

# Cold Hardy Cherries



Bob Bors

Quebec  
2002

# Outline

## History

North American Production

U. of Saskatchewan research

Varieties for Quebec

Orchard Establishment

Miscellaneous

***Prunus cerasus***



***P. pensylvanica***

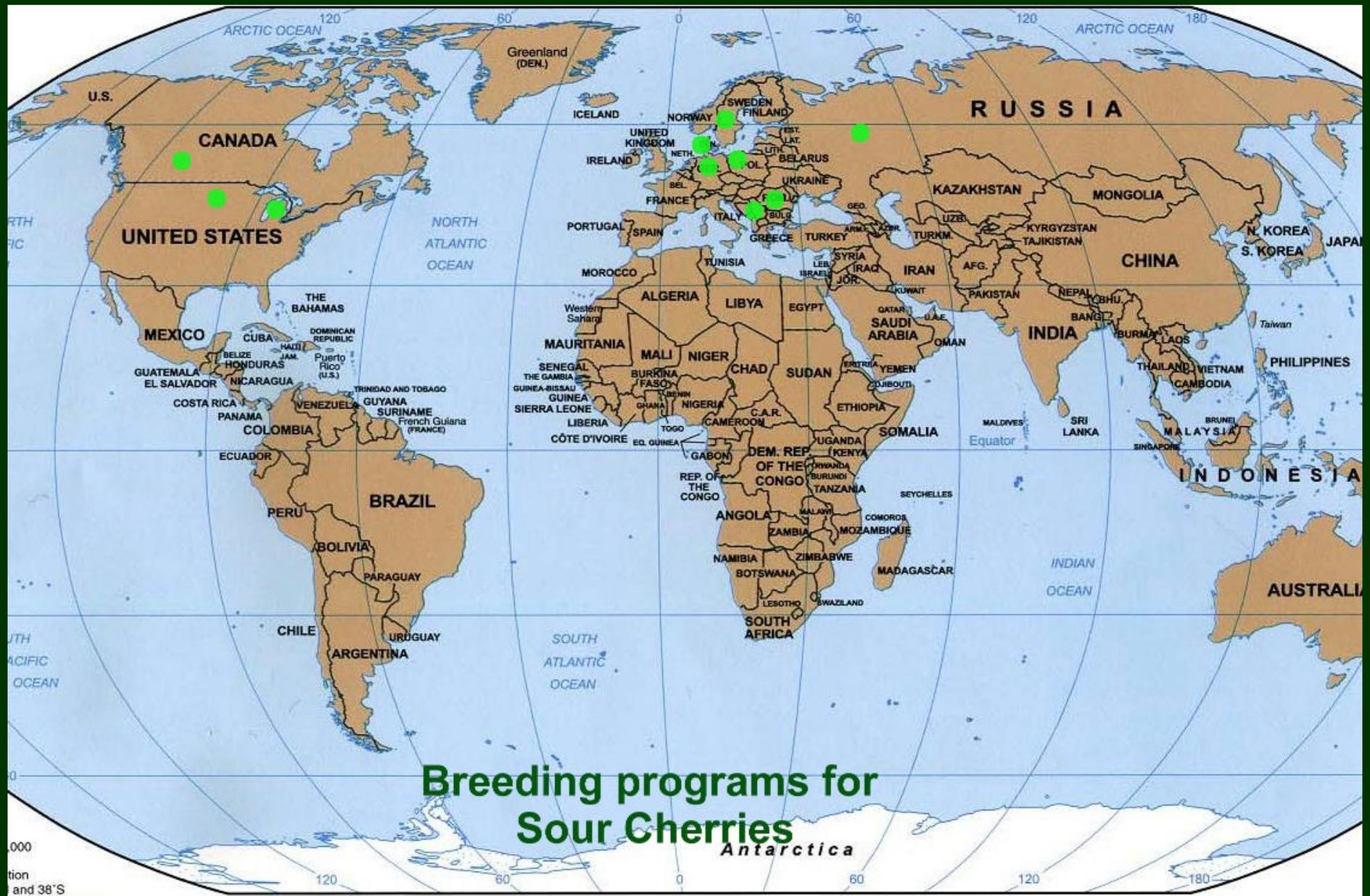


***P. virginiana***



***P. avium***





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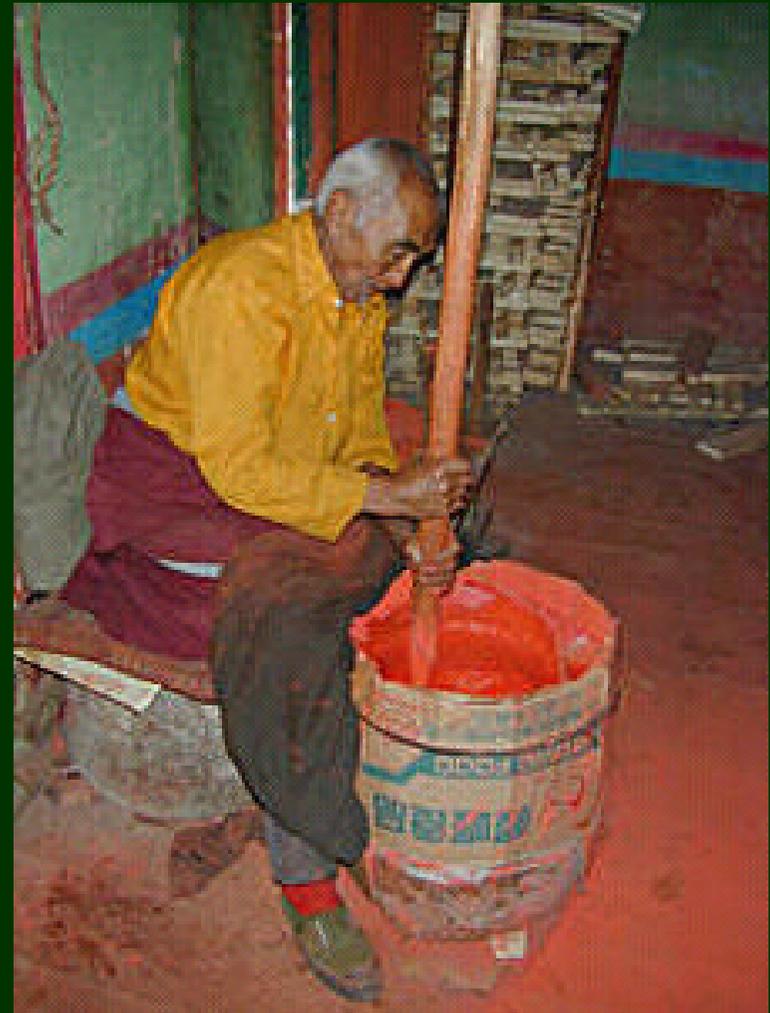
**Orchard Establishment**

