

Harvesting & post-harvest care and processing of haskaps and sour cherries

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SASKATCHEWAN

Outline

- General Principles
 - Plant Characteristics
 - Hand vs Mechanized harvesting
- Cherries
 - Post harvest & Pitting
 - Processing
 - Variety differences
- Haskap
 - Post harvest
 - Processing
 - Variety Differences

Harvesting & post-harvest care and processing Some general Principles

Dr. Bob Bors



June



July



Aug



Sept
&
Oct

Q: Which prairie fruit have
quality as high or higher than
what can be grown elsewhere?

June & July



Aug



Sept & Oct



Good Quality?

Early

- Haskap
- Strawberries
- Saskatoon?

Mid

- Haskap
- Raspberries
- Sour cherries
- Plums
- Black Currants
- Choke Cherries
- Hazelnuts

Mid Late

- Summer Apples
- Fall bearing Raspberries
- Day Neutral Strawberries
- Seabuckthorn
- Wild blueberries
- Cranberries

Late

- Apples
- Grapes
- Fall bearing Raspberries
- Day Neutral Strawberries
- Pears

X = higher quality varieties can be grown in warmer regions
? = lower consumer acceptance

High Quality/ Sask Adapted:

Haskap
Strawberries
Saskatoons
Sour Cherries
Raspberries
Black Currants

Someday? :

Grapes

Hazelnuts

Pears

Plums

Missouri Currants



Photo by Bob Mason

Potential for large scale: Good Quality & Mechanical Harvesting

Early

- Haskap
- Saskatoons

Mid

- Haskap
- Raspberries
- Sour cherries
- Black Currants

Mid Late

- Fall bearing Raspberries

Late

- Fall bearing Raspberries



Mechanical Harvesting

- **Even Ripening**
- **Come off when shaken**
 - Not when it gets windy
 - Larger fruits come off easier
- **Firm**
- **0.5 m to 2.5 meters tall**
- **Spreading branches best**

Mechanical Harvesting

Early

- Haskap
- Straw~~X~~berries
- Saskatoons

Mid

- Haskap
- Raspberries
- Sour cherries
- Plum~~X~~s
- Black Currants
- Choke~~X~~ Cherries
- Hazelnut~~X~~s

Mid Late

- Summer Apples~~X~~
- Fall bearing Raspberries
- Day Neutral Straw~~X~~berries
- Seabuckthorn~~?~~
- Wild blueberries *
- Cranberries *

Late

- Apples~~X~~
- Grapes~~X~~
- Fall bearing Raspberries
- Day Neutral Straw~~X~~berries
- Pears~~X~~

***need special harvesters that can't be used on other crops**

June



**Haskap
(Blue Honeysuckles)**

July



Saskatoons

August



Sour Cherries



**What Fruits should
you grow?**

How do you decide?



Production Sequence

**Plant
System
Product
Market**

Planning Sequence

Market
Product
System
Plant



**What Fruits should
you grow?**

How do you decide?



What crops are easiest for new fruit growers?



Berry Crops

- Fruit in 2nd or 3rd year
- Less pruning
- Smaller plants



What crops go good together?

- Similar products
- Similar marketing
- Different harvest season

Some growers choose to have a specific harvest season to fit with slow times in for other types of farming



July

August

June



Sept



Oct



You Pick

June



July



August



You Pick Advice:

Tree Fruits are a bad idea, bush fruits are better

- Tree damage from customers
 - Bending & breaking branches
 - Tear off fruiting spurs
 - Trees are harder to renew
- Fruit wasted
- Insurance risk
 - ladders or tree climbing
- Educate and watch customers

Dried fruit





Jam



Juice





Pie





Wine or Syrup



Key Concept:

It's hard to find pickers

- Especially rural areas
- Young people often avoid it
 - In BC they attract kids from colder provinces
- Immigrant Workers
 - Paperwork
 - Prefer to go to places with a longer growing season (make work?)

