NFA
National Forestry Authority

SPGS
SAWLOG PRODUCTION GRANT SCHEME

PLANTATION GUIDELINES
NO. 21. SEPT 2005

MANAGING *EUCALYPTUS* COPPICE

What is coppicing?

Eucalypts and some other species have the ability to regrow from cut stumps (referred to as ratooning with some agricultural crops). The regrowth from the stump is called coppice. Coppicing is the practice of selecting certain stems and the removal of others from this regrowth.

Coppicing allows the grower to be able to have a second crop without replanting – provided the first was established well and there are enough stumps that have regrown. Plantations that have been severely stressed will not coppice well and should be replanted after harvest.

Healthy coppice regrowth from a young Eucalyptus grandis *stump.*

The cut stump is often termed a 'stool'. There appears to be a belief in Uganda that the more stems left to grow on the coppice stool, the better the yield will be. If one wants lots of small sticks this could be true but to obtain better yields of larger sized fuelwood and poles, these multiple shoots must be thinned out in stages, which is the topic of this guideline.

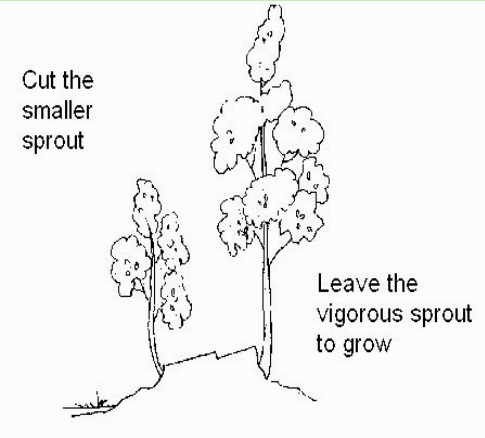
Only plantations that have not been thinned can be coppiced so that there are enough strong stools to regrow. Hence only stands grown for fuelwood and poles can be coppiced.

Eucalyptus plantations that have been grown for good quality, high value timber will have to be replanted each time as they will have been periodically thinned throughout the rotation.

Why is coppicing done?

The cut stump (especially *Eucalyptus grandis*) will normally put out many new shoots within a few weeks of being cut. If all of these shoots are left to grow, the stool develops into a bush crowded with multiple shoots. These shoots compete with each other and they struggle to obtain a secure hold on the stool. The result is a bush with thin, crooked stems that ate likely to get blown over in a strong wind.

So we need to choose specific stems according to their size and position on the stool and the rest are removed. This allows the remaining shoots to grow well and with a good form, giving the best yield of larger fuel wood and poles. The aim of coppicing is to do coppice reduction in two stages so that we keep selecting the better shoots and in the end remain with a stocking (plant density) the same as the original planting.



Because not all stumps sprout some stools will be left with two shoots but many will be reduced to one.

How is coppicing done?

There are two main phases of the coppicing operation. The first is before the stand has even been cut and the second once the stool has regrown.

1st Phase

The first part of coppicing is to take care when harvesting the original stand. Several points to consider when harvesting are:

1. Felling should be done with a bow or power saw. Felling with an axe damages the bark where the coppice shoots from.
2. Felling should be done in blocks so that the coppices all shoot at the same stage. Felling at random results in some stumps coppicing under shade and not developing and also when the other trees are felled they damage the coppice.
3. The felling cut should be done at around 10cm above the ground. It should be level and clean.
4. The stumps should not be covered with branches or other debris.
5. Care should be taken not to damage the stumps by driving over them or knocking them with poles.
6. As always, tools should be sharp and correct for the task.

2nd Phase

Coppice buds appear a short while after felling. They form on the cambium between the wood and the bark. At this stage it is important to count and see how many stumps are coppicing.

There are factors that could cause a low coppicing percentage, (weather, species and harvesting practices are a few). In these cases replanting should be done.

Damage when harvesting like this will result in poor (or no) coppice regrowth.

