

Optimum storage conditions for 'Abate Fetel' pears

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Introduction and Objectives



- Currently can store Abate Fetel (AF) at 1.5% O₂ and 0.5% CO₂ for 4 months
- AF susceptible to soft scald when stored at low oxygen
- AF susceptible to superficial scald

Objective:

- To evaluate the effect of different storage regimes on the quality of 'Abate Fetel' pears in order to extend the storage life to possibly 6 months



Materials and Methods

- Season: 2018
- Production area: Grabouw and Ceres
- Maturity: Optimum and post-optimum
- Treatments
 - 1.5% O₂ + 0.5% CO₂ (**CA1.5**)
 - 1.5% O₂ + 0.5% CO₂ + 1-MCP (**SF+CA1.5**)
 - 6% O₂ + 0.5% CO₂ (**CA6**)
 - 6% O₂ + 0.5% CO₂ + 1-MCP (**SF+CA6**)
 - DCA-CF (0.7% O₂) (**DCA**)
 - DCA-CF + 1-MCP (pre-shipment 1-MCP) (**DCA+SF**)
 - RA
 - RA + 1-MCP (**SF+RA**)
- Temperature: -0.5°C and 1°C
- Fruit quality evaluation after 4 and 6 months (+ 6wk RA + 7 day at 20°C)

Materials and Methods

Fruit quality parameters:

- Total soluble solids (TSS)
- Titratable acidity (TA)
- **Firmness (kg)**
- **Skin colour (scale 1-5)**

Physiological disorders:

- **Superficial scald (%)**
- All other internal and external disorders

Sensory evaluation:

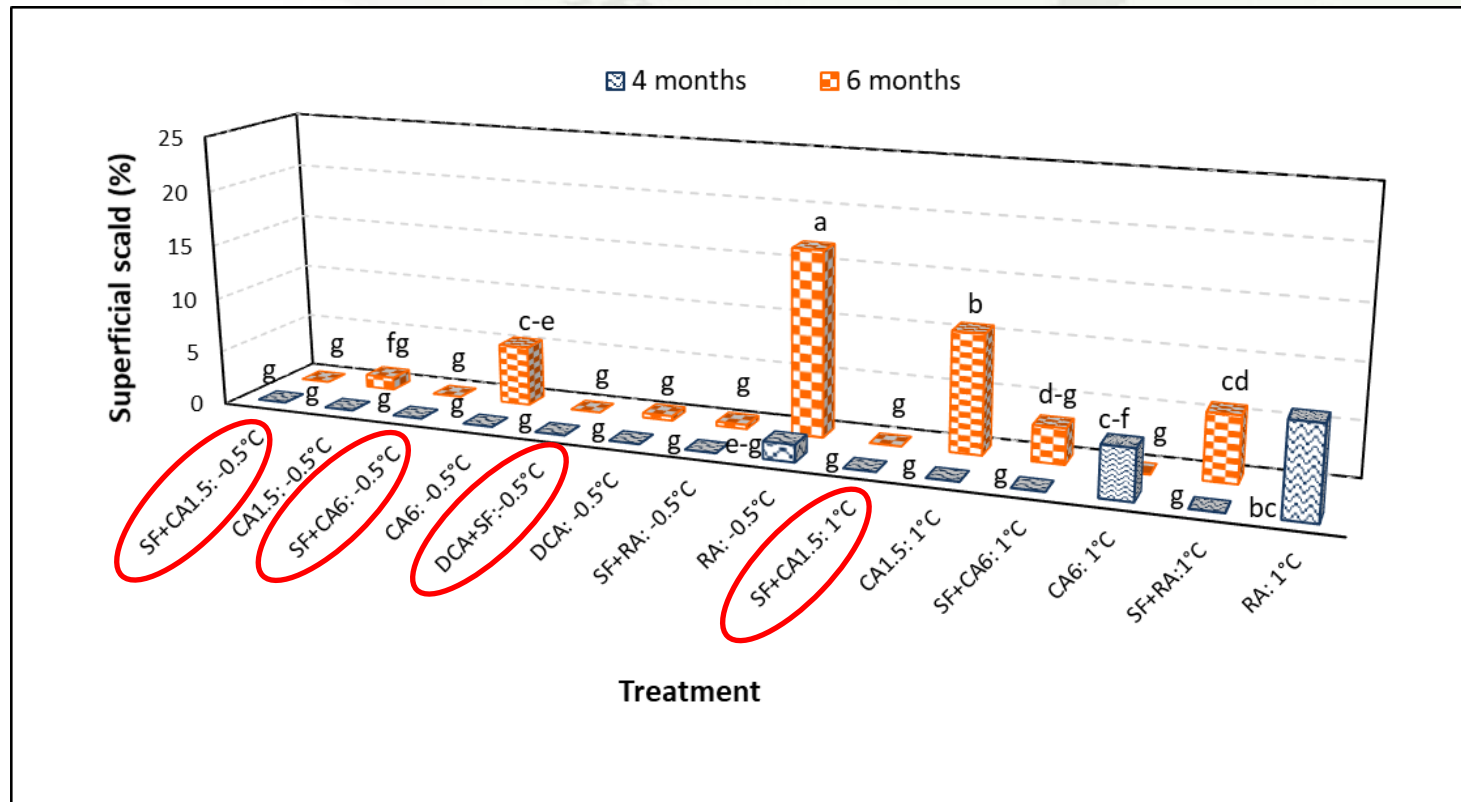
- Appearance (1-10)
- Taste (1-10)
- Texture (1-10)
- Off-taste (1-10)