You-pick

- Tree Fruits usually aren't PYO
 - Apples, pears, plums
 - Customers cause too much damage to trees
 - Tall trees too risky: costly insurance, lawsuits
- Appearance important
 - Weed free, aesthetic
- Low or no pesticides important

U-pick



Key Concept:

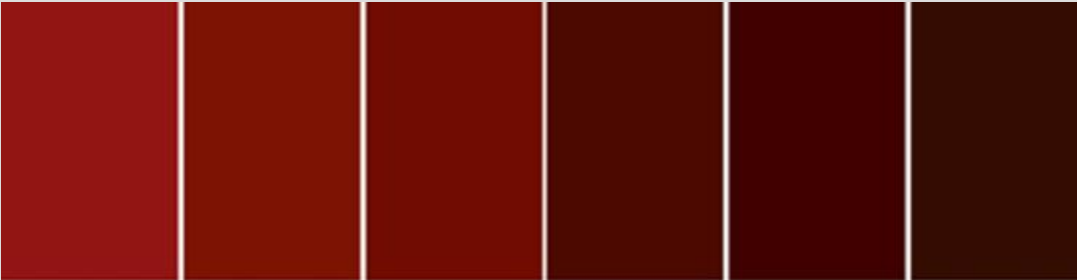
Mechanized harvesting can be higher quality than hand picked

- Fewer hands are touching fruit
- Fruit can be allowed to fully ripen
- Can harvest at night when temperatures are lower
 - Most Saskatoon growers do this, their fruit ripens during hottest time of summer!



Key Concept:
For Mechanized harvesting we need
Varieties with certain characteristics

- Fruit
 - Durable (or be processed quickly)
 - Optimum fruit retention force
 - Uniform ripening
- Plants
 - Flexible branches
 - Proper canopy shape



-----Optimum Colour Range-----

July 21	July 28	August 4	August 11	August 18	August 25
13.3° Brix	14.1° Brix	14.7° Brix	15.5° Brix	15.3° Brix	15.6° Brix
2.8g Average Berry Weight	3.3g Average Berry Weight	4.9g Average Berry Weight	3.1g Average Berry Weight	3.2g Average Berry Weight	3.2g Average Berry Weight

Juliet



This card was created for CANADIAN CHERRY PRODUCERS INC.
(www.cherryproducers.ca) by the U of SK Fruit Program, funded by
Sask. Ag. ADF# 20090405. Brix & weight is based on 2010 data
(a cold wet season) and will likely vary each year.



Saskatchewan
Ministry of
Agriculture





Organic Saskatoons

- What? Good Bush structure
 - Prune for open bush, spreading structure
 - Choose varieties that naturally do this
 - Parkhill, Northline
 - Regular thinning
- Why? Plant dry off faster, less disease

Harvesting methods

- Hand pick (cannot shake off by hand)
- Machine Harvest
 - Multiple harvests needed due to uneven ripening
 - Set vibration speed so only ripe berries come off
- Sorting
 - Mechanized colour sorting: expensive for large scale
 - Hand Sorting



