

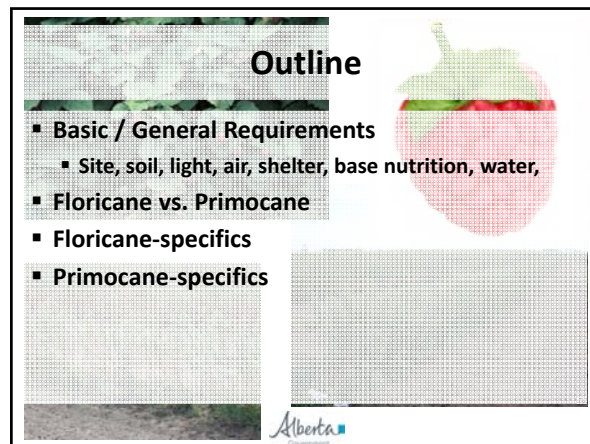


Raspberry Production

Alberta Farm Fresh School 2015
Olds, AB

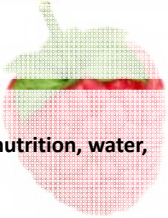

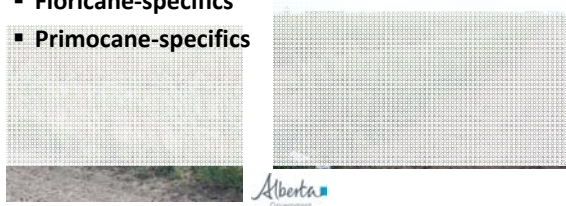

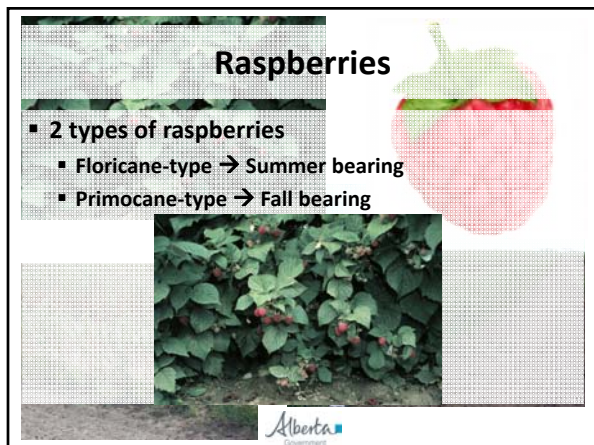







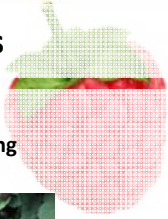


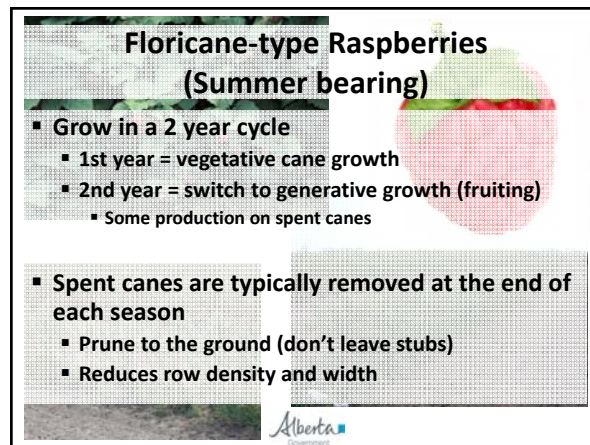
Outline

- Basic / General Requirements
 - Site, soil, light, air, shelter, base nutrition, water,
- Floricane vs. Primocane
- Floricane-specifics
- Primocane-specifics


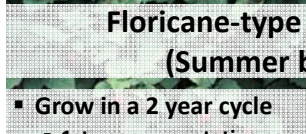


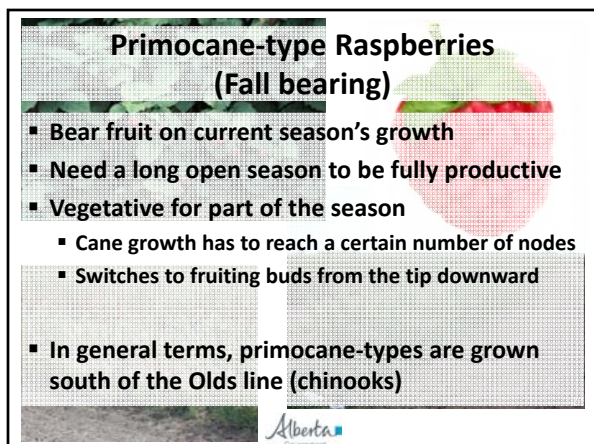
Raspberries

- 2 types of raspberries
 - Floricane-type → Summer bearing
 - Primocane-type → Fall bearing


