

# SMALL FRUIT PRODUCTION IN COLORADO

## Options for the Front Range

Andy Hough  
Environmental Resources Coordinator  
Douglas County Government  
[Ahough@Douglas.co.us](mailto:Ahough@Douglas.co.us)

# EXTREME & UNUSUAL WINTER IMPACTS TO FRUIT

Our experience in Douglas County

# Winter Damage 2014-2015

- November 50-70° F single-day drop
  - | after Indian summer
  - | only light frosts previously
  - | Plants & trees not hardened off
- Wide-spread damage—even to normally hardy varieties
- Reports of 20-year old trees dying

# Winter Damage 2014-2015

4 YEAR-OLD PLUM KILLED  
LAST WINTER



PLUM DAMAGED LAST  
WINTER



# Peach—Partial Survival in Protected Area





# Fruit Trees—Damage Assessment

## Franktown (6050')

Stone Fruits—Heavy damage & die off

- | All Peaches died
- | Most Apricots died
- | Heavy die-off & damage in Plums
- | Moderate damage in Tart Cherries (no deaths)

Pears—Relatively unscathed

Apples—Light-moderate damage w/ some die-offs

# Small Fruits—Damage Assessment

- Grape vines—most died-back (Frontenac vines lived)
- Raspberry canes—most died-back
  - | Floricane fruiting:
    - ú Boyne, Royalty many lived
    - ú Prelude, Nova a few lived
  - | Primocane fruiting raspberries-no data (canes pruned in winter as standard cultural practice)
- Black Raspberries—most died-back (Minnesota wild-collected had some canes survive)
- Blackberries—all died back (usual)
- Strawberries (Monterey)—all survived

# Small Fruits—Damage Assessment

- Blueberries—significant damage & die-offs
- Currant & Gooseberry no to minimal damage
- Serviceberry—no damage
- Seaberry—minimal damage
- Elderberry—minimal damage
- Bush cherry—no damage
- Haskap—no damage
- Northern hybrid Hazelnuts no damage
- Oregon Hazels—Doris died, Halles Giant lived



# Protection

Plants in High Tunnels suffered minimal damage

- Peaches: no damage, but some slow to leaf
- Apricots: no damage
- Sweet Cherries: no damage
- Brambles: some cane damage (normal)
- Apple: no damage

# Peaches in High Tunnel 2015

BEST YEAR YET FOR PEACHES IN HIGH TUNNEL...

MOST TREES HAVE FRUIT!

SOME SLOW TO LEAF-OUT



Peaches in High Tunnel May 14,  
2015

# Low Cost Protection Options



# Protected Growing Low Tunnels



# Protected Growing Raised Beds





# Protected Growing Raised Beds



# Protected Growing

- May Cover with:
  - | Agribon non-woven fabric
  - | Plastic
  - | Shade cloth
  - | Hail cloth
  - | Bird netting
  - | Insect screening
  - | Hardware cloth/chicken wire
- Supplemental heat possible
- Misting possible

# Notable Initial Performance Douglas County Research Orchards

## Good

- | Apple
- | Raspberry
- | Strawberry
- | Primocane fruiting
- | Blackberry
- | Bush Cherry
- | Tart Cherry
- | Seaberry
- | Currant
- | Gooseberry
- | Aronia
- | Haskap

## Poor

- | Pawpaw
- | Groundcover raspberry
- | Medlar
- | Shipova
- | Hardy Kiwi
- | Cranberry
- | Lingonberry
- | Mulberry
- | Quince
- | Persimmon
- | English Walnut
- | Almond

# Grapes

- Can work on Front Range
- Select Varieties:
  - | Cold hardy
  - | Early to mid-season ripening
  - | Later bloom is best
- Table Grapes
- Wine/Juice Grapes



