

Canopy Developmental Stages for Cordon Trained Spur-Pruned Grapevines

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Unilateral Cordon: Spur Pruned
VSP Trellis
2.5 m x 1.25 m spacing



- Irrigation Treatments

- Non Irrigated
(Dry Farm)
- RDI (0.3 x ETo)

- Shoot Density

- 14 shoots per
meter (20 shoots
per vine)
- 8 shoots per meter
(12 shoots per
vine)



Aspects of Canopy Development

- **Leaf Area Development**
 - Main shoot leaf area
 - Lateral shoot leaf area
 - Total leaf area per vine
- **Biomass accumulation and distribution**
 - Main shoot and leaf
 - Lateral shoot and leaf
 - Fruit

Canopy Development Stages

- Stage I: budbreak to initiation of lateral shoot growth
- Stage II: initiation of lateral shoot growth to fruit set
- Stage III: fruit set to change in fruit biomass accumulation rate (pea-size)
- Stage IV: pea-size to harvest

Growing Degree Days during Each Stage

- 1997

- Stage I: 117 gdd
- Stage II: 164 gdd
- Stage III: 490 gdd
- Stage IV: 756 gdd

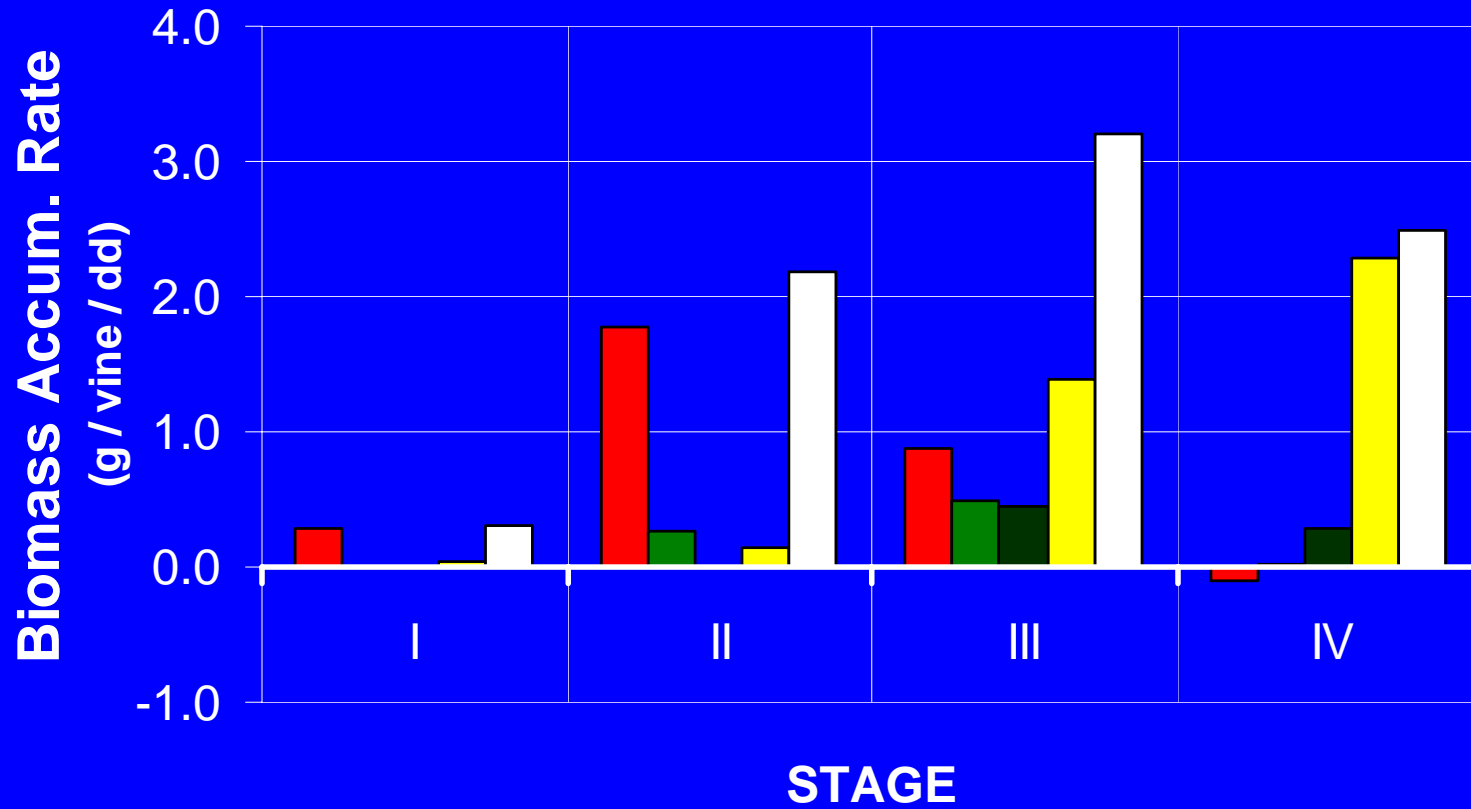
- 1998

- Stage I: 119 gdd
- Stage II: 172 gdd
- Stage III: 479 gdd
- Stage IV: 694 gdd

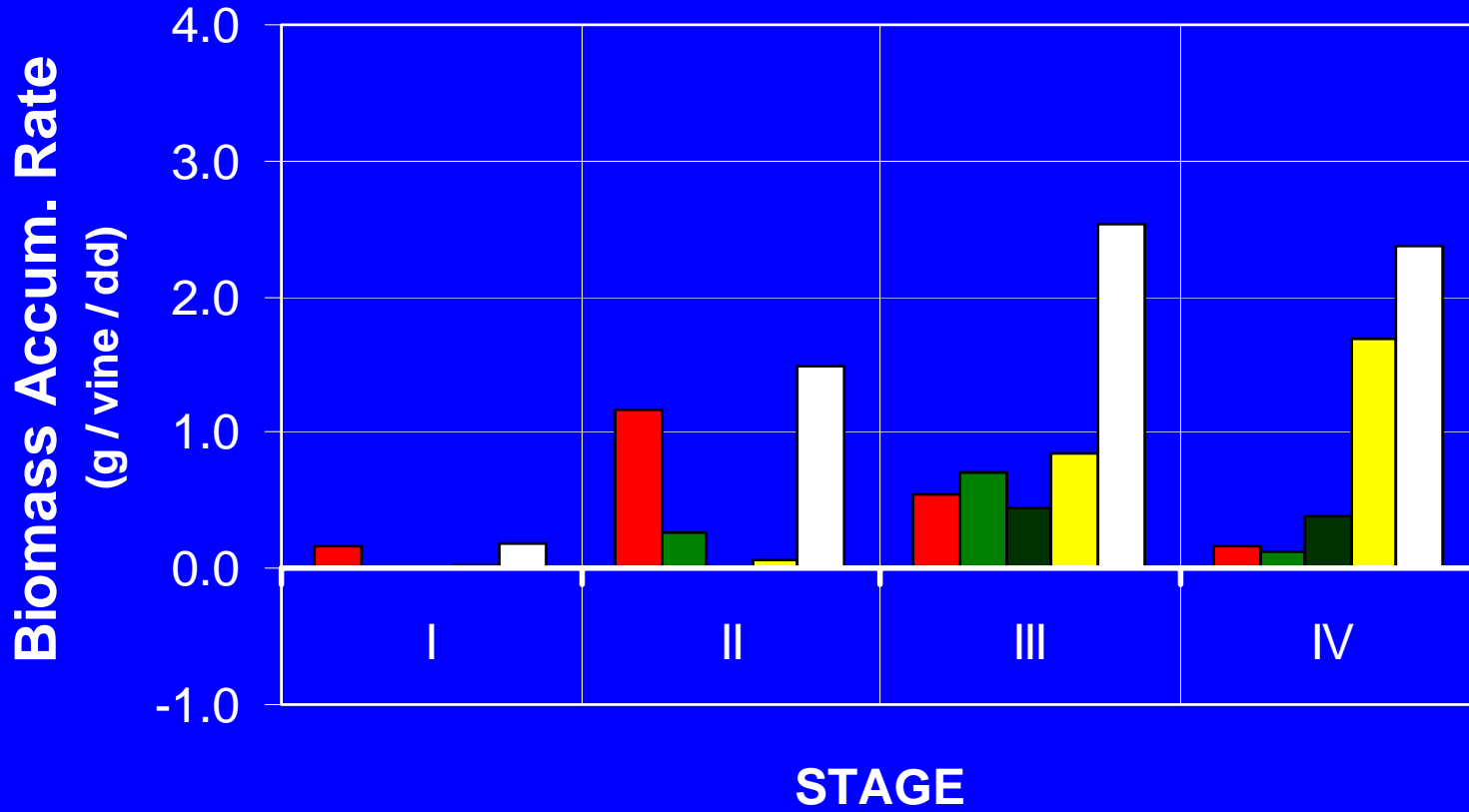
Number of Days and Average Temperature for Each Stage

