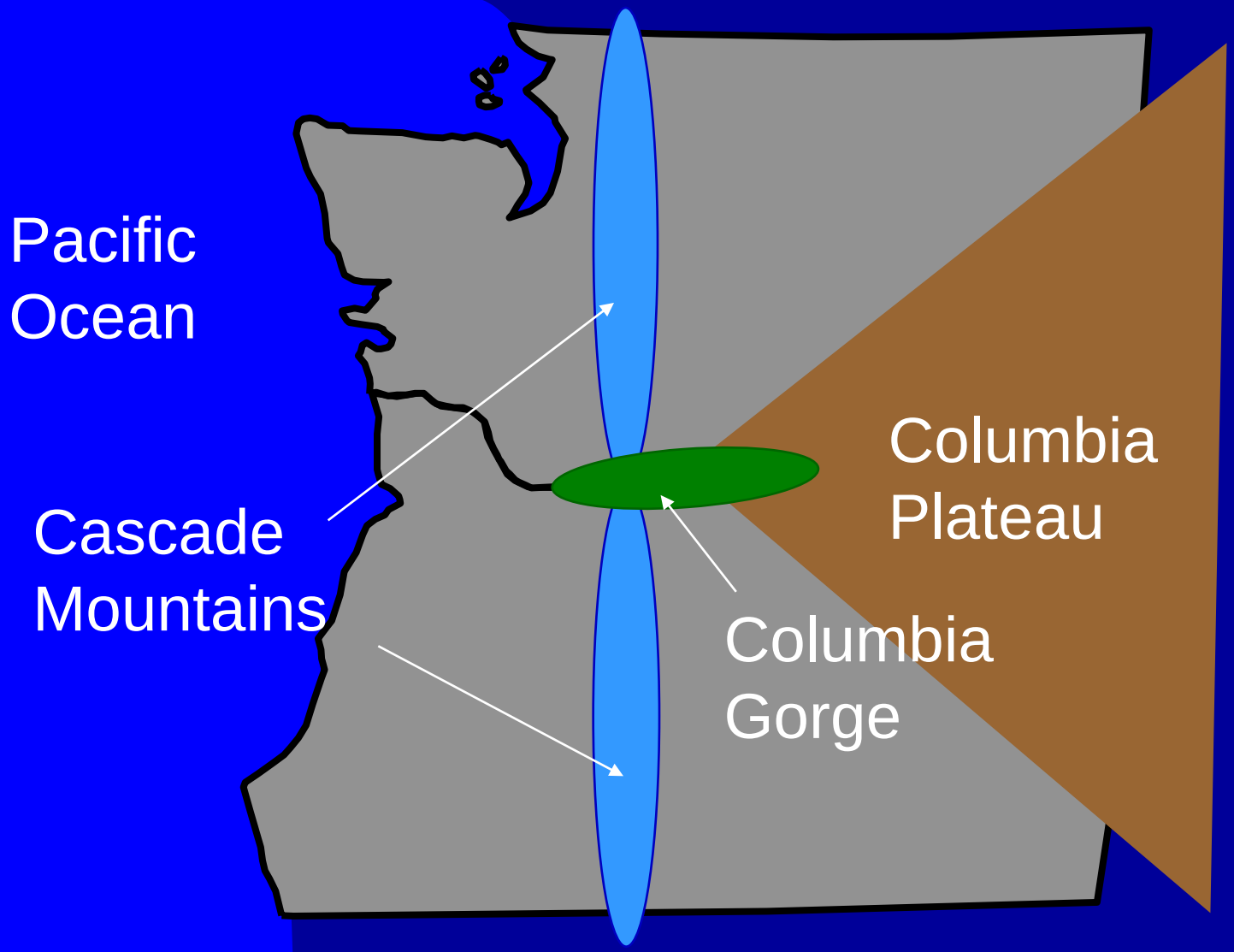
Mid-Columbia Tree Fruit Industry

Steve Castagnoli
Extension Horticulturist
Mid-Columbia Agricultural Research & Extension Center
Hood River, OR

