

The

**OPRA**tive Word

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## Sexava: the cost of no control

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### Introduction

This is a study of what happens when large areas of Sexava are not controlled and palms are defoliated completely. The results show the high cost in lost Crude Palm Oil (CPO) production.

### Background

The data are from a PNGOPRA fertilizer trial that was within an area severely damaged by Sexava (*S.defoliaria*) and where the yields continued to be recorded through the periods of pre and post maximum damage (after the area had been finally controlled). The trial (#204) was reported in the PNGOPRA Annual Reports for 1996 through to 2005 when the trial ended. Additional information was gleaned from the text of these reports. The basic details of the trial are shown in Table 1.

Planted	1986
2 blocks	30 ha each
Planting density @	115 p/ha
Fertilizer treatments started	May 1989

Table 1. Details of Trial 204 which was defoliated by Sexava

The Sexava damage appears to have begun in or around the area in 1998 and first reported and visited by PNGOPRA Entomology in April 1999. In May it was recommended that 30-40 ha. should be treated. A visit in June 1999 put this up to 90 ha. By February 2000 the area recommended for control was 833 ha. At the end of 2000 the trial blocks were reported as having been almost completely defoliated. It appears that most control was not done until after the end of 2000.

To calculate the estimated financial losses due to the Sexava damage, a number of approximations and assumptions have had to be made:

- The mean yield of FFB in tons per hectare has been taken from the means of all the plots in the trial.
- That yields would have been the same as in 1998 if damage had not occurred.
- That damage began in 1998 based on reports and monitoring.
- The most severe defoliation occurred in 2000.
- Control from the end of 2000 effectively stopped further damage.



Plate 1. Severe defoliation caused by Sexava, Navo WNBP. Note that new fronds have already begun growing post complete defoliation.

- That the Crude Palm Oil (CPO) extraction rate was 22%.
- That there were no other factors, such as weather, affecting crop loss (as shown from another plot, Figure 2).
- Financial losses are based on current market prices for CPO (US\$1150 /t, 7th Dec 2010).

### Results

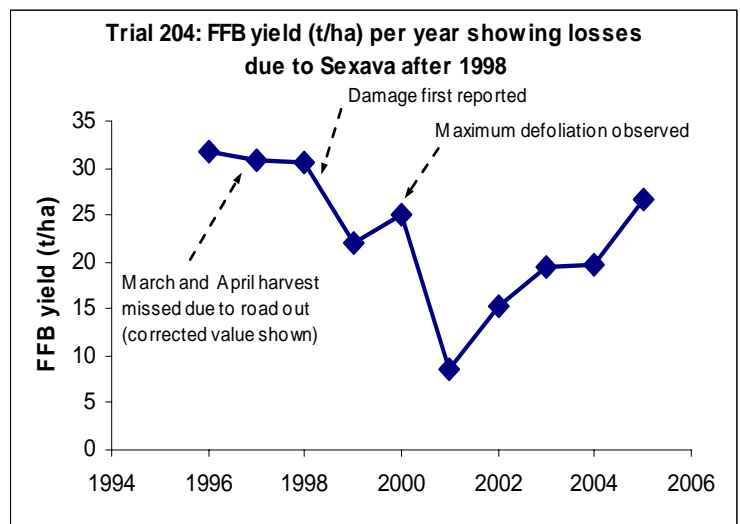


Fig. 1. Trial 204: Mean annual yields over the period of Sexava damage

By looking at the change in mean annual yield for the Sexava damaged plots (Fig. 1) it can be seen that damage became noticeable in 1999 after three years of yield estimated above 30 t/ha between 1996 and 1998.

The defoliation was recorded as reaching a peak by the end of 2000 so the large drop in yield in 2001, down to only 8.6 t/ha, would be expected. For at least the next 4 years the palms show a gradual revival but still show a loss compared with the expected 30+ t/ha prior to the beginning of damage.

It is assumed that the yields of the palms should have been similar to those prior to damage (e.g. 30+ t/ha) and results from a nearby undamaged area, albeit a lot younger palms (planted 1994), suggests that there were no weather or other factors involved in the recorded crop loss (Fig 2).

