but fair quality

Montmorency mid-season, best red tart

2/3rds standard size:

Meteor mid-season, hardy; small, but quality fruit

[Evans is likely a seedling of this variety]

North Star mid-season, small fruit, fair quality

European Cherries:

**Tested in Ontario & worth investigating.
Most have dark colour, superior flavour.**

Cacanski Rubin

Cigancia

Erdi Jubileum

Goresemka

Fruchbare von Michurin

Heimanns Konserva

Heimanns Rubin

Leitzkauer Pressauerkirsche

Planteskole og Frohandel

Schattenmorelle

Sour Chari

Stevensbaer

Prairie cherries: U of SK, 7-21-16.3 'Momma'

- Ripens early Aug.
- fruit weight = 5.5g
- flavour = excellent
- pit shape = round
- soluble solids = 20 to 22 Brix
- fruit colour = dark red
- juice colour = bright red



Prairie cherries: U of SK, 7-21-16.3 'Momma'

- **productivity = good**
- **winter survival = good**
- **suckers = 0**
- **tree height = 2m**
- **fruit retention force / g = 45**
- **disease incidence = 1 branch had bacterial canker**



Prairie cherries: U of SK, **Sk Carmine Jewel**

- ripens late July
- fruit weight = 3.8 to 4.0g
- flavour = good
- pit shape = round
- soluble solids = 15 to 17 Brix
- fruit colour = dark red to black
- juice colour = bright red



Prairie cherries:

U of SK,

Sk Carmine Jewel

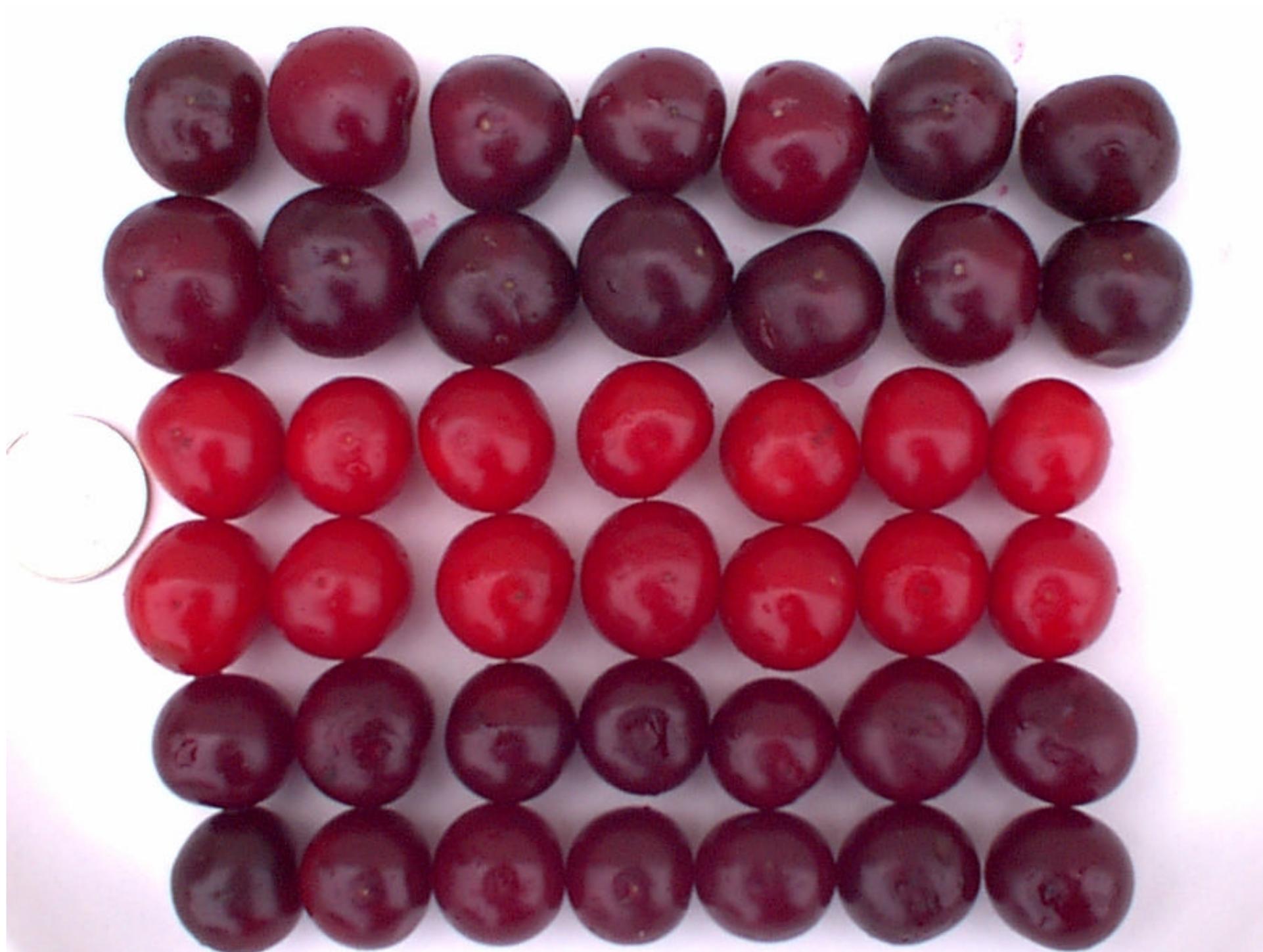
- **productivity = excellent**
- **winter survival = good**
- **suckers = few**
- **tree height = 2m**
- **fruit retention force / g = 60**
- **disease incidence = none**