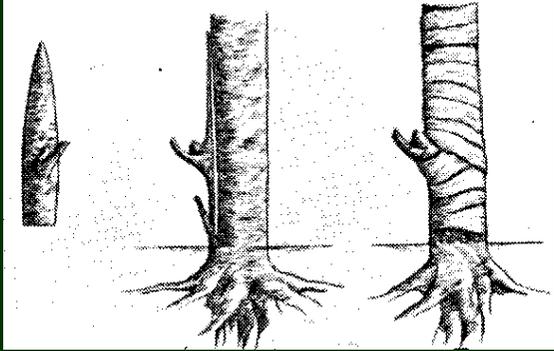
**Miscellaneous**

**One variety = 95% of production**



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

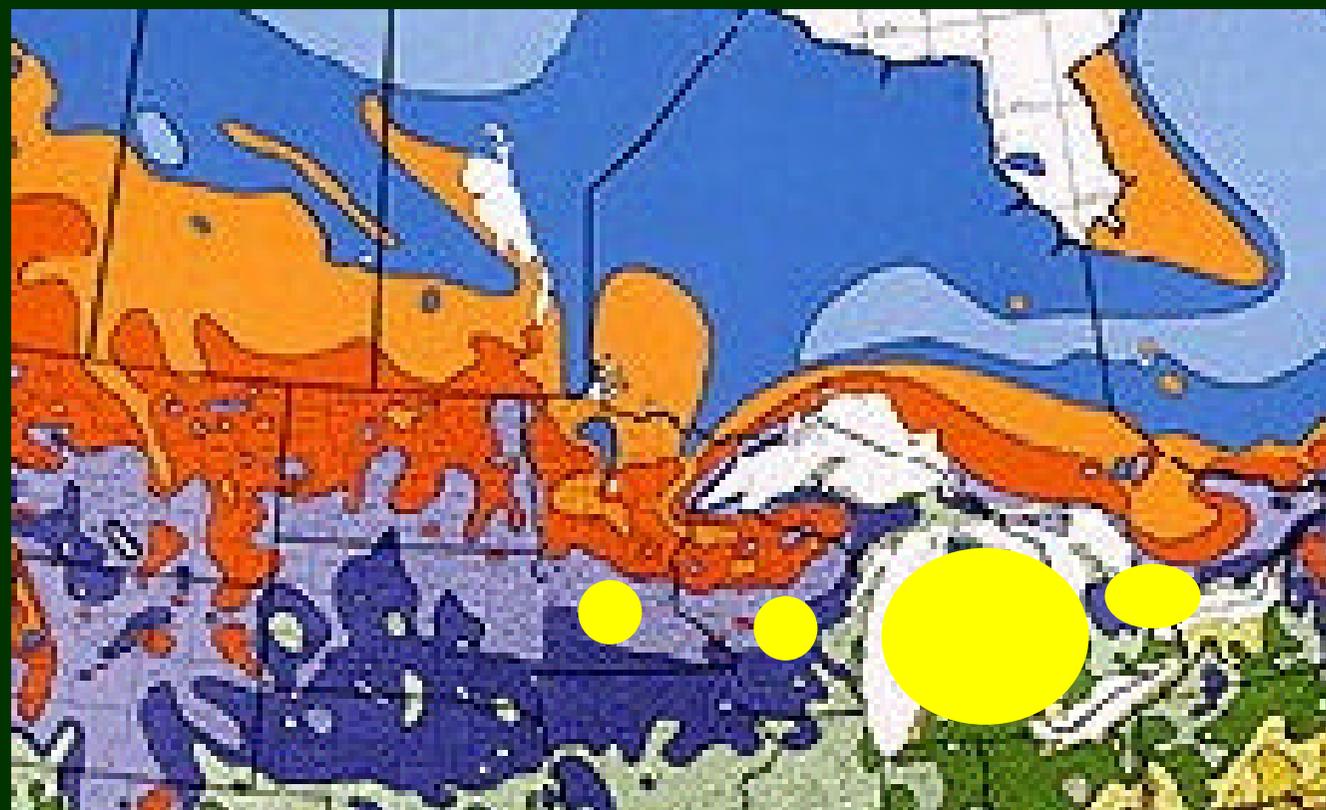




# Sour Cherry Growers: in North America

## Average Annual Minimum Temperature

Temperature (F)	Zone
Below -50	1
-45 to -50	2a
-40 to -45	2b
-35 to -40	3a
-30 to -35	3b
-25 to -30	4a
-20 to -25	4b
-15 to -20	5a
-10 to -15	5b
-5 to -10	6a
0 to -5	6b
5 to 0	7a
10 to 5	7b
15 to 10	8a
20 to 15	8b
25 to 20	9a
30 to 25	9b
35 to 30	10a
40 to 35	10b
40 +	11



# Outline

**History**

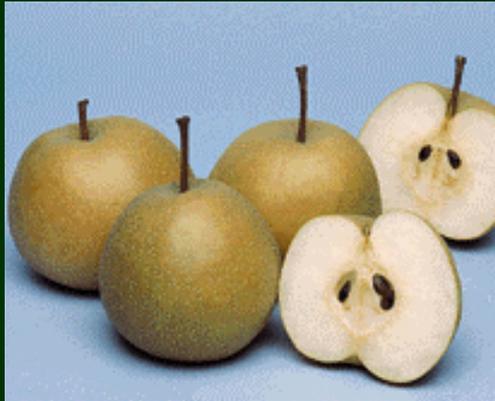
**North American Production**

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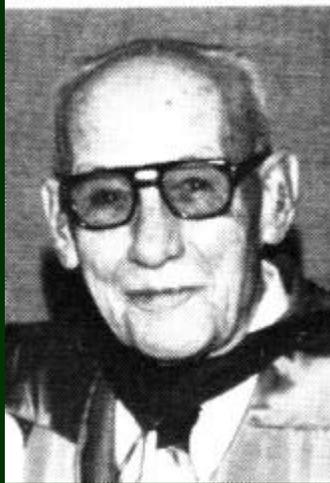
**Varieties for Quebec**