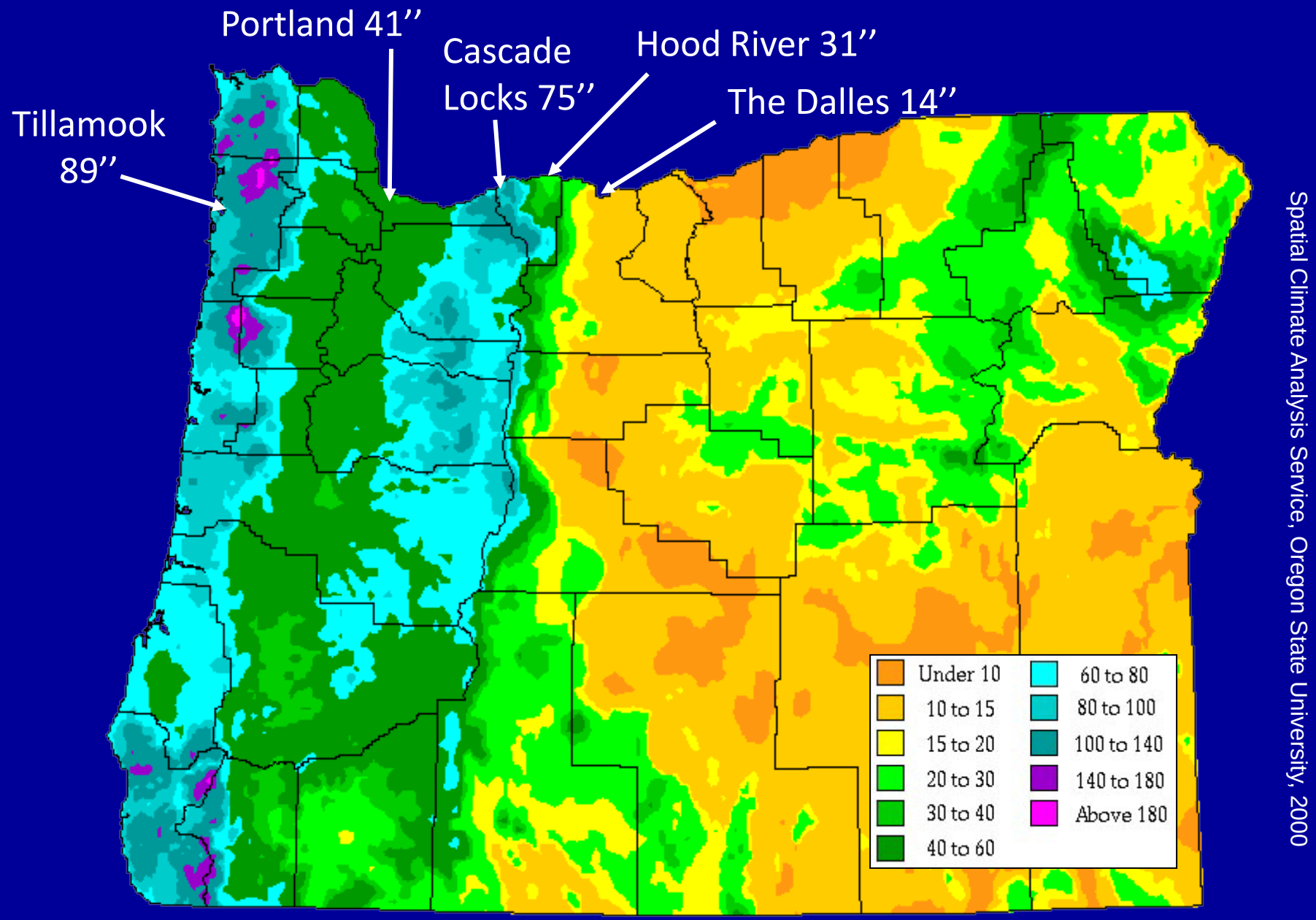
OSU
Oregon State
UNIVERSITY


WASHINGTON
White Salmon Valley
Dallesport
The Dalles
Mosier
Hood River Valley
OREGON