# Seedless Table Grapes

HIMROD



RELIANCE



Have harvested up to 15 lbs./vine Reliance in past years



# Other Suitable Grapes

## TABLE

- Canadice (seedless)
- Swenson red
- Swenson white
- Experimenting with
  - | Vanessa (seedless)
  - | Trollhaugen
  - | Glenora Black
  - | Somerset

## NATIVES

- Concord
- Niagara

# Wine Grapes

MARECHAL FOCH



FRONTENAC



Harvested 3-4 lbs./vine 2012  
Partially shaded edible landscape



# Very Hardy Wine Grape Varieties for Front Range

## LATE BUD BREAK E-M HARVEST

- .. Brianna (w)
- .. LaCrosse (w)
- .. Vignoles (w)
- .. Frontenac (r)
- .. Frontenac Gris (w)
- .. Prairie Star (w)
- .. Espirit (w)

## EARLY BUD BREAK E-M HARVEST

- .. LaCrescent (w)
- .. Edelweiss (w)
- .. Marquette (r)

*From: Colorado Front Range  
Grape-growing Parameters  
CSU publication*

# Hardy Wine Grape Varieties for Front Range

## LATE BUD BREAK E-M HARVEST

- Seyval (w)
- Traminette (w)
- Vidal blanc(w)
- Cayuga white (w)
- Leon Millot (r)
- St Croix (r)
- Corot noir (r)
- Chancellor (r)

## EARLY BUD BREAK E-M HARVEST

- Marechal Foch (r)
- GR7 (r)
- DeChaunac (r)

*From: Colorado Front Range  
Grape-growing Parameters  
CSU publication*

# Hardy Wine Grape Varieties for Front Range

LATE BUD BREAK  
M-L HARVEST

- Chambourcin (r)
- Noiret (r)
- Norton/Cynthiana (r)

- Vinifera grapes not recommended for Front Range

*From: Colorado Front Range  
Grape-growing Parameters  
CSU publication*



# Raspberry & Blackberry



# High Tunnel Bramble Production

Maine study –  
Primocane raspberry  
yield:

- | 5000 lbs/ac outside
- | 14,000 lbs/ac high tunnels
- | due mainly to season extension

Cornell University  
Greenhouse Raspberry  
Production Guide



Cornell University Photo



# Hidden Mesa High Tunnel Brambles

- Earlier Floricane harvest possible
- Primocane varieties most applicable
- Produced well into October
  - Quality diminished after hard frosts
  - Floating row cover would mitigate frost



Figure 38. Light weight floating row cover used inside the tunnel protects fruit and foliage on colder nights.

Cornell University

Photo



'Caroline' raspberry late  
January



Black Raspberry in High  
Tunnel

# Outdoor vs. High Tunnel Frost Mitigation

OCT. 3 – OUTDOOR

NOV. 4 – HIGH TUNNEL

Jan. 22 – High Tunnel



- Outdoor Blackberry fruit ruined by frost by early October 2013
- HT Blackberries still green and flowering in November
  - HT October light frost damage could be mitigated by row covers or heater
- Some leaves & canes green mid-winter after -20° F lows (esp. low or protected by leaves)



# Brambles Outside

- Black Raspberries
- Summer Bearing Rasp.
- Fall Bearing Rasp.
- Blackberries





# Black Raspberries

- MOST OVERWINTERED WELL 2012-2013 AND 2013-2014



# Black Raspberries Surviving Cultivars

## Surviving Cultivars

- .. Wild Minnesota
- .. Jewel
- .. Bristol
- .. Mac Black
- .. Pequot
- .. Logan
- .. Munger

## Non-Surviving Cultivars

- .. Huron
- .. Black Hawk
- .. Allen (never got established)
- .. Niwot (re-planting)