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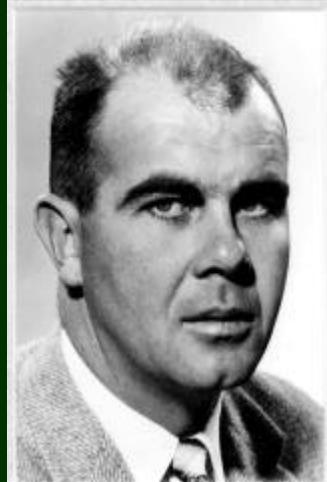


# Prairie Sour Cherry Breeding



**1940 -  
1982**

**Les Kerr**



**1968-  
1982**

**Stewart Nelson**



**Cecil  
Stushnoff  
1983-1989**



**→ Rick →**

**Bob,  
Forrest**

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

# 3 types of sour cherries in Canada

**Mongolian**



**U of Sask hybrids**



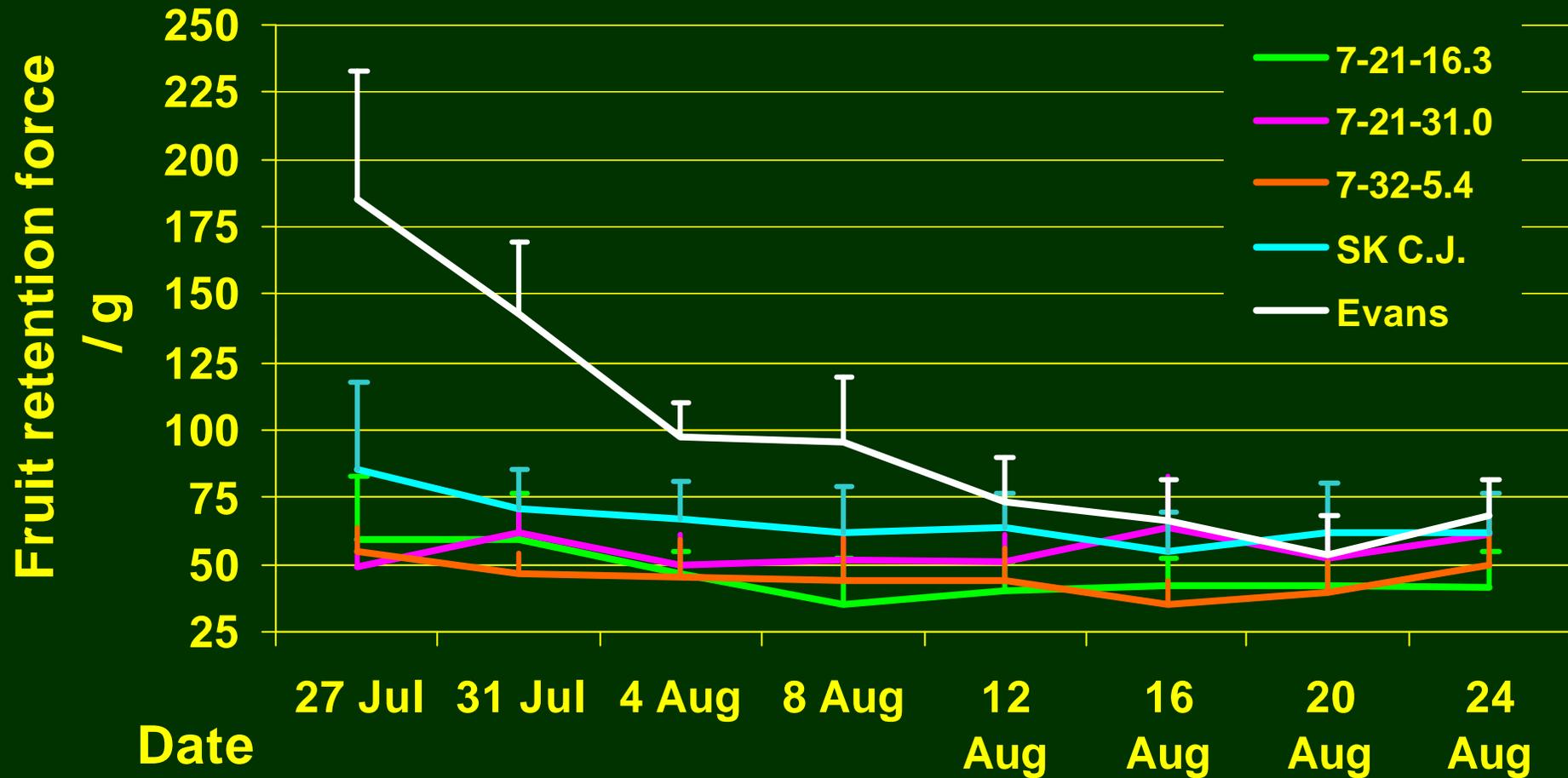
**Sour Cherry (ie. Evans)**



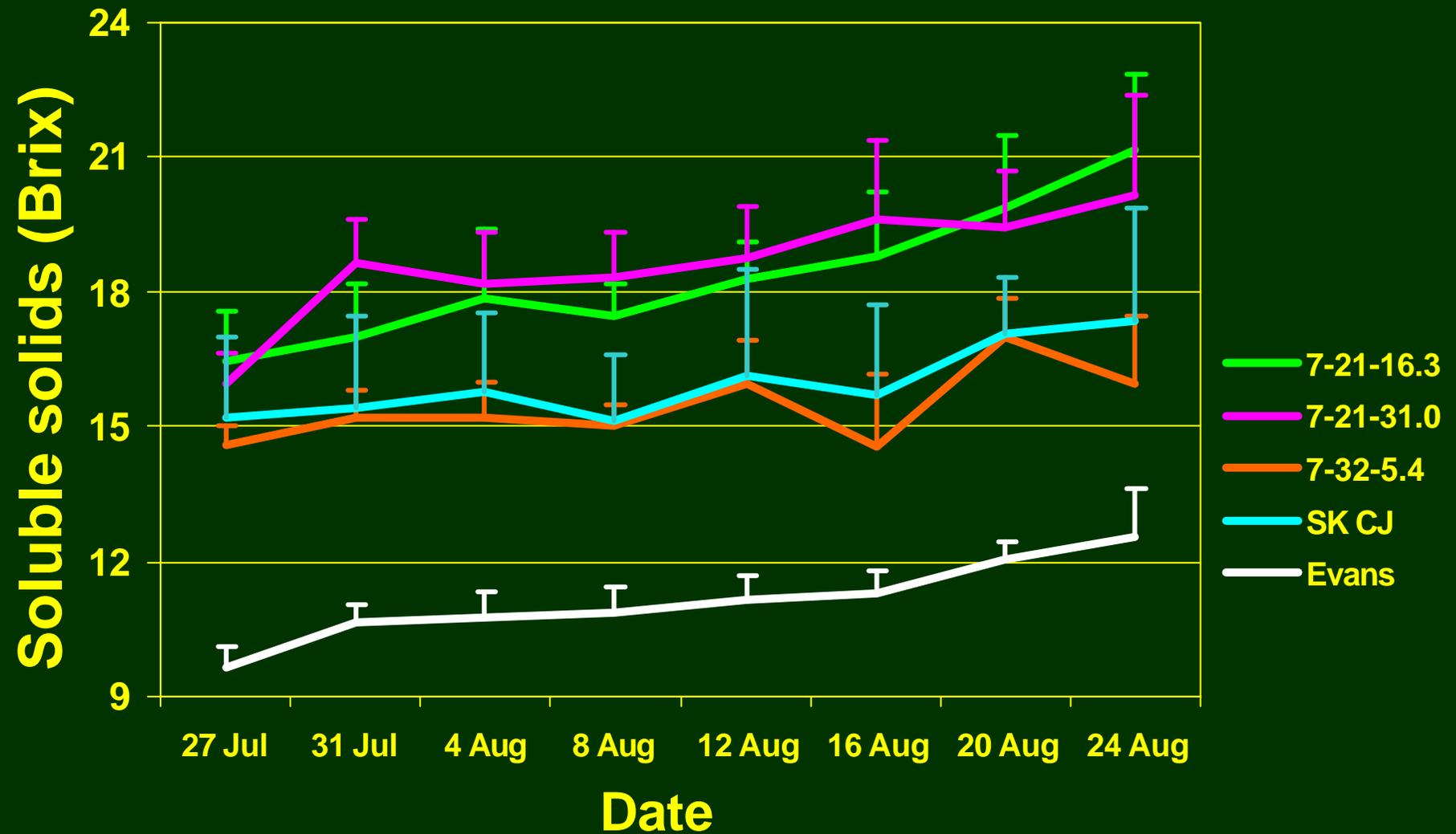