Hand harvesting

- **Harvest Bag**
- **2 free hands**

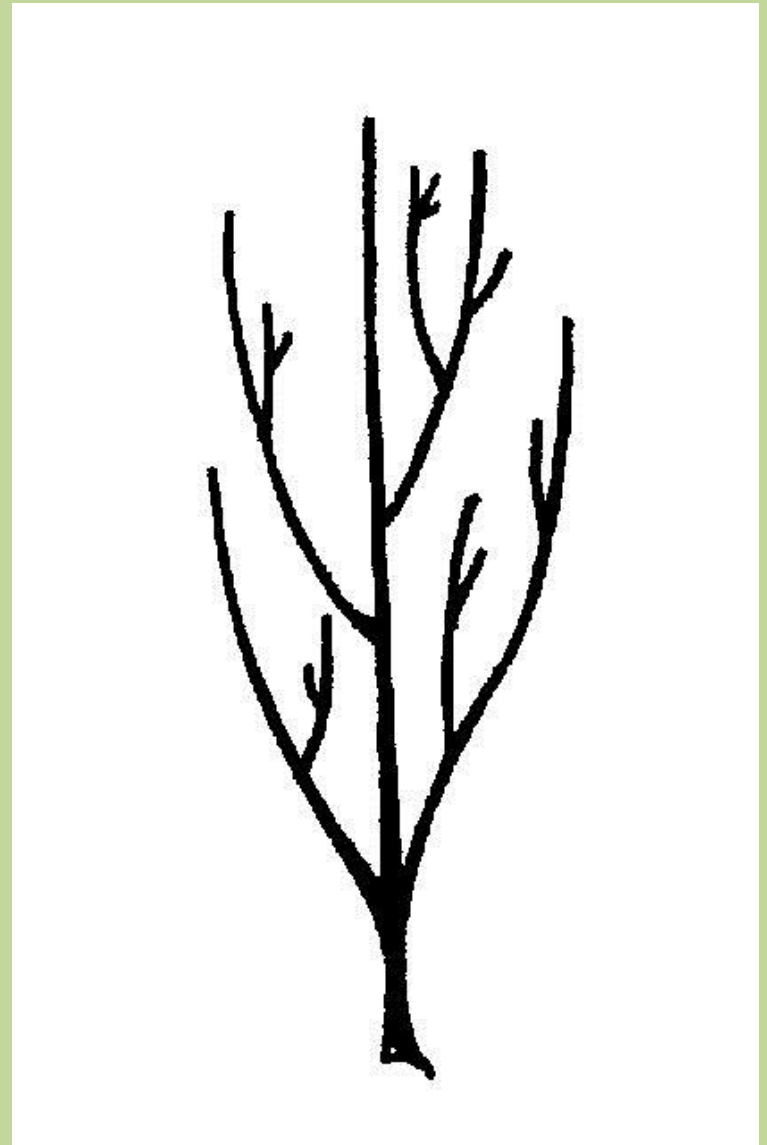
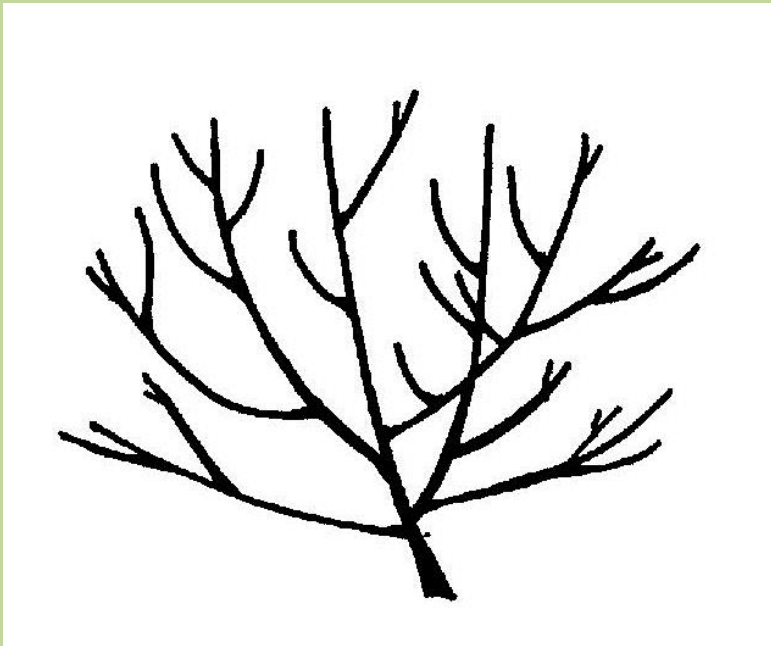


Training bushes to fit Harvesters

- Most SK bushes grow too tall
- Genetic Solution: shorter varieties
- System Solution: prune to shape
- Grass competition



