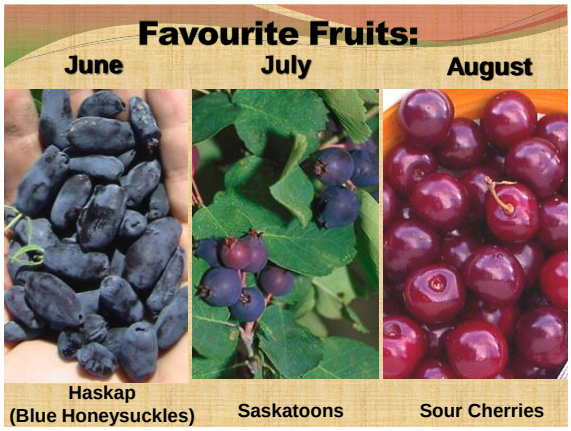
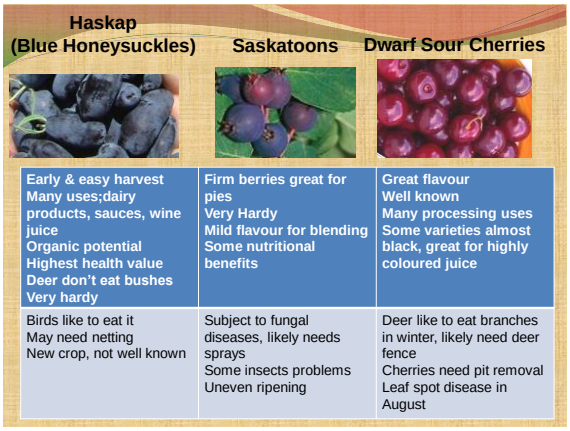

## When in Doubt Experiment! Good experiments have:

- Goal: to learn something
- More than one treatment
  - Compare Traditional & New
- Involve multiple samples done at the same time

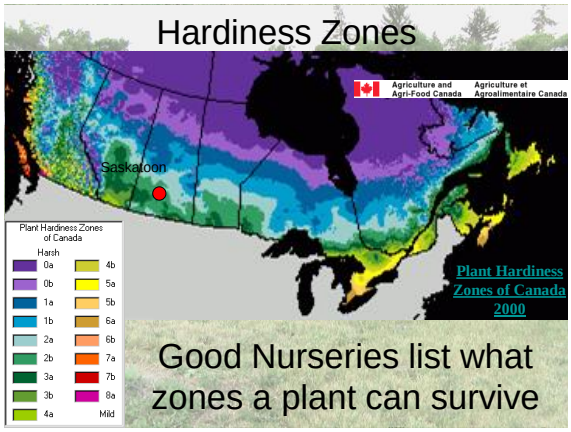


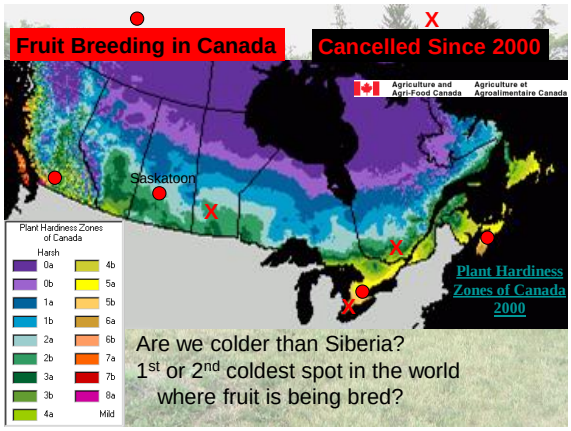


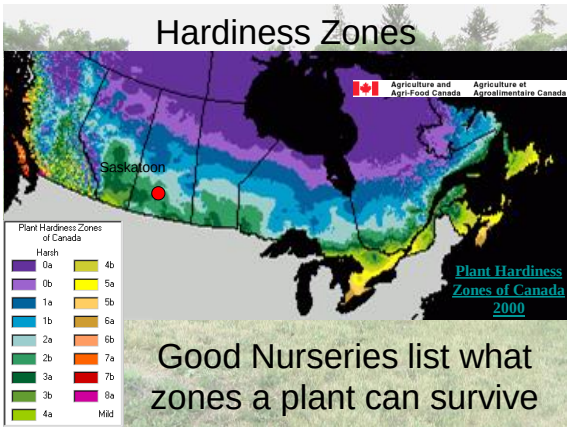
## Mechanical harvest traits are also good for gardeners