Black  
Raspberries  
2013

# 2014 Black Raspberry Trial Results

Variety	Yield per Plant (lbs.)	Berry Size	Sweetness (1 = high 5 = low)	Flavor Robustness (1-5)	Peak Season	Ease of Picking (1-3)
Minnesota Wild Collected	1.3	S	3-4	2	July 14-29	3
Cumberland	0.8	S-M	2	2	July 14-29	3
Bristol	2.6	M-L	1	2	July 14-Aug 11	1-2
Munger	1.3	M-L	1	2	July 14-29	1-2
Logan	0.8	S-M	2	1	July 21-29	3
Pequot	0.2	M-L	4	4	July 21-29	2
Jewel	0.9	XL	2-3	3	July 29-Aug 5	1
Mac Black	0.1	M-L	3	2-3	July 29-Aug 18	2

# Black Raspberry Trial Highlights

Variety	Yield per Plant (lbs.)	Berry Size	Sweetness (1 = high 5 = low)	Flavor Robustness (1-5)	Peak Season	Ease of Picking (1-3)
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# 2014 Black Raspberry Comparison



# First Primocane Black Raspberries



- Niwot plants too young to ripen fruit in 2013
- Niwot developed by Pete Tallman, Longmont, CO
- Ohio Treasure also available

# Blackberries

## Primocane

- .. Prime Ark 45
- .. Prime Jim
- .. Prime Jan
- .. Prime Ark Freedom

## Florican

- .. Triple Crown
- .. Loch Ness
- .. Tayberry
- .. Illini Hardy
- .. Black Hull
- .. Chester
- .. Metolious (did not survive)



Primocane fruiting blackberries

2013



# Primocane Bramble Management

- Usually managed for single fall crop in CO
- Bear on top 1/3 of 1<sup>st</sup> year canes in late Aug., Sept.+
- Mow canes off winter or spring



Mowing last season's BB primocanes during winter



# Primocane Blackberries

- All primocane BBs rushed by fall frosts
- Prime Jan earliest
- Prime Jim middle
- Prime Ark 45 latest (very few berries ripened in 2013 or 14)
- Prime Ark Freedom-Thornless-season unknown



# Primocane Blackberries

- All primocane BBs large & flavorful
- Canes have never survived winter in Franktown or Castle Rock
- Row covers might keep alive over winter



# Triple Crown & Loch Ness

- Trailing
- Floricanne Fruiting
- Large fruit
- Loch Ness tart & insipid
- Triple Crown sweet & delicious
- Triple Crown thornless



Triple Crown berries 2014



# Triple Crown & Loch Ness

- Canes survive in high tunnel
- Could Protect Canes outside with by:
  - laying canes down & mulching
  - row covers



Triple Crown in High Tunnel



# Primocane Raspberries

All mature primocane varieties grow and fruit at Franktown & Castle Rock



# Primocane Raspberry Characteristics

- .. Fall Gold: More flavorful & firmer than Anne, light yields
- .. Anne: Yellow, soft, light yields
- .. Jacklyn: Excellent flavor, fruit sticks to torus, slightly frost tender, moderate yields
- .. Himbo Top: Sunscald problems
- .. Caroline\*: Exc. Flavor, highest vitamin C, high yield
- .. Polana\*: A little more tart, 20% higher yield in Boulder\*\*

\*Best all around choices for Front Range Growing, based on current experience.

\*\*Joel Reich, personal communication

# Primocane Raspberry Characteristics

- Autumn Britten\*: Exc. Flavor, high yields
- Autumn Bliss\*: Exc. Flavor, 50% of harvest in 1<sup>st</sup> couple weeks, minimizes loss to early frost, high yields
- Prelude (No data yet)
- Joan J (No data yet)
- Heritage: Good berry but 2-3 weeks later than others, risking frost, high yields, somewhat soft
- Plainsman: From Cheyenne Research Station (no data yet)

\*Best all around choices for Front Range Growing, based on current experience.



# SWD found in 2013

- Spotted Wing Drosophilla
- Affects berries & soft fruits on the plant
- Compromises fruit quality
- Don't appear until mid-summer
  - July 21<sup>st</sup> first signs
  - Aug. 5<sup>th</sup> heavy activity
- Found orchard hygiene reduced incidence drastically
  - Pick early & often
  - Collect & remove bad fruit



# Florricane Raspberries

.. Red Mammoth

.. Boyne\*\*

.. Latham

.. Nova\*

.. Octavia

.. Chilicotin

.. K816

.. Lauren

.. Royalty (purple)\*\*

.. Taylor

.. Prelude\*

.. Encore

.. Killarney

.. Temperature hit 0°F mid-April 2013

.. Temperature dropped 50-70°F after Indian summer 2014

.. Very few canes survived to fruit in 2013 & 2015

\*\*Many canes of this variety survived winter of 2014-15 (perhaps 30-50%)

\* A few canes of this variety survived winter of 2014-15

# Fruits of Our Labor





# Day Neutral Strawberries with Commercial Potential

## Varieties:

- Monterey
- Mara Des Bois
- Evie 2
- Albion
- Seascape
- Portola
- San Andreas



Strawberries grown at Hidden Mesa

# Monterey & San Andreas

## Monterey:

- | Vigorous
- | High yielding
- | Very Large berries
- | Firm
- | Sweetness developed at end of ripening cycle
- | Berries can develop woody core after hard frosts

San Andreas similar to Monterey



Monterey & other varieties grown in high tunnel at Hidden Mesa Orchard



# Monterey Strawberries Spring 2015



Spread from only a few plants. Overwintered beautifully with no protection.



# Mara Des Bois

## Mara Des Bois (DN)

- Extremely sweet & aromatic
- Unique flavor
- Medium - Small berries
- Softer than Monterey – melts in mouth
- Consistent producer



Mara Des Bois at  
Hidden Mesa

# Other Day Neutral Strawberries

These DN Varieties are all large and somewhat similar:

- Evie 2
- Albion
- Seascape
- Portola



Strawberries grown at Hidden Mesa

# Favorite June-Bearing Strawberry

## Cavendish (June Bearing)

- Very sweet
- Unique flavor
- Very vigorous vegetative growth



# Seaberry

\$330M industry in  
Europe & Scandinavia

- | Food/drink
- | Nutraceuticals
- | Cosmetics

Nitrogen fixing

Hardy to -40°F

Super-fruit

- | Vitamins A, C, & E
- | Beneficial oils
- | Minerals



# Seaberry

- Aka Sea Buckthorn
- Thorny
- Many Commercial Varieties
- Mechanical harvest methods being developed
- Easy to establish
- Very fast growing





# Haskap (Edible Blue Honeysuckle)

Hardy to -40°F

Blossoms hardy to 15-17°F (tolerates spring frost)

Native from N. Japan to Siberia + Canada





# Haskap

Very early blooming

- | Russian earlier than Japanese

- | Bear earlier than Strawberries

Honeysuckle family—  
beautiful in the  
landscape

Japanese delicacy—  
potential export market

Protect from bird  
predation



# Haskap

- Improved Commercial varieties from Univ. of Saskatchewan

- | Russian origin
  - ú Blooms earlier
- | 2 available in USA



- Improved varieties from Oregon State Univ.