- Stage I: 27 to 37 days
- Stage II: 27 days
- Stage III: 35 to 51 days
- Stage IV: 52 to 62 days
- Stage I: 13.3 C
- Stage II: 16.2 C
- Stage III: 21.3 C
- Stage IV: 23.1 C

1997 RDI-14

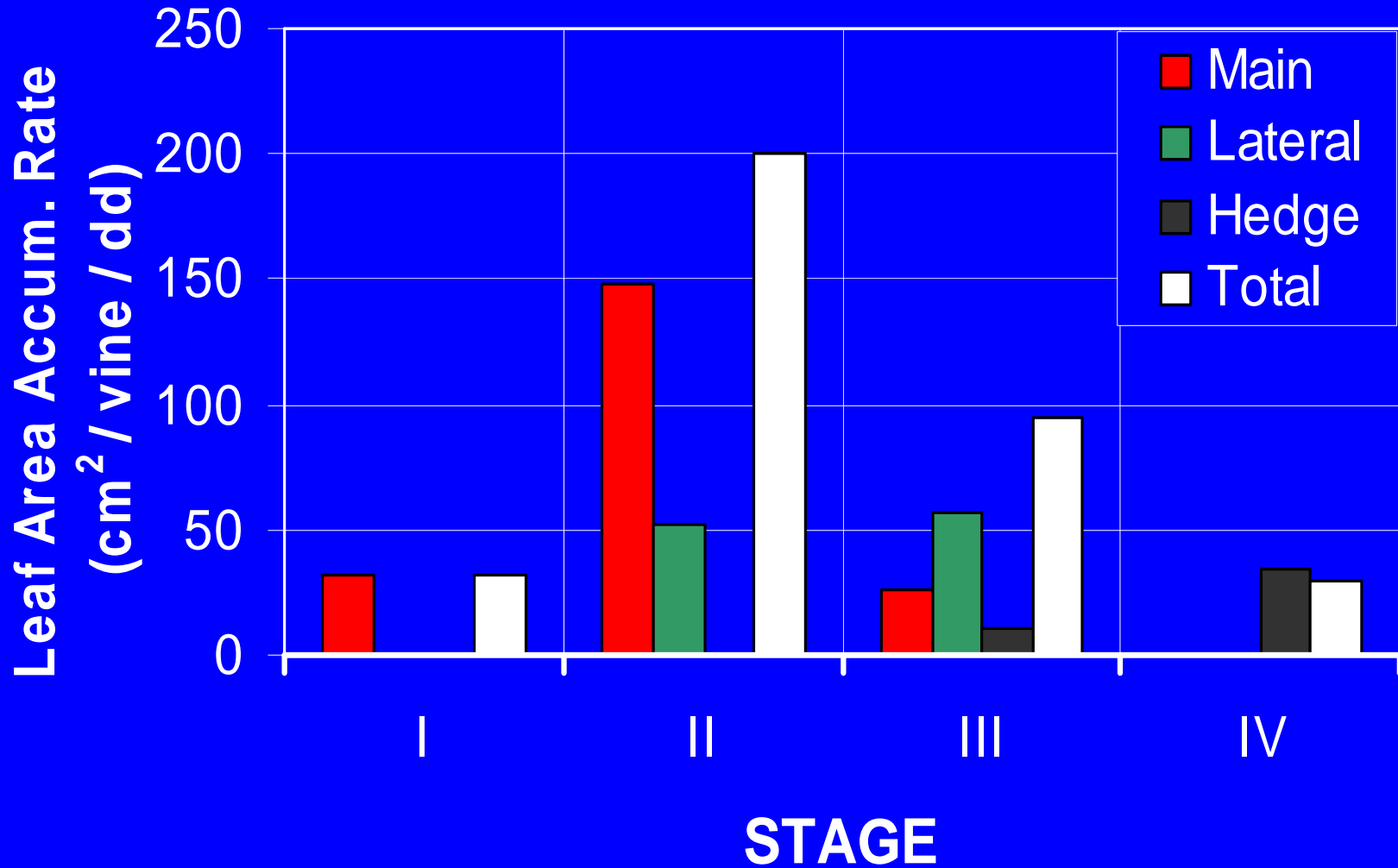


