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# GUIDE TO OIL PALM OUTPLANTING & MAINTENANCE

PEOPLE, RULES, AND ORGANIZATIONS SUPPORTING  
THE PROTECTION OF ECOSYSTEM RESOURCES  
(PROSPER) PROJECT

AUGUST 2015

This publication was produced for review by the United States Agency for International Development. It was prepared by Tetra Tech ARD.

This report was prepared for the United States Agency for International Development, Contract No. AID-669-C-12-00004, People, Rules, and Organizations Supporting the Protection of Ecosystem Resources (PROSPER) Project.

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## **DISCLAIMER**

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# INTRODUCTION

This publication is a follow-on to the publication entitled Simplified guide to oil palm nursery and management. It provides the necessary steps that involve the transfer of oil palm seedlings from the main nursery into the field where it will be permanently stationed to go through the process of maintenance until it gets ready for fruiting, harvesting and throughout the life span of the trees.

It is important that the process of out-planting is carefully carried out to ensure that the field is well laid-out to accommodate the seedlings in a manner that will promote proper growth to reduce competition and increase the rate of production. The following steps are expected to be systematically carried out by the farmer in order to maintain maximum output from the farm.

# 1.0 LAND PREPARATION

Land preparation for oil palm cultivation involves the clearing of a young secondary bush by cutting down all the trees. An overgrown old upland rice farm spot bush or an old upland rice farm spot where the rice has been recently harvested can be used as well. It can also be the removal or cutting down of old tenera (makindo or Palm Bay) trees in order to plant new variety.

After the brushing of the bush, the trees are cut down and allowed to dry and burn. However, in the case of the old up-land rice farm where the trees had previously been cut down and the litters are considerably reduced, it does not necessarily need burning. The litters can remain to serve as mulch so that the soil will not be completely bare, but if the land is burned it will be necessary to plant cover crops to protect the soil against the sun and erosion.

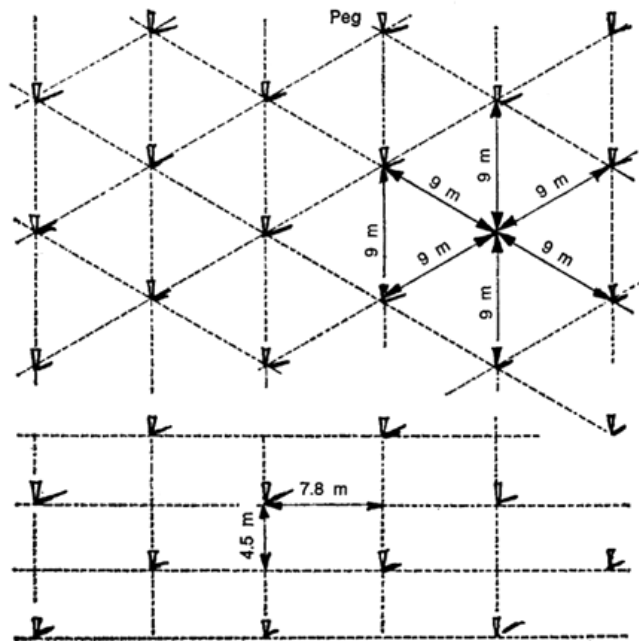
Note: It is important that the cutting down of primary forest for the cultivation of oil palm is not a healthy thing to do because it destroys many plants and animal species (biodiversity).

## 2.0 FIELD LAYOUT

The first step in the process of laying an oil palm field out is to gather wooden pegs that will be used to peg out the farm land carefully before out-planting of seedlings are carried out. The purpose of pegging out the field is to make sure that you have the correct distances between your seedlings when planted out. It is also important that you have the correct density of palms on your land. This is because to get a good yield, you must plant the correct density of palms on your land. If the density of palm is less, you will not get the right yield, and if the density is high the competition will increase for the space for the plants, as the roots will entangle thereby, the yield will be low because the leaves will not have enough air and sun light.

Oil palm field has to be layout and planted in a triangular pattern in order for the trees to minimize light competition between the palms. The layout should also be done across the slope of the farm land.

The diagram below shows a triangular pattern of planting oil palm in the field. The recommended planting distance culled from the FAO modern oil palm cultivation (1990) is 9 M between the pegs which is eventually the distance between the palms on the field and 7.8M between the rows. Therefore, approximately 60 palms to an acre which works out to be 150 palms per Hectare.



**Planting pattern for a plantation (culled from FAO guide to oil palm management)**

Make sure that you count the number of pegs you have pegged in the field so that you will dig the holes according to the number of palm seedlings you have at your nursery.