# Ease of harvesting five cherry selections in 2000

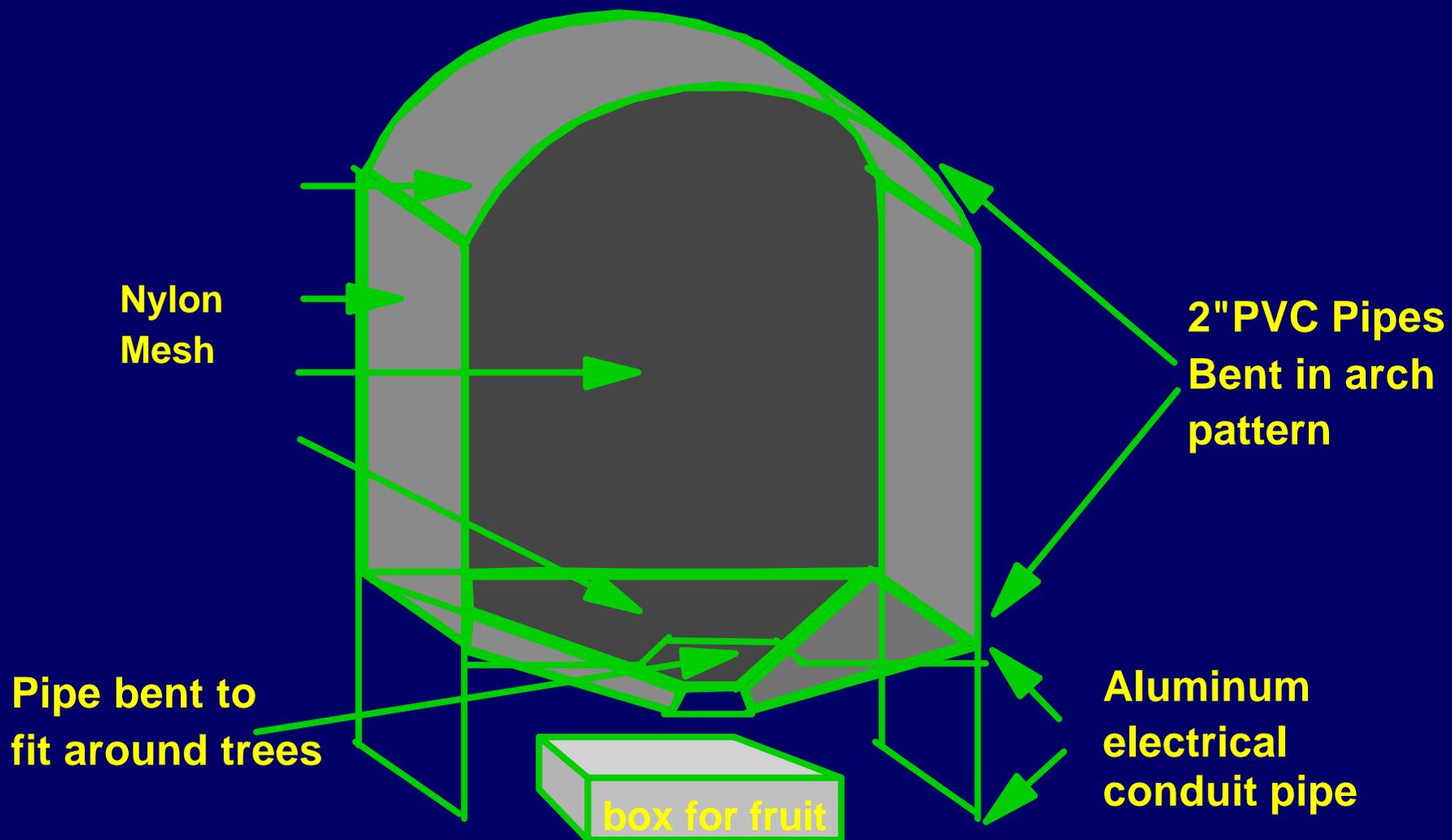


# Soluble solids of five cherry selections in 2000





## Catch frame for shake harvesting of dwarf sour cherries



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

## **Catch Frame:**

**harvests half a tree at a time**

**fits around trunk**

**1.5 mins. shake by hand**

**5-7% loss**





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

# 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**



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**North American Production**