Prairie Cherries

- Evans

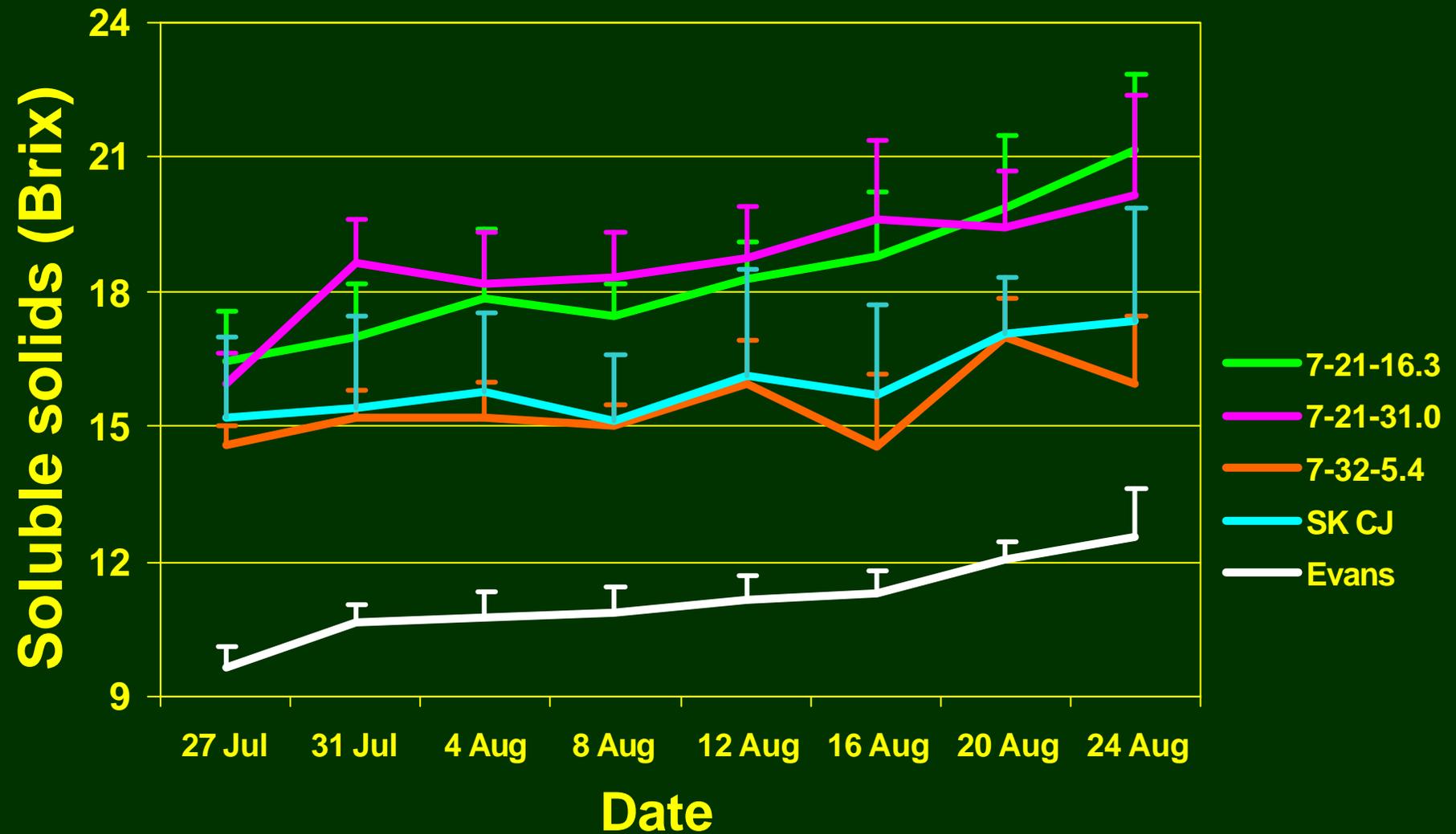
- Hardiness depends on grower & location
 - poor in zone 2
 - fair to poor zone 3,
 - good zone 4
- good fresh taste
- bright red: pie cherry
- brown juice unless frozen or cooked
- yellow flesh oxidizes quickly
- large tree, handpick
- large long pits: crank type pitters best, may shatter in machines



Choosing Cherry Varieties

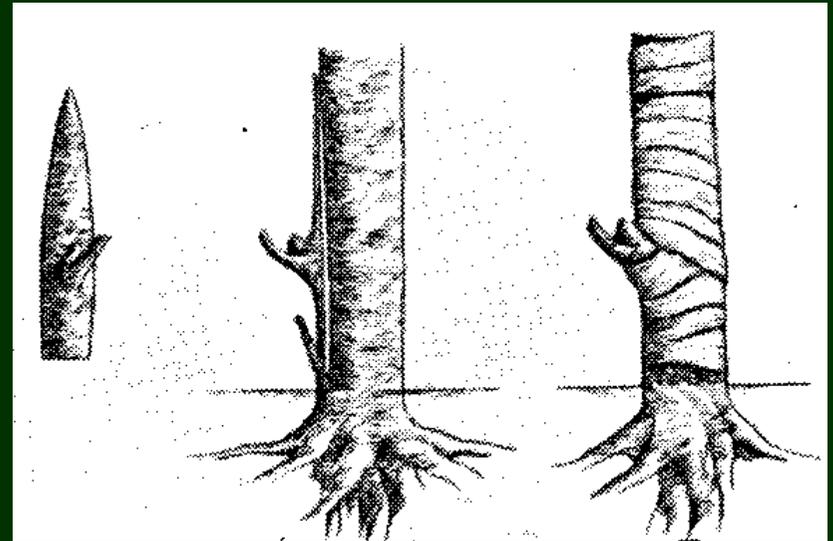
- Cold hardiness
- **Flavour**
- Tree size
- Fruit and juice colour
- Time of ripening