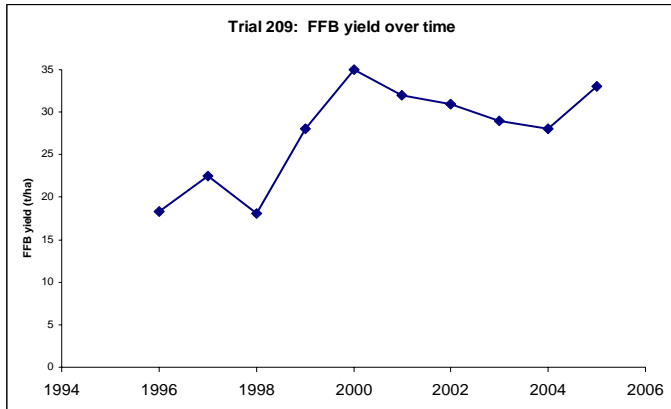


Fig. 2. Mean annual yields of Trial 209 (planted 1994), suggesting no other factors were involved in crop loss of Trial 204 other than Sexava damage

Financial losses can be estimated by comparing the expected annual CPO revenue from a 30ha block, based on the 1998 yield prior to damage, and the actual yields after Sexava damage. The accumulated CPO revenue for damaged/undamaged blocks are shown in Fig 3, including the accumulated loss of revenue due to Sexava damage and estimated total loss in revenue for a 30ha block.

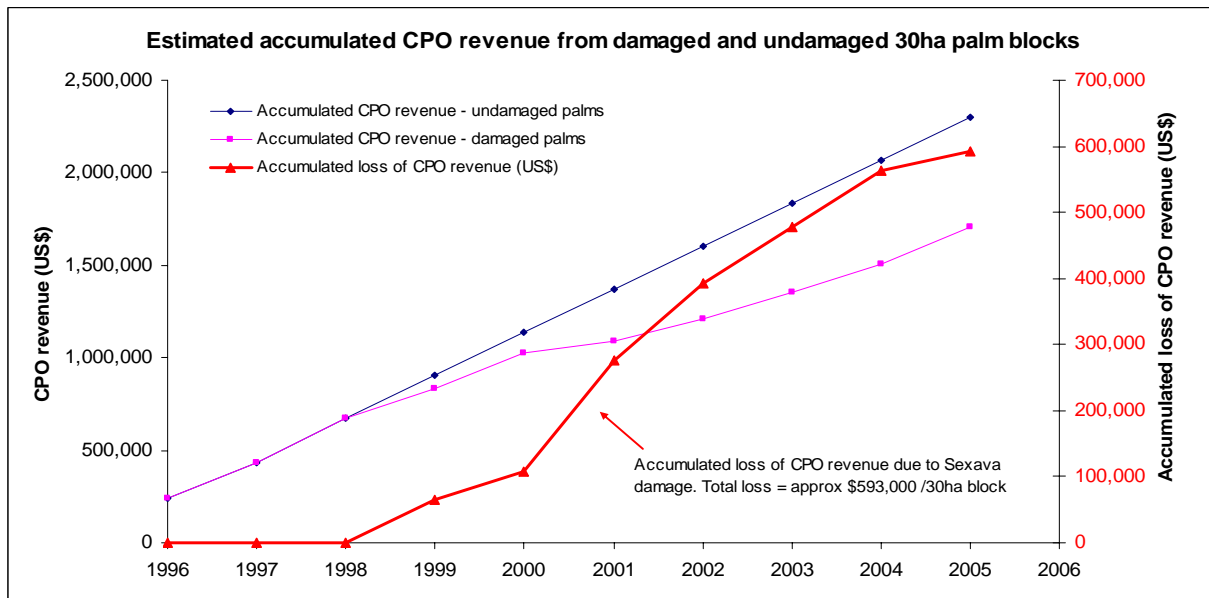


Fig. 3. Trial 204: Estimated accumulated revenue (US\$) from CPO per year for damaged and undamaged blocks assuming yield should have been the same as the yield in 1998.

This data can be used to estimate the losses over the Sexava damage period (5 years after almost complete defoliation, 2000-2005) for different areas of oil palm. The table below illustrates the very large financial losses that can be incurred if Sexava are allowed to totally defoliate palms in large areas without proper control (Table 2).

Ha	CPO: loss US\$	CPO: loss in Kina
50	879,175	2,259,480
100	1,758,350	4,518,960
250	4,395,875	11,297,399
500	8,791,750	22,594,798
750	13,187,625	33,892,196
1000	17,583,500	45,189,595

Table 2. Estimated loss of CPO revenue for different areas if completely defoliated by Sexava, based on the data from Trial 204 (CPO = US\$1150/t, US\$ = K2.57, 5th Dec 2010)

For the whole of the area, including Trial 204, it is assumed that about 800 ha of palms were defoliated between 2000 and 2005 (recorded as 833 ha to be controlled) the estimated loss in CPO revenue would have been just over US\$ 14,000,000 based on current CPO prices.

The data does not take into account the loss in other palm oil products such as Palm Kernel Oil (PKO).

These data show that it is imperative to ensure that control of Sexava is done in a timely and correct manner.

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