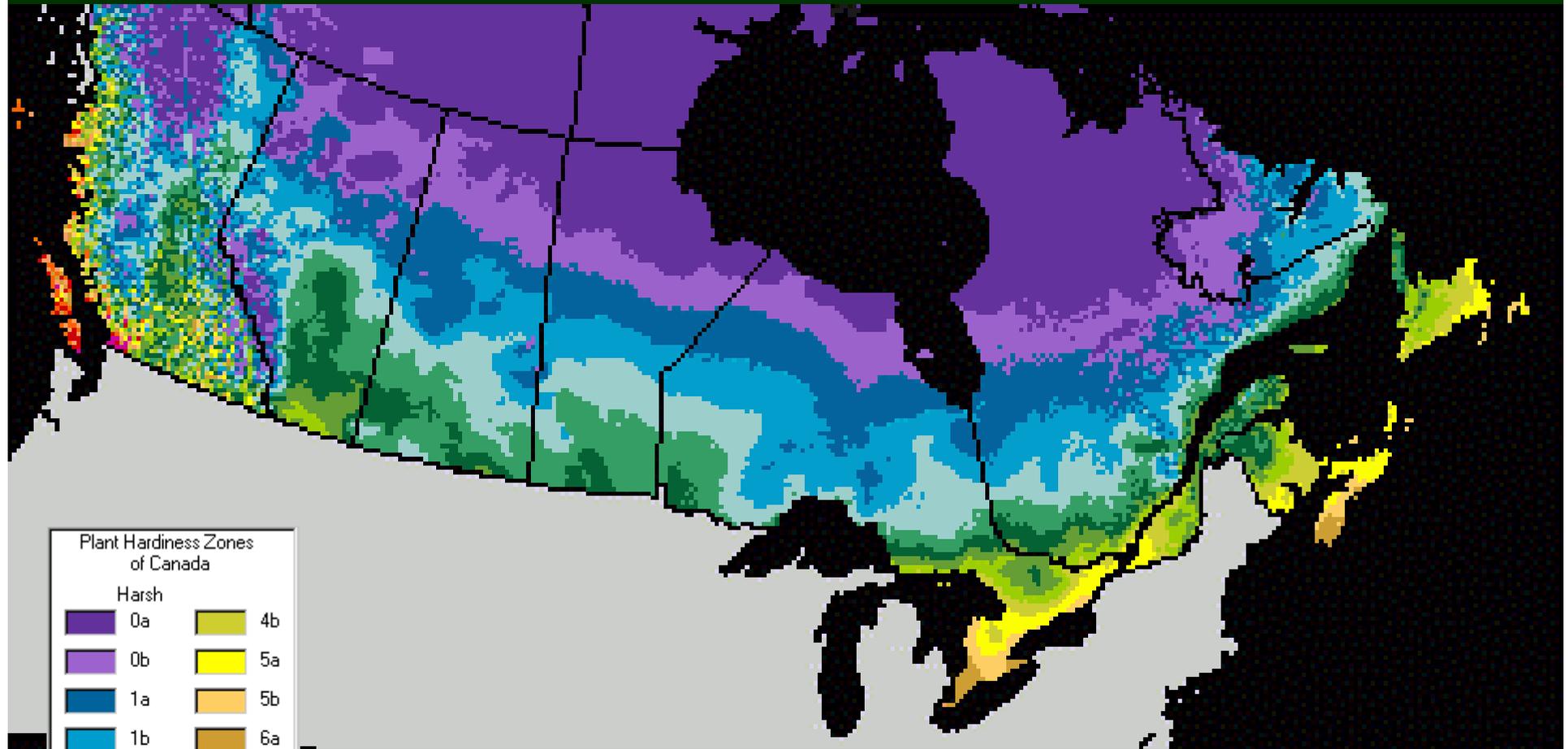
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# Plant Hardiness Zones of Canada 2000



