Food and Agriculture Organization of the United Nations

Enhancing climate resilience through cultivation of pomelo for forest enrichment, Philippines

Source	FAO, Strategic objective 5 - Resilience, in FAO
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Sustainable Development Goals	Climate action and life on land

Summary

The objective of forest enrichment through planting pomelo is to increase the density of tree species, enhance the environmental services and biodiversity and to increased resilience to drought, heavy rainfall and pests and diseases. Additionally it is an option that will generate additional household income.

Description

This practice was tested in the project "Enhanced Climate Change Adaptation Capacity of Communities in Contiguous Fragile Ecosystems in the Cordilleras" (2009 to 2011) between august 2010 and December 2011. Through active participation and involvement of local stakeholders and end-users in both training and field demonstration activities, the project identified forest enrichment as a location-specific and appropriate option for climate change. Pomelo (citrus maxima), Suha or Lukban is one of the most popular specie of the citrus family. It has a long shelf life that it can be transported to distant markets. The pomelo tree grows from 5 to 15 m in height and has low spreading branches with a canopy size ranging from 500 to 900 cm. Its leaves are ovate to oblong with leaf size ranging from 5 cm x 12 cm to 8 cm x 20 cm wide when fully expanded.

1. Implementation of the technology

Pomelo can adapt to a wide range of soil types, which are reasonably deep, well-drained and aerated with high moisture retention. The optimum pH range is from 5.5 to 6.5. Water logged soils, sticky heavy soils, wet soils and those underlain with hardpan should not be used. Pomelo grows in lowland tropics in elevation up to 400 m above sea level with optimum temperatures of 23 to 30 °C. The annual rainfall requirement is 1 500 to 1 800 mm.

1.1 Land preparation

Preparation of holes and planting: the planting should be started during rainy season. It is recommended to ensure a spacing of 10 m x 10 m. Dig a cubical hole measuring 50 cm. wide and 50 cm deep.

Then remove the plastic bag and plant the seedling into the prepared hole without breaking the ball of soil. Young plants should be planted during their dormant stage. Prune the roots to enhance root branching. Finally cover the hole with the soil-manure and press gently.

1.2 Maintenance

Spot clearing or weeding must be done quarterly in order to reduce competition

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and remove vines that could impede the growth of seedlings. Fertilizer application may be done one month after planting then four months thereafter using 14-14-14 NPK fertilizer. Pest and diseases incidences must be observed and regularly checked before they become uncontrollable.

2. Results and findings

Farmers were given seedlings which were raised and propagated in vacant woodlots, dried rice fields converted into fruit orchards, and along steep and highly erodible slopes of mountains.

2.1 Economic benefits, social and cultural acceptability and farmers feedback

Interview with the cooperators revealed that economic returns over-ride the significance of the agro-forestry and forest enrichment technology to mitigate the impact of climate change to the livelihood and immediate environment of the households.

The cooperators, however, are aware of the interrelatedness of the protecting the communal forest with their rice land and swiddens. The practice provided them the initiative to enhance existing practices of growing fruit trees on idle lands and sparked greater interest of the environmental services that they could have in the long run.

The cooperators are willing to invest on the seedlings and allocate time to protect their livelihood while at the same time attain some degree of assurance of stable income in the next 5 to 25 years.

Estimated additional income which can augment household needs range from PHP 1 200 to PHP 15 000, depending on the number of fruits propagated and land area. In the Philippines context the propagation of new variety of fruit trees spurred interest in the community anticipating long-term economic gains. Communal forest ownership remains to be strong and encourages greater participation.

Figure 1. Map of project sites. Red areas are high elevation, white areas are middle elevation and green areas are low elevation

3. Validation of the practice

The practice was tested in the municipality of Kiangan located in the province of Ifugao, Philippines during wet and dry season of 2010 and 2011.

This practice is highly recommended for up scaling with training and technical assistance from the Department of Agriculture and the Municipal Agricultural Office.

Agro-forestry and forest enrichment must be integrated with small-scale infrastructure support such as water impoundments and storage and soil enrichment. Support across the value chain should also be provided to the farmers.

4. Further reading

- Compendium of Good Practice Climate Change Adaptation Options in Agriculture. Published by the Philippines Department of Agriculture and Food and Agriculture Organization of the United Nations through the MDG-F 1656 Outcome 3.1 Project. June 2012
- MDG-F 1656 Outcome 3.1 Project Website: http://climatechange.da.gov.ph/

- See implementation documentation on Youtube: https://www.youtube.com/watch?v=3R-eN48QB2A&feature=context&context=C4f10f33ADvjVQa1PpcFMN5IOF2D8eBOiymgxcpjF5ne_aixO43HQ=

5. Agro-ecological zones

- Temperate, cool

6. Related/Associated Technologies

- 7701

6. Objectives fulfilled by the project

- Resource use efficiency