

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**
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Grafting

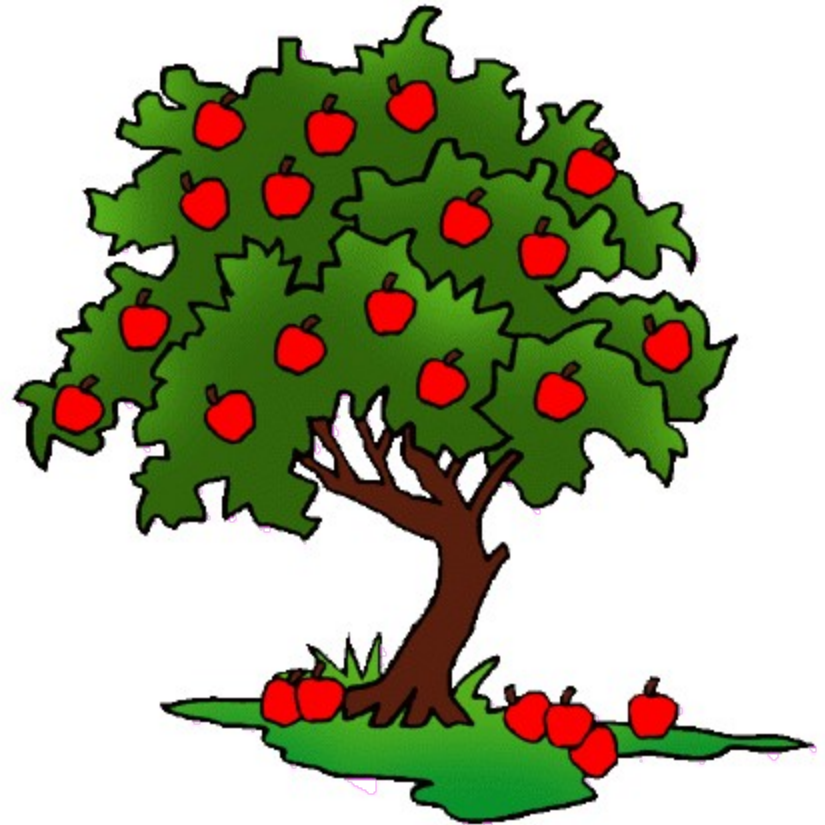
- **An interstock or intermediate rootstock may be used with some fruit trees where a degree of incompatibility occurs:**
 - **Successful grafting has a time component such as time of year or growth cycle of the plant**
 - **Grafting can have failures – plan on at least a few failures**
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Grafting

- **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**
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The compatible limits of grafting

- **Grafting within species: Apples with apples, cherries to cherries, ect**
- **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 on grafts must be the same clonal understock**
- **Scion must all be the same clonal cultivar**



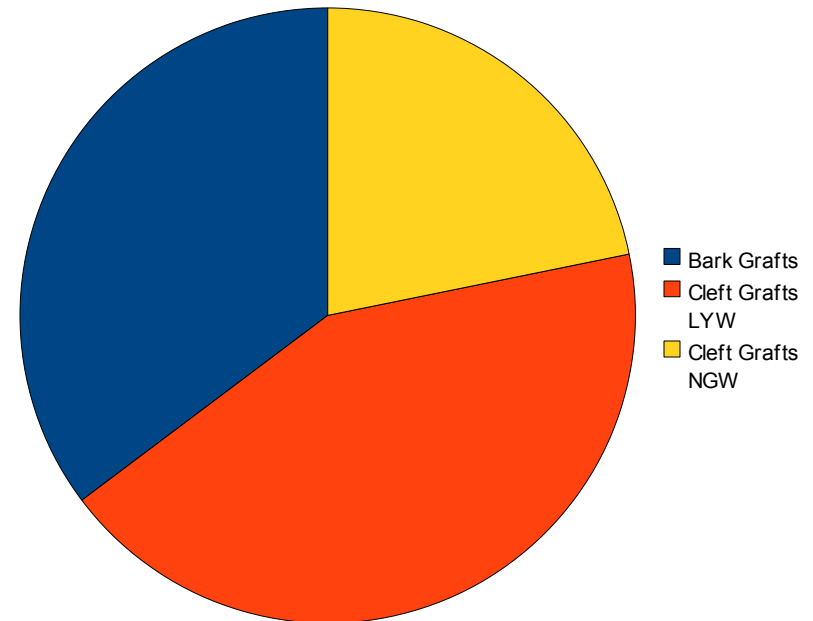
Grafting Methods Employed

- **Bark Graft**
- **Cleft Graft on last years wood**
- **Cleft Graft on current years 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