Plant Hardiness Zones of Canada

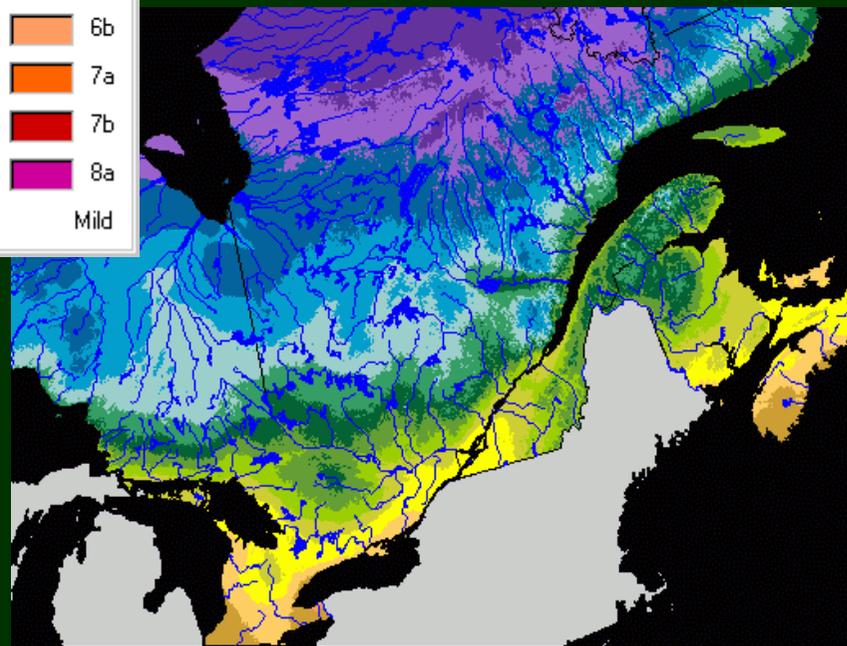
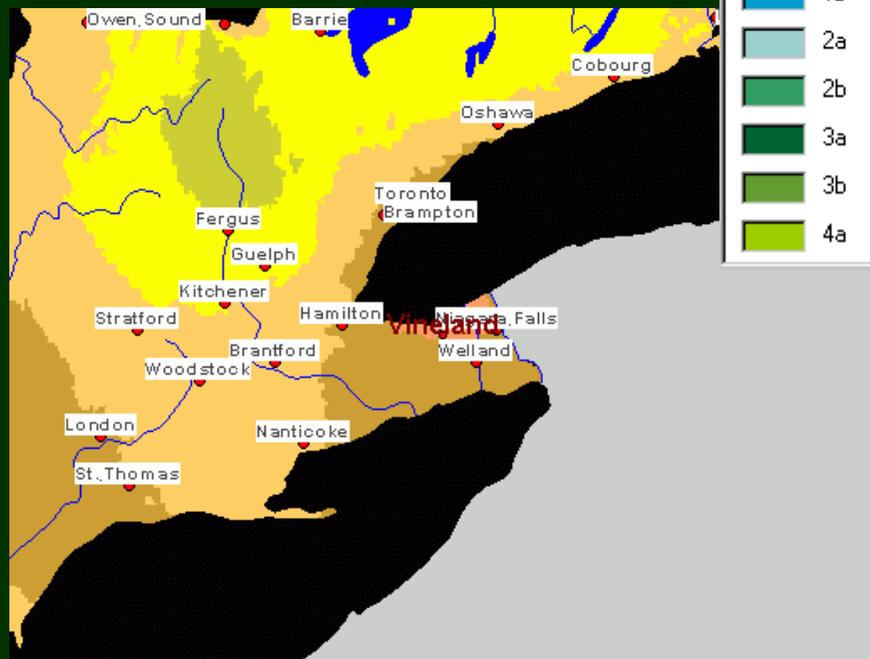
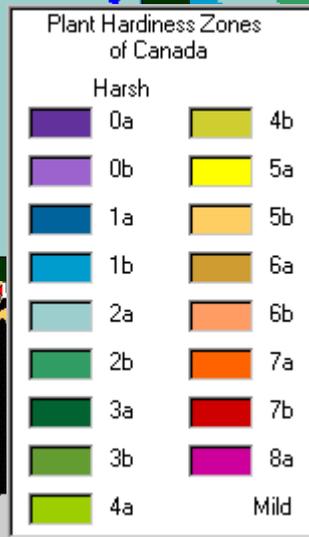
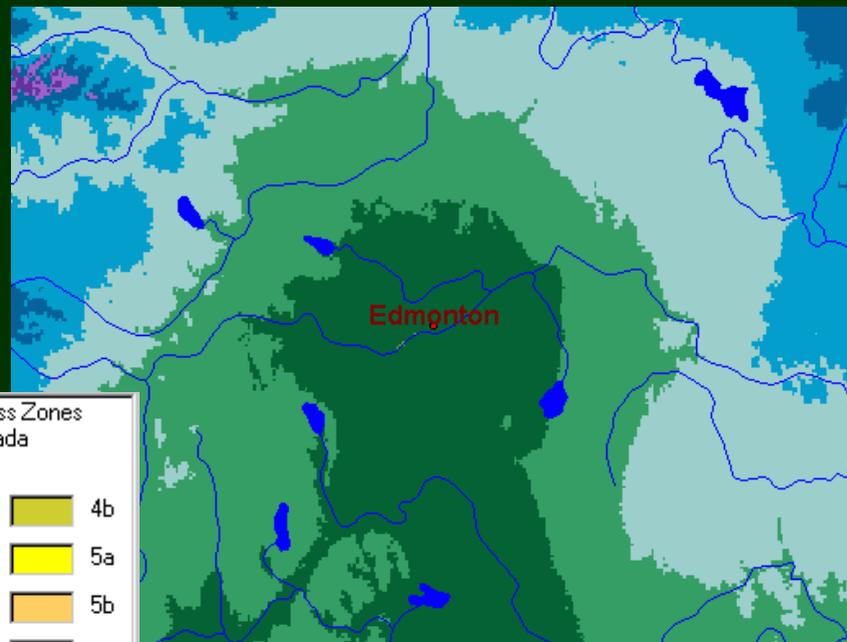
Harsh	
0a	4b
0b	5a
1a	5b
1b	6a
2a	6b
2b	7a
3a	7b
3b	8a
4a	Mild



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, widely grown

**Balaton** late-season, very good quality, not as hardy as Montmorency

### 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

- 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

# Advantages of SK Sour Cherries

- Market potential for dark colour
- Bred for over the row harvesting (naturally dwarf)
- Much higher quality than N.Amer. standard variety
- 3 week harvest window
- **How will they do in Quebec?**