Important Physiographic Features

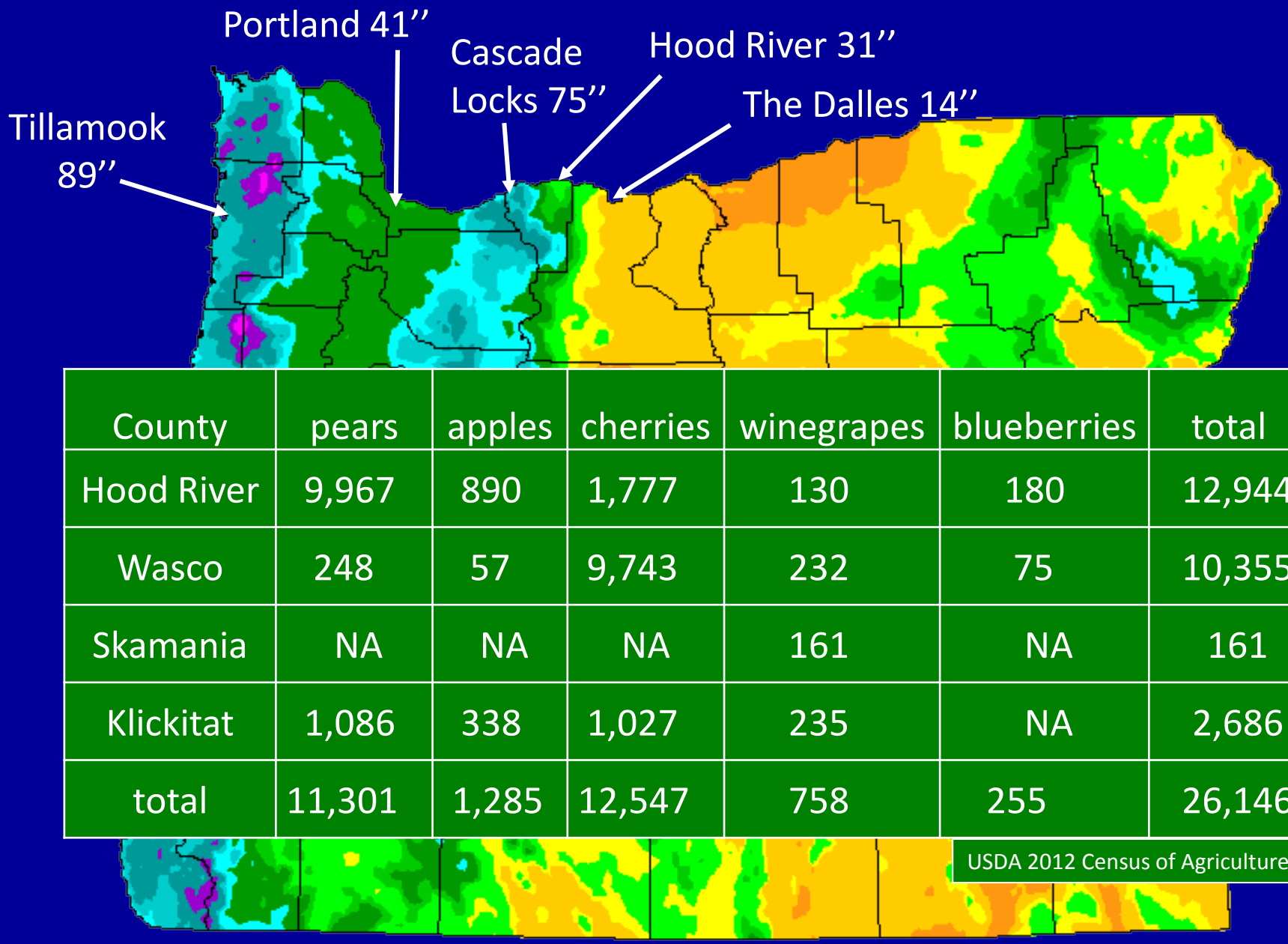


Average Annual Precipitation



Spatial Climate Analysis Service, Oregon State University, 2000

Fruit Acreage by County & Crop

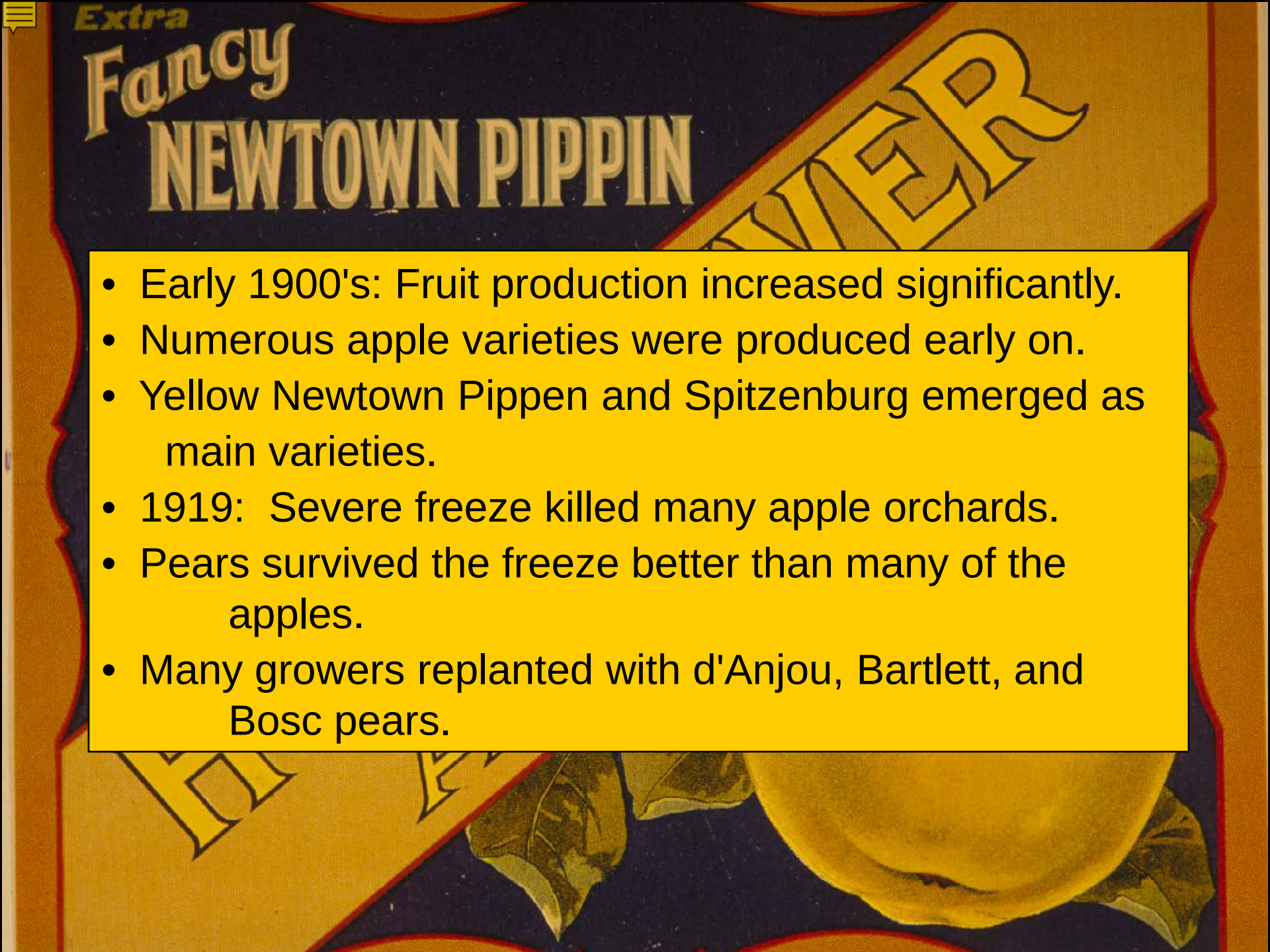


County	pears	apples	cherries	winegrapes	blueberries	total
Hood River	9,967	890	1,777	130	180	12,944
Wasco	248	57	9,743	232	75	10,355
Skamania	NA	NA	NA	161	NA	161
Klickitat	1,086	338	1,027	235	NA	2,686
total	11,301	1,285	12,547	758	255	26,146

USDA 2012 Census of Agriculture

Brief History of Fruit Growing in Hood River

- 1855: Nathaniel Coe settled in Hood River. He planted fruit trees obtained from a nursery near Portland, Oregon.
- 1876: Ezra Smith planted the first commercial orchard. He planted 30 acres of Yellow Newtown Pippin and Spitzenburg apples.
- 1882: The railroad arrived providing transportation to eastern U.S. markets. Riverboat had been the main form of transportation in the region.



- Early 1900's: Fruit production increased significantly.
- Numerous apple varieties were produced early on.
- Yellow Newtown Pippen and Spitzenburg emerged as main varieties.