# 3.0 DIGGING HOLES FOR THE SEEDLINGS

When the lining and pegging have been completed on the entire farm land, it is essential that you begin digging the holes to permanently host the seedlings. The digging of the holes should be done at the beginning of the rainy season preferably at the end of April through the end of May in Liberia so that when the seedlings are planted it will be well established during the entire rainy season. One of the instruments that are popularly used by smallholder farmers for digging is the pick-axe; it has a metal edge with a long wooden handle. Dig the hole at each point where the peg is planted as explained under lining and pegging which indicate the reference point of the distances between the seedlings that is to be planted. The diameter and depth of the hole can be about 1½ and 2 feet, respectively. While digging the hole, gradually remove the top soil after you have dug, of about 1 foot from the surface of the ground and heap it one side of the hole, and continue digging for the next one foot down the same hole and also heap the soil on another side of the hole. The two heaps of soil will be used during the time of out-planting. It would be a good practice to dig the holes one week before the out-planting, but the hole should not be opened for long, if not; the rain will wash the soil back into the holes.

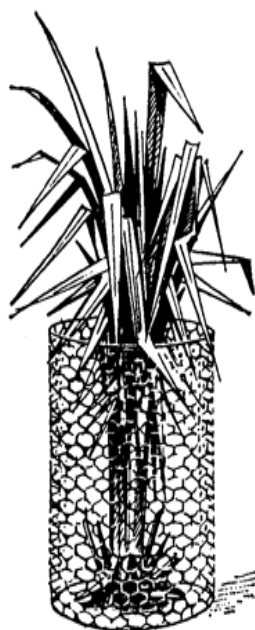


# 4.0 OUTPLANTING THE SEEDLINGS IN THE FIELD

Out-planting is the stage at which the palm seedlings are removed from the nursery and carried in the field and planted permanently. After the digging of the holes, healthy, well grown seedlings are selected and carried in the field and a seedling is placed by each hole. Do this exercise line by line to ensure that none of the holes that have been dug are left out.

At the time of planting, the top soil that was initially heaped on the side should be put in the hole first. Thereafter, slant the seedling that is in the nursery bag that contains the soil on it and cut or open the poly bag using a sharp knife or a razor blade at the bottom of the bag hosting the seedling. Hold the seedling on the side with one hand and put the other hand under it as you gradually descend it into the hole as it rest on top of the soil that was first put into the hole. Cut the poly bag vertically with the same sharp knife or razor blade that was previously used and remove the poly bag gradually from the hole. Add up the soil around the seedling with the soil that was removed from the second half of the hole until the hole around the seedling is completely filled.

## 5.0 FENCING EACH INDIVIDUAL OIL PALM

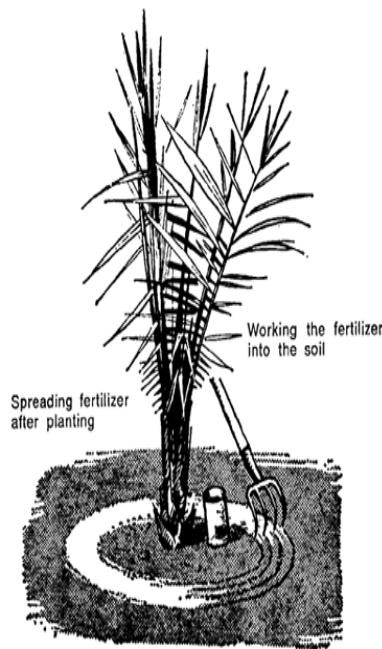


Wire netting in place

### IN THE FIELD

As shown in the diagram above, putting wire mesh around the seedling is necessary because it will prevent rodents (rats, grass cutter; commonly called in Liberia as ground hog, hedgehog (porcupine), pigs, etc. from destroying the seedling. However, other local materials can also be used for the fencing of the seedling by splitting the bamboo and making a fence around each seedling. Also, palm thatches or sticks can be used to make a fence around a palm seedling. It is important that you fence your newly planted oil palm because the new improved variety is expensive and needs the necessary care until it grows to maturity so that you can reap your investment. After fencing your palm, it will also be useful that you mulch around your seedling so that the mulch will prevent the soil from drying out, and will also suppress other weeds from growing and eventually reduce competition for nutrients.

# 6.0 RING WEEDING AND FERTILIZER APPLICATION



During the first year after planting, it is very important that the young palm trees are well maintained to ensure that it is firmly established. This period is very critical for the crop because at the young age, it can be prone to attack by insects, rodents, weeds, etc. Ring weeding is essential to reduce competition for nutrients from other plants, because at that stage of the growing period, the roots are relatively shallow, and if other growing weeds are not removed quickly, it will create competition for the available nutrient in the soil for the young palm. In order to do the ring weeding, you can use a cutlass or hoe to remove the weeds from around the young palm. Ring or circle weeding should be done immediately after transplanting, and the size of the ring around the palm should be 4-5 feet from the base of the transplanted palm tree.

Additionally, there is also the need to apply some amount of fertilizer after the ring weeding is done to boost the growth of the young oil palm. The application of the fertilizer should be preferably done at the end of the rainy season (mid-September to the end of October in Liberia). At this point, fertilizers to be applied include Ammonia sulphate and potassium chloride. The ammonium sulphate provides the nitrogen to the plant which is essential for chlorophyll (the green color in the plant leaf) which is very important for photosynthesis. The potassium maintains the water content within the plant cells making the cells to be full of water so that the plant will grow properly. See fertilizer application in the appendix.

