

New technologies and conservation strategies for "Golden Delicious" and "Gala" apples

Summary

The project consists of evaluating different postharvest management strategies fruit to satisfy market demand for the Golden apple (yellow skin and firm) and Gala (long storage and lack of internal browning).

We'll evaluate the ACR and DCA storage technologies of these two apple varieties combined with:

- Different moments of Golden harvest to facilitate the change to yellow skin
- Procedures degreening in the Golden after cold storage.
- Evaluation of new varieties of apple yellow external appearance and taste the same or better than Golden
- Different harvests of Gala combined with 1-MCP applications

Objectives

Obtain more intense yellow colour Golden apple and firm flesh after the cold storage period:

- Determine the parameters of harvest to get the colour change of the skin of the fruit
- Establish the degreening procedures to change green apples
- Evaluate new varieties of apple with more yellow external appearance and same or better taste than Golden
- Determine the best cold storage strategy

Extend the cold storage period of Gala apple applying new technologies and reducing the incidence of internal browning flesh:

- Establish harvest correct parameters
- Determine the best cold storage strategy

Description of project activities

Techniques to increase the intensity of yellow apple Golden

We'll try different strategies to degreening after the cold storage period, we'll evaluate the behaviour of different harvest dates fruits and same source after cold storage and we'll evaluate the storage of new varieties more intense yellow than Golden.

Techniques to lengthen the quality of Gala apple

We'll select lots of homogeneous maturity and storage in DCA or ACR and we'll assess the incidence of internal browning after a long period of cold storage.

Final results and practical recommendations

Regarding the greening of the Golden Apple it is recommended:

- Treat the fruit with 1-MCP to avoid firm loss.
- Degreening of apples with background color > 3, separating the fruit with the precalibrader in different batches depending on the background color at the exit of the AC conservation or of parcels with fruit that have background coloring > 3.

- Degreening with high temperature of 20°C for a minimum of 7 days.
- The thermal shock (combination of alternating days at high and low temperature) did not increase the coloration.
- Treatments with ethylene at end of conservation did not increase the coloration.
- Avoid treatments at high temperature (20°C) with fruit harvesting because it increases the incidence of bitter pit.

In the evaluation of new similar varieties to Golden with more intensity of yellow color they emphasized like better "Shinano Gold" and "Opal".

As for the Gala apple:

- The maintenance of very low levels of oxygen (0.4%) throughout the period of conservation allows to reduce the incidence of internal growth significantly.
- Treatment with 1-MCP does not influence the incidence of EI.

Conclusions

To increase the yellow coloration of the Golden Apple:

- Keep the fruit at a maximum temperature of 20°C minimum for 7 days at the end of conservation and treat it with 1-MCP.
- Degreening of apples with at least 3 background color initially.
- Do not apply degreening at harvest.

To prolong the conservation of the Gala apple without the appearance of internal growth keep it under conditions of very low oxygen (0.4%).

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Tipologia d'entitat:

Centre de recerca

Keyword-category

Agricultural production system
Pest / disease control

Territorial scope

Province

Tarragona
Lleida
Girona
Barcelona

County

Urgell
Segrià
Pla d'Urgell
Noguera
Gironès
Baix Llobregat
Baix Empordà
Baix Camp
Alt Empordà

Project dissemination (publications, seminars, multimedia...)

- 1 Reunió de la Comissió Tècnica de fruiters (Centrals fructícoles de Girona, ADV,s, IRTA Mas Badia i altres entitats).
- 2 Reunions dels membres del Grup Operatiu
- 1 Jornada tècnica
- 1 Publicació tècnica
- 2 Publicacions a webs

Pàgina web del projecte

www.fructicolaemporda.com
www.irta.cat

Other project information

Projecte period

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Basic regulation: Ordre ARP/258/2015, de 17 d'agost, per la qual s'aproven les bases reguladores dels ajuts a la cooperació per a la innovació a través del foment de la creació de grups operatius de l'Associació Europea per a la Innovació en matèria de productivitat i sostenibilitat agrícoles i la realització de projectes pilot innovadors per part d'aquests grups, i es convoquen els corresponents a 2015.

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