

Observations on overseas markets during the 1989 avocado season

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INTRODUCTION

The author was based in Rungis for a period of six months as from the beginning of the 1989 avocado export season. The fruit from the first vessel arrived on the market on March 21. A total of 20 vessels were comprehensively evaluated, representing 970 cartons and 575 Ryan charts.

The results obtained indicate the best season yet in terms of quality, which was most heartening in view of the record crop exported during the past season.

MODUS OPERANDI

The major difference to the 1988 sampling method was the introduction of sampling which could be associated with Ryan recorders, ensuring a randomised sample. Whilst a very reliable sample was obtained, the commercial result is probably poorer, due to the fact that all samples were drawn upon arrival of the vessel and not subjected to further cold storage.

The procedures followed are not reported here as the report by Colin Partridge comprehensively deals with these issues.

RESULTS FROM INDUSTRY

Various qualitative parameters were analysed and are reported upon. Only the most important cultivars are addressed. Individual packhouses differed considerably from the average obtained in certain cases.

Firmness

The Firmometer reading, whilst routine, is probably the most important qualitative factor affecting the marketing of fruit, as well as being an excellent indicator of overall fruit quality.

Figure 1 indicates the industry trends for Fuerte, Edranol and Hass. Pinkerton and Ryan have deliberately been omitted, due to limited sampling and their potential for hard fruit.

The following conclusions are made:

- (i) A most successful industry average was obtained for all three cultivars, taking a 35% firmometer commercial tolerance level for Fuerte and Edranol. However, specific packhouses continually obtained soft fruit, due to either advanced fruit age or incorrect temperature management at packhouses and during road transport.
- (ii) The firmness of fruit from the first two or three vessels is not as critical as ensuring that cold injury is negligible or absent, taking volumes of fruit into consideration. Confidence in South African fruit needs to be established from the outset.
- (iii) Relatively soft fruit later into the season, coupled with high volumes and fruit being carried over from one vessel to the next, have disastrous consequences in terms of quality and price.

Physiological injuries

The various terms used by the author have been comprehensively dealt with in Colin Partridge's report, ie cold; brown cold, lenticold and discolouration. The Technical and Research Committee should address this entire issue at the earliest opportunity.

The most important conclusion to be made is that fruit arrived with negligible cold or other physiological injuries, but developed physiological injuries within 24-48 hours after arrival at ambient temperature (Figure 2). Ambient temperature appears to be the trigger for the development of the symptoms, as the same fruit maintained under low temperature did not exhibit these symptoms. However, the fruit would develop the same symptoms after exposure to ambient temperature. Fuerte was clearly most effected by physiological disorders such as brown cold and lenticold, whilst Edranol was noticeably affected by external discolouration, although excellent internal quality was noted (Figure 3).

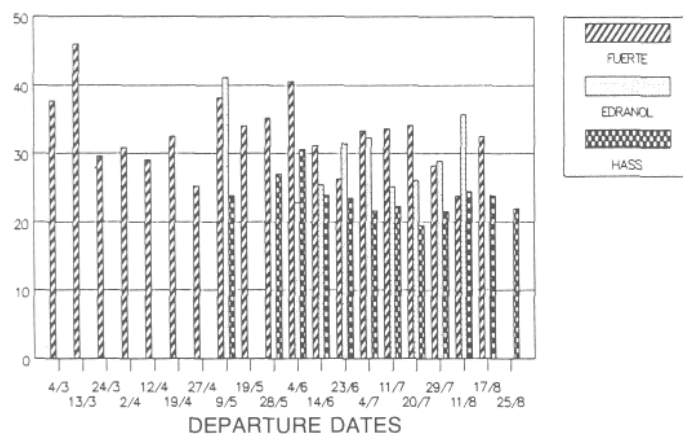


Fig 1 Industry firmometer trends for Fuerte, Edranol and Hass.

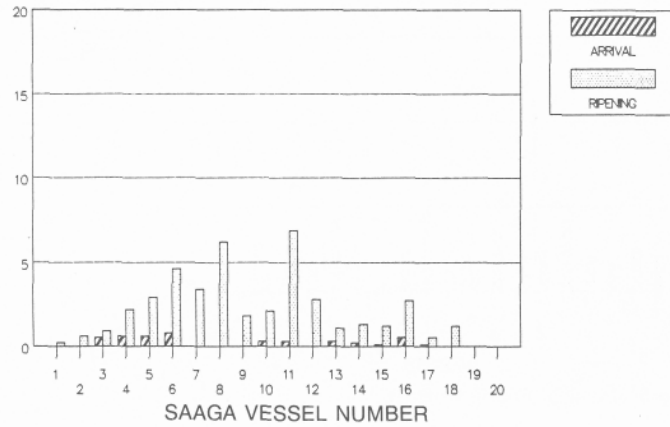


Fig 2 Physiological injury: Fuerte.

