

## Neem and other local pest and disease control techniques NORTH BOMBALI (Sierra Leone)

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### Pest and disease problematic:

- Pest and disease infestation during cropping and/or during storage drastically reduce the quality and quantity of the harvested crops.
- For example when a vegetable plot is attacked, some farmers simply abandon it because they do not know what to do.
- Sella Limba farmers have some experience in preventing and controlling pests. They use “mechanical methods” or organic pesticides obtained from plants available within the communities.
- Chemical pesticides are effective against pests but are very expensive, not available locally, difficult to use safely and may have negative impact on environment and health.
- Some organic pesticides are proven to be effective. They are much more cost effective than chemical pesticide and can be made locally.

But a lot of farmers lack **knowledge on the preparation and application of organic pesticides** as they are not widely spread in the area.

#### Inter aide supports farmers to:

- Identify sustainable **pest control methods (local organic pesticides)**,
- Experiment and assess their effectiveness at small scale,
- Disseminate the effective methods with the support of the MAFFS.

Several local plants and other “mechanical” practices have been identified to prevent and control pest and disease infestations in Sella Limba. These techniques are the **effective in dry season** when pest and diseases damages are the most important.

Local names	Description	Pest	Associated constraint/advantage
<b>Neem Solution</b>	Soak leaves in water (see 2 <sup>nd</sup> page)	Locust/ Grasshoppers	Availability of Neem Trees
<b>Neem powder</b>	Collect and dry the leaves under shade. Pound it and put them in seeds' bags (groundnut, cowpea and pigeon pea)	Weevils in stored grains	
<b>Magbalagba seed (Limba)</b>	Collect ripe magbalagba fruits and remove the seeds. The magbalagba seeds are very poisonous. Grind the seeds and mix with dry fish and spread it for the put for the rats who will to eat and die.	Rats in stores	Seeds not available all year round
<b>Madathie fruit (Limba)</b>	Collect madathie fruits and dry. Burn the dry fruits at several locations within the plot. The burnt fruits' smell will drive insects away.	Insects	Fruits not always available Labour intensive as regular burning of fruits should be done
<b>Kuyandi stick (Limba)</b>	The kuyandi tree has a sweet taste which attracts termites to feed on. Cut sticks from the tree and erect in the termite infested area for the termites to feed on.	Termites	Labour intensive as several sticks should be placed in the plot
<b>Kuraseh</b>	Pound seeds and put the powder inside seeds' bags	To kill weevils and avoid other pests around seeds	Not very spread, only in some areas of Sella Limba
<b>Palm fruit chaff</b>	Collect the chaff from the palm fruits after extracting palm oil. Scatter the chaff in the IVS rice plot. The chaff will attract ants to feed on. The presence of the ants will drive away frogs and rats from the plot	Rats and toads in IVS rice	Labour intensive to scatter chaff within the plot. Access to large quantity of palm chaff to scatter all over the plot
<b>Flogging method:</b> Use sticks to hit the insects		Grasshoppers mainly	Labour intensive
<b>Crash and soak:</b> Pick the grasshoppers, crash it and soak in water, the smell of died insects will prevent the other to enter.		Grasshoppers	
<b>Brushing:</b> Brush the grass around the plots to avoid the concentration of insects.		All	Labour intensive.
<b>Mulching :</b> Using dry straws (rice) to put around the plant stems		Nematodes	Very effective to keep moisture around the plot during dry season
<b>Burning the area to farm before planting</b>		Nematodes	Especially effective for the small plots of vegetables in dry season

Organic measures to control pest and diseases should be used as a **set of practices** to be more effective. *For example the neem solution should be completed by the flogging method and the brushing of the surrounding area.*

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# An effective low cost pest control solution: the neem leaf extract

One of the most effective and impactful way to drive insects away in dry season tested for now is the neem leaf extract. It can also be used in rainy season, especially on nurseries.

Neem tree (*Azardicta Indica*) originated from South East Asia but is now widely spread in tropical Africa.

In Sella Limba and more generally in Sierra Leone, it is used traditionally to treat malaria and stomach pains but is less known for its insecticide or repellent properties for plants.