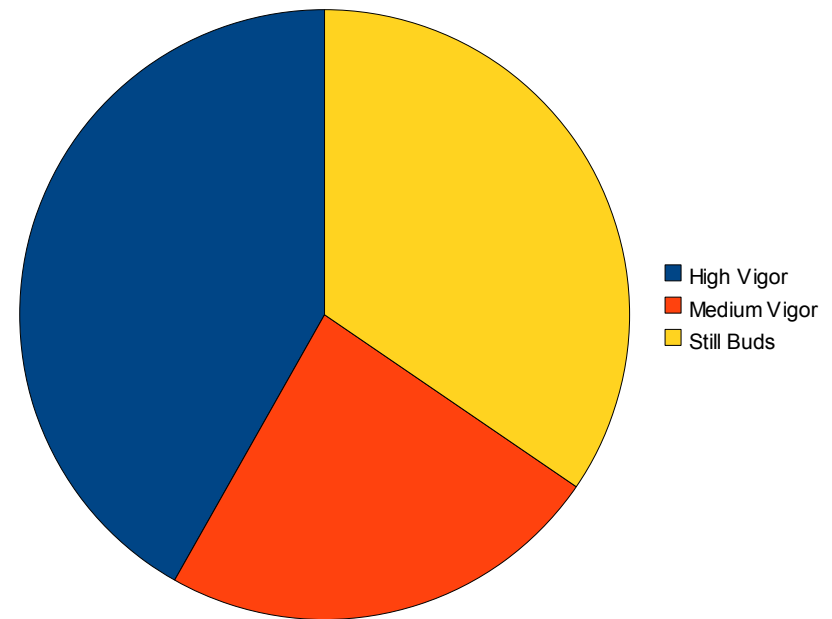
- **High Vigor: buds opening and leaves present**
- **Medium Vigor: buds extending but no leaves present**
- **Still buds: swelling may or may not be present, graft might not take**



Evaluations – Good, bad, & Ugly

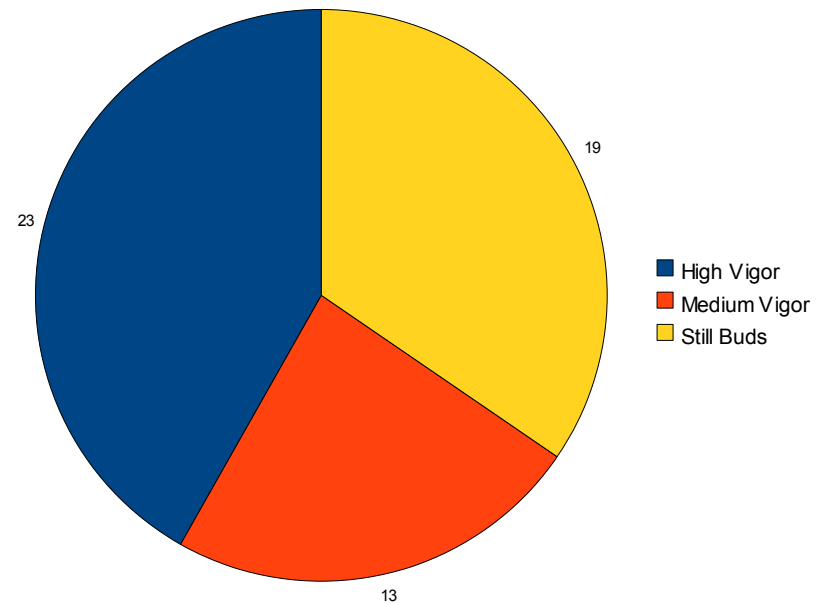
14 days post grafting

- **Bark grafting results**
- **Total Grafts: 55**
- **High Vigor: 23**
- **Medium Vigor: 13**
- **Still Buds: 19**



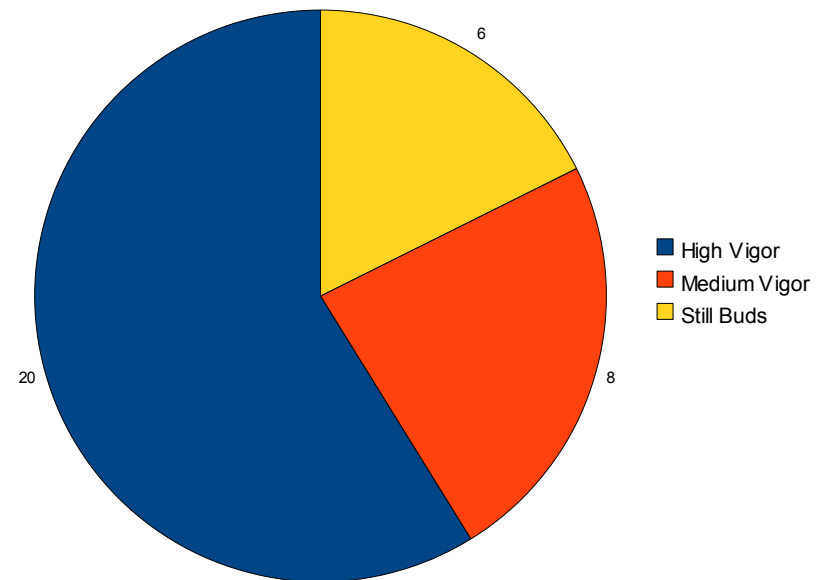
Evaluations – Good, bad, & Ugly 14 days post grafting

- **Cleft grafting on last years wood results**
- **Total Grafts: 67**
- **High Vigor: 25**
- **Medium Vigor: 11**
- **Still Buds: 20**