- Flavour and yield have high priority
- Dwarf trees and bushes fit into backyards and are easier to prune, spray, pick
- Uniform ripening mean all fruit can taste good
- Fruit stays on until you pick it
- Low suckering means easier maintenance




Hardiness Zone Ratings




## Sunshine

- Sun = Energy for the plant
- More sun = more yield potential
- Partial Sun = Partial yield

Planting hint: cut wrap-around roots

**Make 3-4 vertical cuts in the root ball**

**Match the vertical slices with an "X"**

**on the bottom**

**Be sure to cut through the top layer of roots.**

Plant Early Bloomers on the north side of buildings, solid fences, hills, etc. and higher up on hills.

This can delay bloom for a few days or a week which may mean less chance of frost damage

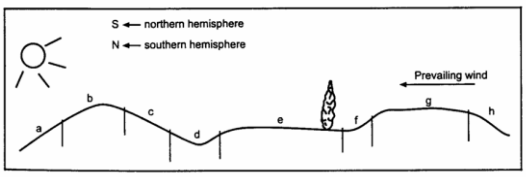
- **Early bloomers most likely to get frost damage, in order of earliness:**
  - **Apricots**
  - **Plums**
  - **Saskatoons**
- **Note: Haskap is an early bloomer but has frost resistance so planting on North sides doesn't matter**

**Favorite tips**

## Plant 'early bloomers' on the north side of houses, fences, sheds, or on slopes facing north.

- **This can help to delay the bloom date**
- **Some years a delay of a few days can make a difference**

## Topography




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

**Favorite tips**

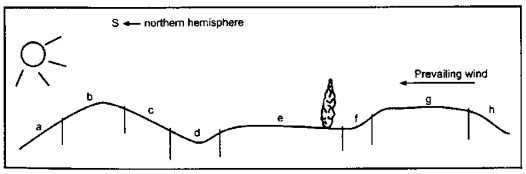
## Plant rows/hedges North & South rather than East & West

- **Less sunscald**
- **Less suckers**
  - **Suckers in east-west rows get sunshine all day long and can be more vigourous**
  - **Suckers in north-south rows are shaded during the middle parts of the day**
- **We saw dramatic differences in Cherry seedling fields. ~3x more suckering in East-west rows!**

## Time of Bloom Early to late:

- Blue Honeysuckles (Frost tolerant)
- Apricots (plant on North slope)
- Plum (Plant on North Slope)
- Saskatoons
- Strawberry
  - – can alter bloom time with mulch removal
- Apples
- Cherries
- Raspberry (usually escapes frost)

## Topography




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

## Backyard Topography

- Buildings and fences provide different microclimates
- Warmer next to house (not good for early bloomers)
- Northern vs southern exposure
- Snow accumulation
- Raised beds warm faster

Favorite tips

## Plant 'early bloomers' on the north side of houses, fences, sheds, or on slopes facing north.

- **This can help to delay the bloom date**
- **Some years a delay of a few days can make a difference**
- **bloomer but has frost resistance so planting on North sides doesn't matter**

Young trees and bushes grow much faster without grass or weed competition.

Heavy grass competition can permanently stunt plants.
Want to wait 4 or 10 years for fruit production?


Pruning

## Fruit yields

- Later ripening crops usually have greater yields
- Early ripening crops get higher prices
- Proper pruning increases fruit size, quality, plant health, and promotes uniform ripening

## 2 types of pruning shears

**Anvil**

- Cheaper
- Not durable
- Not used commercially
- Crushes edges of branches

**Bypass**

- Expensive
  - If high grade steel
- Durable
  - If high grade steel
- Commercial use
- Less damage to branches

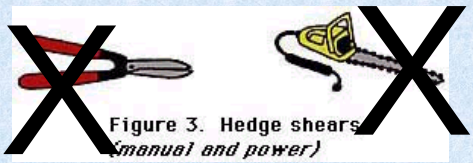


Figure 3. Hedge shears
*(manual and power)*

Figure 4. Pruning saws
*(folding saw and bow saw)*

Great for bush fruits
will need generator for field work

## Disinfect your pruning shears: Don't spread diseases

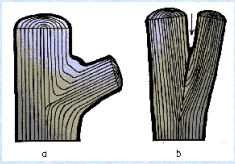
- Alcohol-based Products
  - 70% alcohol, 20 second dip
  - Lysol, Dettol -recommended
  - quick dip, spray & wipe
  - non-corrosive, non rusting
- Chlorine Bleach
  - Javex, 10% solution
  - quick dip, spray & wipe
  - Corrosive, allergic reactions
  - Rinse and oil tools after use