Soluble solids of five cherry selections in 2000



Choosing Cherry Varieties

- Cold hardiness
- Flavour
- **Tree size**
- Fruit and juice colour
- Time of ripening



3 types of sour cherries on the prairie

Half Mongolian



**1/4th Mongolian
(U of S hybrids)**



Sour Cherry (ie. Evans)





Full size sour cherry trees

Choosing Cherry Varieties

- Cold hardiness
- Flavour
- Tree size
- **Fruit and juice colour**
- Time of ripening

Juice extracted by freeze/thaw

undiluted

50%

25%

5%

**Carmine
Jewel**

**Cranberry
(undiluted)**

Evans



Thawed Fruit



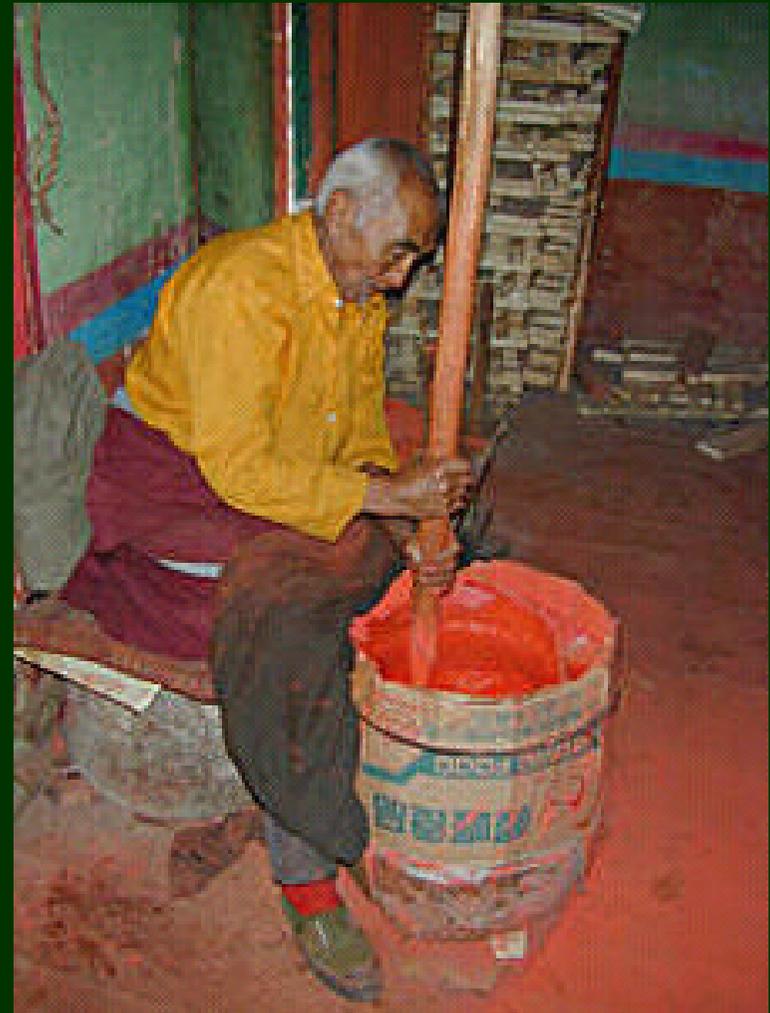
Carmine Jewel

Evans

Yellow flesh cherries: often dyed



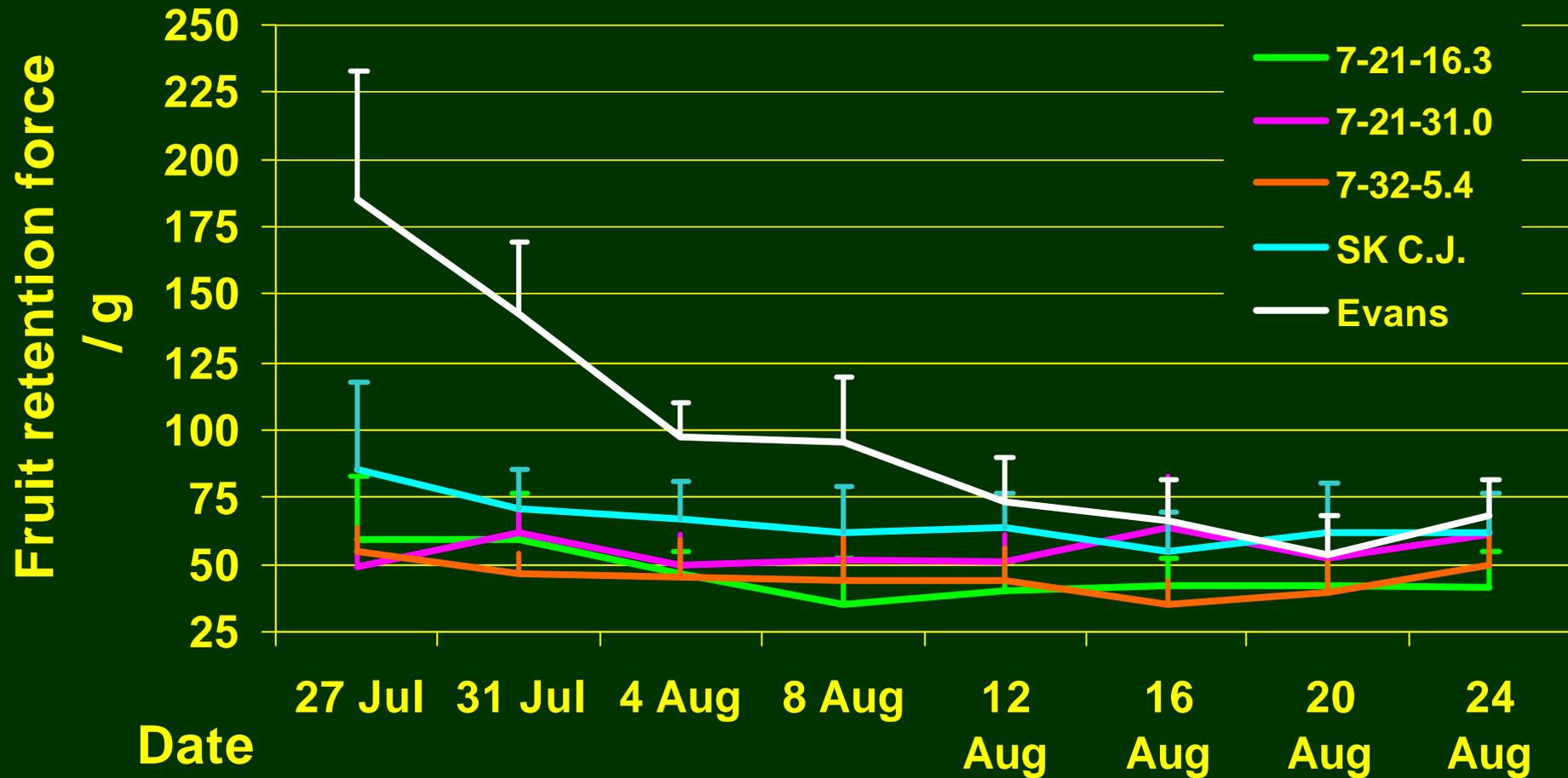
**Montmorency:
a 400 yr. old variety**



Choosing Cherry Varieties

- Cold hardiness
- Flavour
- Tree size
- Fruit and juice colour
- Time of ripening

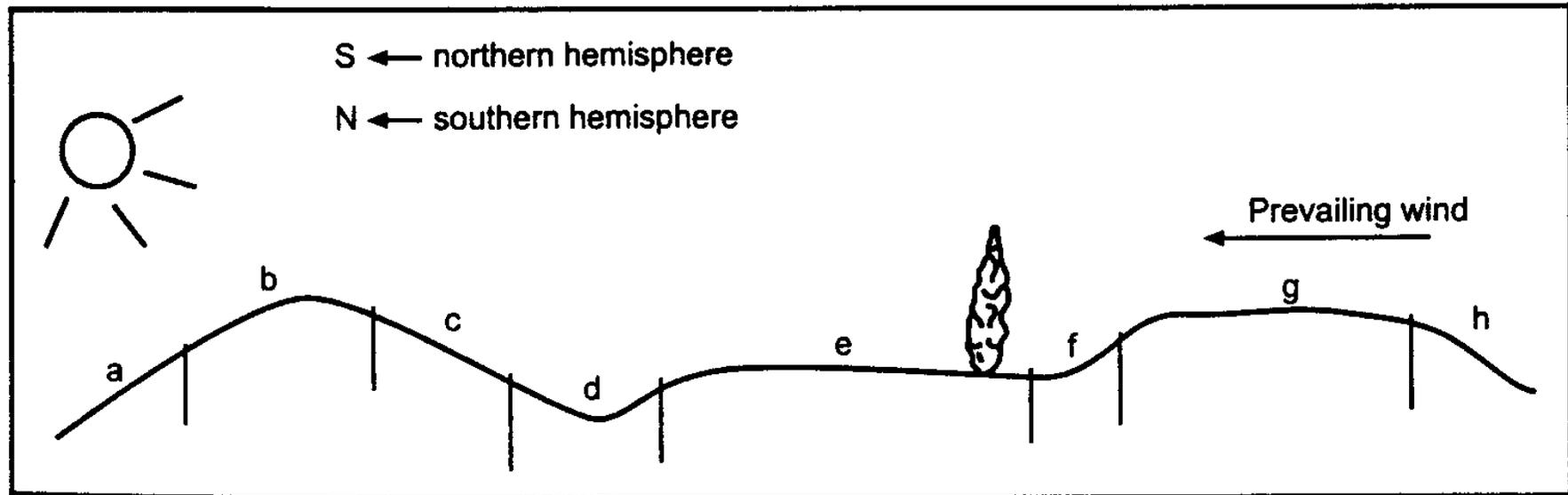
Ease of harvesting five cherry selections in 2000