Ingredients needed to prepare neem solution		Preparation and application of the neem solution	
<p><i>All the ingredients of the solution have their own purpose:</i></p>  <p><b>Neem leaves</b> 5 full hands (Bitter taste)</p>		<p>1. Collect leaves from the neem tree and pound in a mortar</p>	
 <p><b>Garlic</b> 3 sub heads Strong smell Kills flees' worms</p>	<p><b>And Or</b></p>	<p><b>Kerosene</b> 1 tea spoon Kills flees' worms</p>	<p>2. Put the pounded leaves (fresh or dried under shade) in a container with the soap and soak in water for 1 night</p> 
<p><b>Soap</b> - 1 small plastic bag (100Leones) - Extracts the bitter components from the leaves</p>		<p><i>Taste the bitterness before continuing (if not bitter enough, add some leaves)</i></p>	
<p><i>Facultative in dry season but necessary in rainy season: a sticking component like arabic gum for the solution to stick longer on the leaves</i></p>		<p>3. Take off the leaves from the solution and add the kerosene or garlic just before applying (otherwise the useful volatile components will be lost before the application).</p> <p><i>No need to wait before application</i></p>	
		<p>4. <b>APPLICATION:</b> Use a broom (a sprinkler for large plots) to sprinkle the solution on the crops after watering and on the plot's boundaries</p>	

The bitterness of the neem tree is extracted from the leaves. Thanks to a maceration process, the neem extract obtained is sprinkled on the crops that the farmer wants to protect. When trying to eat the crops, the insects lick the neem solution and feel its bitter taste which makes them fly away.

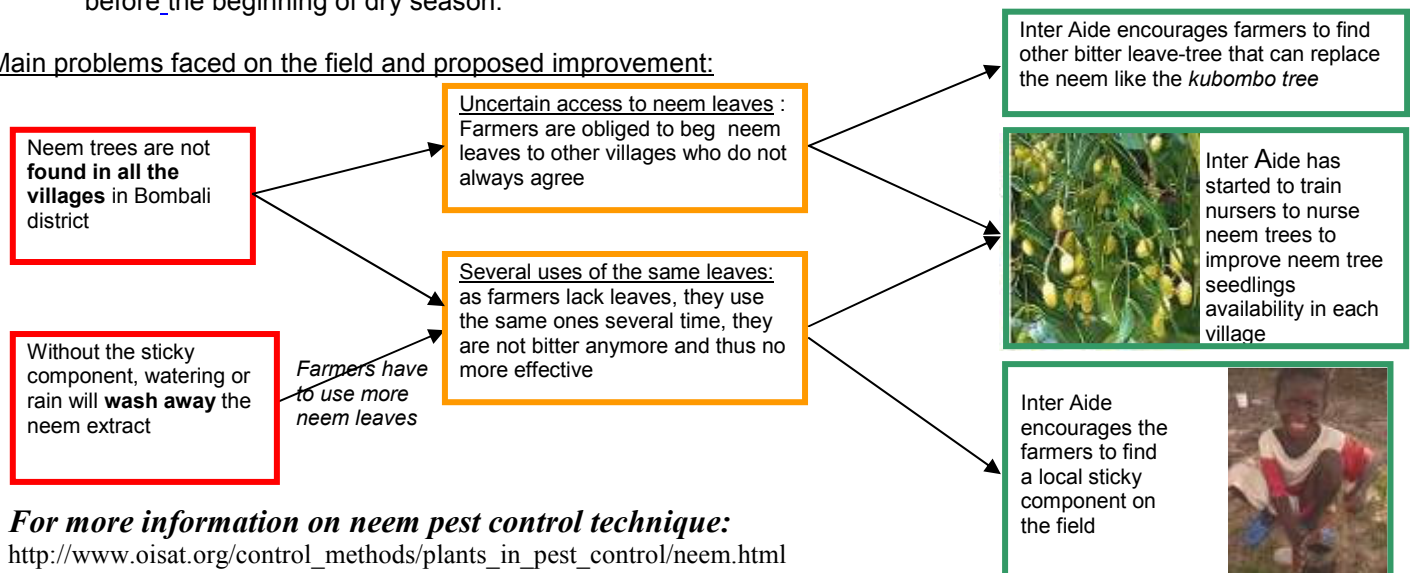
## Remarks on preparation/ application and use of the vegetables treated with neem solution:

- Dry leaves powder can be kept and used for some time for the next treatments.
- The solution doesn't get inside the leaves or fruits so after harvest **the edible parts should only be washed** properly to remove the bitterness.
- Neem solution is not only effective on onions but on all types of vegetables, cassava and sweet potatoes but also on nurseries at the beginning of the rainy season.

## Inter Aide's field experience on spreading the neem pest control technique:

1. A first batch of farmers was trained together with the MAFFS on onion cultivation and onions seedlings protection with neem to test the neem pest control technique.
2. When the result of this technique was confirmed by this first set of farmers, training was conducted at village level before the beginning of dry season.

## Main problems faced on the field and proposed improvement:



## For more information on neem pest control technique:

[http://www.oisat.org/control\\_methods/plants\\_in\\_pest\\_control/neem.html](http://www.oisat.org/control_methods/plants_in_pest_control/neem.html)  
<http://tcdc.undp.org/Sie/experiences/vol4/Neem%20biopesticides.pdf>