## Types of cuts

Thinning

Heading back

## Branch Angles are very important for fruit trees




**A wide angle (a) has room to grow, A narrow angle (b) crushes itself later in life and makes weak branches**

Saskatoons
Dwarf Sour Cherries
Haskap/Blue Honeysuckles
Currents

- Similar growth habits
- Similar planting density
- Similar pruning requirements
- Different harvest seasons!
- Long life spans

## Best time to prune

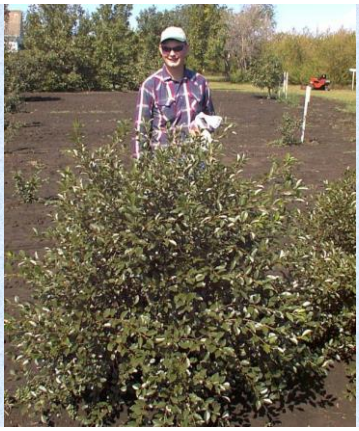
Late winter or early spring

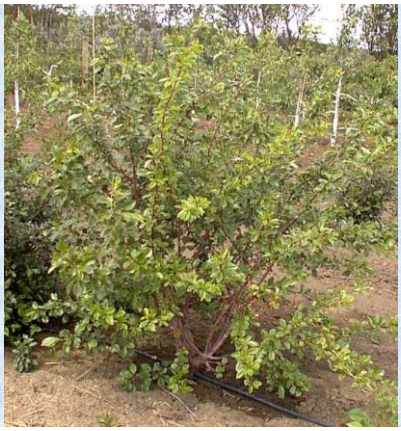
## Renewal pruning and training

- Once the bush is full grown:
  - Remove a few of the oldest branches each year
    - when too tall
    - not flexible for harvest machinery
- Overgrown?
  - Cut down and start over every 10 years? Burn to ground?

## Renewal pruning and training

- Early stages minimal pruning
  - perhaps open centre
- never remove more than 25% of the wood in any year (unless wood was already dead)





Predicting winter hardiness in fall


Favorite tips

## Predict winter hardiness at the time of the first frost

- If plants are still making new leaves they are in danger of winterkill
- If still growing, perhaps you can reduce watering and fertilizing the next year to help shut them down earlier
- Useful for judging hardiness of new varieties and species

Favorite tips

## Predict winter hardiness at the time of the first frost

- Cessation of growth was better that leaf drop as an indicator to predict winter damage (MSc Student Qiuju Lu thesis)
- Don't judge too quickly: 1st year often these plants aren't adapted to the seasons, especially if greenhouse grown and planted mid or late summer.
- 2 yrs or more in the ground are a better judge for variety differences

Favorite tips

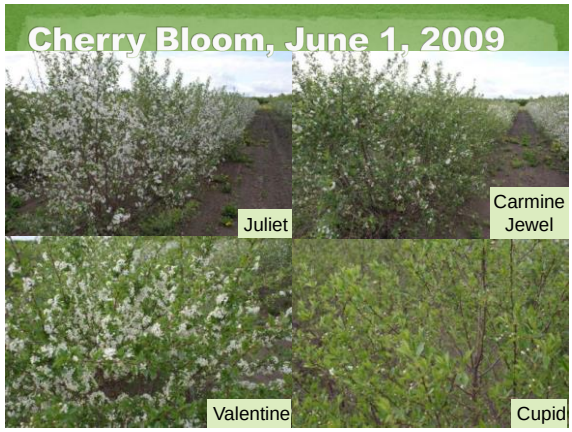
## If a plant isn't going dormant by fall, what could be done?

- Less or no fertilizer in late summer
- Prune only in spring or prune less
- Increase competition, perhaps more grass
- Decrease water
- Choose a hardier variety

Favorite tips

## Best time to judge partial winter damage is at bloom time in spring

- Shades of gray
  - not just black or white, dead or alive.
- This observation helps to guide progress in improving winter survival
  - How are you growing it?
  - Is the environment optimum?
  - Do you have the right variety?
  - Is it just a bad year?