1997 RDI-8

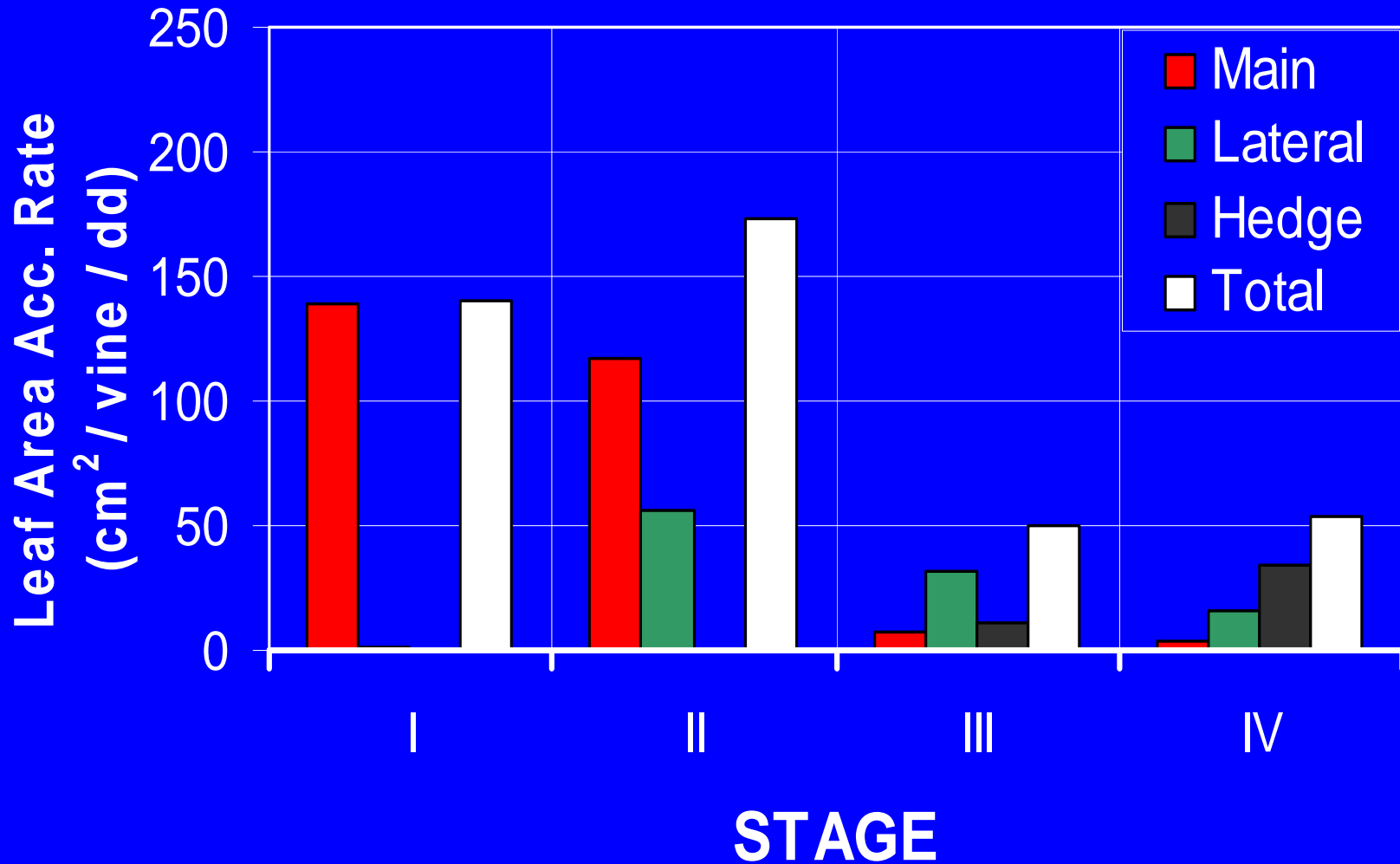


■ Main ■ Lateral ■ Hedge ■ Fruit ■ Total

1997 RDI-14



1998 RDI-14



Precipitation Amounts during Each Stage

- 1997

- I: 54 mm
- II: 47 mm
- III: 38mm
