

## What to consider when preparing for tropical cyclones

Bananas are very prone to wind damage and losses can be severe, even with low-category cyclones or severe thunderstorms. The likelihood of banana crop damage relates directly to wind strength, the wind resistance presented by a plant and the presence or absence of a bunch.

Pre-and-post-cyclone management options were investigated in 2011/12 in an industry project, particularly the effects of canopy removal of unbunched plants before the cyclone hits, and the impact of staggering the return to cropping on the subsequent fruit supply.



**Figure 1. Canopy removal reduces wind resistance and significantly reduces plant losses from 'roll outs'**

### Step 1 - looking at your blocks

The first step is to develop a clear idea of the stage of development of the blocks on the farm. How many blocks are plant crops, early ratoons or nurse-suckered, all of which will be more uniform than older ratoons. Of the more uniform blocks, identify those which are heavily bunched, those where the bulk of plants are close to bunching (within 4-6 weeks) and those which are about 2-3 months from bunching.

The uniform unbunched blocks offer the best opportunity to efficiently apply techniques like canopy removal rather than older ratoon blocks.

### Step 2 - deciding whether to remove canopy

The next step is to decide which blocks are most appropriate for treatments like canopy removal, which depends not only on the plant development stage but also the likely wind strength. With any cyclone the bunched and large unbunched banana plants are most at risk, so strategies to reduce the wind resistance of these plants can help reduce the damage.

Canopy removal of unbunched plants prior to the cyclone helps to reduce the incidence of plants rolling out and can provide early bunch production. However, removing the canopy has major impacts on yield and fruit length, with 35-50% reductions in bunch weight and 20-35% reductions in proportion of fruit in the extra large (220-260mm) fruit category. Reductions in fruit length were most pronounced in the plants closest to bunching (4-6 weeks) while the biggest reductions in bunch weight occurred for plants that were 6-8 weeks from bunching.

Therefore a fair degree of certainty of damage is needed before embarking on canopy removal on a large scale. For a low-category or physically small cyclone, often the decision to remove the canopy is best left to the latest practical time possible.

## Step 3 - how to cut if removing canopy

The manner in which the canopy is removed is also important. 'Full deleafing' where the stem was generally not cut, resulted in a stronger stem that was better able to support a subsequent bunch compared to plants that had been cut through well below the 'throat' of the plant. See figures 2 and 3.



Figure 2. Full deleafing to remove the leaf canopy provided a stronger stem to support the bunch



Figure 3. Removing the leaf canopy reduces wind resistance and fruit length and bunch weight

## Canopy removal results

Table 1. Bunch and plant characteristics for the canopy removal treatments

Treatment	Bunch characteristics					Plant characteristics		
	Bunch mass (kg)	% fruit 220-260mm length	% fruit 200-220mm length	% fruit <200mm length	No. of hands	Total no. leaves	No. leaves @ bunching	Days from bunch emergence to harvest
Canopy removal at 14-15 leaves	20	61.5	27.2	6.6	7	28.3	13.5	117.2
Canopy removal at 19-20 leaves	21.1	40.8	39.1	20.7	8.6	27.2	10.7	112.9
Canopy removal at 24-25 leaves	25.3	13.6	38.3	48.1	9.2	29.7	5.1	115.7
<b>No canopy removal</b>	<b>38.9</b>	<b>64.8</b>	<b>22.9</b>	<b>10.2</b>	<b>10.3</b>	<b>28.5</b>	<b>14.7</b>	<b>104.2</b>

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