- 1919: Severe freeze killed many apple orchards.
- Pears survived the freeze better than many of the apples.
- Many growers replanted with d'Anjou, Bartlett, and Bosc pears.

Agritourism & Value-added Products

Wholesale & Fresh

US Winter Pear Production

(not including California)

Table 1. Production by variety in million boxes and % of total (5-yr average).

	Anjou	Bosc	Red Anjou	Comice	Seckel	Other	Total
Milion boxes	10.4	2.9	0.9	0.2	0.1	0.2	14.7
% of Total	70.8	19.6	6.4	1.7	0.4	1.2	

Source: Pear Bureau Northwest 2012-2013 Season Summary.

US Winter Pear Production

(not including California)

Table 1. Production by variety in million boxes and % of total (5-yr average).

	Anjou	Bosc	Red Anjou	Comice	Seckel	Other	Total
Milion boxes	10.4	2.9	0.9	0.2	0.1	0.2	14.7
% of Total	70.8	19.6	6.4	1.7	0.4	1.2	

Table 2. Production by district and variety (5-yr average as percent of total).

District	Anjou	Bosc	Red Anjou	Comice	Seckel	Other	Total
Medford	0.7	16.5	3.8	46.3	25.5	7.9	4.9
Mid-Columbia	35.6	30.1	51.1	45.0	52.4	46.0	35.9
Wenatchee	53.8	34.6	28.6	6.5	12.5	40.1	47.3
Yakima	9.9	18.8	16.5	2.2	9.6	6.0	11.9