Results and Discussion



Optimum Abate Fetel from Grabouw production area after 7 day shelf-life

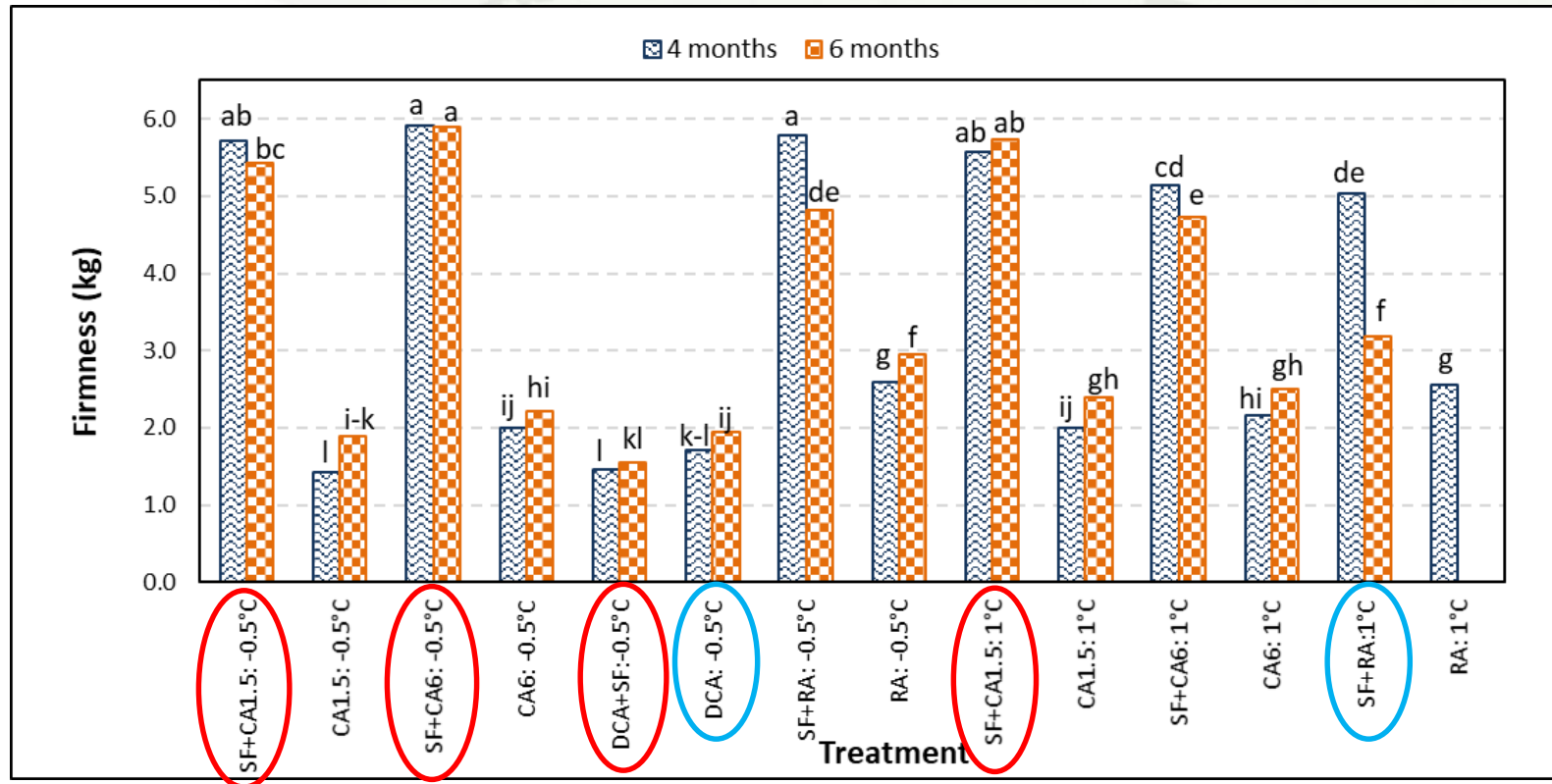


Source P<F
 Trt x Period <0.0001
 LSD_{5%} = 3.91



Results and Discussion

Optimum Abate Fellet from Grabouw production area after 7 day shelf-life



Source P<F
 Trt x Period <0.0001
 LSD_{5%} = 0.35

Optimum Abate Fetel from the Grabouw production area after 6 months + 6wk RA + 7 day (-0.5°C)