Northline vs. Theissen





Traditional mechanical harvesting

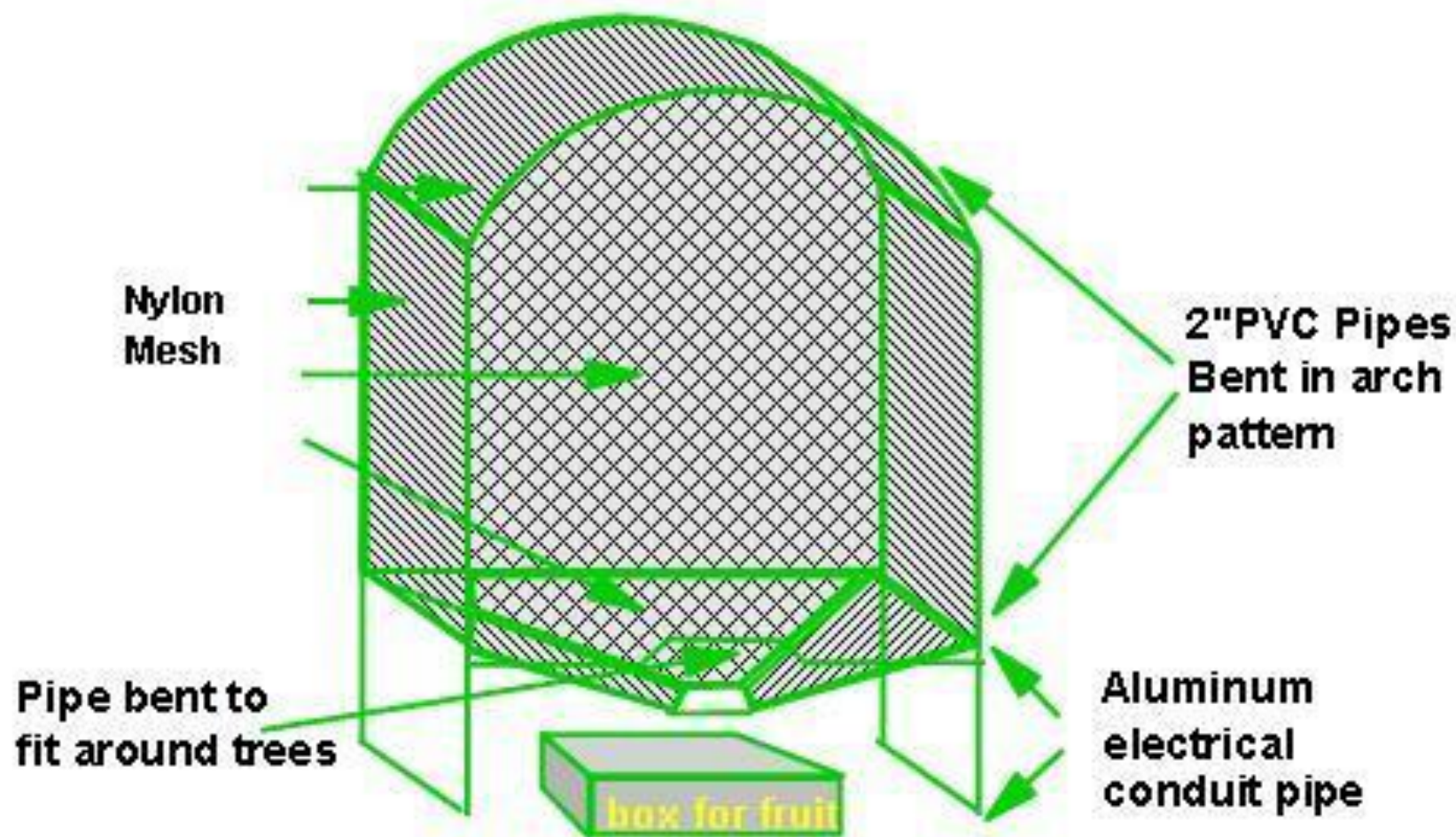






Shake Harvesting
for dwarf
sour cherries

Figure 1. Catch Frame for Dwarf Sour Cherry harvesting



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

Initial Selection

- For Upright harvesters
- Low Suckering
- Upright Growth





Breeding for bush types for Sideways harvesters

- Why?
- Harvester of choice for Saskatoon and Haskap Growers
- Less Fruit Damage
- Less Pruning required
- Moderate suckering is good!



Over the Row harvester

- \$40K delivered from Poland
- Can it work on existing varieties?
- Can we find seedlings in our breeding field better suited for this harvester?
- What type of pruning is required?





Photo by Bob Mason



Photo by Bob Mason



Photo by Bob Mason



Photo by Bob Mason







Haskap Mechanical Harvesting



- Need upright tall bushes, some pruning may be required.



Saskatoon Berry Harvesting







Cherry Mechanical Harvesting



- Minimal pruning is required if already a multi-stemmed tree
- Can do damage to the tree







Base of a 30+ year old bush
needs drastic thinning for a harvester to fit





Air compressor for pruning



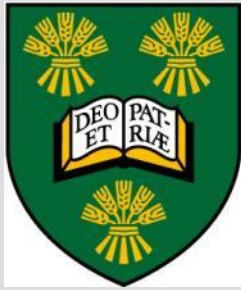


Key Concept:

Ag Economists claim that 40 acres of fruit justifies buying a mechanical harvester

- Based on Saskatoon berry industry studies
- Hand-picking expenses can be $\frac{1}{2}$ the final price
- Could share among smaller farms?
- Lower end new ~40K?

Our fruit program has been funded by:



**UNIVERSITY OF
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Plant Sales & workshops &

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Foundational Society**

+

Volunteers