Other includes Forelle, Concorde, Taylor's Gold, Packham, Nellis

- Approx. 2/3 to domestic markets, 1/3 exported; Mexico 40 to 50%; Canada 15 to 20%;
- Imports into US equal approx. 32% of annual production.

Source: Pear Bureau Northwest 2012-2013 Season Summary.






Forelle

Seckel

Taylor’s Gold
(russeted Comice)

Concorde

Starkrimson
(red Clapp’s Favorite)

New Cultivar Release: ‘Gem’

- Precocious and productive
- Fire blight resistance
- Non-russeting
- Crisp/juicy texture at harvest
- Requires thinning for good size

Bell et al., 2013

Spindle

672-1,153
tree/acre

V system

4,080
tree/acre

Stefano Musacchi

Bi-axis Y (Bibaum®)
3.3 m x 1.0 m
(11 ft x 3.3 ft)
(1,227 tree/acre)

Vertical axis (4453-5263 tree/acre)

Open Center

Spacing & density

24 x 24 feet; 76 trees per acre

24 x 12 feet; 152 trees per acre

Open Center

Spacing & density

20 x 20 feet; 109 trees per acre

20 x 10 feet; 218 trees per acre

Central Leader

Spacing & density

18 x 8 feet; 303 trees per acre

Steep Multi-leader

Spacing & density

18 x 10 feet; 242 trees per acre

V-trellis

16 x 4 feet; 681 trees per acre

Dwarfing Rootstocks for Pear?