CA1.5



CA6



DCA



RA



SF+CA1.5



SF+CA6



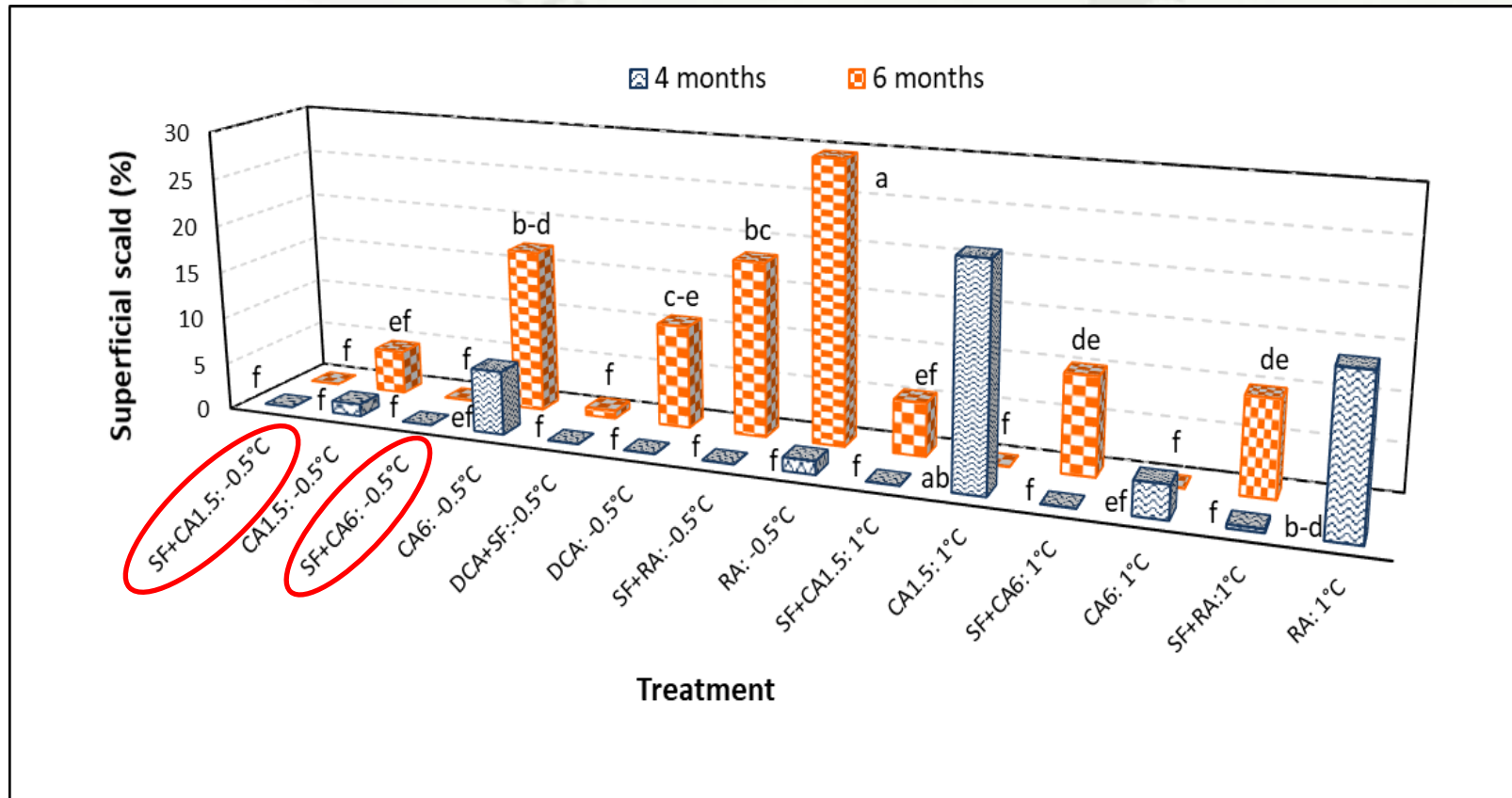
DCA+SF



SF+RA

Results and Discussion

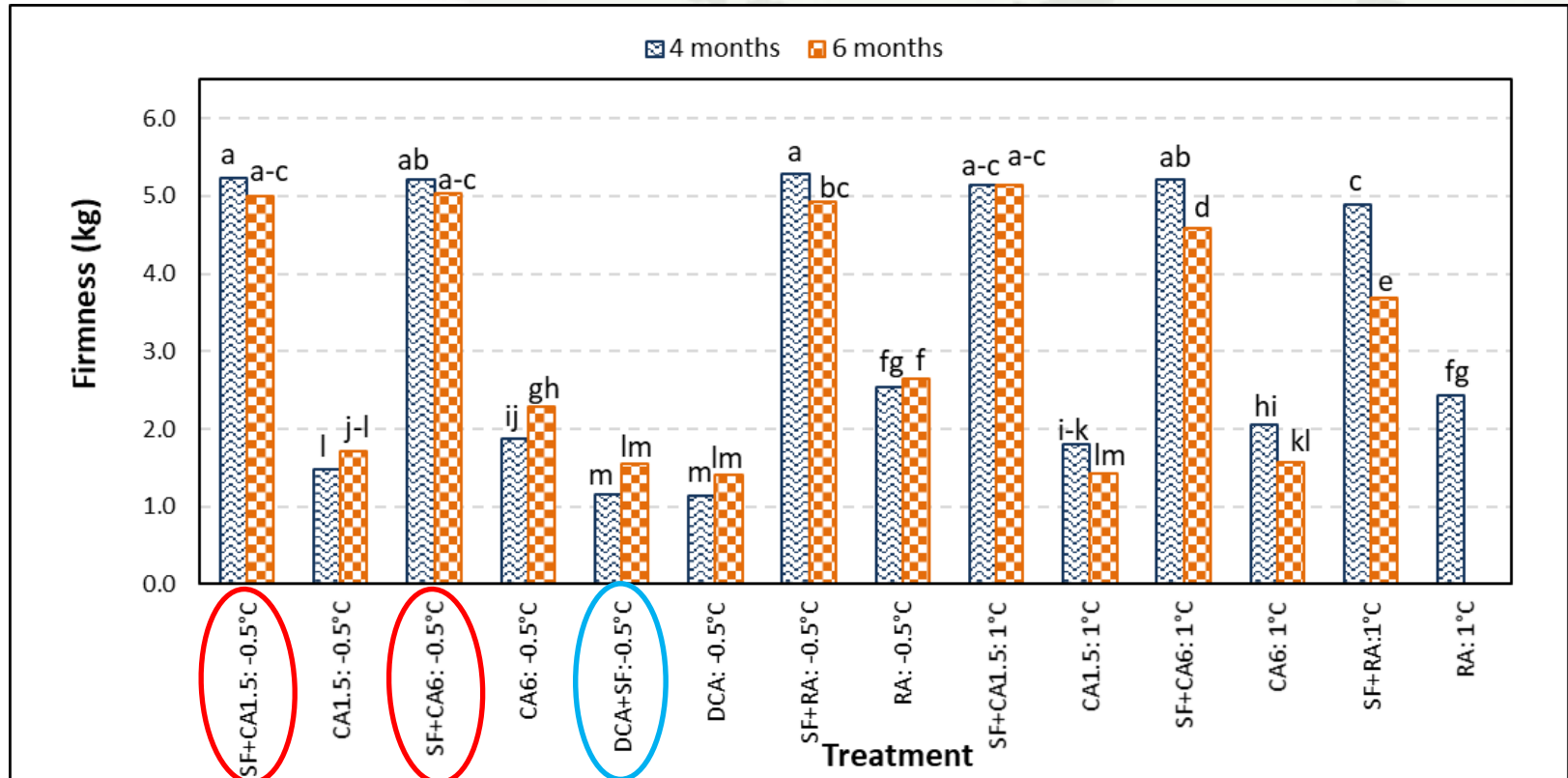
Post-optimum Abate Fetel from Grabouw production area after 7 day shelf-life



Source P<F
 Trt x Period <0.0001
 LSD_{5%} = 8.01

Results and Discussion

Post-optimum Abate Fetel from Grabouw production area after 7 day shelf-life



Source P<F
Trt x Period <0.0001
LSD_{5%} = 0.30

Post-optimum Abate Fetel from the Grabouw production area after 6 months + 6wk RA + 7 day (-0.5°C)