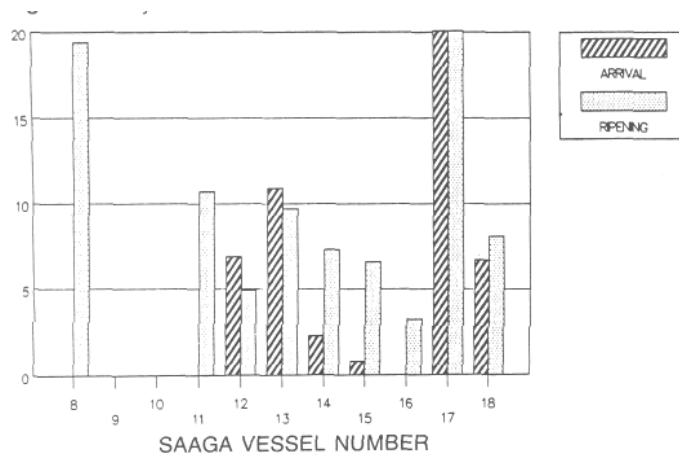


Fig 3 Physiological injury: Edranol.

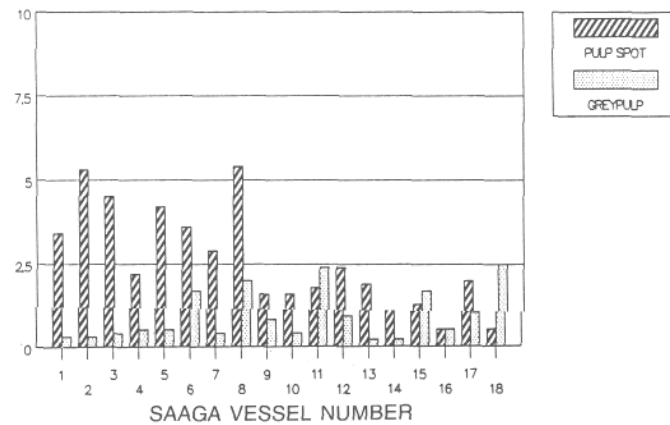


Fig 4 Pulp spot vs Greypulp: Fuerte.

Internal quality

Excellent internal quality was noted for virtually all cultivars, with the exception of Pinkerton, which is reported upon under experimental results.

Edranol and Hass experienced no grey-pulp whilst Ryan indicated minor internal problems. The largest problem of Fuerte was pulp spot, which was attributed to certain growers.

Figure 4 confirms known trends, namely that initially pulp spot is high. It decreases as the season progresses, whilst grey pulp increases as fruit maturity advances.

Bruising was present in Fuerte and Hass, although the level was generally low (Figure 5). The origin of bruising is difficult to ascertain as even the author could be responsible for a portion thereof during evaluation.

Age of fruit

Packhouses and growers have been made aware of the importance of taking the time / temperature relationship into consideration to ensure successful marketing of excellent quality avocados (Figure 6). Despite a record crop (60% increase), which forced a number of packhouses to pack continuously, encouraging results were obtained. Nonetheless, specific packhouses were identified as having problems which were associated with soft fruit.

The adoption of same day picking and packing was found to be highly beneficial to overall fruit quality and should be encouraged.

Temperatures

575 Ryan charts were analysed by the author during the season of which 47 (8,2%) malfunctioned. Ryan charts indicated variable temperatures and experiments will be conducted to satisfy SAAGA of the accuracy of these instruments.

The correlation between industry firmometer readings and the general comment concerning Ryan recorded temperatures (as per the author's vessel reports), appear to be fairly convincing with Fuerte (Figure 7).

Final results from the PPECB, with the data collected on the squirrels and correlated with Ryan charts, should however be awaited.

Quantities exported

It is clear from Figure 8 that the avocado season started off very rapidly in terms of volumes exported. A coordinated marketing effort will be required in future years, due to a large increase in volumes. Additional packing capacity and the lower volumes expected in 1990 may present the ideal opportunity to implement such coordination.

TRIALS AND EXPERIMENTS

A large number of trials relating to temperature aspects, CO₂ shock and Pinkerton strains were undertaken during the year.

PPECB will be coordinating the data retrieved from the squirrels with assistance from

Westfalia and SAAGA.

The Pinkerton experiments were very successful, with a statistical significance of 95% with respect to the difference in grey pulp. The results of the analysis of the various samples are awaited with interest.

CONCLUSION AND RECOMMENDATIONS

- (i) The implementation of the temperature regimes has resulted in the landing of firm fruit with little cold damage. However, closer attention to temperature management is required at pack-houses and during road transport. Carrying temperatures aboard vessels also need constant attention, although one should await the recommendations from the PPECB.
- (ii) A relatively high percentage (8,2%) of Ryans malfunctioned, which indicates that the matter should be taken up with Ryan Instruments. SAAGA will undertake experiments to satisfy itself on the accuracy of Ryan Instruments. The use of Ryan recorders could be decreased to one in four containers should the export season begin favourably.