Favorite tips

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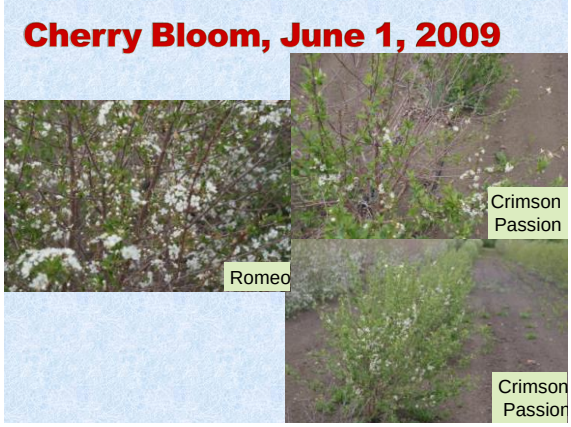
- 1st spring after establishment
  - partial dieback common
  - especially if summer or fall planted
- Greenhouse plants out of sync with season?
- Too much water and nutrients causing late growth?

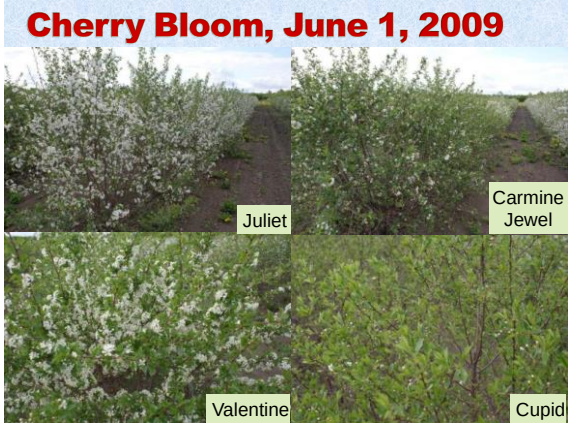
Observing partial winter damage

**Favorite tips**

## Best time to judge partial winter damage is at bloom time in spring

- Uneven bloom indicates partial damage
  - Random branches blooming late
  - Not up and down variation evenly over the tree/bush
- Late blooming branches can repair themselves or might just die in a few weeks
  - Late bloomers will have delayed and smaller fruit
  - May be best prune out the later blooming branches




Pollination tips

## Fruits & Cross pollination

- Different varieties of same or very closely related species
  - Apple and pears don't pollinate
  - Apples and crab apples are ok!
  - Pin cherries and choke cherries don't work
- Just because it is possible for 2 species to cross pollinate doesn't mean it will be good
- Need to bloom at the same time
  - Although plum and sand cherries can pollinate each other, they don't bloom at the same time!

## Tree fruits & Cross pollination

Sometimes 2 varieties don't work well together
- Elaborate charts created for some varieties grown in warmer regions
- Unfortunately, such charts not available for prairie varieties

- Some varieties are pollen sterile
  - Example: many hybrid plums won't pollinate each other but wild plums will work!

## Tree fruits & Cross pollination

- Need insects to carry pollen
  - Never spray trees when bees are out
  - Sheltered areas more favoured by bees
  - Bees can increase productivity by 60%
  - No insects? Get a feather duster
  - 20 ft away probably close enough, maybe 50

## Cross Pollination

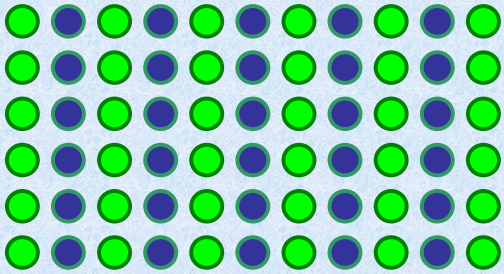
**Self Compatible: need only 1 variety**
- Strawberries
- Saskatoons
- Raspberries
- Sour Cherries

**Self-incompatible: Need 2 compatible varieties**
- Haskap
- Currents
- Apples
- Plums
- Sandcherries
- Apricots
- Pears
- Sweet cherries

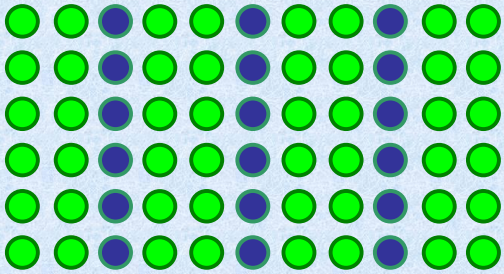
## Wind Pollination

- Grapes
  - usually need only 1 variety
  - In wild there are complete (hermaphrodites), male and female plants
  - Wild grapes were extensively planted in SK in 50's and 60's
- Hazelnuts
  - Need at least two kinds
- Seabuckthorn
  - Plants are male or female

