

THE ANNUAL INCIDENCE OF AVOCADO CULL FACTORS IN THE LETABA DISTRICT

H SMITH, RE LUNT, MM DARVAS
LETABA CO-OPERATIVE LIMITED, TZANEEN

OPSOMMING

Die intensiteit van verskeie uitskot faktore was ondersoek. Die uitskot faktore veroorsaak $\pm 20\%$ Verliese van uitvoervrugte en indien beheer doeltreffend toegepas word kan 6 — 10% meer vrugte uitgevoer word.

SUMMARY

The incidence of various packhouse cull factors was investigated. Cull factors represent $\pm 20\%$ of the total crop delivered. Some cull factors can be controlled and this could result in a 6 — 10% increase in exportable fruit.

INTRODUCTION

As a daily routine a study was done in the packhouse on the incidence of various cull factors to determine what the nature of the cull factors were and whether they varied seasonally. The information could be used to improve fruit quality.

Methods and Materials

Sampling was done on a daily basis for the entire season. A random sample of 100 fruit per grower was taken which represented 5 — 20 samples daily.

Cull factors evaluated were: Cercospora spot, sunburn, fruit fly/FCM damage, wind damage, sunblotch virus, insect damage, thrips (suspected), handling damage, sooty mould, orchard marks and fruit without pedicles.

Only Cercospora spot, sunburn, fruit fly/FCM damage, wind damage and handling damage will be reported on as the other factors were of very low incidence.

A suitably designed bin type grading was used, to keep culled fruit apart for counting purposes.

Only the major cull factor per fruit was counted and recorded as percentage of sample. In addition to the investigation, each grower was supplied with his daily sample evaluation. The reason for this was to motivate growers specifically with respect to handling damage to improve their methods and equipment at harvesting.

Results

1. Handling damage:

In 1979 handling damage was reduced from 8% to $\pm 2,5\%$ within a month and remained more or less constant. The season in 1980 had approximately the same "bad start" handling damage which reduced again over 1,5 months to $\pm 4\%$, but increased to $\pm 7\%$ in July.

2. Wind damage:

During 1979 the incidence was very low: less than 1% average, but in 1980 the average was $\pm 4\%$.

3. Cercospora spot:

Averaged $\pm 4\%$ for both seasons, but varied during the season due to several reasons.

4. Fruit fly/FCM damage:

Averaged $\pm 3\%$ in the first half of the 1979 season but rose to $\pm 6,5\%$ later. During 1980 the pattern changed with a higher incidence at the beginning and end of the season.

5. Sunburn:

Yellow, brown and black was taken as sunburn and not evaluated separately.

6. Exports:

Harvesting periods for the various cultivars are the following:

Fuerte starting in the beginning of March and ending in September.

Edranol starting May and ending in August.

Ryan starting in June through to September.

Hass starting in July and ending in September.

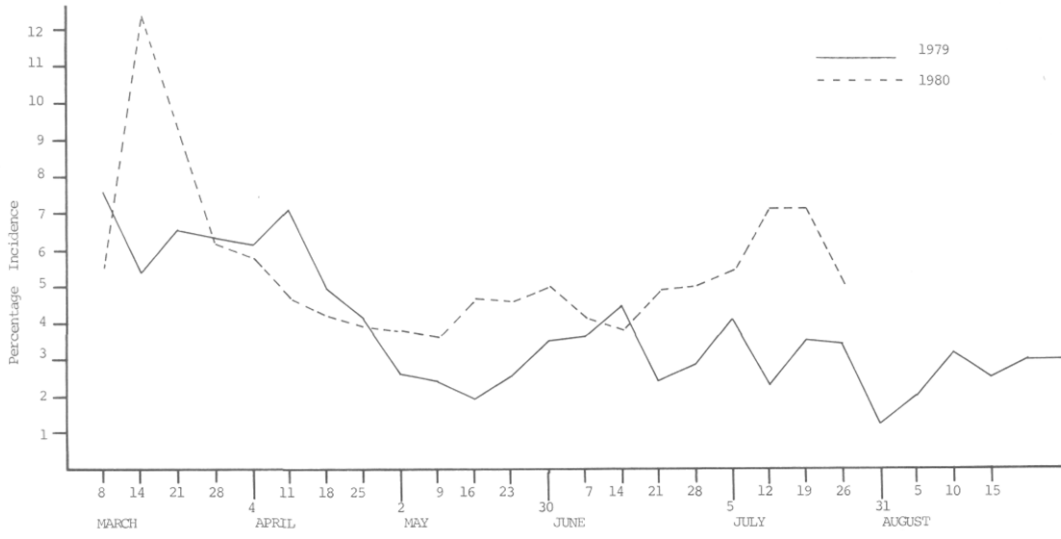


FIG. 1: Handling damage during the harvesting of fruit for the export season 1979 and 1980 in percentage of total deliveries