- | Japanese origin
  - ú Blooms slightly later
- | Not yet released

- Honeyberry: selected wild blue honeysuckle

- | Generally
  - ú Lower yield
  - ú Smaller fruit
  - ú Not as flavorful

# Hardy Bush Cherry

Univ. of Saskatchewan

$\frac{3}{4}$  pie &  $\frac{1}{4}$  Mongolian  
bush cherry

Hardy to  $-50^{\circ}\text{F}$

4-7' bush

Complex tart flavor

Deep red fruit & juice

18-22 brix

5 years to mature

Lit. says yield up to  
25lbs/bush

3 released in USA



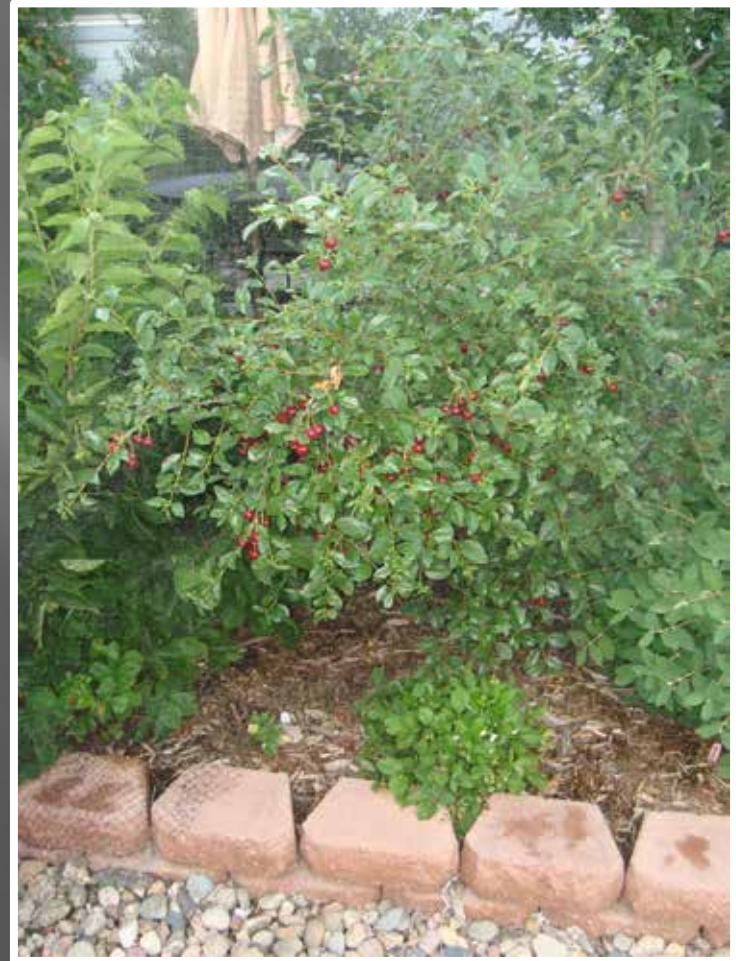
Carmine  
Jewell  
Cherries from  
Edible  
Landscape





# Hardy Bush Cherry

- Carmine Jewel in edible landscape
- Yielded about 5 lbs./bush in 4<sup>th</sup> year w/ ½ day sun & landscape competition
- Black aphids—not problematic



# Carmine Jewel in Bloom





# Hardy Bush Cherries

## Mechanically Harvestable





# Tree-Type Tart (Pie) Cherries

- Normally very reliable in Front Range Climate (not in 2014-15 winter)
- Susceptible to bird damage
- High yield potential

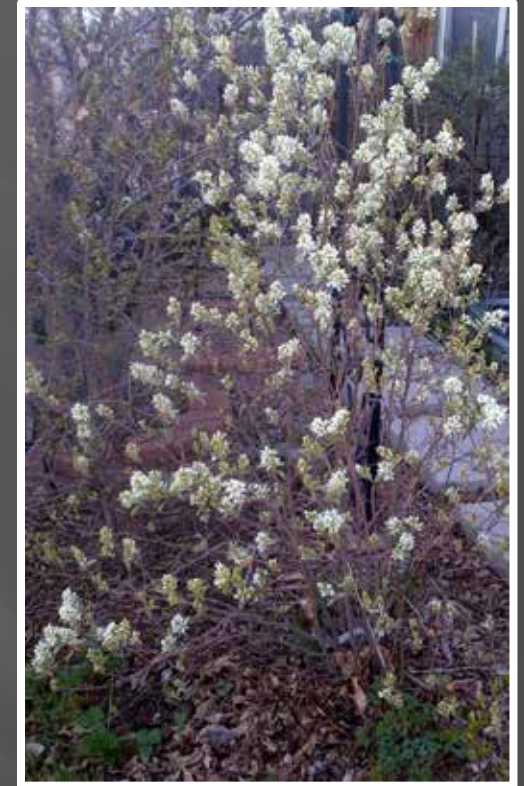


Evans Bali tart cherry tree in edible landscape in Castle Rock

# Saskatoon

(aka Serviceberry, Juneberry)