# 7.0 FARM WEEDING AND INSPECTION

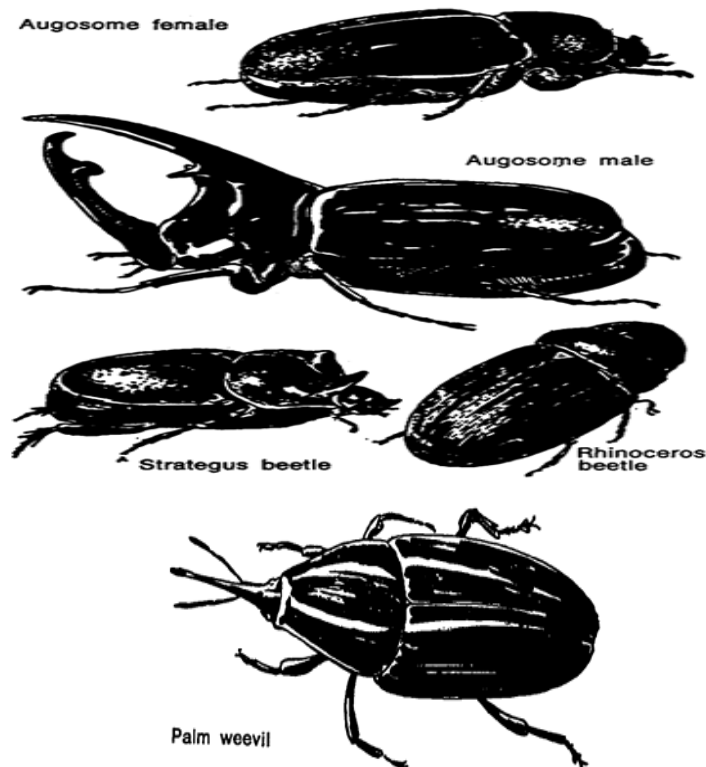
Farm weeding is the process of brushing and cleaning your farm to ensure that weeds are cleared from the farm. It is also known as farm sanitation. When you have a weed free farm, your palm will grow well because there will be no competition for nutrient from other plants. It also gives you the opportunity to freely walk in your farm and observe the condition and growth of your palms. Weed your farm 2-3 times a year depending on the growth of the weeds. During the weeding of your farm, remove all dried palm leaves from each of the palm and remove the ferns that may be growing in the axis of the palm as well. Use sharpened cutlass or an instrument to cut the dried palm leaves close to the stem of the palm.

**Caution: carefully cut the leaves and avoid to not deeply wounding the tree so that it will not be attacked by palm beetles and weevils.**

Frequently inspect the farm to ensure that your farm is well managed against the attack of insects and other destructive pests. Farm inspection allows you to closely monitor the growth of your palms as well.

# 8.0 COMMON OIL PALM INSECTS AND CONTROL

As shown in the photographs below, these are some of the well-known insects (beetles and weevils) that attack oil palm. These adult insects lay their eggs (250-500 eggs) on a wounded oil palm and the egg hatches into larvae that feed on the palm. The larvae are prolific feeders that destroy oil palm in a short period of time. Therefore, it is very important that the palm is not wounded.



These insects can be controlled by soaking saw dust in a solution of Cydim Super; an insecticide with an active ingredient of Cypermethrin & Dimethoate. Dilute 100 ml of Cydim Super into 1 gallon of water and soak as much saw dust. A hand full of the soaked saw dust is placed in the axil of the palm leave where an attacked has been observed. Store soaked saw dust in a poly-bag, tie and keep it on the farm. The odor or scent of the insecticide serves as a repellent to the beetles, weevils and other insects.

# APPENDIX

## FERTILIZER APPLICATION

(Culled from FAO Economic and Social Development series-The Oil Palm, 1990)

### Example: Ivory Coast

On plantations (per tree per year)

Age of oil palm	Savanna		Forest	
	Grammes	Fertilizer	Grammes	Fertilizer
Year of planting	500	Ammonium sulfate	250	Ammonium sulfate
	500	Potassium chloride	250	Potassium chloride
1 year	750	Ammonium sulfate	500	Ammonium sulfate
	750	Potassium chloride	300	Potassium chloride
2 years	750	Ammonium sulfate	750 to 1 500	Potassium chloride
	750	Potassium chloride		
3 and 4 years and afterwards	1 000 to 1 500	Potassium chloride	750 to 1 500	Potassium chloride

On natural palm groves (per tree per year):  
1 000 grammes of potassium chloride

### Example: Benin

On plantations (per tree per year)

Age of oil palm	Ammonium sulfate	Potassium chloride
	Grammes	Grammes
Year of planting	250	200
1 year	350	200
2 years	500	500
3 years	600	750
4 years	600	1 000

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