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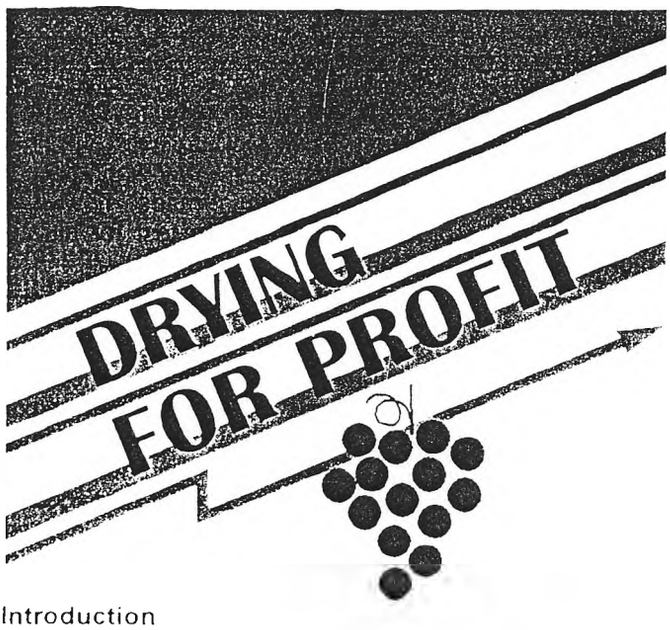
EFFECT OF EMULSION DRYING TREATMENTS ON SULTANA QUALITY

By Peter Clingeleffer, Principal Research Scientist
CSIRO Division of Horticulture, Merbein



Introduction

Trials over recent seasons with modified drying emulsion formulations have assessed drying oil emulsions to study impacts on drying rate and fruit quality (pre and post processing and storage).

The results indicate that a "half strength" mixture (ie. about 1.25% potash and 1.0% drying oil) gave satisfactory drying rates and produced high quality light, golden amber fruit when used for rack drying.

Higher strength mixtures (ie. normal and double strength) produced slightly more rapid drying rates during the early stages of water loss, ie. when water loss is controlled by evaporation from the berry surface. However as the latter stages of drying is controlled by water movement through the berry the overall differences in the rate of moisture loss were insignificant.

Dried fruit produced with "half strength" mixture had the highest quality, a light amber/yellow colour and low stickiness after processing and storage. By contrast, high levels of emulsion are commonly used by growers, particularly with multiple rack spray applications, in the belief that drying is enhanced.

Results

Drying Rate

Increasing emulsion strength and repeat spraying treatments do not enhance the overall drying rate.

Fruit Colour

Dried fruit from all treatments produced high quality, 5 crown light fruit. However, quantification with a Minolta chroma meter indicated that the higher level emulsion treatments produced slightly lighter, more yellow/amber fruit after processing and storage.

Processing Damage

Dried fruit berries may be damaged and torn during processing to remove capstems. This may lead to problems with fruit stickiness.

Increasing emulsion levels and repeat spray treatments caused a highly significant increase in damage index after processing, almost all berries with two and three repeat spray treatments were severely damaged.

Conclusions

It is clear from the results that growers have the opportunity to lower the level of emulsion applied, and not only reduce cash inputs, but also bring about a significant reduction in processing damage without a major effect on drying rate and fruit colour.

Excessive levels of emulsion retained with multiple sprays result in high levels of berry damage during processing.

Unless rain during the early stages of drying (3-4 days) causes large losses of emulsion from berries one spray applicaton is adequate.

If growers are concerned that a single spray application may lead to "blobs" resulting from poor emulsion coverage, the results suggest that two half strength emulsion applications will produce a satisfactory drying rate and minimise processing damage. Application of further emulsion treatments, ie three and four sprays, should be avoided.

The research showed the following usage rates to be cost effective:

Rack Spraying	**Oil**	**Potash**
Initial application	1.00%	1.25% (ie.1.25 kg per 100 litres of water)
Second application*	0.50%	0.60%
Vine Spraying	**Oil**	**Potash**
Initial application	0.50%	0.60%
Second application*	0.50%	0.60%

* Second application necessary only if a grower is concerned about blobs or if rain occurs within three days of the initial drying emulsion application.

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