Dwarfing Rootstocks for Pear?

Apple Fruiting Wall

D. Faubion

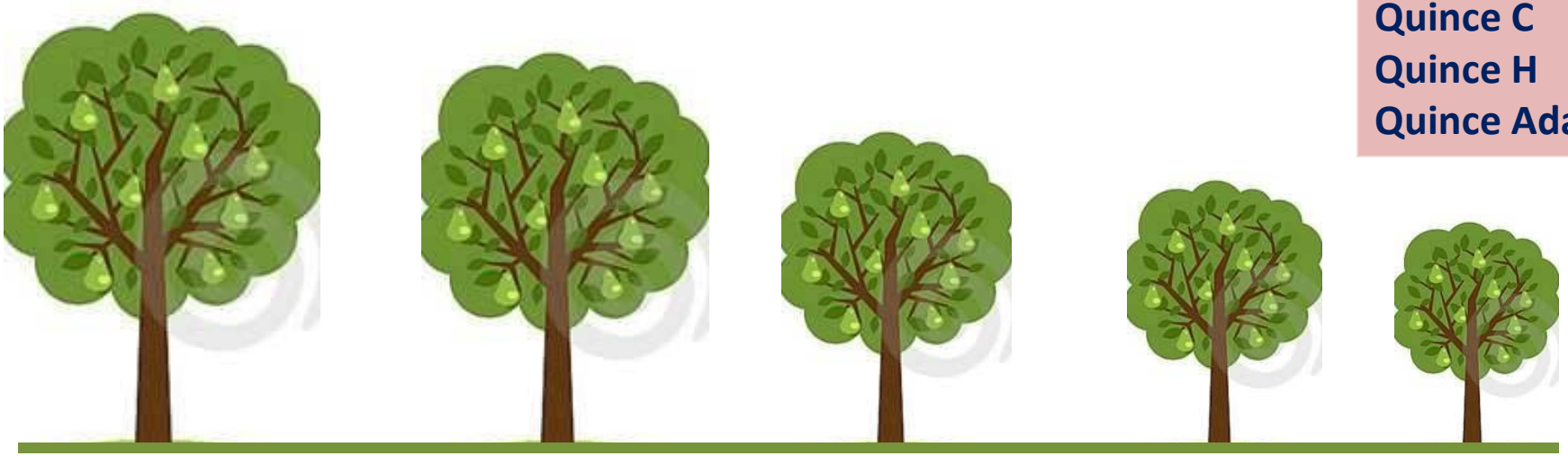

Karen Lewis

Suitability of commercially available rootstocks for high density orchards in the PNW

Rootstock	tree size	yield	precocity	fruit size	fire blight	pear decline	cold hardy	propagation
P. communis								
P. betulaefolia								
P. calleryana								
OHxF 87								
OHxF 97								
BP1					?		?	
Pyro 2-33					?	?		
Pyrodwarf					?	?		
Quince A								
Quince B								
Quince C								
Q BA29								

(Lombard & Westwood, 1987; Webster, 1998; Wertheim, 2002)

