Reliable Grafting

Western Washington Fruit Research Foundation

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Grafting

- Grafting is the process of bringing into union two compatible plants.
- It includes the scion wood – this is the desired plant – good looks and/or taste.
- And the rootstock - the lower portion of the grafted plant including the root system.
Grafting

- An interstock or intermediate rootstock may be used with some fruit trees where a degree of incompatibility occurs:
- Successful grafting has a time component such as time of year or growth cycle of the plant
- Grafting can have failures – plan on at least a few failures
**Grafting**

- Best practices of grafting is to make clean cuts in the tissue of the two wood pieces so that the cambium layers are matched together.
- The Cambium is located as a thin layer of tissue immediately under the bark in stem and roots.
The compatible limits of grafting

- Grafting within species: Apples with apples, cherries to cherries, etc.
- Grafting incompatibilities within species: Some pears, most nut trees
KISS – Keep it Simple - Seriously

- Use a grafting method you find easy to use
- Use a grafting method with a high success rate
- Practice, practice, and monitor results
Grafting Study on Chestnuts

- The understock on grafts must be the same clonal understock
- Scion must all be the same clonal cultivar
Grafting Methods Employed

- Bark Graft
- Cleft Graft on last year’s wood
- Cleft Graft on current year’s new growth wood (AKA - green wood)
The Numbers Game

- Total graft attempts: 156
- Bark graft attempts: 55
- Cleft graft on last years wood: 67
- Cleft graft on this years wood: 34
Vigor – Signs and symptoms of a good graft

- High Vigor: buds opening and leaves present
- Medium Vigor: buds extending but no leaves present
- Still buds: swelling may or may not be present, graft might not take
Evaluations – Good, bad, & Ugly
14 days post grafting

- Bark grafting results
- Total Grafts: 55
- High Vigor: 23
- Medium Vigor: 13
- Still Buds: 19
Evaluations – Good, bad, & Ugly
14 days post grafting

- Cleft grafting on last years wood results
- Total Grafts: 67
- High Vigor: 25
- Medium Vigor: 11
- Still Buds: 20
Evaluations – Good, bad, & Ugly
14 days post grafting

- Cleft grafting on this year's wood results
- Total Grafts: 34
- High Vigor: 20
- Medium Vigor: 8
- Still Buds: 6
Evaluations – What is working

- Bark grafts with high vigor: 42%
- Cleft grafts on last years wood with high vigor: 45%
- Cleft grafts on this years wood with high vigor: 59%
Evaluations – What kind a works

- Bark grafts with medium vigor: 24%
- Cleft grafts on last years wood with medium vigor: 16%
- Cleft grafts on this years wood with medium vigor: 23%
Evaluations – What is not working

- Bark grafts still buds: 35%
- Cleft grafts on last years wood still buds: 31%
- Cleft grafts on this years wood still buds: 18%
Grafting Study Summary

- Grafting on to new wood (TYW) yields the highest percentage of high vigor grafts
- Bark grafting has the highest failure rates and should be avoided if possible
Healing of a graft union

- Day time temps above 70 F
- High vigor scion wood
- Good seals forming a barrier from moistures
- Cambium layers properly aligned
Grafting helpful items

- Consider using “PARAFILM” tape - it is the easiest to use to form a seal
- Make sure the tape is tight around the graft union
- Seal the graft union with tape and graft sealer
- Use a sharp grafting knife to make clean cuts in the understock and scion wood
- Keep the cuts clean and dry
- Evaluate the graft at 7, 14, and 28 days
Cleft Grafting Problems

- Scion wood and understock diameters do not match
- Scion wood lacks the reserves to start the healing processes (calusing of the graft union)
- Understock weeping – problems with walnuts, grapes, and other plants that weep when cut

Failure to seal the terminal end of the scion wood – excessive moisture loss
Reliable Grafting Summary

- Keep trying – start with easy grafting methods like cleft and bark grafting
- Monitor the grafts for up to 8 years watching for possible indications the grafts might fail
- Keep notes – track the grafting attempts noting the successes and failures
- Increasing the number of grafts can overcome the statistical failure rates
- Never give up – your next graft could take