CA1.5



CA6



DCA



RA



SF+CA1.5



SF+CA6



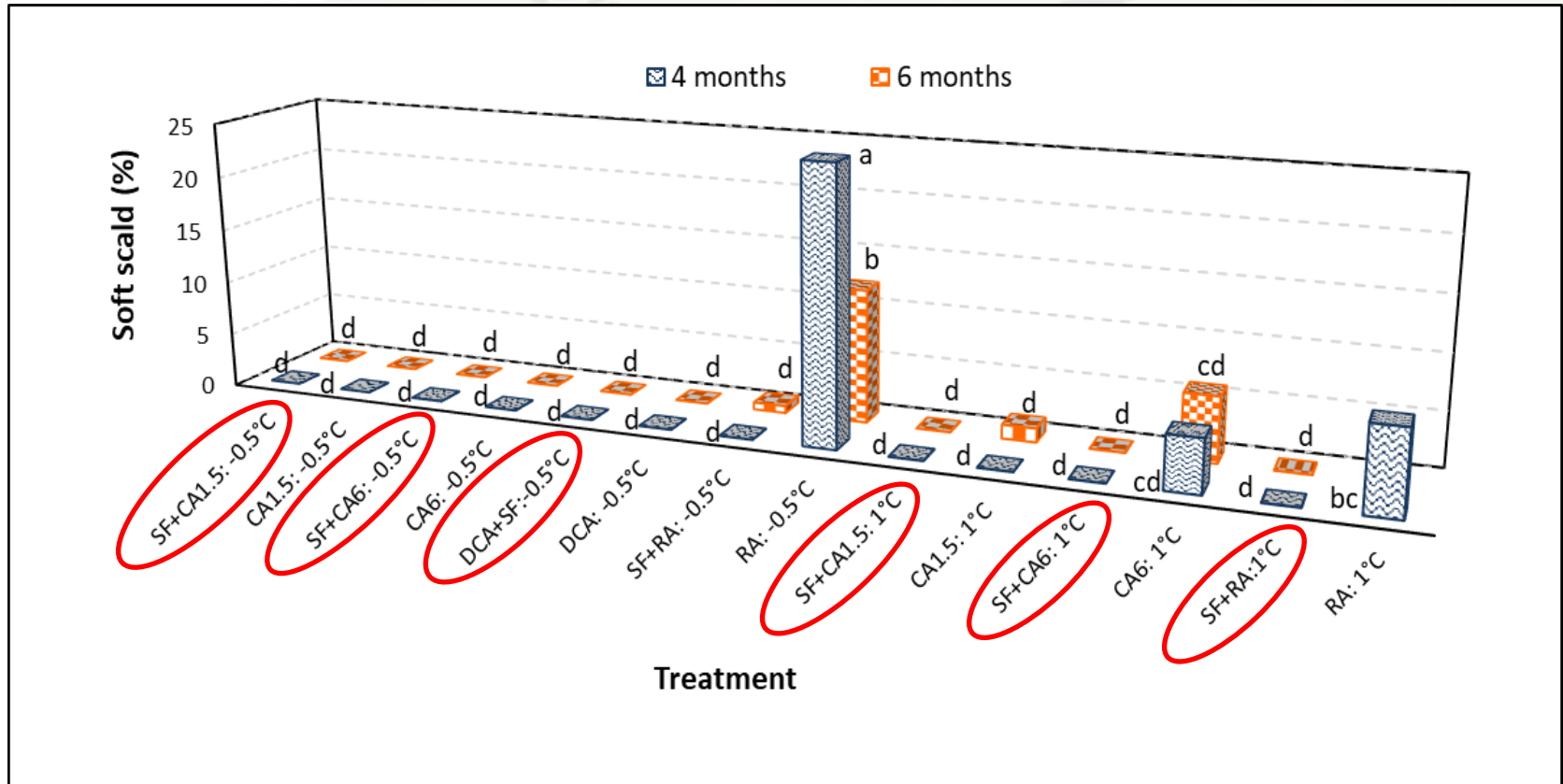
DCA+SF



SF+RA

Results and Discussion

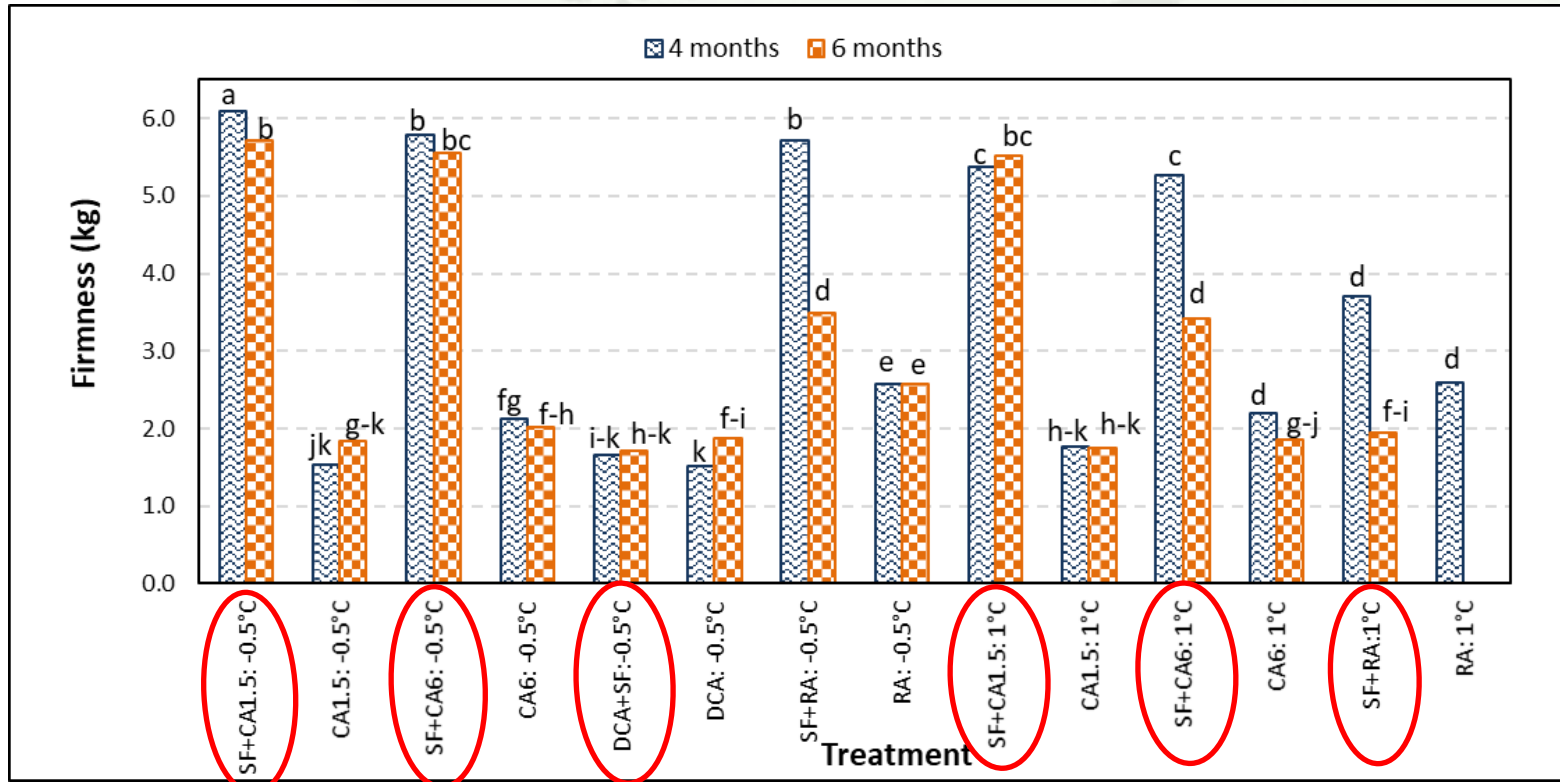
Optimum Abate Fétel from Ceres production area after 7 day shelf-life



Source P<F
 Trt x Period <0.0001
 LSD_{5%} = 5.96

Results and Discussion

Optimum Abate Fétel from Ceres production area after 7 day shelf-life



Source P<F
 Trt x Period <0.0001
 LSD_{5%} = 0.34

Optimum Abate Fétel from the Ceres production area after 4 months + 6wk RA + 7 day (-0.5°C)