- Colorado Native
- Selected & Improved varieties
- 6-12' bush or tree
- Mechanically harvestable
- Highly nutritious
- Many products & uses
- Viable industry in Canada
- Similar in appearance to blueberry





# Saskatoon/Serviceberry





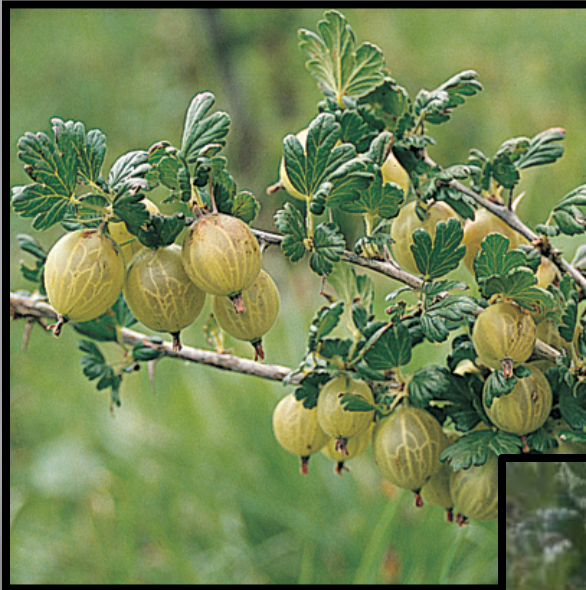
# Gooseberry & Currant

- Very cold tolerant
- Shade tolerant
- Espalier options
- Row crop culture
- Mechanically harvestable
- High nutrition
- Various colors & flavors
- Some fresh & many process market uses



Various colored  
gooseberries & hybrids from  
Hidden Mesa

# Gooseberry



Left: Fruiting  
Gooseberry at Lowell  
Ranch



Picked 7 lbs. off 3  
bushes in shaded  
edible landscape  
2012





# Various Red Gooseberries from Hidden Mesa





# Currant



# Elderberry

European (*Sambucus nigra*)

American (*Sambucus canadensis*)

Highly nutritious

Process market

Yields:

- | 12-15 lbs/plant
- | 4-12 tons/ac in New York (more w/ *S. nigra*)
- | Mechanical harvest potential

Ornamental quality





# Aronia

Aka: black chokeberry

Well adapted to CO

Very nutritious

2-4 tons/ac @  
maturity

Row culture

Mechanically  
harvestable

Process market

Ornamental quality





# Hazelnut/Filbert

- Cold hardy varieties probably suitable
- Oregon tree hazels may be too tender
- Eastern Filbert Blight potential
  - | Select resistant varieties
- Potential winter-kill of catkins (pollen cones)
- Bush varieties offer new cultural options
- Mechanical harvest possible
- Co-cropping potential



# Hazelnut/Filbert Products

## In-shell nuts

## Hazelnut oil

- | 60%+ oil content
- | Very similar to olive oil
- | By-product meal
  - ú Very high in protein
  - ú Health food products
  - ú Animal feed

## Processed nuts

- | Including ancillary uses (confections, flavoring, etc.)