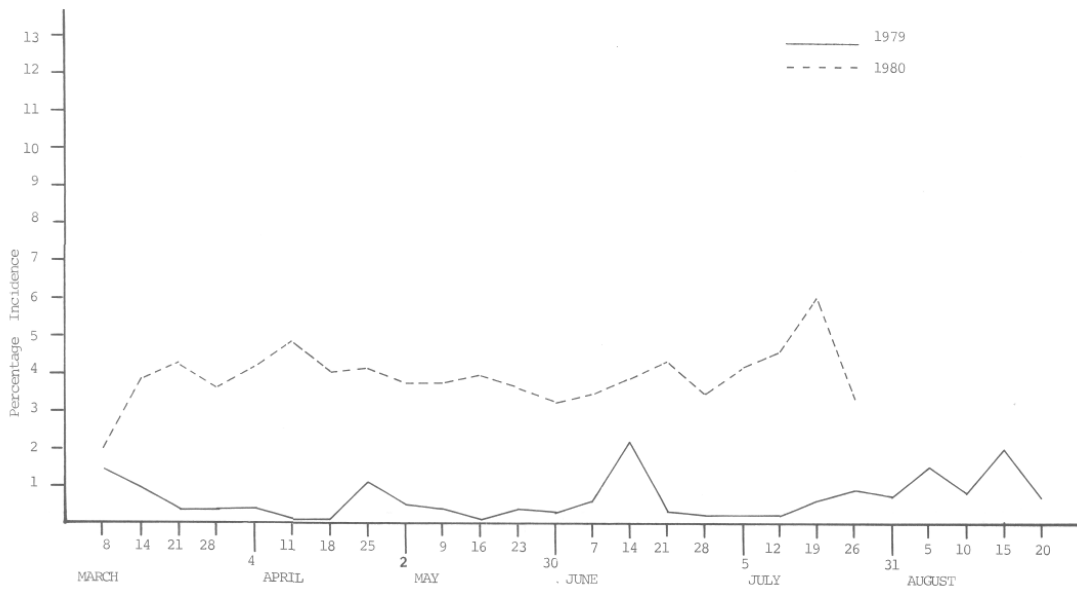


FIG. 2: The percentage incidence of wind damage on total deliveries for 1979 and 1980 seasons

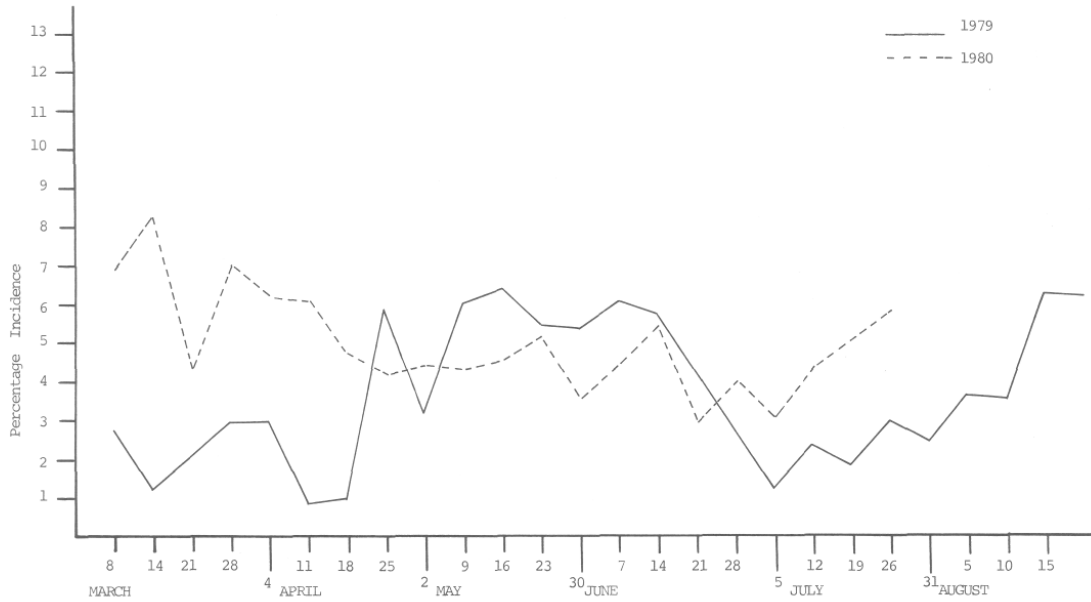


FIG. 3: The incidence of *Cercospora* spot in percentage of total deliveries for 1979 and 1980 seasons