## Cross pollination: Both cultivars equally important



## Cross pollination: One cultivar more important



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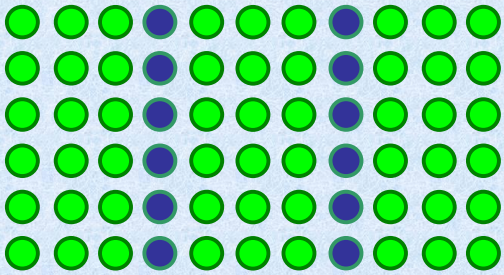
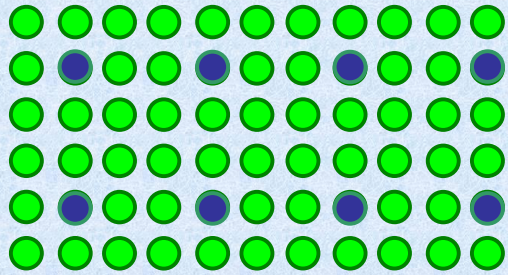
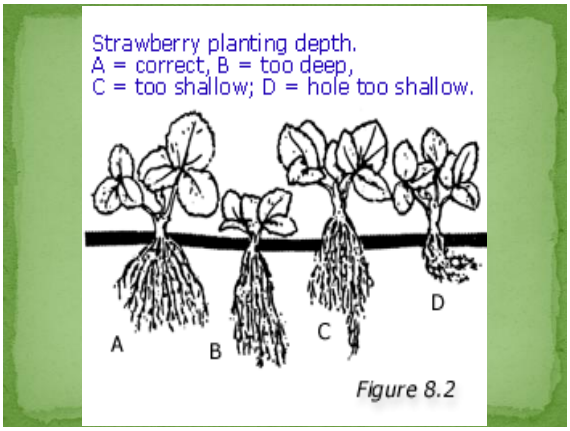


## Cross pollination: 1 cv important, 1 worthless each tree is next to a pollinator



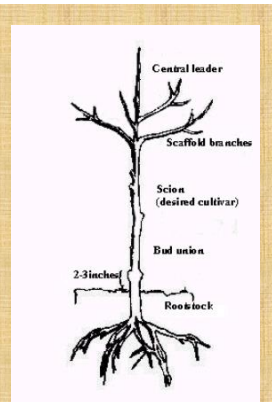
Planting depth: very important for grafted trees and strawberries

Self rooted trees and bushes can be planted deeper



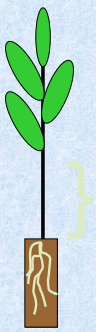

## Tree fruits

- Most are grafted
  - Rootstock: bottom part
    - size control
    - Choose cold hardy ones
  - Scion: Top part
    - Determines fruit characteristics
  - DWARF TREES HAVE NORMAL SIZE FRUIT!!!!!!!