CA 1.5



CA 6



DCA



RA



SF+CA1.5



SF+CA6



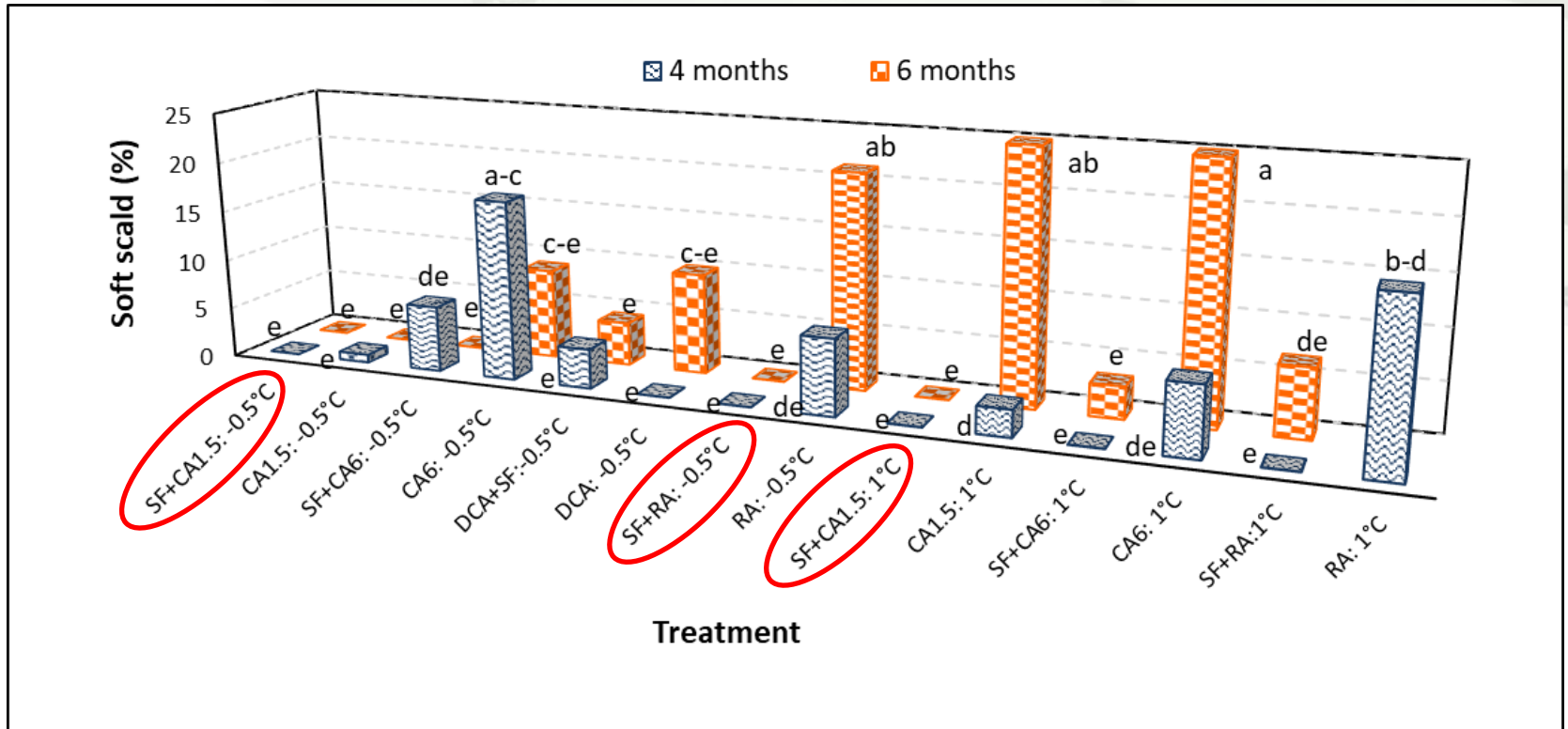
DCA+SF



SF+RA

Results and Discussion

Post-optimum Abate Fetel from Ceres production area after 7 day shelf-life

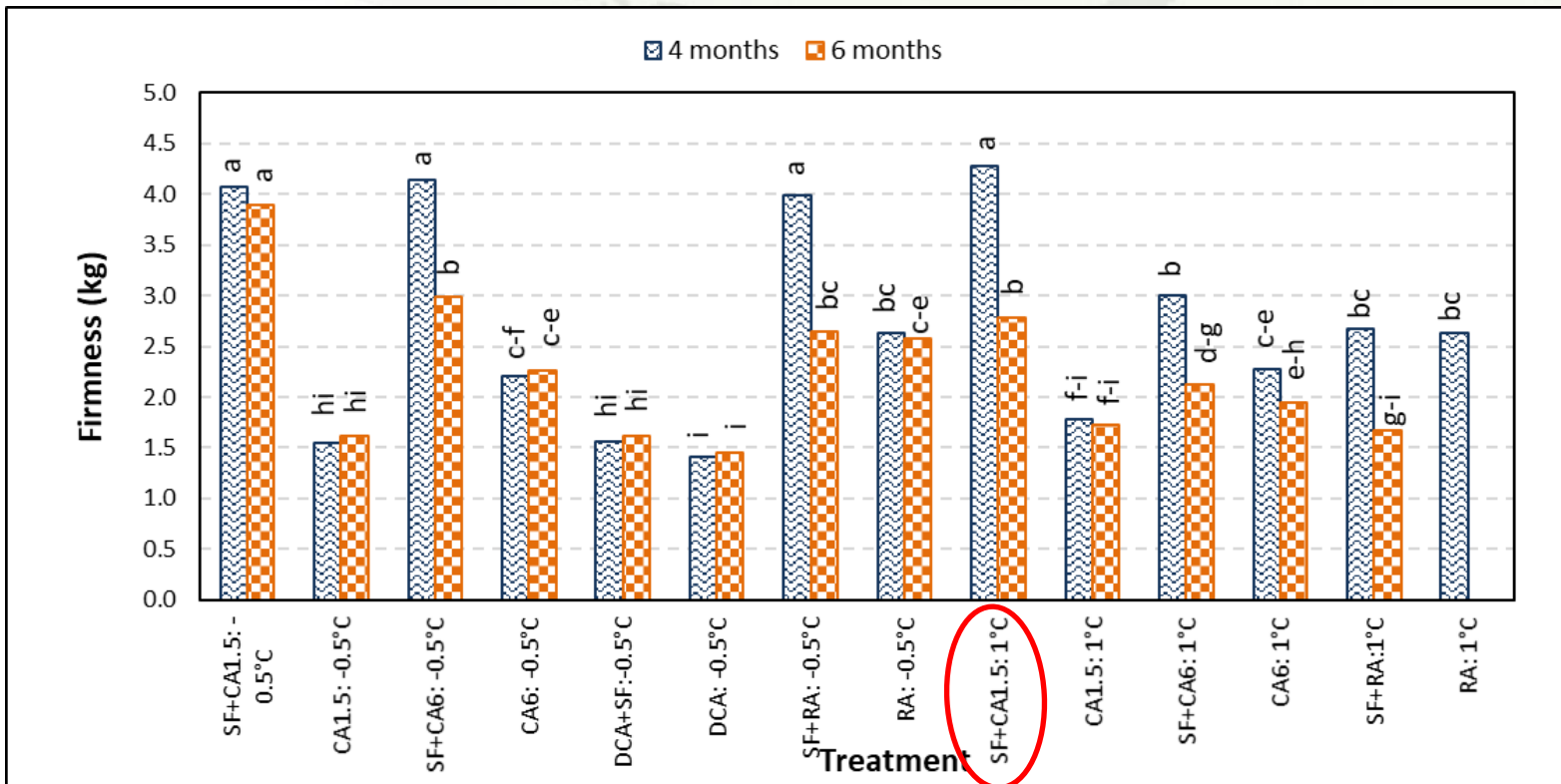


Source P<F
 Trt x Period 0.0003
 LSD_{5%} = 10.05



Results and Discussion

Post-optimum Abate Fetel from Ceres production area after 7 day shelf-life



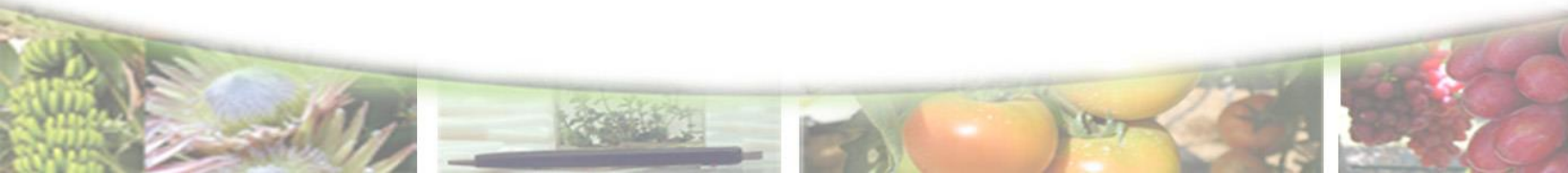
Source P<F
 Trt x Period <0.0001
 LSD_{5%} = 0.48



Conclusions



- Optimum and post-optimum Grabouw and Optimum Ceres
 - 1-MCP + CA was effective to prevent the development of superficial scald and soft scald after 6 months at -0.5°C
 - Not ready-to-eat stage
- Optimum Grabouw and Ceres
 - DCA + pre-shipment 1-MCP - no physiological disorders
 - Ready-to-eat
- Store optimum fruit for 4 months
 - – 1-MCP+RA – cost effective option



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