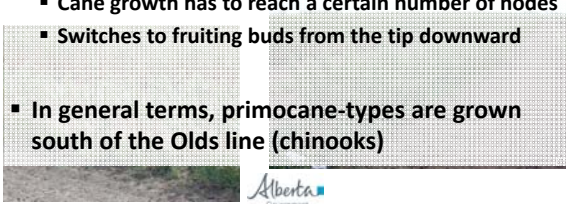

Floricane-type Raspberries (Summer bearing)

- Grow in a 2 year cycle
 - 1st year = vegetative cane growth
 - 2nd year = switch to generative growth (fruiting)
 - Some production on spent canes
- Spent canes are typically removed at the end of each season
 - Prune to the ground (don't leave stubs)
 - Reduces row density and width



Primocane-type Raspberries (Fall bearing)

- Bear fruit on current season's growth
- Need a long open season to be fully productive
- Vegetative for part of the season
 - Cane growth has to reach a certain number of nodes
 - Switches to fruiting buds from the tip downward
- In general terms, primocane-types are grown south of the Olds line (chinooks)

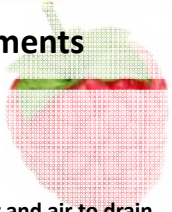


GENERAL REQUIREMENTS



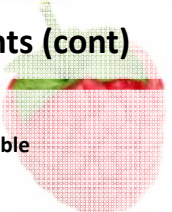

General Requirements

- Site Characteristics
 - Good soil and air drainage
 - Full sun
 - Moderate slope – to allow water and air to drain
 - Protection from wind

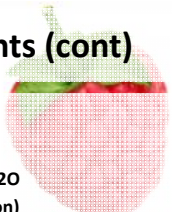

General Requirements (cont)

- Soil Characteristics
 - Wide range of textures = acceptable
 - pH = 6-8
 - Good organic matter
 - Well-drained

General Requirements (cont)

- Shelter
 - Necessary
 - Reduce desiccation & loss of soil H₂O
 - Reduces mechanical injury (abrasion)
 - Captures snow
 - Avoid
 - Shelter on North side of planting
 - Reflection of sunlight
 - Creates a warm pocket = winter injury

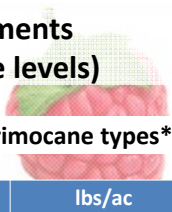





Nutrient Requirements (pre-planting – base levels)

****Same for either Floricane or Primocane types****

Nutrient	Kg/ha	lbs/ac
Nitrogen	70	65
Phosphorus	100	90
Potassium	400	355

Kg/lbs of actual nutrient per area

PLANTING & MAINTENANCE











Raspberries – Planting

- **Timing**
 - **Early spring** when growth won't start, resulting in damage by frost
- **Keep roots moist during planting**

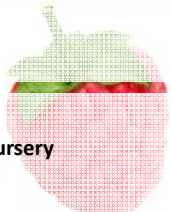

Planting Density

- **Spacing**
 - **Between-row = 12-14 feet (3-5 m) or more**
 - Need to keep pruned to maintain space
 - **In-row = 2-4 feet (0.6 to 1.2m)**
- **Density = 900-2100 plants per acre**



Planting

- **Depth of planting**
 - Set deeper (1-2inches) than in nursery
- **Prune:**
 - Encourage growth and suckering
 - Prevent desiccation damage
 - Down to 6-8 inches
- **Takes about 2 years to establish**

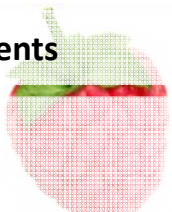

Rooting Depth

- **Most (90%) of roots are in top 20 inches of soil profile**
- **70% of roots are in top 10 inches**
- **** Need to avoid stress ****



