

Re-training and “spare parts” pruning of grape vines

Horst Caspari & Amy Montano

Colorado State University

Western Colorado Research Center

Grand Junction, CO 81503

Ph: (970) 434-3264

www.colostate.edu/programs/wcrc/Vithome.htm

Re-training & “spare parts” viticulture

The following presentation demonstrates some cultural practices that can help to return and/or maintain good yields in cold-damaged vineyards. Under Colorado conditions cold damage to buds, canes, cordons, and/or trunks is not a question of “If”, but of “How much”.

Here we use photos taken of the same Syrah vine that was killed back to soil level due to cold temperatures (-16 F, 10 Dec 2009) over a 20-months period to illustrate two separate practices:

- I) A re-training option to manage/utilize excessive vigour.
- II) Dormant pruning options that may be used to safeguard against crop losses.

Re-training

Cold damage to trunks resulting in dieback of vines to the ground is rather common in Colorado vineyards.

When vines need to be re-trained from the ground shoot growth is often excessively vigorous.

Shoots with high vigour have wide internode spacing. When such shoots are used in cane pruning it often results in lower-than-desired bud number per vine (tying down 2 or more canes on top of each other may be used to increase bud number per vine).

In-season topping of shoots just below the cordon wire, or tying down shoots to the wire and then topping, may be used to encourage lateral shoot growth (which may be less vigorous than the main shoot).

Re-training



Re-training

Growing tip removed



Re-training

Promoting lateral growth



Re-training

Vine at dormancy, year 1



Re-training & “spare parts”

When/where buds/vines have cold injury additional precautions should be taken at pruning time.

- pruning to long spurs (4-6 buds rather than 2 buds)
- leaving more spurs
- leaving one or two extra canes that could be tied down
- more than one trunk

Re-training & “spare parts”

Vine after winter pruning

6-node spurs



Spare cane

Re-training & “spare parts”

Vine at bud break, year 2

Only 2-3 buds broke
on 6-node spurs!

No bud break on right cane!
Spare cane laid down!



Re-training & “spare parts”

Early spring, year 2

Original right cane removed!
Note incomplete bud break
even on spare cane!



Re-training & “spare parts”



Spare cane:
8 shoots
12 bunches
3.5 lb

Re-training & “spare parts”

Vine at dormancy, year 2

Note blind nodes on
2-year cordon!



Re-training & “spare parts”