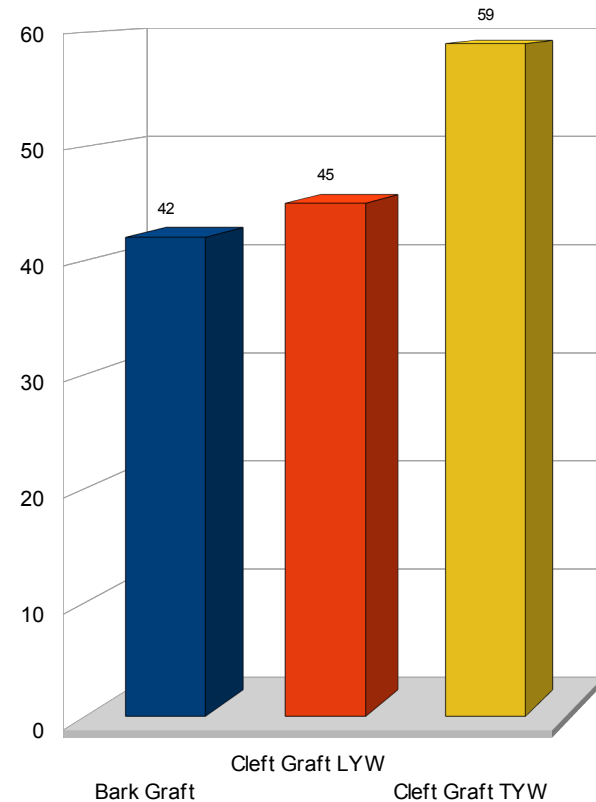
Evaluations – Good, bad, & Ugly 14 days post grafting

- **Cleft grafting on this years wood results**
- **Total Grafts: 34**
- **High Vigor: 20**
- **Medium Vigor: 8**
- **Still Buds: 6**



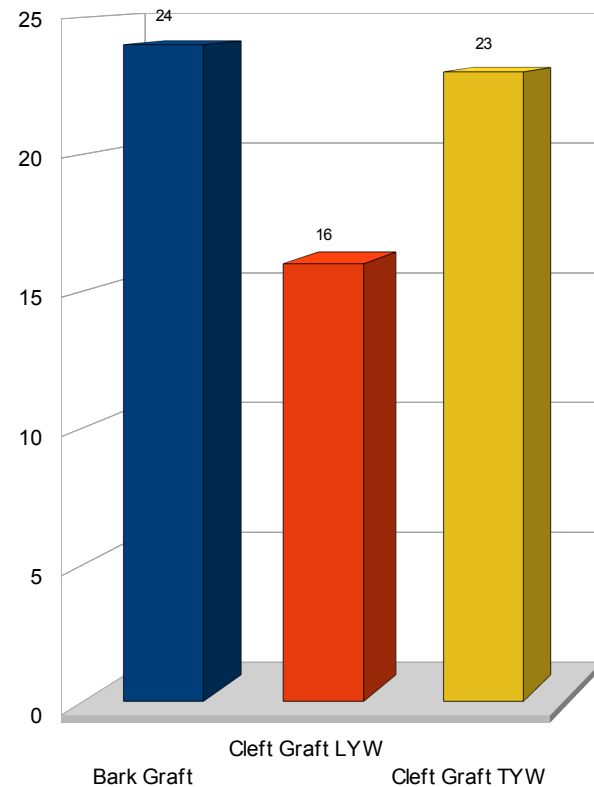
Evaluations – What is working

- **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%**



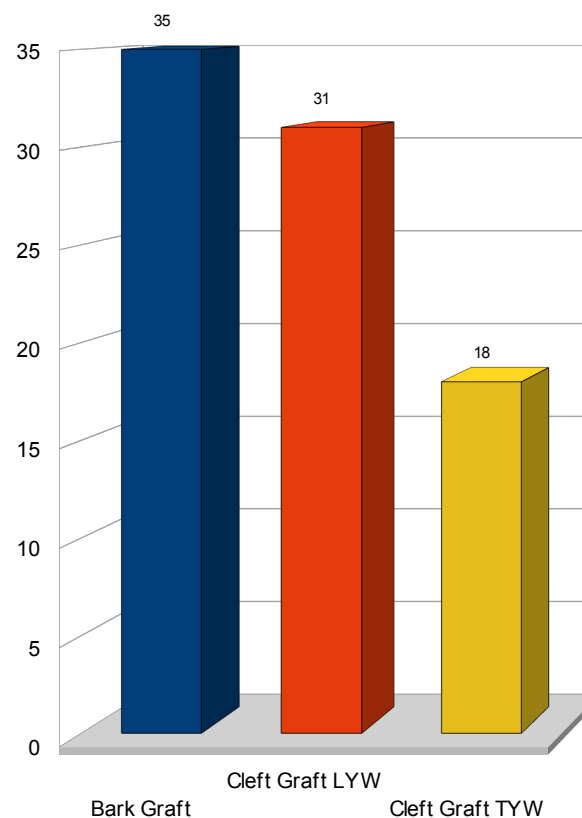
Evaluations – What kind a works

- **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**
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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**
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