H2O Requirements

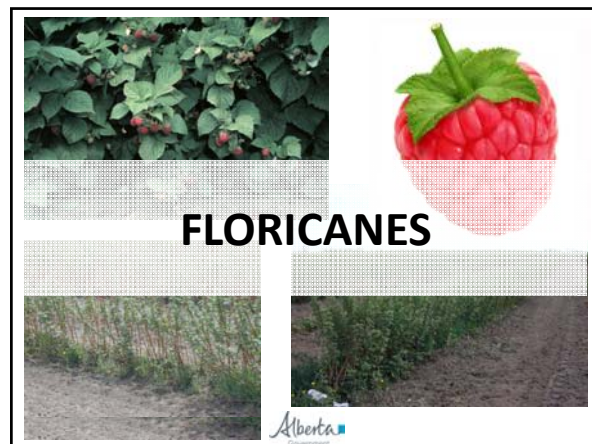
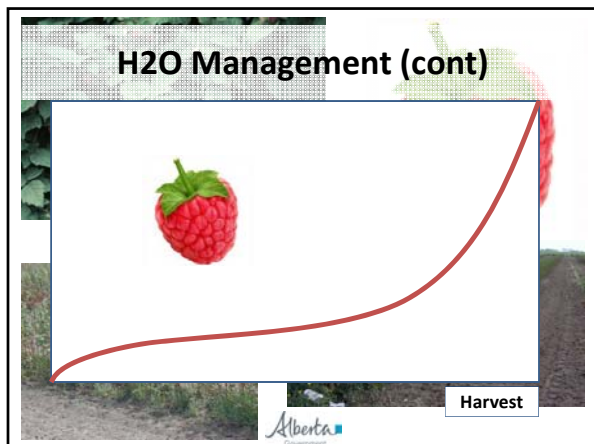
- **Need to avoid stress**
- **Excess moisture**
 - Weak, disease-prone plants
 - Reduced hardiness
- **Insufficient moisture**
 - Smaller canes & fruit
 - Fewer fruiting laterals

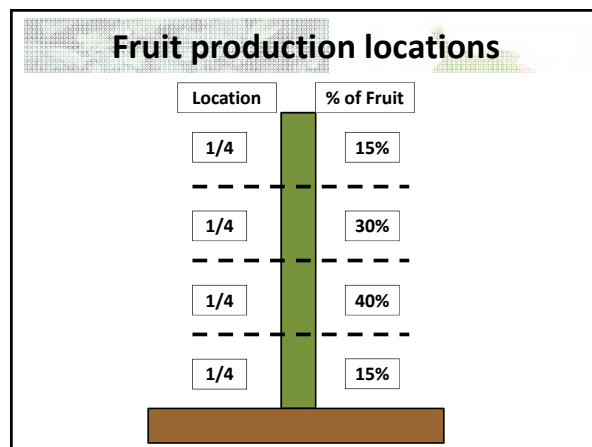
H2O Management (cont)

- **Needs about 1 to 1.5 inches per week from blossom to harvest**
- **Flowering = 3-4 weeks**
- **Fruiting = 4-6 weeks**
- **Get the water on once flowering starts**



- ### Nutrient Requirements - Floricane
- **Annual**
 - 40-80 lb N/ac yearly (split application)
 - 1/2 applied at snow melt in spring
 - 1/2 applied in early May
 - No applications after end of July
 - Won't harden off properly
 - Reduce rates by 1/3 to 1/2 if banding
-





- ### Removing spent floricanes
- Do once fruiting is complete
 - Typically in early fall
 - Why?
 - Increase air movement
 - Reduces disease and insect infestation
 - Increases light penetration to vegetative growth
 - How?
 - Remove to the ground
- New versus Spent canes
Photo by Lloyd Hausher
-



Alternate Row Bearing Production System



- To save on pruning labour can mow down every 2nd row
 - 1/2 of area is fruiting
 - 1/2 of area is vegetative
- Requires more growing area

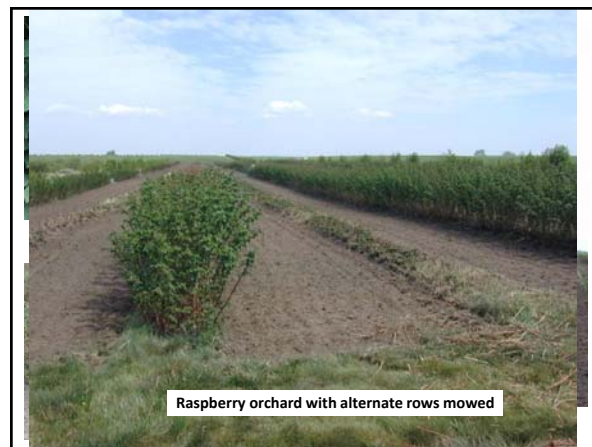
Alberta

Alternate Row Bearing Production System

- Vegetative year
 - Keep rows narrowed and thinned to ~25 canes per metre
- Fruiting year
 - Control/suppress primocanes (10-15cm high) using burn off herbicides (Liberty/Ignite)
 - Sunny days, fan spray nozzles, directed






Alberta





Trellising

- Some varieties can be very tall and top heavy
 - Trellising MAY be required
- Different types of trellises can keep plant upright
- Can also top the plants
 - Lose about 15% of the fruit)
 - If some winter tip kill = better to remove



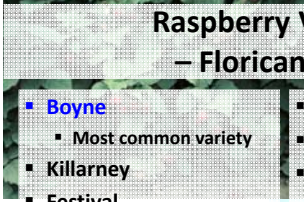


FLORICANE VARIETIES



A collage of images related to floricane raspberry varieties. It includes a close-up of raspberry plants with fruit, a large raspberry fruit graphic, and a photograph of a raspberry orchard with a V-trellis system.

Raspberry Varieties – Floricane-type

- **Boyne**
 - Most common variety
- **Killarney**
- **Festival**
 - Fewer spines
- **Souris**
- **Nova**
- **Algonquin**
- **K81-6**
- **SK Red Mammoth**
- **SK Red Bounty**
- Also black, purple and yellow coloured varieties

Floricane Varieties				
Characteristics	Boyne	Killarney	Nova	Festival
Yield	Good to high	Good to high		Good to fair
Fruit				
Size	Small-Medium	Large	Medium	Medium
Firmness	Somewhat soft		Firm	
Shape			Uniform	
Colour	Medium dark / bright red	Bright red	Dark red, shiny	Medium, bright red
Flavour	Tart / Good		Somewhat tart	
Relative season length	Early-Medium	Early-Medium	Medium	
Spines?	Yes	Yes	Few	Fewer?
Trellising required?	Maybe	Maybe	Maybe	Shorter canes
General comments	Most widely grown	Can be crumbly; Sibling to Boyne		


Floricane Varieties				
Characteristics	K81-6	SK Red Mammoth	SK Red Bounty	Souris
Yield	Average	High	Similar to Boyne	Good
Fruit				
Size	Large	Large	Large	Medium
Firmness	Medium firm	Firm		
Shape	Conic (large cavity)			
Colour	Medium red, dull			Medium, bright red
Flavour			Great	Tart / Sweet
Relative season length	Late	Med-late	Medium	
Spines?	Yes			
Trellising required?	Yes	Yes	No	
General comments	Prone to disease (fireblight, etc.)	Long season; Good hardiness	Great winter hardiness	Similar to Boyne




5 Photos by Lloyd Hauser








K81-6



Note – Winter injury

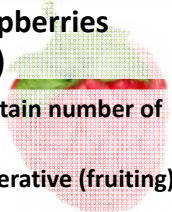



PRIMOCANES

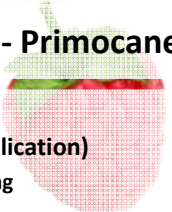

Primocane-type Raspberries (Fall bearing)

- Cane growth has to reach a certain number of nodes
- Change from vegetative to generative (fruiting) from tip of canes
 - Short day / cool temperatures
- Buds form from top downwards
- Number of flower clusters increases as buds develop downwards



Nutrient Requirements - Primocane

- **Annual**
- 70-120 lb N/ac yearly (split application)
 - 1/2 applied at snow melt in spring
 - 1/2 applied in early May
- Reduce rates by 1/3 to 1/2 if banding

Pruning Primocane Raspberries

- Can prune down entirely each year to let regrow
- If leave unpruned
 - 2nd year canes will fruit but fruit will be smaller & earlier
- Using a row cover in spring can accelerate early growth and increase production
 - 1-2 weeks earlier