- IV: 54mm

- 1998

- I: 184 mm
- II: 58 mm
- III: 0 mm
- IV: 43 mm

Irrigation Amounts in RDI Treatment during Each Stage

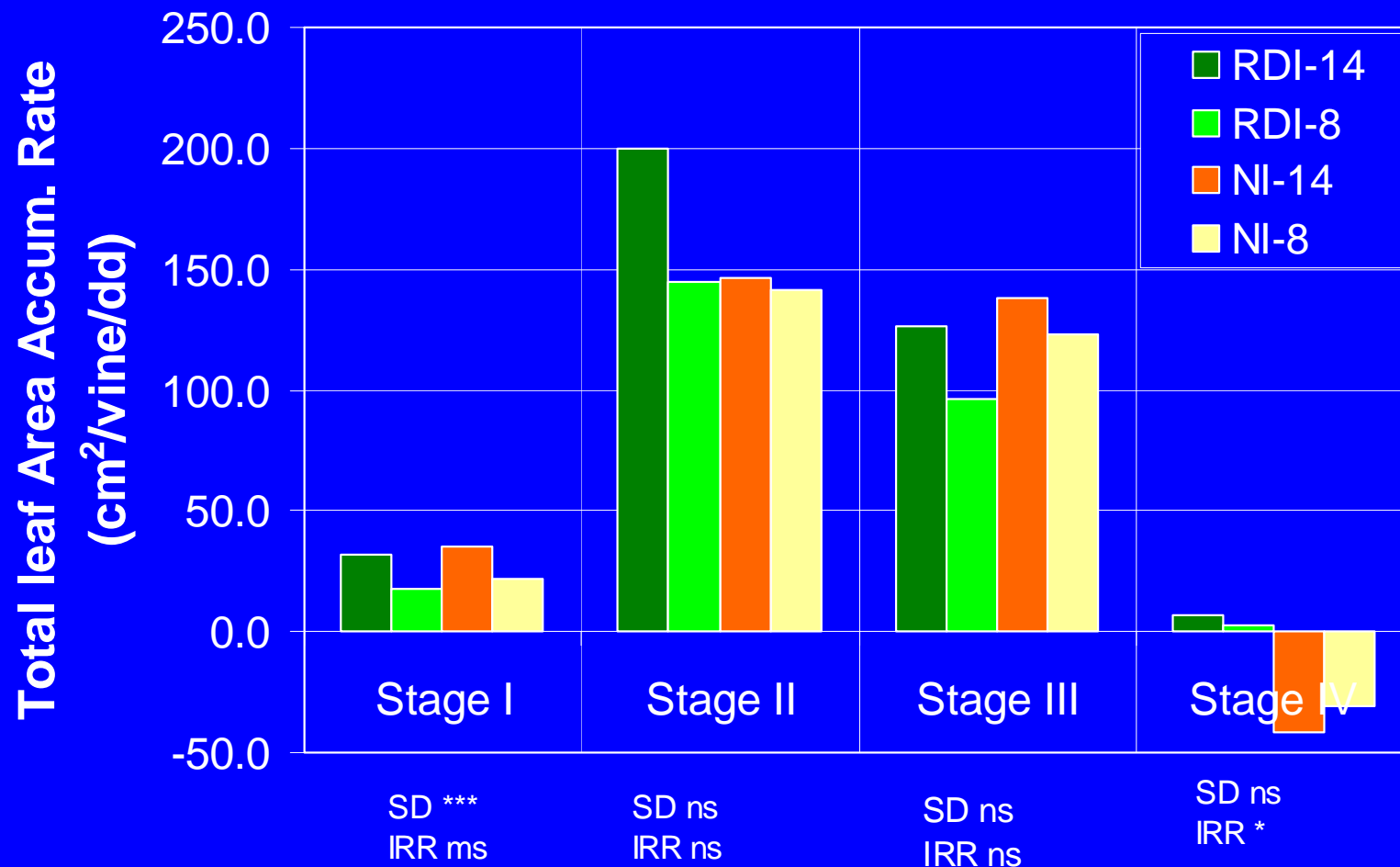
- 1997

- I: 0 mm
- II: 0 mm
- III: 38 mm
- IV: 81 mm

