Effect of the Inclusion of Desogerme S.P. Vegetals in the Packline Hot-water Bath on Postharvest Diseases in Mango

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ABSTRACT
The effect of the inclusion of Desogerme in the mango-packline's hot-water bath on the postharvest diseases occurring in mango (anthracnose, and soft-brown rot) was evaluated. Two identical experiments were performed, one using Heidi mangoes and the other Kent mangoes. Packline treatment was performed on the day of harvest. Desogerme was excluded or 5, 10 or 15 ml of Desogerme per 100 l of water was added. The fruits were evaluated after 32 days of cool-storage at 5°C and ripening at 20°C. There was no apparent effect on the manifestation of anthracnose disease in Heidi or Kent. The manifestation soft-brown rot was increased slightly by Desogerme in both cultivars, the increase showing a positive relationship with the increase in the amount of Desogerme added. In light of the results, the inclusion of Desogerme S.P. Vegetals in the hot-water bath is not advised.

INTRODUCTION
Desogerme S.P. Vegetals is a water sanitising liquid. It is claimed that it kills bacteria, fungi, viruses and algae, and stated to be suitable for direct application to plants and growing media. It is also alleged that Desogerme is non-corrosive, non-toxic and biodegradable.

In the present study, the effect of the inclusion of Desogerme in the mango-packline's hot-water bath on the occurrence of the postharvest diseases occurring in mango (anthracnose, and soft-brown rot) was evaluated.

MATERIALS AND METHODS
Two identical experiments were performed, one using Heidi mangoes and the other Kent mangoes. Packline treatment was performed on the day of harvest. Desogerme was excluded or 5, 10 or 15 ml of Desogerme was added to a bath containing 100 l of water maintained at 50°C with heating elements. Prior to Hydro-heating of the fruits for 5 minutes, the fruits were washed in a 1% soap solution (BiProx). After Hydro-heating, the fruits were waxed with TAG and placed in a commercial cold-room maintained at 11.5°C (±0.5°C). After 32 days of storage, the fruits were allowed to ripen at 20°C (±0.5°C) in a well ventilated laboratory.

In each experiment, there were five carton (cartons each containing 4 kg of fruits) replicates of four treatments. A Complete Randomised Blocks Design was used; the order to the cartons (packing sequence according to carton number) having been maintained during and after cool-storage. The carton averages for each of the criteria evaluated were subjected to analysis of variance.

Disease evaluation was carried out on fruit removal and five days after cool-storage. In each fruit, the diseases present were identified, and the degree of colonisation of each disease was estimated.

Disease manifestation in each fruit was rated according its severeness. A rating of 0 was given if a fruit was disease free, a rating of 1 if symptoms were present but were localised to a small portion of the fruit's surface, a rating of 2 if approximately 1/3 of the fruit's surface showed symptoms, a rating of 3 if 2/3 of the fruit's surface was affected, or a rating of 4 if the entire fruit's surface was visibly diseased.

The data (carton averages) were subjected to analysis of variance.

RESULTS
The inclusion of Desogerme in the hot-water bath had no apparent effect on the manifestation of anthracnose disease in Heidi or Kent (Figs. 1 and 2). However, the manifestation soft-brown rot was increased slightly by Desogerme in both cultivars, the increase showing a positive relationship with the increase in the amount of Desogerme added to the hot-water bath (Figs. 3 and 4).
The ability of mango fruits to withstand disease colonisation has, amongst other influences, been shown to relate to the duration of cold-storage (negative relationship), tree nutritional status, and storage temperature (Oosthuys, 1992a, 1992b; 1994; 1997). Injury is generally associated with a reduction in tolerance (Oosthuys, 1992b). Desogerme would appear to have reduced the ability of the fruits to combat the development of soft-brown rot. This may have been the result of an injurious effect on the exocarp (skin). The inability of Desogerme to reduce the manifestation of the diseases in question might be expected if Desogerme acts only as a surface staralant.

**DISCUSSION AND CONCLUSION**

The ability of mango fruits to withstand disease colonisation has, amongst other influences, been shown to relate to the duration of cold-storage (negative relationship), tree nutritional status, and storage temperature (Oosthuys, 1992a, 1992b; 1994; 1997). Injury is generally associated with a reduction in tolerance (Oosthuys, 1992b). Desogerme would appear to have reduced the ability of the fruits to combat the development of soft-brown rot. This may have been the result of an injurious effect on the exocarp (skin). The inability of Desogerme to reduce the manifestation of the diseases in question might be expected if Desogerme acts only as a surface staralant.

**LITERATURE CITED**