## Branches from coppicing

- | Furniture industry (wicker-style weaving)
- | Woody biomass



# Hazelnut





# Local Results



Young Hazel at Hidden  
Mesa

- .. Northern Hardy Hybrids surviving at Franktown without protection
- .. Oregon Varieties
  - | Doris died
  - | Halles Giant survived
- .. Native varieties found in the area

# Highbush Cranberry



- Viburnum not Vaccinium
- Beautiful in landscapes
- Cranberry flavor





# Goji/Wolfberry



- Zone 5-6
- Prefers alkaline to neutral soil
- Very nutrient dense



# Maypop Passionfruit



Zone 5

Dies to ground each year

Gorgeous in landscape

Does not often ripen fruit

Blooms daily



# Other Unique Edibles



Rhubarb



Autumn Olive



Goumi



Princepia



Hops

# Peaches

- Early Bloom (losses ave. 2/3 years)
- Use late/hardy bloom varieties
- Protection Potential
  - | High Tunnels (suitability undetermined)
  - | Row Covers
  - | Surround treatment (white coat-reduces warming)
  - | Sodium Alginate treatment (delays bud break)
- Lost all peaches outside over last two winters (2013-14 & 2014-15)
- Peaches in high tunnels thriving





# Frost Resistant Varieties Worth Trying

- .. Flamin' Fury PF 24C\*
- .. Contender\*
- .. Intrepid\*
- .. Carolina Gold\*
- .. China Pearl\*
- .. Reliance\*
- .. Madison
- .. Poly
- .. Redhaven
- .. Veteran\*
- .. Raritan Rose
- .. Harrow Diamond\*
- .. Glohaven\*
- .. Challenger\*
- .. Nectar\*

\* Currently in Research Orchard

# Apricots

- Early Bloom (losses ave. 6/7 years)
- Use late blooming/hardy bloom/long bloom varieties
- Protection Potential
  - | High Tunnels (suitability undetermined)
    - ú Vertical V
    - ú Espalier/fan on dwarf RS
  - | Row Covers
  - | Surround treatment (white coat-reduces warming)
  - | Sodium Alginate treatment (delays bud break)



# Latest Blooming Varieties for West

## Ranked from Full-Bloom (latest to earliest)

- .. Westley (died)\*\*
- .. Zard
- .. Afghanistan
- .. Suphany
- .. Nicole
- .. Goldensweet
- .. Sugar Pearls (died)\*\*
- .. Henderson
- .. Tomcot (died)
- .. Jerseycot\* (died back severely)\*\*
- .. Florilege
- .. Harglow\* (died)\*\*
- .. Harcot
- .. Helena
- .. Hargrand\* (died)\*\*
- .. Golden Giant
- .. Precious
- .. Harlayne\* (died)\*\*
- .. Goldbar
- .. Harval
- .. Lorna
- .. Hoyt Montrose
- .. Robada
- .. Castlebrite
- .. Apache
- .. Harogem\* (died)\*\*
- .. Westcot\* (survived 2014)
- .. Debbie's Gold\* (survived 2014)
- .. Morden 604
- .. Brookcot

Source: Bob Purvis Idaho Study  
2012

\* Currently in Research Orchard  
\*\*Died/damaged over last 2  
winters



# Other Apricot Varieties

Believed to have frost tolerance, late bloom,  
or long bloom duration

- Tlor Tsiran (apricot/myloban plum hybrid) (died)
- Adirondack Gold
  - | one of few to survive 2014-15 winter
  - | Is thriving
- Puget Gold (died)
- Hunza (died)
- Montrose (died)

# Edible Landscaping

LANDSCAPE  
CONTAINS:

PIE CHERRY TREE  
ITALIAN PLUM TREE  
4 SASKATOON  
BUSHES  
2 BUSH CHERRIES  
2 HONEYBERRY  
(HASKAP)  
3 SEABERRY  
2 HAZELNUT  
1 RED CURRANT  
2 GRAPE VINES  
TRADITIONAL &  
ALPINE STRAWBERRY  
EDGING



**1 year after  
planting**



**6 years after  
planting**

# Community Orchards





# Small Plot Intensive Culture

Fruit with Micro-farming potential



# Questions??



# SMALL FRUIT PRODUCTION IN COLORADO

## Options for the Front Range

Andy Hough  
Environmental Resources Coordinator  
Douglas County Government  
[Ahough@Douglas.co.us](mailto:Ahough@Douglas.co.us)