Pear Rootstocks by Tree Size



Pyrus betulifolia
Winter Nelis
Bartlett seedling

OHxF 69
OHxF 87
OHxF 97
Pyro 2-33

Horner 10
Fox 11
708-36

Warm Climate

Quince BA29C

Quince A
Quince C
Quince H
Quince Adams

90 +%
Horner 4

70-90%

60-70%
Horner 10

50-60%

40-50%
Cold Hardy Quince Accessions

Quince Eline

Amelanchier

OSU research funded by Northwest pears

T. Einhorn

Fire blight

Cherry Production

Sweet Cherry Cultivars: Lengthening the Harvest Window

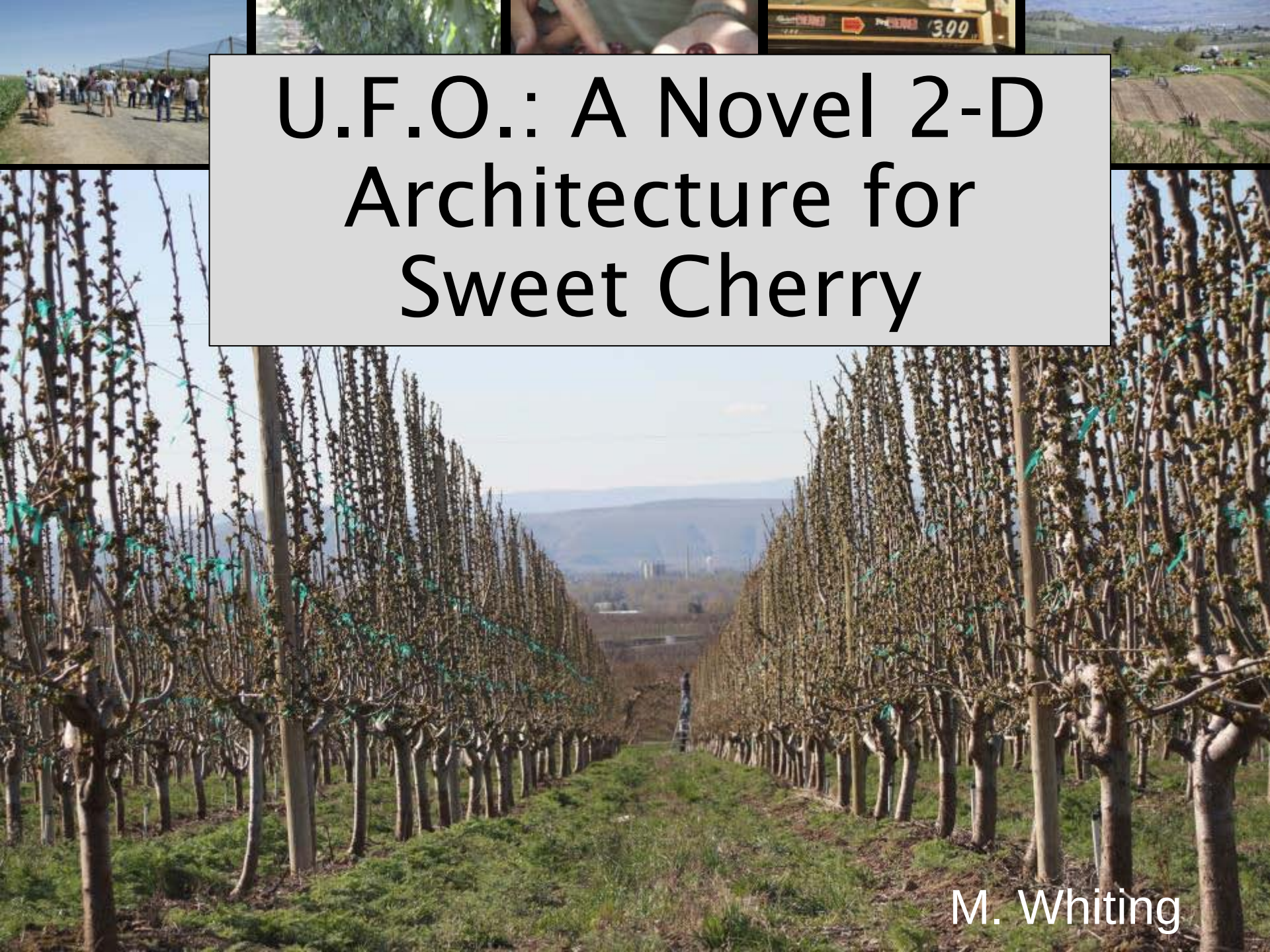
- Chelan
- Tieton
- Benton
- Bing
- Cowitche
- Selah
- Lapins
- Skeena
- Regina
- Sweetheart
- Staccato