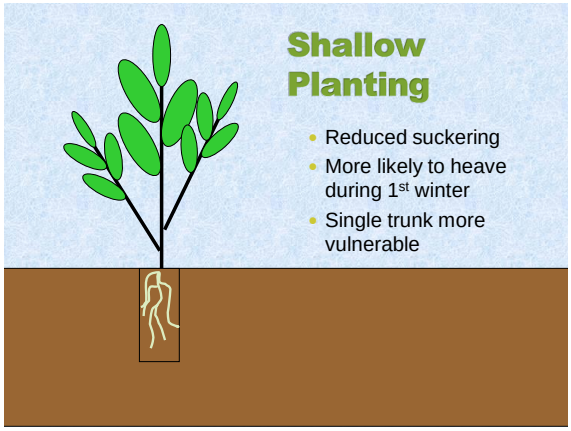


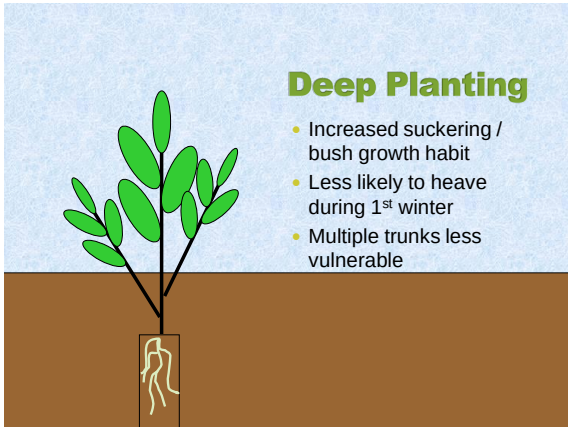

**Favorite tips**

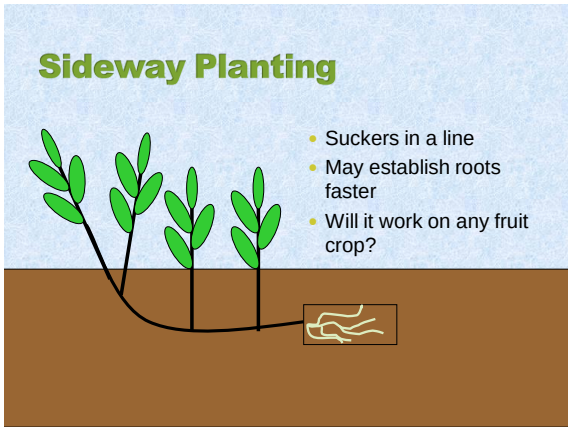
## Variations on planting liners

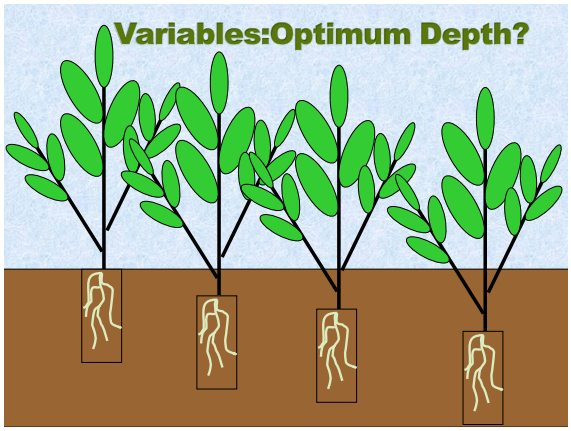


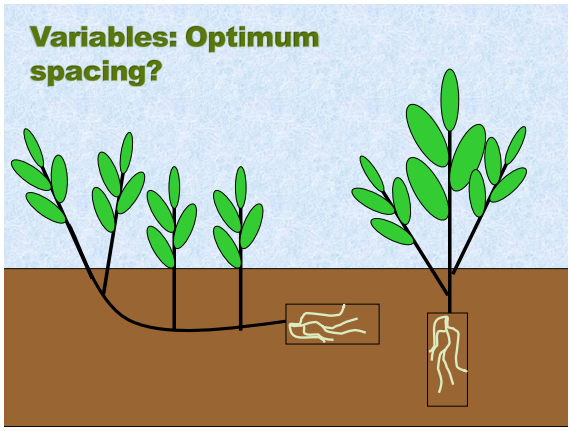
Side shoots form here


Shallow Planting
Reduced suckering
More likely to heave during 1st winter
Single trunk more vulnerable


Deep Planting
Increased suckering / bush growth habit
Less likely to heave during 1st winter
Multiple trunks less vulnerable


Sideway Planting
Suckers in a line
May establish roots faster
Will it work on any fruit crop?

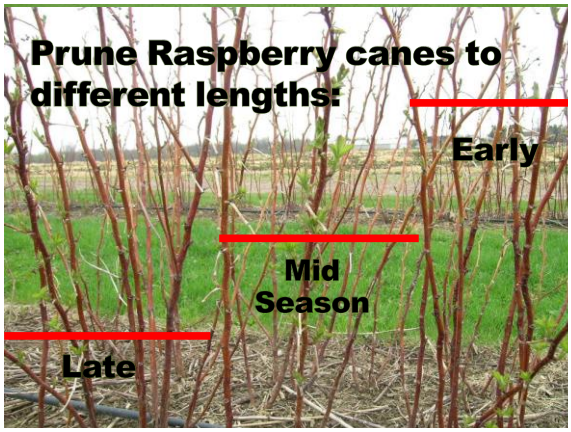

Variables:Optimum Depth?


Variables: Optimum spacing?