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**History**

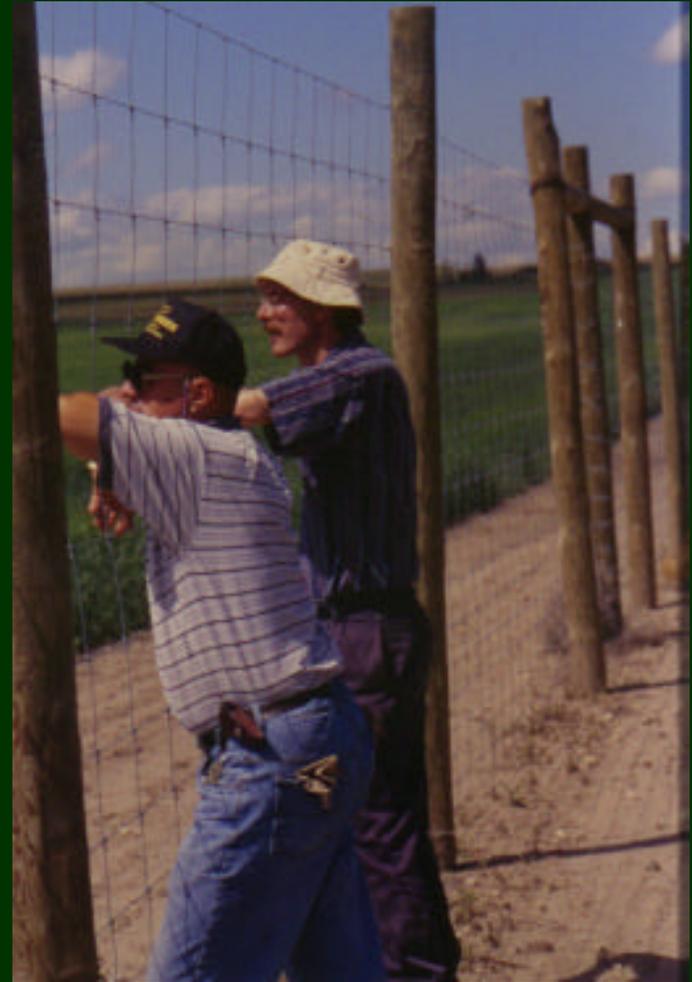
**North American Production**

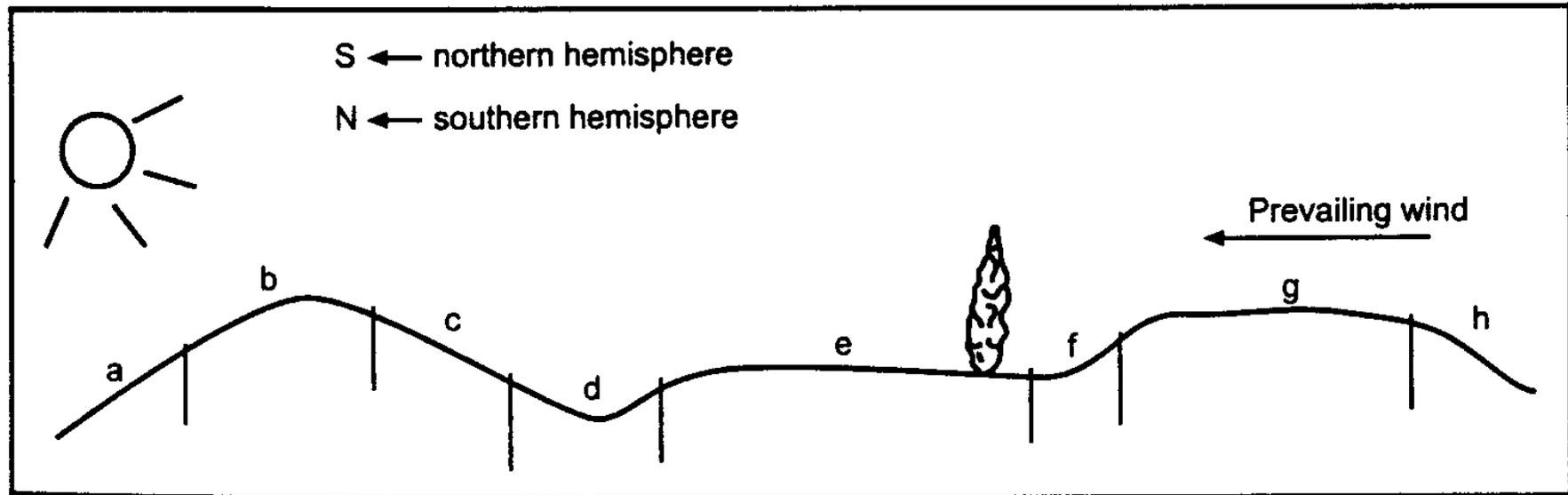
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northern slopes for early bloomers  
avoid frost pockets, wind, wet spots  
well drained, good soil

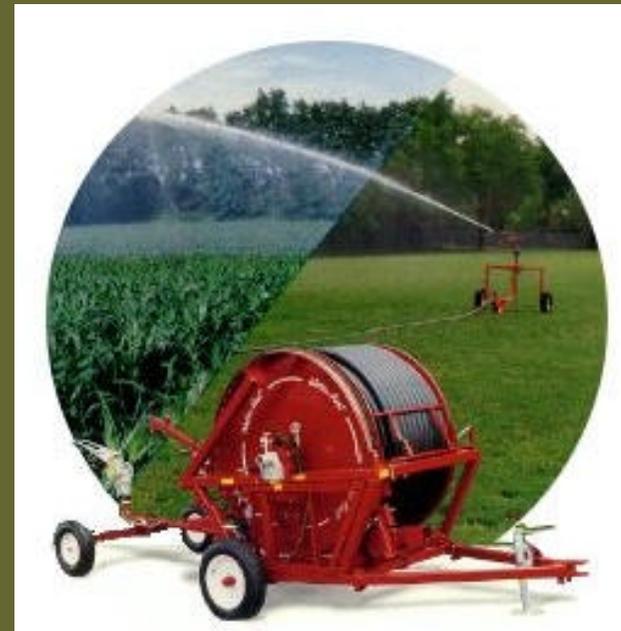
**Cherries,  
like most tree fruits,  
prefer well-drained loam  
or sandy loam soil.**



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



**Irrigation very important 1st 3 years  
good for continual production**



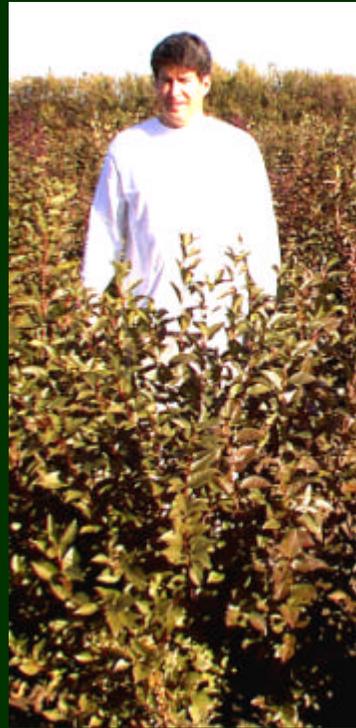
# Cherry tree growth over 4 years



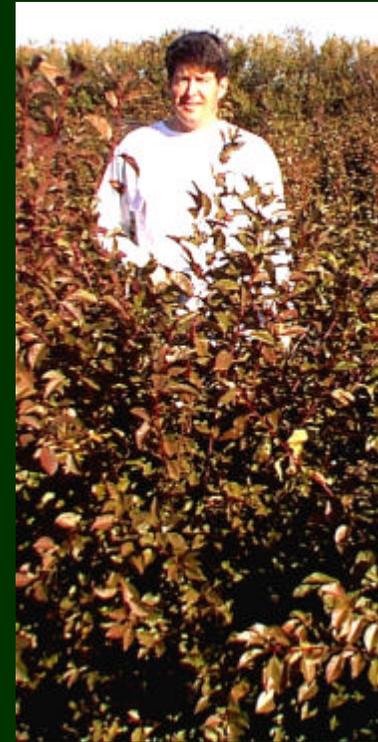
0



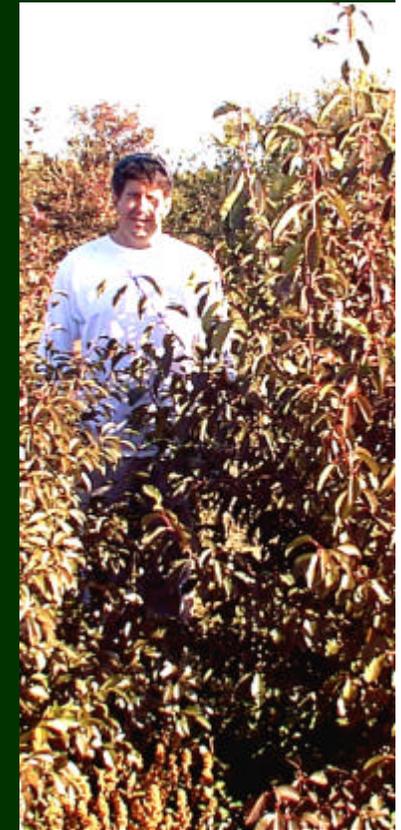
1



2



3



4

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## Sweet Cherry Maturity Index