10-12 d before Bing

0 d

Up to 30 d after Bing

T. Einhorn



U.F.O.: A Novel 2-D Architecture for Sweet Cherry

M. Whiting

Kim Green Bush (KGB)

T. Einhorn

Cropping in a UHDP with vertical axis trees should take place as far as possible on basal buds of year-old shoots.

PNW 604 • December 2007 • $2.00

Sweet Cherry Cultivars *for the Fresh Market*

PNW 543
Reprinted February 2003

Cherry Training Systems:

Selection and Development

A Pacific Northwest Extension Publication
Oregon State University • University of Idaho • Washington State University

PNW 619 • September 2010

Sweet cherry rootstocks

for the Pacific Northwest

Lynn E. Long and Clive Kaiser

All commercial sweet cherry trees are either budded or grafted. The part of the tree above the graft/bud union is known as the *scion* and the part below the graft/bud union is known as the *rootstock*. Sweet cherry scion cultivars have been selected over millennia for many reasons, but over the past century, breeding programs have concentrated mainly on achieving improved characteristics such as yield, taste, fruit size, fruit firmness, fruit color, precocity, and resistance to fruit cracking and disease. In contrast, rootstock cultivars have only recently received attention.

Indeed, it is believed that 'Mazzard' seedlings were first used as sweet cherry rootstocks more than 2,400 years ago by early Greek and Roman horticulturists. The fact that 'Mazzard' continues to be used widely throughout the Pacific Northwest (PNW) is testimony to the success of this seedling variety as a rootstock. Over the past few decades, however, several new rootstocks have gained prominence, offering important attributes lacking in 'Mazzard'. Many of these new semi-dwarfing rootstocks, although reducing tree vigor, may impart some disease resistance, induce precocity, and enable growers to harvest

Sweet cherry trees on dwarf and standard

cultivars, and even in modern times, no
exists to contradict this statement. Since
the eighteenth century in France, 'Maha
used as a cherry rootstock. This was due
the partial dwarfing effect that it impart
scions when compared to 'Mazzard'. In
nineteenth century 'Mahaleb' became p
United States, and by the early 1900s it
popular cherry rootstock, due mainly to
propagation from seed and its resistance
eases when compared to 'Mazzard'. How

PNW 592 • January 2007

Four Simple Steps to Pruning Cherry Trees on Gisela and Other Productive Rootstocks

L.E. Long

Pruning and training trees on productive rootstocks, such as Gisela® 6 or 12, requires techniques that are completely counter to pruning trees on Mazzard rootstock. When producing cherries on Mazzard rootstock, orchardists must constantly think about how to encourage precocity and productivity in the tree, whereas when producing cherries on productive rootstocks, they must focus on reducing crop load and increasing vigor.

Tree vigor is important because more leaves mean more carbohydrate production and larger cherries. The production of high-quality cherries requires a gross canopy leaf area-to-fruit (LA:F) ratio of at least 200 cm^2 of leaf area per fruit, which roughly translates to five leaves per fruit (Whiting and Lang, 2004). Trees with a lower LA:F ratio are unable to manufacture

Also reduce branches in the top of the tree and on the perimeter to a single shoot.

These thinning cuts will allow light to reach the inner and lower portions of the tree. Only leaves in full sunlight can photosynthesize at maximum capacity.

Stub cuts

Bacterial Canker

Rain Cracking


Enjoy Your Visit!