# Extra Information

# Apple Varieties

## Selected for:

- | Hardy to zone 5A minimum
- | Fireblight Resistance
- | Early to Mid-Season Ripening
- | Quality Fruit

## Other Considerations:

- | Bloom Time
- | Yield
- | Annual Bearing
- | Resistance to other disease/Insects



# Apple Varieties at Hidden Mesa 2014-15 Injury

- Williams Pride
- Redfree (died)
- Pristine (damage)
- Akane
- Zestar!
- Priscilla (damage)
- Freedom (severe damage)
- Jonafree
- Snowsweet
- Enterprise (died)



# Apple Varieties at Hidden Mesa 2014-15 Injury

- Sweet 16 (2 died/2 lived)
- Honeycrisp
- Liberty
- Pixie Crunch (died previously)
- Redstone Canyon Gold (died previously)
- Red Barron
- Cortland
- Haas

# Apple Varieties at Hidden Mesa 2014-15 Injury

These trees were planted spring 2014 and were younger going into freeze

- Macfree (died)
- Sansa
- Grimes Golden (died)
- Galarina (died)
- Frostbite
- Winecrisp (died)





# Apple Rootstocks

- Fireblight Resistance
  - | Budagovsky series (B9, B118)
  - | Geneva Series (G11, G16, etc.)
  - | M7
- Climatic Adaptability
- Pest/Disease Resistance
- Dwarfing Characteristics
- Anchoring Characteristics
- Soil Tolerance

# Released GENEVA® Apple Rootstocks Arranged by Tree Size



Seedling Size

M.27 Size

M.9 T337

M.9 PAJ 2

M.26 Size

M.7-MM106 Size



G.65

G.11

G.41

G.935

G.202

G.30

G.16

**G.214**

**G.890**

**G.969**

**G.210**

**G.222**

**New Releases**

<http://www.cctec.cornell.edu/plants/GENEVA-Apple-Rootstocks-Comparison-Chart-120911.pdf>



Contact:  
Jessica Lyga,  
Plant Varieties &  
Germplasm  
Licensing Association

Office: 607-255-02

E-mail:  
jml73@cornell.edu

# Pears

- Early Bloom may be problematic
- Select Varieties that are:
  - Hardy to Zone 5A minimum
  - Fireblight (FB) Resistant
  - Early to Midseason Ripening
  - Good Fruit Quality
  - Rootstock
    - | OHxF best
    - | Quince may be problematic (FB, cold hardiness problems)



Honeysweet Pears  
grown in Castle Rock



# Hidden Mesa Pear Varieties

- .. Luscious\*
- .. Hudar
- .. Honey Sweet\*
- .. Ayers\*
- .. Ure\*
- .. Waterville
- .. Beierschmidt\*
- .. Nova
- .. Southworth\*
- .. O'Berg
- .. Barnet-Perry
- .. Ubileen
- .. Hendre Huffcap—Perry
- .. Barland—Perry
- .. Magness\*
- .. Harrow Delight\*
- .. Maxine\*
- .. Blake's Pride\*
- .. Harrow Sweet\*
- .. Harrow Crisp\*
- .. Moonglow\*

\* FB resistant variety

# Hidden Mesa Pear Varieties

- .. Harvest Queen\*
- .. Ewart (died)\*
- .. Aurora
- .. White Doyenne
- .. Gem\*
- .. Shenandoah\*
- .. Collette
- .. Flemish Beauty
- .. Seckel\*
- .. Romainian
- .. Potomac\*
- .. Savignac

\* FB resistant variety

# Plums

Option on Front  
Range

Select:

- | Cold hardy
- | Later blooming  
cultivars



Part of Mount Royal harvest 2012



Mount Royal plum in edible  
landscape 2012