SYSTEM

Systems

- **choosing a location**
- **irrigation and fertilization**
- **pruning and training**
- **pests and diseases**
- **harvesting**



northern slopes for early bloomers
avoid frost pockets, wind, wet spots
well drained, good soil
market location

**Cherries,
like most tree fruits,
prefer well-drained loam
or sandy loam soil.**

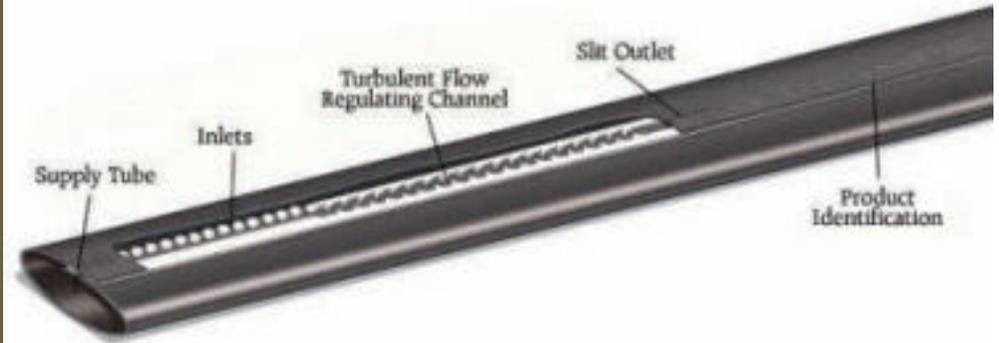


<http://www.statlab.iastate.edu/soils/>



Systems

- choosing a location
- **irrigation and fertilization**
- pruning and training
- pests and diseases
- harvesting



Irrigation needed 1st 3 year for orchard to get established
Use a water wagon if irrigation isn't set up



Irrigation

- Especially in 1st 3 years
- Good for consistent production

Fertilization

- Soil testing before planting
- Colder areas:
 - fertilize only in spring

Systems

- choosing a location
- irrigation and fertilization
- **pruning and training**
- pests and diseases
- harvesting

Newly planted cherry seedlings



1 yr. old cherry seedlings



2 yrs. old cherry seedlings



3 yrs. old cherry seedlings



4 yrs. old cherry seedlings



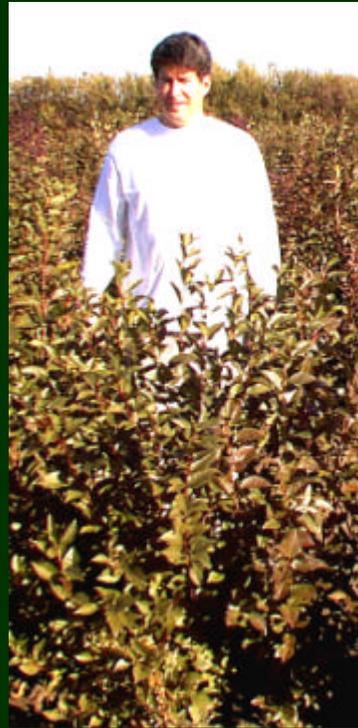
Cherry tree growth over 4 years



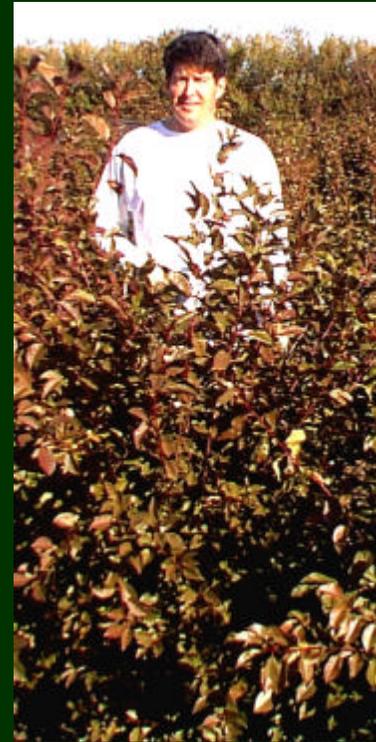
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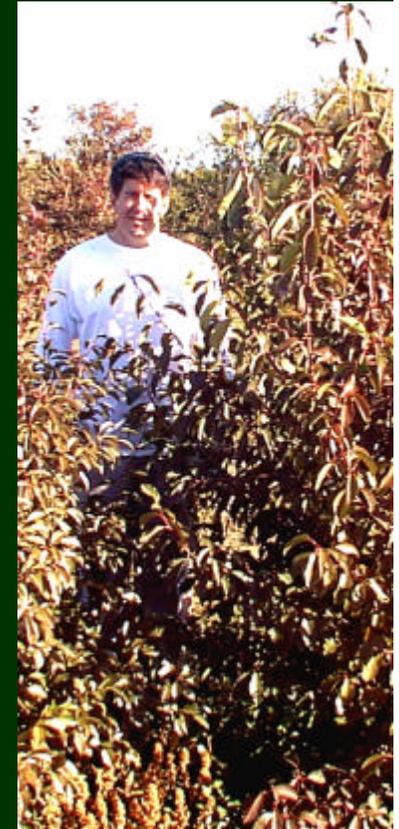
1



2



3



4

Pruning

- **Tree form for tall trees**
 - Evans, Northstar, European varieties
 - similar to other tree fruits
- **Bush form for dwarfs**
 - U of Saskatchewan varieties
 - similar to blueberries or saskatoons

