Parallel Trident Planting System and the Behaviour of Some Cherry Varieties

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Objectives

• to implement the “Trident” - as new planting system in order to reduce pruning costs and to optimize training methods using the natural tree growth
• to study the behavior, in terms of vegetative growth and productivity, of nine sweet cherry cultivars, grafted on three rootstocks: PHL-C, CAB6P and CAB11E on Trident canopy
• to test the reaction of cherry trees at long spur pruning

Material and methods

• Site: Istrița Farm, Buzău County
• Cultivars: - Celeste, Ferrovia, Kordia, Lapins, New Star and Van, grafted on PHL-C rootstock;
  - Firm Red and Giant Red, grafted on CAB 6P rootstock;
• Experimental design: randomized blocks, each cultivar in three replication with five trees per plot;
• Spacing: 4.0 x 2.0 m, 1250 trees/ha
• Canopy: Trident
• Support systems: 3.5 m height pine poles with 4 galvanized wires
Material and methods

Measurements and determinations:

- Tree growth: tree height, trunk cross section area, fruit shoots length
- Reaction to summer and winter pruning
- Fruit characteristics: size (cm), weight (g)
- Yield: kg/tree, t/ha, productivity index (kg/cm² TCSA)
Results and discussions

Average cherry tree height (cm) under Trident canopy

[Bar chart showing average cherry tree height for different cultivars under Trident canopy for the years 2013, 2014, and 2015.]
Results and discussions

Evolution of cherry tree trunk cross sectional area

TCSA (cm²)

- Celeste/PHL C
- Ferrovia/PHL C
- Kordia/PHL C
- Lapins/PHL C
- New Star/PHL C
- Van/PHL C
- Firm Red/CAB6P
- Giant Red/CAB6P
- Early Red/CAB11E
- Firm Red/CAB11E

2013
2014
2015
Results and discussions

Influence of variety and rootstock on fruit yield

- Celeste/PHLC
- Ferrovia/PHLC
- Kordia/PHLC
- Lapins/PHLC
- New Star/PHLC
- Van/PHLC
- Firm Red/CAB6P
- Giant Red/CAB6P
- Early Red/CAB1E
- Firm Red/CAB1E

Comparison between 2013 and 2014.
Results and discussions

Influence of variety and rootstock on fruit cumulative yield

- Ferrovia/PHLC
- Kordia/PHLC
- Lapins/PHLC
- New Star/PHLC
- Van/PHLC
- Firm Red/CAB6P
- Giant Red/CAB6P
- Early Red/CAB1E
- Firm Red/CAB1E

2014
2013
Results and discussions

Productivity index

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Conclusions

• tree height was influenced by rootstock and cultivar. PHLC gave less vigorous trees and CAB6P more vigorous that CAB11E. Ferrovia, Kordia, Firm Red and Giant Red were the most vigorous cultivars.

• highest trunk cross section area was registered at New Star, Kordia, Firm Red and Giant Red.

• Van produced the highest cumulative yield (23.27 t/ha) followed by New Star (19.46 t/ha) and Giant Red (17.45 t/ha).

• Van registered the highest average productivity index (0.160 kg/cm² TCSA) followed by New Star (0.128 kg/cm² TCSA) and Celeste (0.125 kg/cm² TCSA).

• Celeste and Giant Red produced the biggest fruit caliber (30 mm) followed by Early Red, Firm Red, Ferrovia, New Star, and Lapins (28 mm). Smaller fruits (26 mm) were produced by Kordia and Van. Firm Red produced bigger fruit grafted on CAB6P rootstock than on CAB11E.
Conclusions

• Parallel trident is an interesting canopy for medium-high vigor variety/rootstock sweet cherry combination:
  - flat canopy easy to maintain,
  - good light penetration,
  - renewal of the productive structure,
  - high yield and good fruit quality,
  - simplified maintenance and pruning,
  - the high tree vigour is distributed on three vertical axes,
  - well-balanced canopy structure.
Thank you for your kind attention!
Questions?