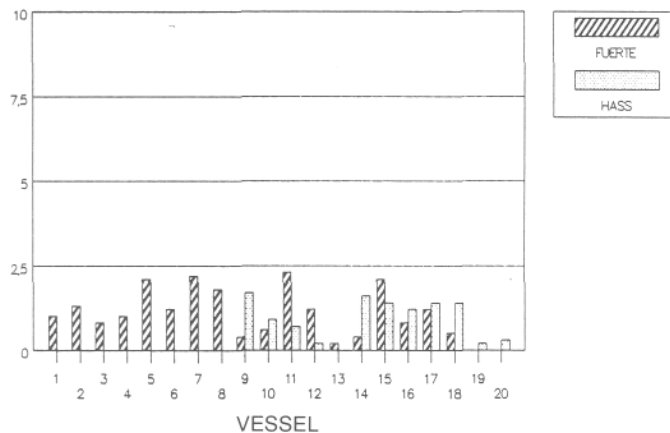


Fig 5 Bruising: Fuerte vs Hass.

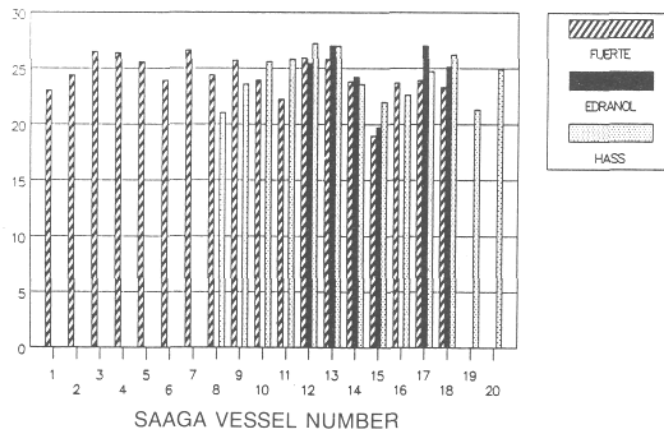


Fig 6 Age of fruit.

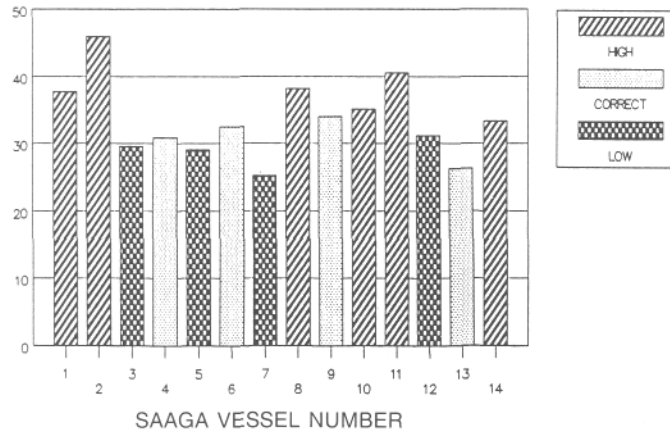


Fig 7 Firmo vs temperature trends: Fuerte.

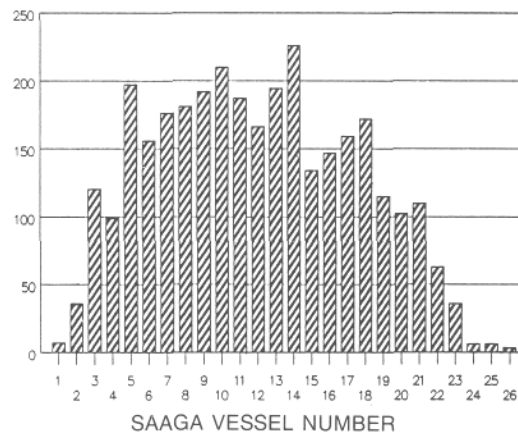


Fig 8 Exports.

- (iii) The implementation of same day picking and packing was found to be highly beneficial and is highly recommended, particularly at packhouses with a large number of growers.
- (iv) The adage "Old fruit is soft fruit" certainly holds true. A number of specific packhouses have a low proportion of very old fruit which may be due to inefficient packhouse management. The present regulations, which states that fruit will not be inspected if the period between packing and inspection exceeds 14 days, should be amended and the period decreased to 12 days. This period should be adapted according to the shipping schedule (nine days vs possibly seven days).
- (v) SAAGA and packhouses should be informed timeously of delays in shipping schedules, to adjust their packing programmes.
- (vi) The status of Pinkerton will be addressed by ANA. The author recommends that no further Pinkerton plantings take place until more information is obtained. A significant increase in Pinkerton trials is warranted.
- (vii) The following research priorities have been identified: Physiological disorders (particularly external), spray residues, export cultivars, small fruit.