

WHAT TO DO WITH *DURA* PLANTING MATERIAL

Every farmer needs to know what kind of palms he has in his plantation, so that he can make the right decisions about how to manage his plantations. Farmers that have *dura* and/or *pisifera* palms need to be aware of the problems that they could have in the future and think about possible solutions.

Having *dura* palms in a plantation is not good for the following reasons:

- The price that the mill pays for fresh fruit bunches is determined by the government and is based on the **oil produced from the fruits**.
- *Dura* bunches don't produce enough oil, so the price is actually **too high**, and the **mill will make a loss on these bunches**.
- Also, the thick shell of the *dura* is difficult to crack and can damage the machines in the mill.
- If the mill discovers that some bunches are *dura*, they can:
 - **refuse to buy the bunches**, or
 - **give a very large price deduction to compensate for the low oil concentration**.
- **In the future, mills might decide not to accept any bunches from the farmer, or they may ask for proof that there are only *tenera* bunches.**
- So, all farmers should know what kind of palms they have, and must be **prepared to take action**, to ensure they do not get in trouble with the mill.

Currently many mills in Indonesia do not check if the bunches are *dura* or *tenera*, or they give a small deduction only.

If a mill discovers the *dura* bunches and problems arise, there are several things the farmer can decide to do.

DEALING WITH *DURA* PALMS

Option 1: Cut down all palms and replant.

If farmers have more than 1 percent *dura* palms in their plantation, it means that their planting material did not come from an official company and is not of excellent quality. The yields will probably not be as good as with excellent planting materials. If farmers want to be sure that they can get maximum yields, they can decide completely to replant the fields that have *dura* palms.

Advantages

- If farmers buy good certified seeds or seedlings, they can be certain that they will have good palms and very likely also good yields in the coming 25 years.
- All the new palms will grow optimally because they are all planted at the same time.
- It is easier to cut down and replant everything in one go than to do it palm by palm.

Disadvantages

- It is expensive to replant everything.
- Productivity is lost for 3 years.
- The good *tenera* palms in the old plantation are also cut down.

Conclusion

In Indonesia, it is illegal to plant unofficial planting material. Therefore, it is recommended to replant all plantations that contain *dura* palms. But considering the costs, it is not always a good option for farmers to cut down all their palms, unless a problem with the mill is expected to occur soon. If there are many *dura* palms and the farmer can afford it and is willing to invest in best management in the new plantation, then cutting down all palms in the entire field (or in part of the field) and re-planting it with excellent material can be a good investment for the future. However, if there are only a few *dura* palms, then cutting down everything is probably too expensive for most farmers.

Cutting down all the palms is called 'early replanting' when the plantation is already old (more than 15–20 years after planting). This may be especially beneficial if the yield is already poor, or if many palms are affected by *Ganoderma*.

Option 2: Only cut down the *dura* and sterile palms and replace them with certified good-quality *tenera* palms.

Once all the palms in the plantation have been checked, the farmer knows which are good and which are bad. The bad palms can be cut down and/or poisoned, all together or in groups over a longer period of time. The trunks of the dead palms must be cut into small pieces to decompose, otherwise they become a breeding ground for the rhinoceros beetle (*Oryctes rhinoceros*), which will attack the newly planted palms. A legume cover crop, such as *mucuna*, should be sown immediately after cutting, to improve soil fertility and cover the rotting wood. As soon as the legume cover crop has a good canopy (usually after 3 months), a new seedling can be planted in the hole where the previous palm was.

Note: If it is suspected that the palm was suffering from *Ganoderma* (stem rot), then:

- It is best to wait one year between cutting down the palm and replanting.
- **The new seedling should be planted at least 2 m from the old palm planting point.**
- The bole (i.e. the densest part of the roots; directly under and around the trunk) of the old palm should be dug up from the ground and spread in the inter-row.
- See **Module 5** for more information on *Ganoderma*.

Advantages

- After 3–4 years, all palms in the plantation will be *tenera*.

- It is not necessary to cut down all the palms.
- Cutting down and replanting can be done in steps, as fast or slow as suits the farmer.
- The farmer can continue to harvest the standing palms normally.

Disadvantages

- Part of the yield is lost for 3–4 years.
- The newly planted seedlings will get less sunlight and will grow slower, so their yield will not be optimum in the first 10 years.
- There is a risk for infection with *Ganoderma* when planting in the same spot, and rhinoceros beetle because of the rotting wood of the old palms lying around in the plantation.
- The *tenera* palms that are left in the field are not from the best origin (otherwise there would not have been and *dura* or *pisifera*)
- It is labour-intensive to replant palm by palm.

