

CONTROL OF POST-HARVEST DISEASES ON AVOCADOS

JM DARVAS
WESTFALIA ESTATE

OPSOMMING

Verskeie na-oesbehandelings is ge-evalueer vir die beheer van siektes. Benomil en TBZ het bemoedigende resu/tate ge/ewer en die rakleef tyd van die vrugte is aansienlik verleng.

INTRODUCTION

The control of post-harvest diseases is still receiving serious attention. It is a complex problem because various pathogens and contributing factors are involved. Many different chemical treatments were evaluated.

Parallel with the assessment of post-harvest fungal diseases, observations were also made on physiological disorders, such as cold damage, pulp spot and lead discolouration. All observations were carried out when fruit reached ripeness of 0 penetrometer (5/16") reading under cut epidermis.

MATERIALS AND METHODS

Avocado fruit used for the post-harvest experiments were mainly Fuerte and Edranol. Ripening time was measured by the time lapse between the date fruit was taken out of cold storage to the date it was examined. In a few experiments fruit was divided into two groups. The one group was cold stored while the other group was kept at room temperature.

Tecto containing 45,1% a.i. Thiabendazole in E.G. form

Benlate containing 50% a.i. Benomyl in W.P. form

Ca-hypochlorite

Glyodin experimental material

RH 2161 experimental material

Orchex oil

TAG Wax

RESULTS

Since there were ten fairly extensive experiments laid out involving more than 10 000 fruit, tables are not presented here but only the most significant findings are discussed.

In the first experiment where low oil content fruit was picked in the early, rainy period, fruit was severely effected by post-harvest diseases. Here, cold stored fruit, developed more anthracnose and pulp spot than fruit kept at room temperature. Tecto was applied at a concentration 0,4% to the fruit in wax solution.. It reduced diseases on fruit in cold storage but increased both stem-end rot and anthracnose on fruit kept at room temperature compared with the untreated fruit.

On the average, more than an extra day was needed for treated fruit to soften.

On the contrary, however, in the next experiment, when fruit was picked under dryer conditions, the cold stored fruit was less effected by diseases when compared to the same treatment at room temperature. Shelf-life was increased by about 3 days for treated fruit with an increase in diseases.

The addition of Orchex oil to the fungicide wax mixture gave no appreciable improvement to the effect of Tecto and made Benlate less effective.

The reduction of post-harvest diseases by cold storage was again demonstrated in the next experiment, but it repeatedly increased the incidence of pulp spotting. Dipping the stem-end of fruit into a solution of 0,1% Tecto and 0,1% Benlate in the field caused more anthracnose and less stem-end rot. Orchex gave disappointing results.

Of the new chemicals, RH 2161 was promising at a concentration of 1,2% when applied to the fruit in wax.

The 1500 ppm a.i. Ca-hypochlorite both increased post-harvest diseases similarly to tap water bath treatment, and reduced shelf-life of fruit. In the experiment with Edranol fruit a reduction, of postharvest diseases was noted as a result of cold storage and the increase in diseases on treated fruit was obvious.

CONCLUSIONS

Early season fruit with low oil content picked during rain, gave considerably more post-harvest problems than fruit picked later in the season. If this fruit was cold stored, diseases were further aggravated.

With the application of wax the shelf-life of fruit was prolonged by about 2 days. This, however, also gave longer time for the pathogens to cause more damage and fruit with wax alone was consistently worse than untreated fruit. When Tecto at 0,4% and/or Benlate at 0,1% was added to the wax solution, the prolonged shelf-life did not result in more diseases. Tecto was especially effective against the *Dothiorella-Colletotrichum* complex and Benlate against *Colletotrichum*.

Rain or tap water that was used to wash fruit was detrimental to fruit quality. This could not be corrected with chlorinated water.

Dipping fruit by their stem-end into fungicide solutions gave less stem-end rot but at the

same time undesirably increased anthracnose, possibly as a result of the slow drying of the mass stored dipped fruit. The tendency for more anthracnose could not be reversed by post-harvest treatments.

Orchex oil failed to improve the effectiveness of the post-harvest chemical treatments.

SUMMARY

In the course of testing various fungicides and other amendments to the wax solution on avocado fruit, it was found that mixtures of Tecto at 0,4% and Benlate 0,1% gave encouraging results in controlling post-harvest diseases. An appreciable prolongation of shelf life was achieved with the above combination.