PRIMOCANE VARIETIES

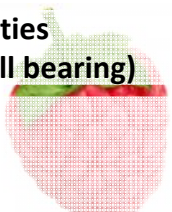





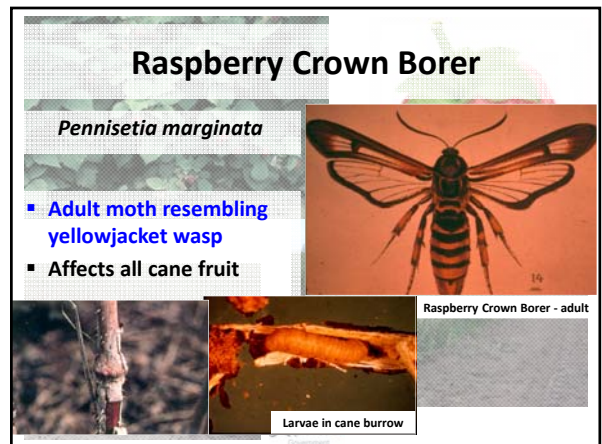
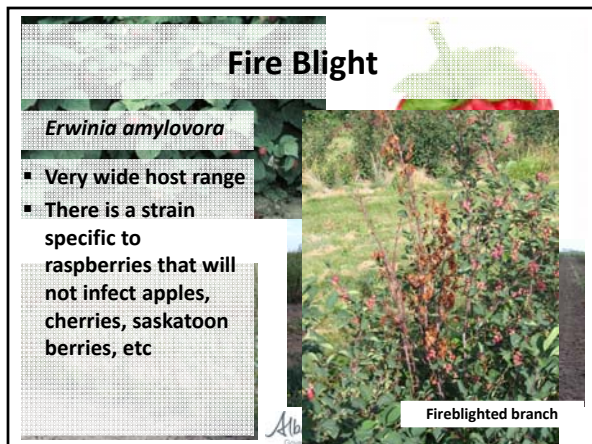
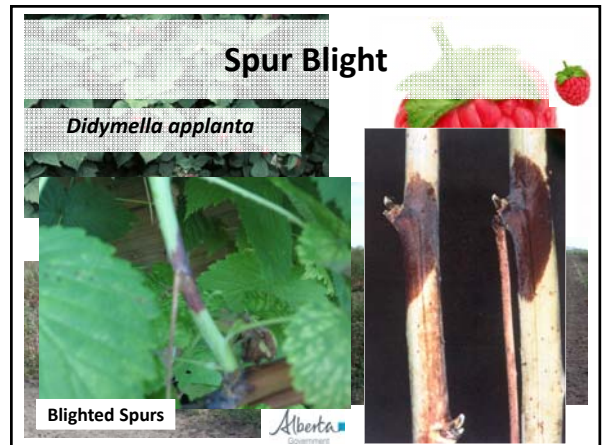
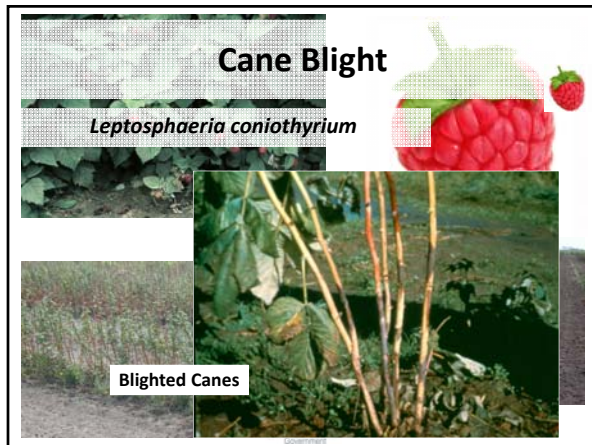


Raspberry Varieties – Primocane-types (Fall bearing)

- **Red River**
- **Double Delight**
- **Autumn Bliss**
- **Summit**
- **Autumn Britten**
- **Fall Gold (yellow)**


Primocane Varieties					
Characteristics	Red River	Double Delight	Autumn Bliss	Summit	
Yield	Good	Good	Very good	Very good	
Fruit	Size	Medium	Large	Medium to large	
	Firmness	holds shape	Firm	Reasonably firm (can be soft)	Firm
	Shape		Round point		
	Colour	Medium red	Medium – bright red	Dark	Medium red
Flavour	Sweet, tart, excellent		Good	Very good	
Relative season length	Early	Early - slightly later than RR	Later	Later	
Spines?	Sparse		Few spines		
Trellising required?	Short and stout (trellising not required)	Longer canes than RR - may not be required	May be required	May be required	
General comments		More consistent yields over years	Comes into fruit later		



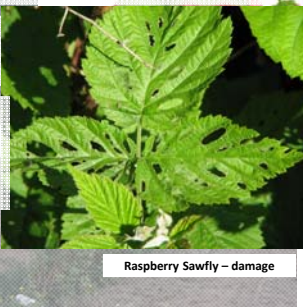
Raspberry Sawfly

Monophadnoides geniculatus




- Larval stage feeds on leaves & other plant parts






Raspberry Sawfly - adult



Raspberry Sawfly - damage



QUESTIONS???



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Alberta Ag-Info Centre

310-FARM