Conclusion

For farmers that cannot cut down all the palms or that have only a few 'bad' palms, this approach may be useful. It is especially useful when palms are still young (less than 6 years from planting), because the shading of new seedlings is less.



The palm on the right was planted later, to fill an empty spot.

Option 3. Cut down the *dura* and sterile palms and replace them with another crop.

It may be that certified seedlings are not available, or the price of the oil is not good. In this case, it is possible to cut down the *dura* and the sterile palms and plant another crop instead. It must be kept in mind, however, that the other crop **should not grow taller than the oil palm**, because then it will reduce the oil palm yield due to shading.

Advantages

- The remaining oil palms will be *tenera* and can be harvested normally.
- The yield of the remaining palms will increase, because they are no longer shaded by their neighbours.
- Farmers 'spread risks' by producing several different crops.
- There is no risk for oil palm diseases, like in option 2.

Disadvantages

- If oil palm is the most profitable crop, then some of the profit will be lost.
- The new crop can only be planted in the small patches where the old palms were.
- The new crop will be quite shaded and should be shade-tolerant.
- New crops will compete with the oil palm for water and nutrients.
- Management becomes more difficult and labour-intensive because there are different crops in the same field.
- Falling oil palm bunches (during harvesting) may cause damage to the new crop.

Conclusion

Whether or not this option is attractive depends on whether there is a shade-tolerant crop available that is (nearly) as profitable as oil palm. Planting another crop can be especially attractive in older plantations (more than 10 years from planting) because the shading will make the planting of young oil palms less profitable. This option can be combined with accelerated replanting five to ten years later.



Banana planted in an empty spot in an oil palm plantation.

Option 4. Leave all the palms but apply fertilisers to the *tenera* palms only.

If cutting down palms is not possible or desirable, it can also be decided to leave all the palms, but to apply fertilisers only to the good *tenera* palms. There are two options: to harvest and sell the *dura* bunches separately (for a lower price) or mixed with the *tenera* bunches. If the mill discovers the *dura* bunches, then the price for all the bunches may drop, or it may become necessary to harvest and sell separately.

Advantages:

- No palms need to be cut down.
- The *dura* palms keep producing, and as long as the mill does not check, the bunches can be sold (though farmers should keep in mind that this is illegal, disadvantageous for the mill, and it may also cause serious problems for the farmer in the future).
- Less fertilisers are used because they are applied only to the *tenera* palms.

Disadvantages:

- It is not legal to keep the *dura* palms.
- The problem of the *dura* and sterile palms is not solved.
- The farmer may get problems with the mill in the future, if the *dura* bunches are discovered.
- The *dura* and sterile palms compete with the *tenera* palms for sunlight, reducing their productivity.
- The *dura* and sterile palms will take up a share of the fertilisers that were meant for the *tenera* palms, because their roots can be up to 6 m long, so there will be

fewer nutrients available for the *tenera* palms. This might need to be compensated by adding more fertilisers, so then the benefit of a reduction in fertiliser use is limited.

Conclusion:

This option is simple, but it also has several serious disadvantages. It makes most sense in old plantations (more than 15 years after planting) where other options are not attractive. It can be combined with accelerated replanting after saving for a few years. This option may also be useful to prepare for other options, so that fertilisers are not wasted. **Note:** for long-term management of young plantations, this option is not a good one.

Option 5. Leave all the palms and continue to manage them as if they were all good palms.

If the management is already not very intensive, and cutting down palms is not possible or desirable, it can be decided to leave all the palms and just manage them as if they were all the same. There are two options: to harvest and sell the *dura* bunches separately (for a lower price), or mixed with the *tenera* bunches. If the mill discovers the *dura* bunches, then the price for all the bunches may drop, or it may become necessary to harvest and sell separately.

Advantages:

- It is easy, management can just continue 'as usual'.
- On the short term, the *dura* palms will keep providing bunches and income, as long as the mill does not check.

Disadvantages:

- It is illegal to keep the *dura* palms.
- The problem with the *dura* and sterile palms is not solved.
- The farmer may get problems with the mill in the future, if the *dura* bunches are discovered.
- Fertilisers may be wasted on sterile palms that do not give any fresh fruit bunches.
- The *dura* and sterile palms compete with the *tenera* palms for sunlight.
- If the *dura* bunches are sold separately, they will get a lower price, and investments in fertilisers may not be earned back

Conclusion:

This option is not really a solution, and is only financially attractive if the mill does not separate *dura* and *tenera* bunches. This option may be useful in old plantations (more than 15 years after planting) that can be replanted soon. In practice, as long as the *dura* bunches can be sold to the mill as if they are *tenera* or with a small deduction only, most farmers are likely to select this option for their management.