Pruning

- **Late winter / early spring**
 - never late summer or fall
- **Remove 25% or less**
 - too much reduces yield
 - tree has reduced hardiness if grows too fast
- **Most bearing on 1 year old wood**
- **Some varieties have spurs**
 - production on 2 or 3 year old wood



Systems

- choosing a location
- irrigation and fertilization
- pruning and training
- **pests and diseases**
- harvesting





'Gummosis'



- Bacterial disease
- Winter damage
- Insect damage
 - Peach borer

Common problems in Michigan



Systems

- choosing a location
- irrigation and fertilization
- pruning and training
- pests and diseases
- **harvesting**



Sweet Cherry Maturity Index



1



2



3



4



5

Developed by Michigan State University
Agricultural Engineering Department.
Manufactured by Colorcurve Systems, Inc.

Farrall Hall, Michigan State University
E. Lansing, MI 48824 (517) 353-4517

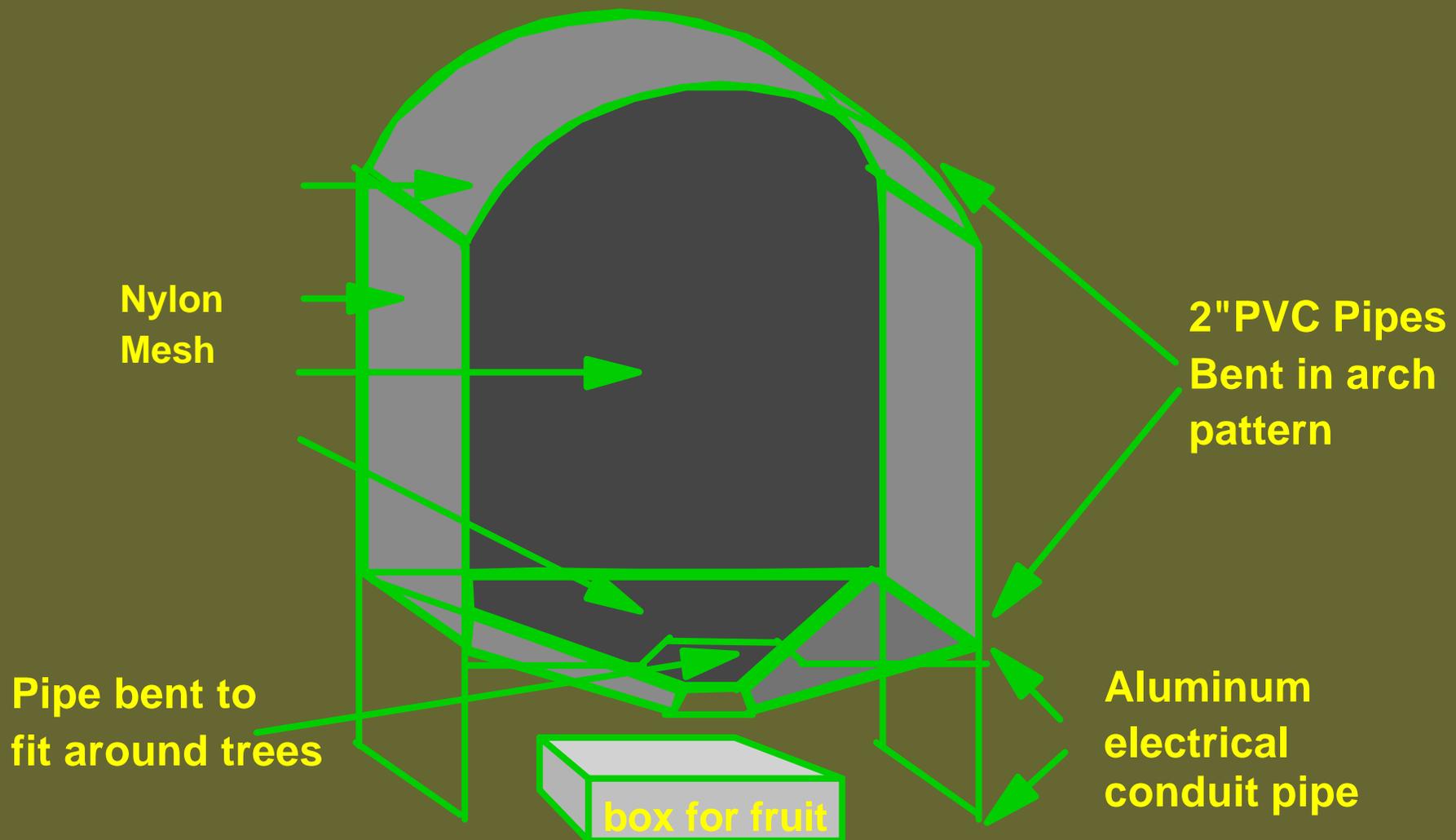


Hand harvesting-
only option for
strawberries, apples, plums



Shake Harvesting
for dwarf
sour cherries

Catch frame for shake harvesting of dwarf sour cherries



Approximate dimensions: 2 m (height) x 1.5 m (width) x 0.75 m (depth)



Mechanical harvesting possible for: saskatoons, raspberries, chokecherries, dwarf sour cherries, currents.



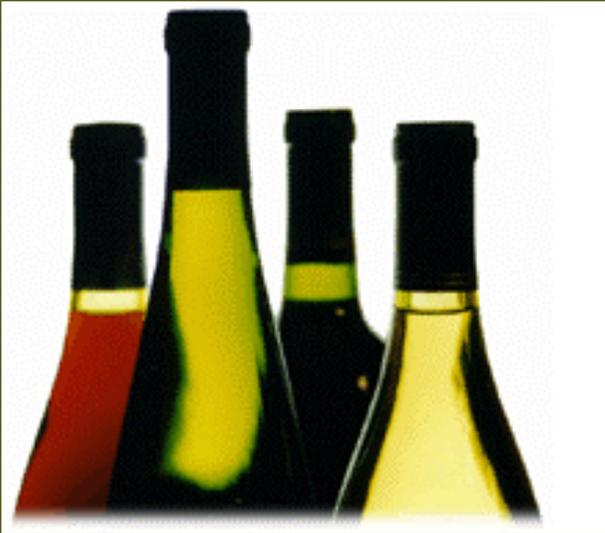
Traditional mechanical harvesting











Bottlenecks of Sour Cherry production

- **Deer Damage**
- **Need variety trials**
- **Pit Removal**
- **Propagation: can't keep up with demand**