The decision to replant needs to be made early on so as to be able to replant during the next planting season.

A guide is that if less than 75% of the stumps coppice, replanting should be seriously considered. When coppicing take the following points into consideration:

1. Coppice reduction should be carried out in a 2 stage operation.
2. The 1st reduction should be carried out when the dominant shoot height is 3 to 4m.
3. 2 to 3 stems should be retained per stool at the 1st reduction.
4. The selected stems should be dominant, reasonably straight, firmly attached (preferably from low down on the stool) and well spaced out around the stool. This reduces the likelihood of a strong wind breaking off all the stems on any one stool.
5. The unwanted stems and other regrowth from around the stool must be cut as close to the stool as possible without damaging the selected stems.
6. The 2nd reduction should be carried out when the dominant shoot height is 7 to 8m.
7. At the 2nd reduction 2 or 3 stems (only if there are 2 or 3 strong stems) should be left along the edge of a stand (along roads and fire breaks). These stools receive more light and water than those inside the plantation and can thus support more stems.
8. At the 2nd reduction 2 stems should generally be left inside the stand only on large stools adjacent to gaps or dead stumps. This is to maintain the stand at the original stems per hectare. The stems should also be similar in height so that the stand is uniform.
9. Both the 1st and 2nd reduction operations create a lot of trash, which soon constitutes are considerable fire hazard.

Three strong stems have been selected on this coppice stool. They might be reduced to one or all left to grow, depending on the required stocking of the stand (total stems per hectare).

Hence it is advised that the trash must be stacked tightly in every 5th row, with gaps 5m wide to allow access every 25m. Also no trash or trash line should come closer than 5m to the edge of the stand.

Please remember though when selecting the coppice shoots ensure that the best shoots (equal size, spacing on stool, attachment to stool) are left. Do not be tempted to remove the ones that you will find a use for or can sell and leave poor stems for your final crop.

Coppicing should not be done for more than one rotation. The stump mortality after that is often high and so many shoots have to be left on each stool to compensate. This results in the size and form of the shoots being poor.

If less than 75% of stumps produce healthy coppice, replanting should generally be undertaken.

Can I Coppice Old Eucalyptus Stumps?

Very old and large *Eucalyptus* stumps (like those in the photo right) will not produce good coppice regrowth – whether for poles, fuelwood or timber. The shoots will be have poor form, be weak and liable to be break off in strong winds. It is thus recommended to replant such areas using improved *Eucalyptus* seed. For further details on growing Eucalypts refer Plantation Guidelines No. 9 – *Growing Eucalypts for Fuelwood and Small Poles* and No. 10 - *Growing Eucalypts for Timber and Large Poles* (both available from the NFA and the SPGS offices).

How Can I Kill the Old Stumps?

With difficulty! The cheapest method is usually to cut them low with a chainsaw and then to repeatedly cut the regrowth until it weakens. If the area has been planted round the old stumps, they will soon lose vigour as they are increasingly shaded out by the new crop. In some countries selective herbicides are used but until these have been assessed for cost-effectiveness and safety, we would recommend the manual method in Uganda.

Old* Eucalyptus *stumps like this will not produce good quality coppice regrowth. Rather start again using seedlings raised from the improved seed now available in Uganda.

Well managed 1st coppice rotation of* E. grandis *grown for fuelwood at James Finlays (U) Ltd's Mwenge tea estate in Western Uganda (2 yrs old). Double stems have only been left to compensate for gaps.

This is one of a series of brief Plantation Guidelines being published by the NFA and the SPGS, Other topics covered include Growing Eucalypts for Timber & Large Poles; Sawlog Scheme Guidelines; Growing Pines for Timber; Eucalyptus Coppice Management; Growing Musizi; Safe Use of Glyphosate Herbicide; Species Choice in Uganda. Contact: NFA Head Office, 10-12 Spring Road, Nakawa, Kampala, Email info@nfa.org.ug; Tel: 031 264 035/6; spgs@nfa.org.ug