



# The **OPRA** Active Word

Technical Note 4  
September 2004

## RECOMMENDED PRACTICE FOR THE SURVEY AND SANITATION OF *GANODERMA* INFECTION IN OIL PALM PLANTATIONS

Dr. Carmel Pilotti

Where *Ganoderma boninense* has been detected, the following procedures should be followed in order to keep disease incidence at a manageable level. It is recommended that all palms be surveyed from 6-years after planting.

### SURVEYS

#### Timing

Surveys should be carried out on a 6-monthly basis, the first beginning in January and the second beginning in July. This is to prevent a build-up of spores in the planted blocks. More frequent surveys (monthly or quarterly) should be carried out for smaller areas and smallholders

Recommended schedule of operations for the control of *Ganoderma*

January	February	March	April
Start Survey 1	Survey 1 continues. Sanitation starts	Survey 1 continues. Sanitation team continues	Survey 1 ends. Sanitation team continues
May	June	July	August
Sanitation ends		Start Survey 2	Survey 2 continues. Sanitation team starts
September	October	November	December
Survey 2 continues. Sanitation team continues	Survey 2 ends. Sanitation team continues	Sanitation ends	

Note: Schedule can be adjusted depending on the area to be surveyed

A recommended survey schedule is shown above. Sanitation must be completed before the next survey.

#### Survey Procedure

Surveys should be carried out using a standardised form. Examples are attached

Survey teams should comprise of at least three trained personnel who are capable of identifying *G. boninense* and symptoms of *Ganoderma* stem rot. The number of teams will depend on the area to be covered. The aim should be to complete a minimum of twenty hectares per day/person.

Each person in the team should select two rows of palms and working in one direction move from palm to palm. Each palm should be completely circled to detect brackets of *Ganoderma*. The address or location of the palm should be recorded as well as its status e.g. brackets, suspect etc. (see attachments).

Survey personnel should carry paint to mark each diseased palm as it is identified. An 'X' should be used for palms with brackets and an 'O' should be used for suspect palms.

#### Data Collation

Once the survey has been completed for each block, the survey forms should be handed in to a central office for entry into a database.

Where GPS is also used for mapping purposes, completed survey forms should be handed in to the GPS supervisor who will organize for the infected-palm coordinates to be obtained.

Once the survey data has been entered into the database, the forms should be passed on to the sanitation team to begin palm removals. Alter-

natively, computer-generated lists could be distributed to the sanitation team(s).

A flow chart of the procedure is shown in Fig 1.

### SANITATION OF DISEASED PALMS

#### Equipment

Sanitation team(s) should comprise a minimum of three personnel.

Minimum tool requirements are one spade, two chisels, one axe, one machete and one wheelbarrow.

#### Sanitation Procedure

The area surrounding the base of the palm should be dug out to a depth of about 20cm to expose the roots. Chisels or an axe should then be used to cut away the roots in the direction of felling (*into the frond pile*). Back cutting using the chisels or axe should then fell the palm.

Once the palm has been felled, all fronds should be cut off and stacked in the frond pile. The area of rot should then be cut away using a chisel, axe or chainsaw. All diseased portions of the trunk should be cut away until no more decayed tissue is visible. A further 5-10cm of wood should be chipped away to ensure that all the *Ganoderma* is removed.

If a chainsaw is used, cross-sectional cuts should be made every metre, starting at the base until only sound (*non-decayed*) wood tissue is exposed.

If a chainsaw is not used, the decayed tissue should be chiseled away until only sound tissue is exposed.

Chipped portions of diseased tissue (< 5 cm<sup>3</sup>) and small pieces of roots should be spread out near the frond pile to dry out. Larger portions cut with a chainsaw should be removed to the roadside.

Any woody basal tissue remaining in the ground should be dug out to a depth of 10cm and either cut into smaller portions (< 5cm<sup>3</sup>) and left to dry or removed to the roadside. The excavation should then be completely covered with soil and cover crop planted.

#### REPLANT

Two years before replant, ALL suspect palms (*in addition to the bracket palms*) should be systematically removed using

the above procedures. This is to minimise inoculum levels in the newly planted areas. We assume that suspect palms also have *Ganoderma* and therefore are a source of inoculum during replant, especially if poisoned and left standing.

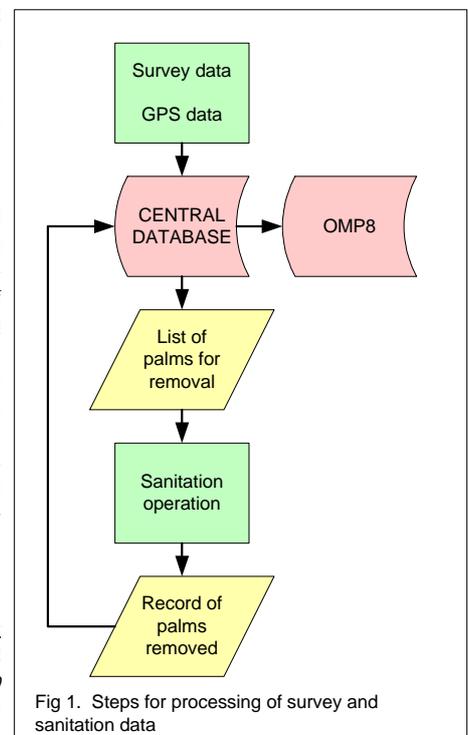


Fig 1. Steps for processing of survey and sanitation data

Example Ganoderma Survey Form 1.

Page No:	Surveyor:	Survey Date: ____/____/200__
----------	-----------	------------------------------

DIVISION:	BLOCK No.
-----------	-----------

Dir	Row	Palm Number																								Date Removed	Comments	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
E	1	V												B												____/____/200__		
W	2																										____/____/200__	
	3								S																		____/____/200__	
	4																										____/____/200__	
	5																										____/____/200__	
	6					V																					____/____/200__	
	7																										____/____/200__	
	8																										____/____/200__	
	9																										____/____/200__	
	10																										____/____/200__	
	11								S																		____/____/200__	
	12								S																		____/____/200__	
	13																										____/____/200__	
	14																										____/____/200__	
	15								B																		____/____/200__	
	16																										____/____/200__	
	17																										____/____/200__	
	18												B														____/____/200__	
	19																										____/____/200__	
	20																										____/____/200__	
	21																										____/____/200__	
	22																										____/____/200__	
	23																										____/____/200__	
	24																										____/____/200__	

S = Suspect  
D = Dead

B = Bracket  
V = Vacant

Total Palms Surveyed:  
Total Live Palms:  
Total Ganoderma Palms:

