Recent Trends in Peach Pruning

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Common Terminology

- Scaffold: large limbs originating from trunk
  - Permanent structures
  - Supporting frame for bearing limbs.
- Secondary Branch: 2+ year-old limbs originating from scaffolds
  - Expand bearing surface of scaffold
- Fruiting Laterals: 1-year-old wood on which the current season's crop is produced.

Pruning Terminology

- Thinning Cut: removes branch at point of origin
  - Less regrowth, so thins canopy
- Heading cut: removes only a portion of branch
  - Lateral buds released = stimulates regrowth
- Renewal cut: hybrid cut
  - Thins because it removes nearly all the branch, and most of the potential for regrowth
  - Stimulates / retains fruiting laterals near base

Pruning Goals: Fruit Size and Quality
Sunlight and quality of Fruiting Laterals

- Eliminate excess fruiting laterals
  - Reduce crop density and shading
- Space fruiting laterals evenly up / down & radially on scaffold
  - Eliminate shade from limb crowding
- Eliminate long fruiting laterals
  - Reduce shading
- Eliminate small fruiting laterals
  - Promote higher Leaf : Fruit ratio

Std. Open Vase Peach System
Open Vase Canopy

- Short height for ease of labor access
- Heavy pruning stimulates branch renewal
- Well-understood
- Creates challenges:
  - Reduced yield and fruit color (low light interception / penetration
  - Less compatible with mechanization

Pruning for Peach Crop Goals
Open Vase orchard

350 bushel / A of large (3”) fruit
= 35,000 peaches per A
140 trees/A = 250 peaches/ tree
5 scaffolds / tree = 50 peaches/ scaffold
At 3 peaches per fruiting lateral = 17 laterals
20% “safety margin” =
20 fruiting laterals / scaffold

Intensive Peach Systems
Tall Narrow V Canopy

- Canopy split into 2 narrow tree walls
- Increased yield and fruit color
- Facilitates mechanization
- Creates challenges:
  - Tall tree + labor-intensive crop
  - Renewal pruning not as successful as apple

Pruning for Peach Crop Goals

Perpendicular V orchard

600 bushel / A of large (3”) fruit

= 60,000 peaches per A

400 trees/A = 150 peaches/ tree

2 scaffolds / tree = 75 peaches/ scaffold

At 3 peaches per fruiting lateral = 25 laterals

20% “safety margin” =

30 fruiting laterals / scaffold

A Common Challenge:
Bearing surface migrates up

Loss of Productivity in Lower Canopy

- Bearing surface migrates up
  - Shading partly responsible
  - Summer pruning/shearing to prevent shading?
- Renewal pruning not as successful as apple
  - Peach growth habit: acrotonic
  - Secondary buds at base of lateral are weak/ unlikely to grow out as new shoots

Peach trees Want to Be Trees!

- Natural growth habit: Acrotonic
  - Vigorous growth is at the periphery
  - Secondary buds near base of limbs are weak
- Species is INTOLERANT of shade
  - Shaded apple limbs will limp along for years
  - Shaded peach limbs DIE!

Methods of Restricting Tree Height

"Dilute" vigor between multiple scaffolds

- Two scaffold V:14.4 ft;
- Six scaffold V 13.9 ft. (3.5%)
- Not effective in peach

Open Vase Pruning

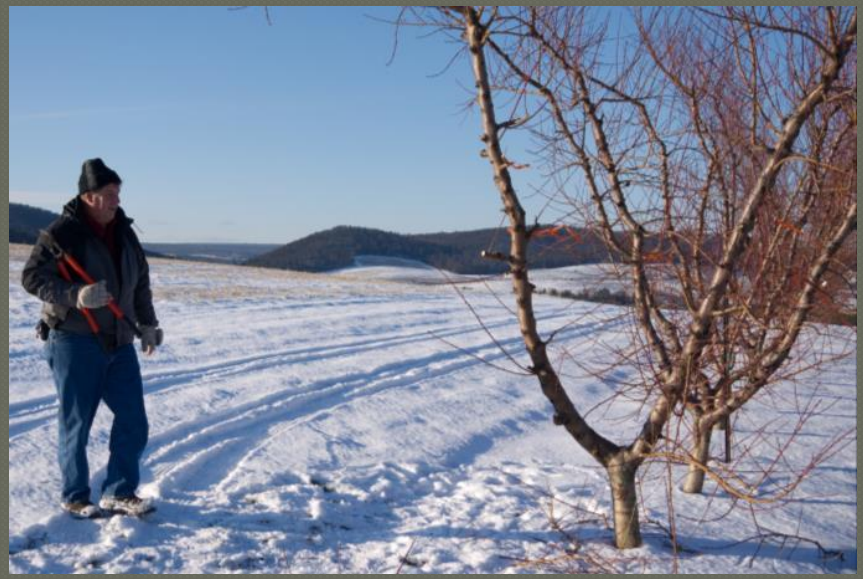
Thin out Upright & Pendant Secondary Limbs

Bench Cuts & Thin Laterals

The Bench Cut

- Essential to low headed open vase system
- Slows ascent of canopy (+)
- Contributes to a loss in productivity (+)
- Increases risk of canker infection (-)
- Stimulates vigorous regrowth in canopy
  - Stimulates renewal shoots (+)
  - Shades lower canopy, with loss in productivity/ quality (-)
- Don’t bench vertical limbs

Pruning Perpendicular V



Reduce / Thin Out Secondary Limbs

to
1st Strong Fruiting Lateral

Objective 1: Heading Scaffolds

1. Tall: Height maintained at 13 ft.;
2. Short: Headed at 9 ft.

Both heights:

- 2-year-old wood thinned out to remove structural wood except scaffolds;
- Weak (<9 inches) & vigorous (>30 inches) laterals thinned out;
- Remaining laterals thinned out to 30 per scaffold.

Objective 2: Heading Fruiting Laterals

GFG, March 1, 2013:

"Shortening laterals of peach and nectarine trees in winter cuts thinning costs and renews fruiting wood."

1. Unheaded control;
2. Dormant heading in half;
3. Summer shearing (non-selective).
    1. Battery-powered hedger from labor platform.
    2. Tops at prescribed scaffold height, Inside and outside plane of each scaffold for the upper 5 ft.
    3. 40 DAPF and every 6 wk. after (3 times)

Unpruned Tree

Tall, Unheaded Laterals

Tall, Headed Laterals

Short, Unheaded Laterals

Short, Headed Laterals

Summary

- Able to reduce scaffold ht and not reduce bearing surface or blossom no / tree.
- Heading laterals reduced bearing surface, blossom no. and # fruit set.

Low Light in Bottom of Canopy

- Pruning Treatments reduced light penetration:
  - Shortening scaffolds reduced light 50%
  - Lateral dormant heading reduced light 74%
  - Summer shearing reduced light 24%

Pruning for Restricting V Tree Height

Heading of V-systems:

- in the upper half of a vigorous scaffold,
- upright branching angle,
- favorable light environment…

Severing apical dominance stimulates regrowth

- Result: Shorter tree with more branches and worse shading than if it had been left tall

Summer shearing/ Dormant heading cuts no help

Pruning Fruiting Laterals

- Dormant heading releases lateral buds from apical dominance = low light
- Dormant heading leaves basal buds to set crop (not the best).
- Summer shearing = many heading cuts = low light

Missing Key: Dwarfing Rootstock

- Dwarfing rootstocks remain a long-term goal
- Many candidates are interspecific hybrids
- When size control is achieved:
  - Tree often seems stressed (incompatibility)
    - Fewer and/or small fruit
  - No increase in biological efficiency