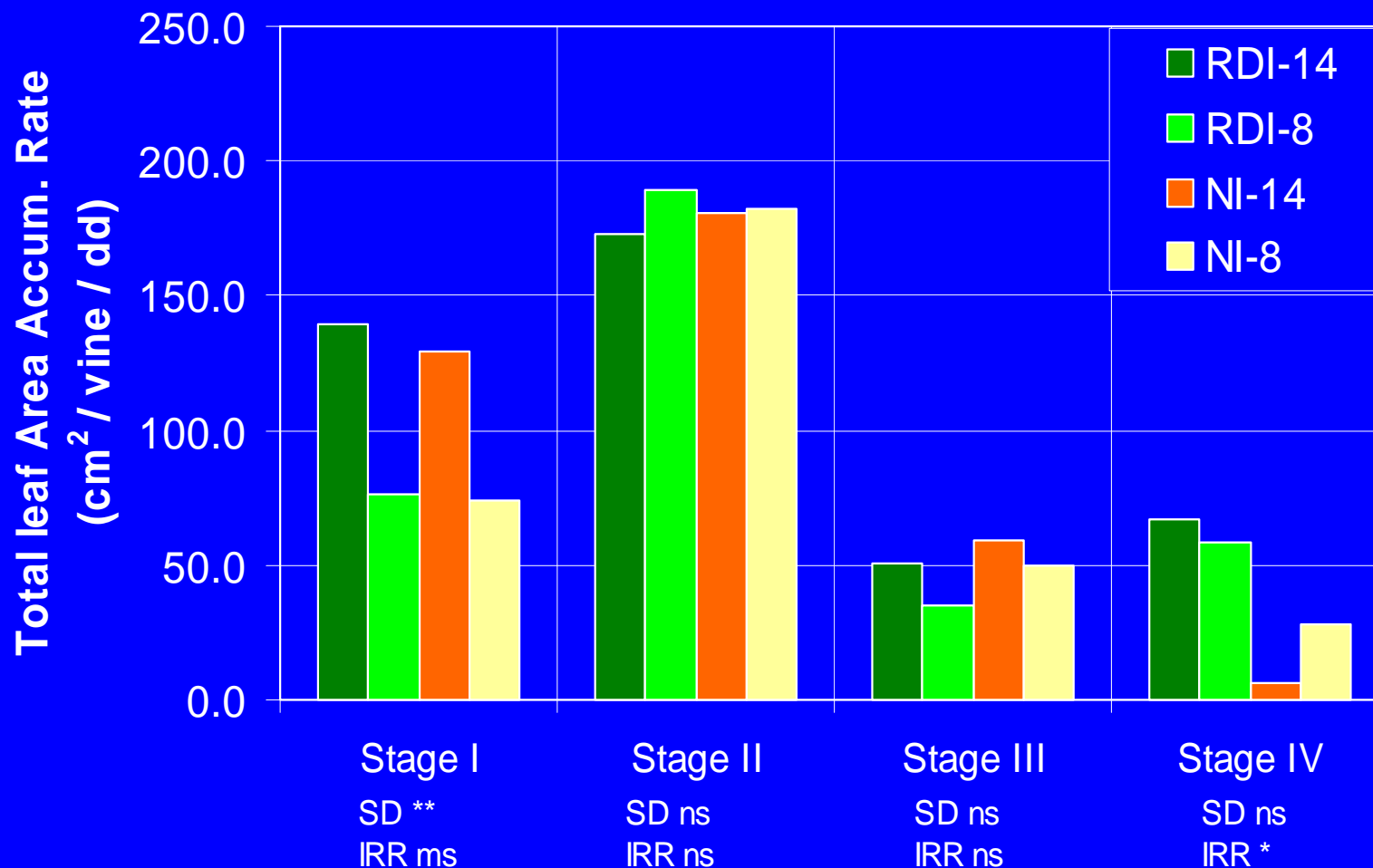
- 1998

- I: 0 mm
- II: 0 mm
- III: 11 mm
- IV: 57 mm

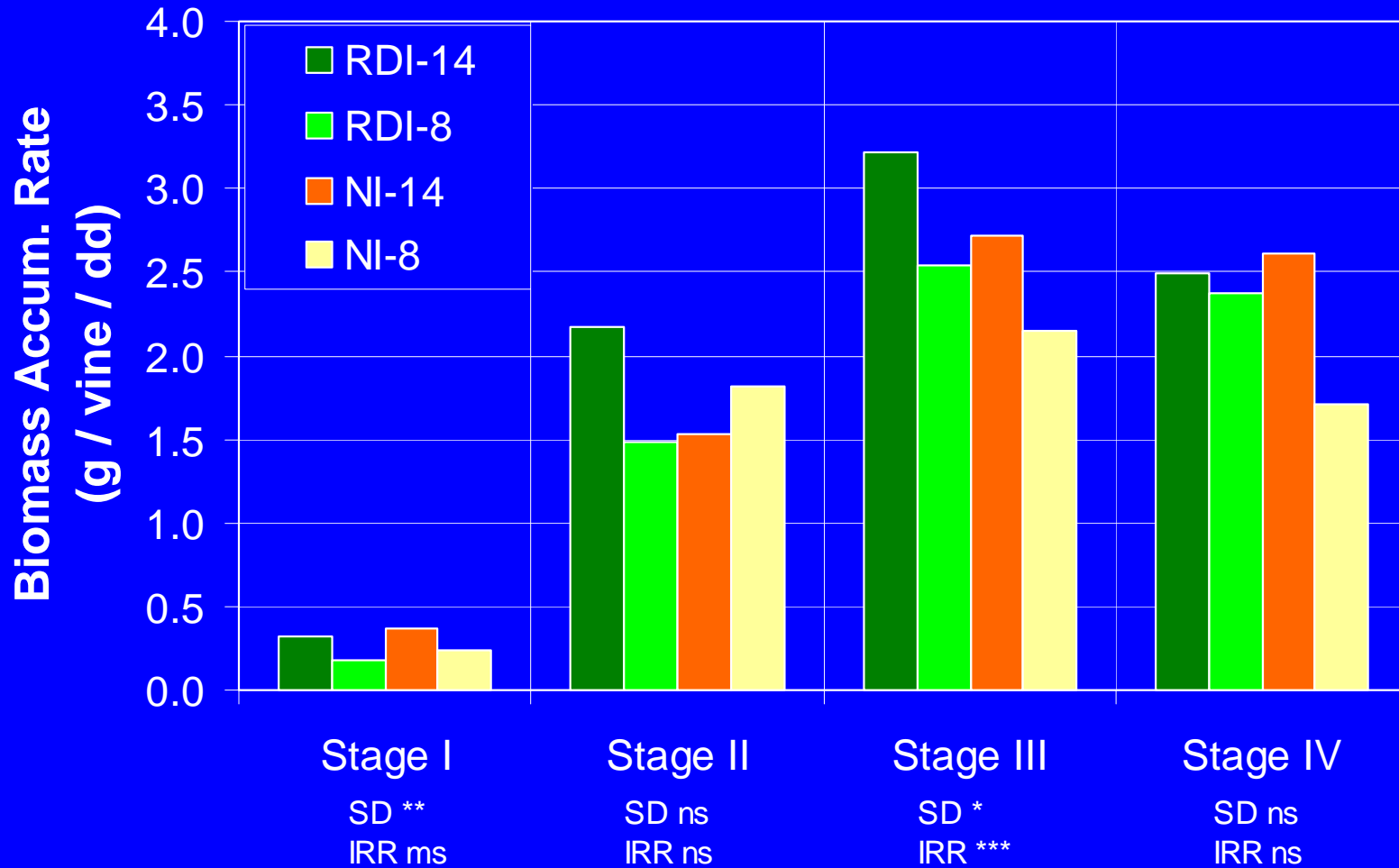
1997 Total Leaf Area Accumulation



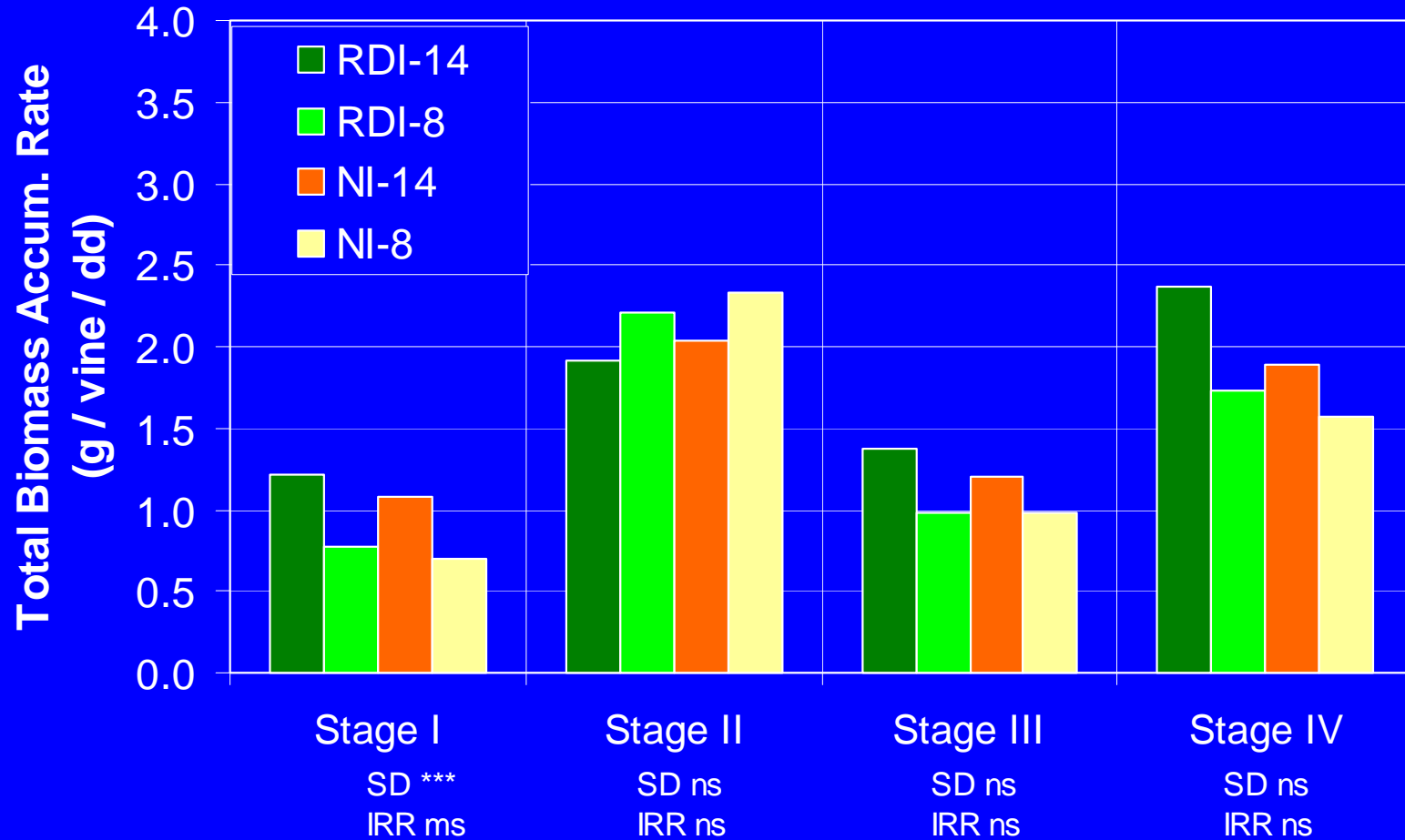
1998 Total Leaf Area Accumulation



1997 Total Biomass Accumulation



1998 Total Biomass Accumulation



CONCLUSIONS

- Canopy development occurs in 4 stages
- The number of heat units during canopy developmental stages did not vary much between seasons
- Rates of leaf area or biomass development during some stages may vary seasonally
- Easy means of conceptualizing canopy development and comparing effects of viticulture practices on canopy development