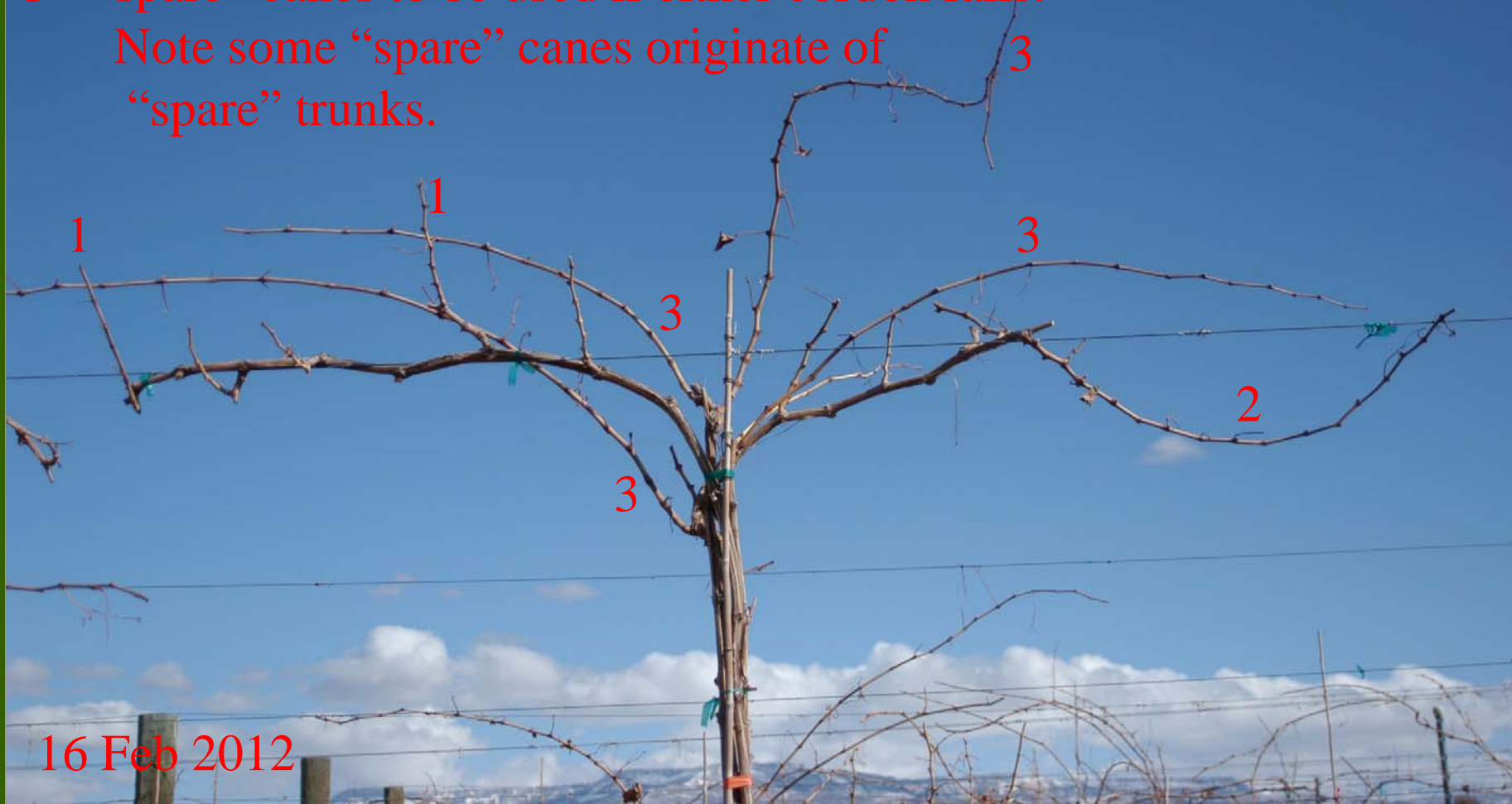
Vine after pre-pruning, start of year 3.

1 - long (6-8 buds) spurs

2 - cane to replace the blind section on the 2-yr cordon

3 - “spare” canes to be used if either cordon fails.

Note some “spare” canes originate of
“spare” trunks.



Re-training & “spare parts”

High shoot vigour following winter dieback was utilized by tying shoots to the cordon wire and then removing the growing tip, which resulted in strong lateral shoot growth. Laterals were spur pruned, increasing the number of buds retained after winter pruning.

Pruning to long spurs resulted in 2 shoots per spur position despite low percentage bud break.

Keeping “spare” canes after winter pruning made it possible to use those canes when canes/cordon tied to wire failed to grow.

All our vines have multiple trunks. Trunks that are not used for cordons are used to grow “spare” canes.

Re-training & “spare parts”

The 2011 growing season was unusual.

First, vines are still recovering from the Dec. 2009 cold event.

Second, cold events in early January and again early February resulted in ~30 % dead primary buds.

Third, a late spring freeze (May 1 and 2) led to further bud injury right at the time of bud break.

Combined, this led to very low percentage bud break (only 42 %) and very low shoot densities (2.1 shoots/ft) in our Syrah block.

Re-training & “spare parts”

The 2011 growing season was unusual (cont.)

Hence, pruning to long spurs and retaining “spare” canes did not cause excessive shoot densities but resulted in shoot densities much closer to the desired values (4 – 6 shoots/ft for non-divided canopies) and a significant yield increase.

In years when bud cold injury is minimal and percentage bud break is high, long spurs need to be pruned back to 2 shoots per spur and “spare” canes shortened to spurs (to maintain position) to avoid excessive shoot densities.

However, in our Syrah block low shoot densities have been the norm – not the exception – and we always leave long spurs as well as “spare” canes.

Thank you for your attention

Dr. Horst Caspari
Department of Horticulture & Landscape Architecture
Colorado State University
Western Colorado Research Center
Grand Junction, CO 81503
Ph: (970) 434-3264