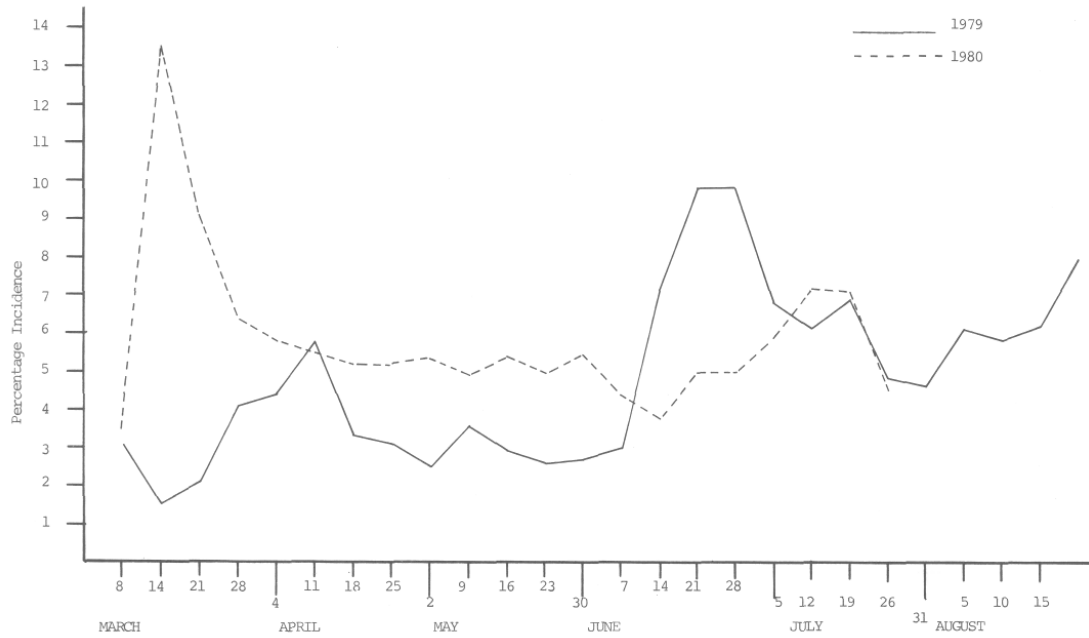


FIG. 4: The incidence of fruit-fly/FCM damage in percentage of total deliveries for 1979 and 1980 seasons

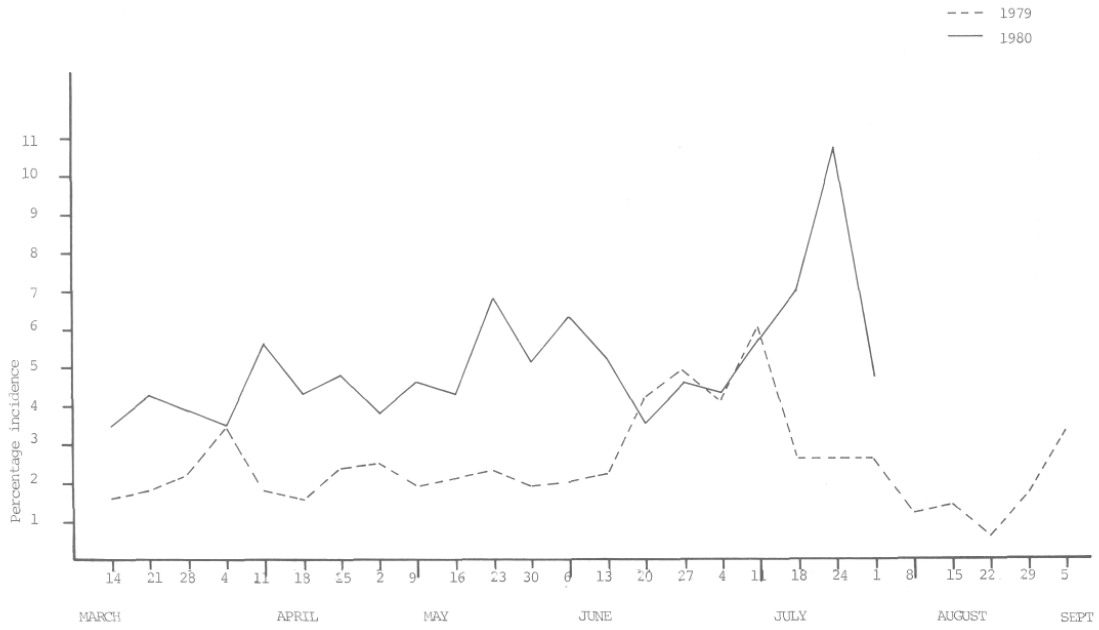


FIG. 5: The percentage incidence of sunburn of the total deliveries for 1979 and 1980 seasons

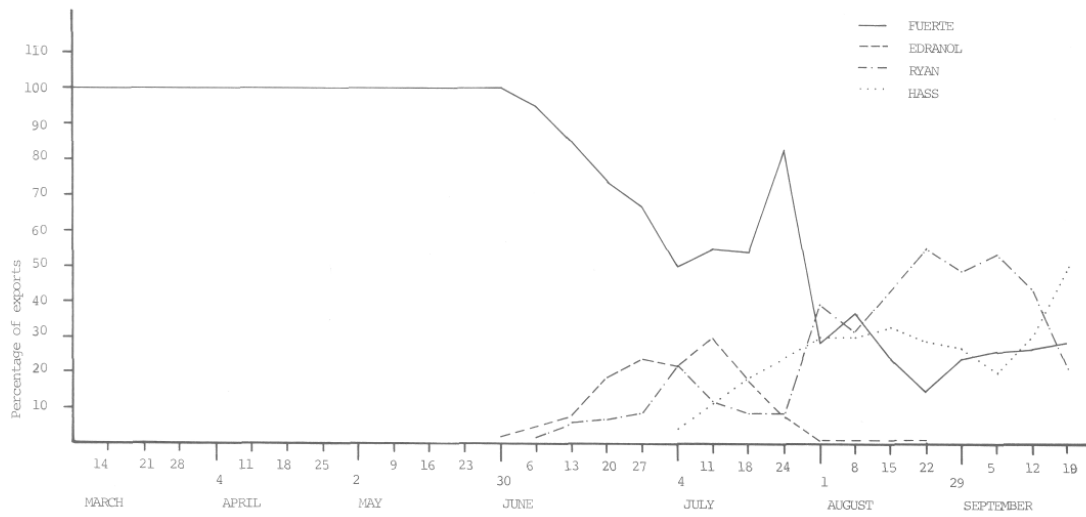


FIG. 6: Seasonal distribution of avocado cultivars represented by percentage of total exports for 1979

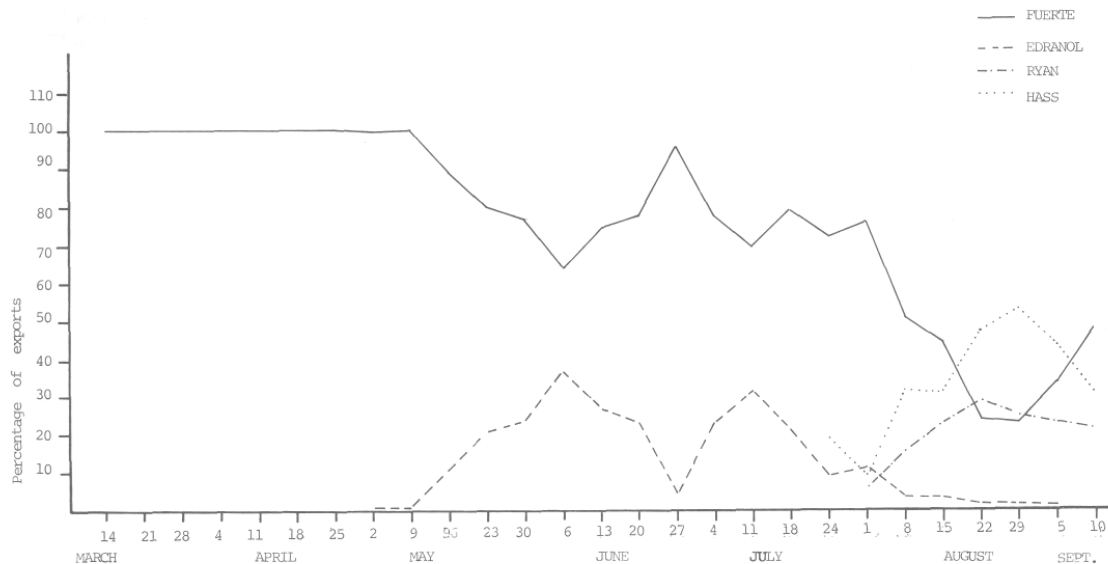


FIG. 7: Seasonal distribution of avocado cultivars represented by percentage of total exports for 1980

Discussion

Some of the larger deviations found in certain factors during the season can be ascribed to the fact that as a Co-operative fruit is harvested from different climatic zones at overlapping periods. For example, some farmers are stripping orchards in the early production period while others are still doing selective picking in the mid-season period with the late season fruit still to be harvested. Cultivars overlap at certain times as well and influence the results. For example, if the 1979 cultivar graph (Fig. 6) is superimposed on the fruit fly/FCM damage graph for the same year, it would appear that with the increase of Edranol deliveries this particular cull factor also increased. For both seasons the cull factors discussed varied between 2,5 and 5% on average, and therefore represent $\pm 20\%$ of the total crop delivered. Some cull factors are controllable such as fruit fly damage, Cercospora spot and handling damage. A 50% improvement on these cull factors could result in a 6 — 10% increment of exportable fruit. In some cases these cull factors reached a peak during early and late season when prices are at a premium.