Spread out Raspberry season by pruning to different heights

## U of SK Raspberries

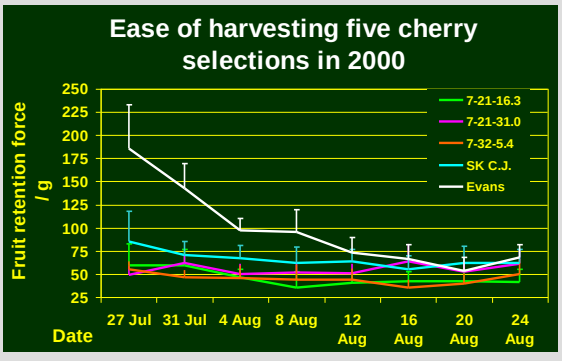
- Spreading types (Country types)
  - Red mammoth
  - Red Bounty
- Low suckering (City Type)
  - Steadfast
- Future?
  - Red Tape?



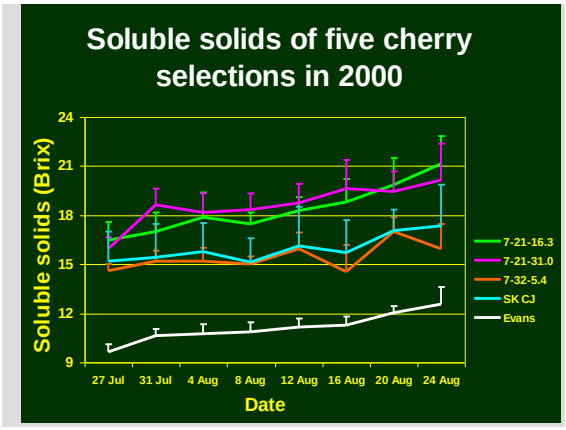

**Let Cherries ripen: most people pick them too early**

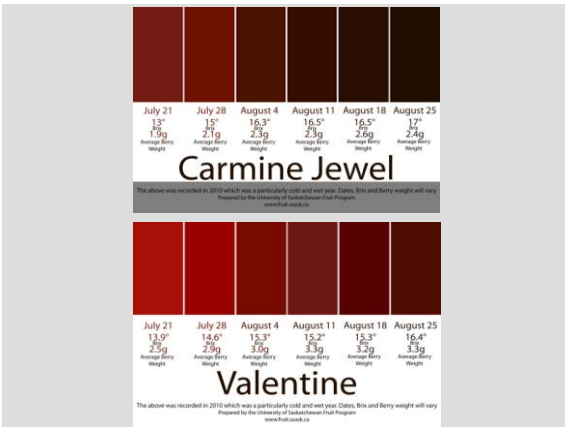
**Romance Cherries (U of SK types) look like this or darker when ripe**

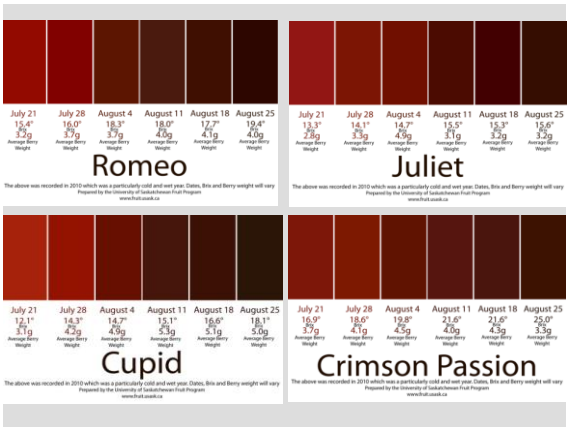
Montmorency and Valentine cherries look like this when ripe

**Refractometers:**
Measure 'Soluble Solids' or ~% sugar content.
Widely used by wine makers, can be used to judge best time to harvest fruit



## U of SK Fruit information:

- www.fruit.usask.ca **Many articles, links, etc.**
- **Events at U of SK:**
  - **Early June: Fruit program plant sale**
    - **14th St east of Preston Ave, Saskatoon**
  - **Mid July: Haskap Days**
    - **Ag Bldg and 14th St**


The fruit program is funded by:
Government of Saskatchewan
Plant Sales & Royalties
The Alberta Horticultural Growers Congress and Foundational Society
The Alberta Farm Fresh Producers Association
Volunteers Include:
Haskap Canada
U of S Master Gardeners
Parkland Agroforestry
SIASK
SASKATCHEWAN FRUIT GROWERS ASSOCIATION