PRODUCT





SK Carmen Jewel

Evans cherry

10

11

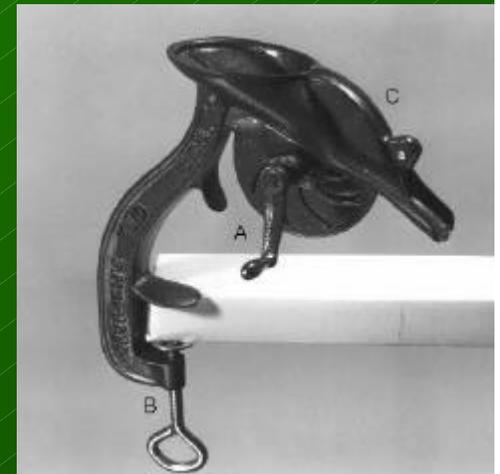
12

13

14

15

16





Juice extracted by freeze/thaw

undiluted

50%

25%

5%

**Carmine
Jewel**

**Cranberry
(undiluted)**

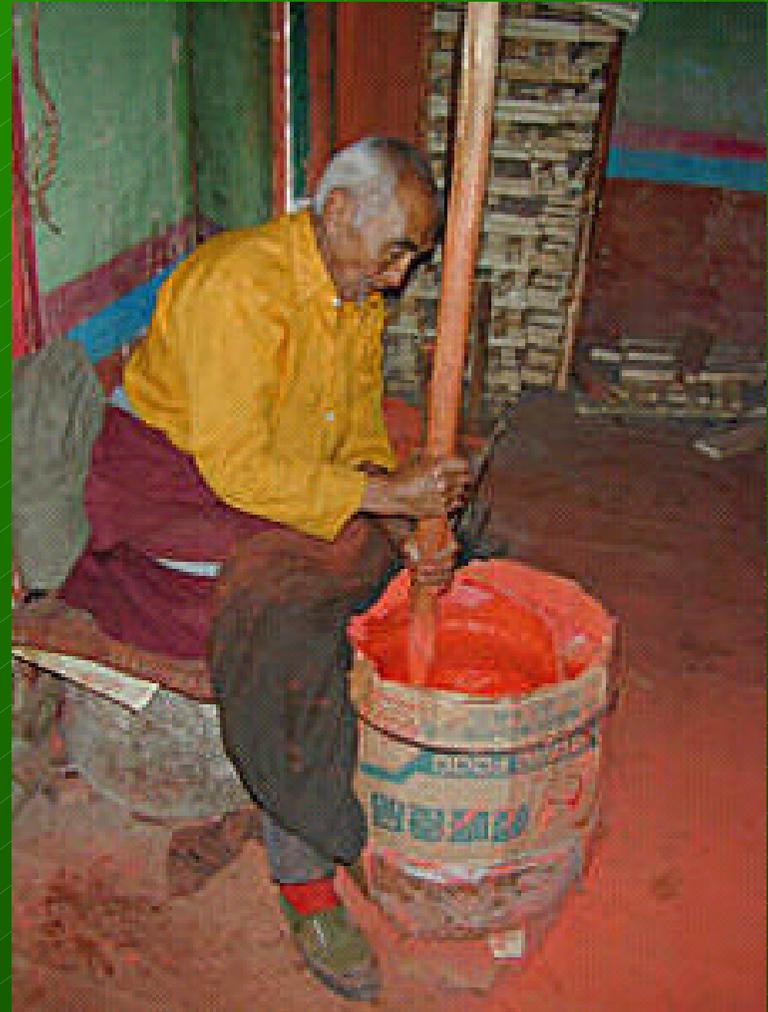
Evans



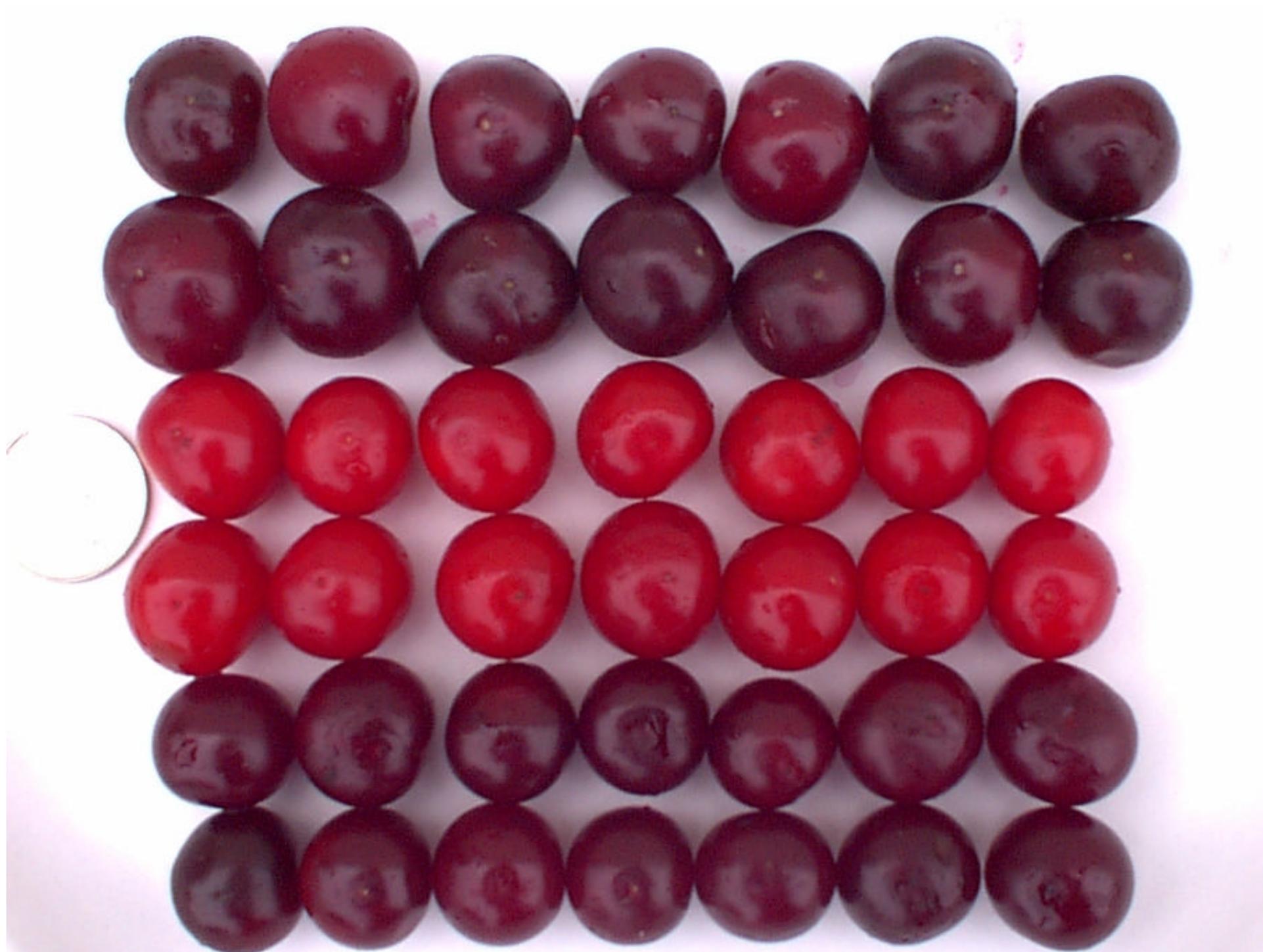
Yellow flesh cherries: often dyed



**Montmorency:
a 400 yr. old variety**



MARKET





Can I market the crop?

New varieties vs traditional varieties

Local vs long distance

PYO vs market vs wholesale

A good strategy:



- Have a succession of crops and cultivars for the growing season
- allows better use of harvesting equipment, labour, coolers, processing equipment
- keeps PYO customers coming back

Odds and ends

Co-operative tissue culture propagation

- **To start in 2002 / 2003**
- **Essentially a variety trial**
- **Numbered selections used**
- **U of S gets a royalty**
- **sold in groups of 5 selections**

For 2002 & 2003

- **‘Advanced Selection’ program**
 - Tissue culture companies & Nurseries
- **Cherry Manual**
- **Expanded seedling testing**
 - Especially for growers in remote locations
 - must have deer fence and irrigation

Websites with manuals

MICHIGAN STATE
UNIVERSITY
EXTENSION

<http://www.msue.msu.edu/fruit/cherry.htm>



<http://tfpg.cas.psu.edu/>



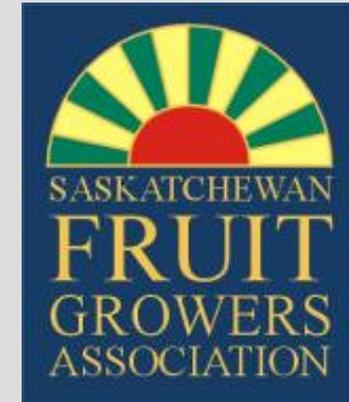
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manuals/rtpcherf.pdf](http://www.ams.usda.gov/fv/ppbweb/manuals/rtpcherf.pdf)



[http://www.gov.on.ca/OMAFRA/english/
food/inspection/fruitveg/manuals/cherry.htm](http://www.gov.on.ca/OMAFRA/english/food/inspection/fruitveg/manuals/cherry.htm)

Farm Business Management
FBMinet-BC *British Columbia*

<http://fbminet.ca/bc/pfp/Ent.pdf/sourfl.pdf>



Acknowledgements

Technicians:
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