1



2



3



4

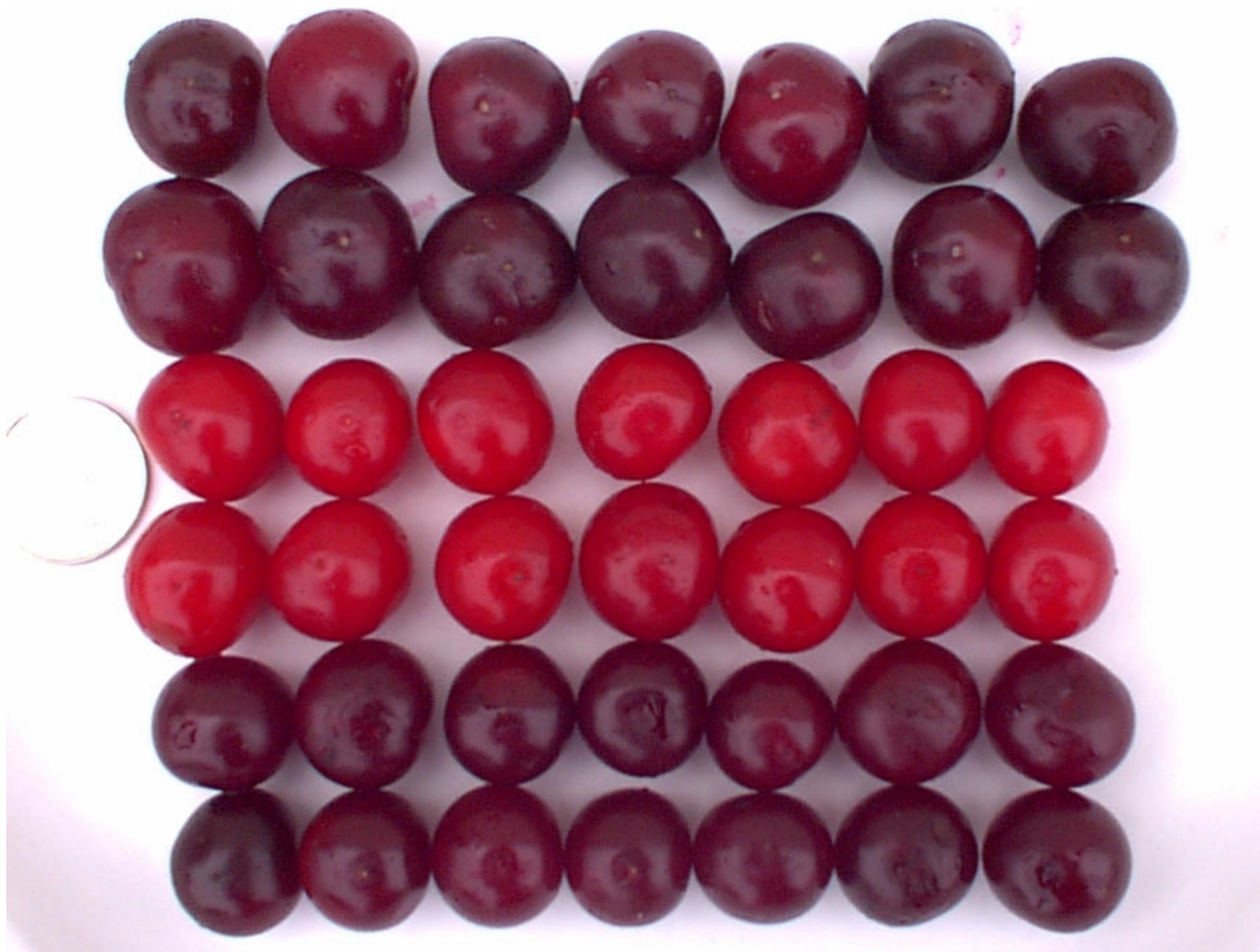


5

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





# Juice extracted by freeze/thaw

undiluted

50%

25%

5%

**Carmine  
Jewel**

**Cranberry  
(undiluted)**

**Evans**



# Thawed Fruit



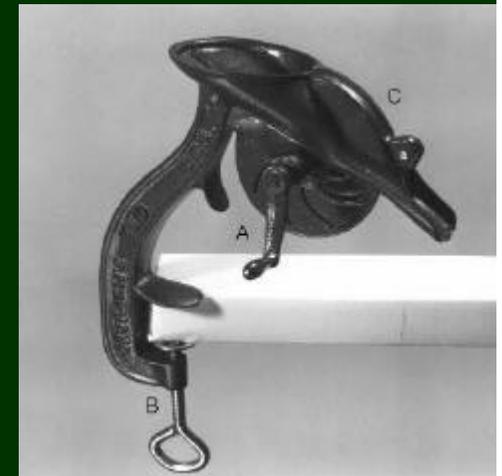
**Carmine Jewel**

**Evans**



## Yield ?

- **Michigan: ~7,000 lbs / acre, 2000**
- **Pennsylvania: ~ 4,300 lbs / acre, 1997**
- **No yield trials on Evans or Sask varieties**
- **Individual U of Sk trees yield 5 to 8 kg/tree. Plantings could be 500 to 800 trees/acre.**





# Bottlenecks of Sour Cherry production

- **Deer Damage**
- **Identify the best cultivars**
- **Pit Removal**
- **Propagation: can't keep up with demand**

# For 2002 & 2003

- **‘Advanced Selection’ program**
  - SFGA survey
  - 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/>



[http://www.ams.usda.gov/fv/ppbweb/  
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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