

Case Study: Fast Rice Straw Composting in Delta Myanmar

Background of AE supporting NGO(Gret) in Delta Myanmar

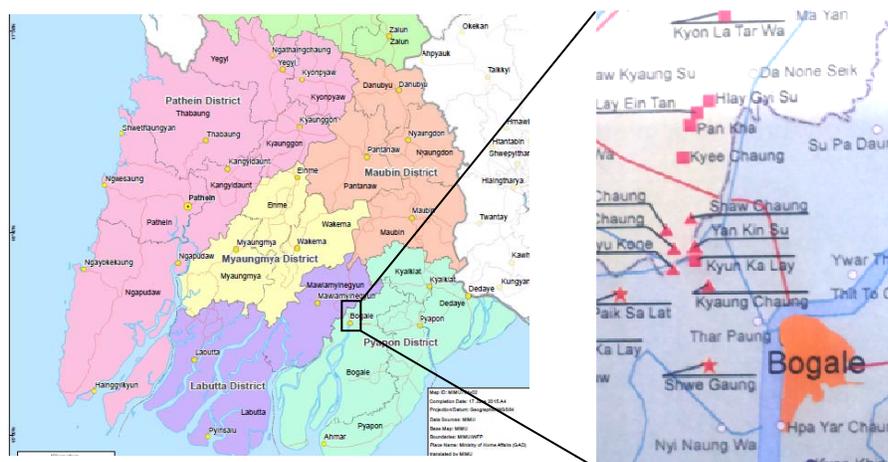
Since 2008 after cyclone Nargis hit Myanmar, Gret started working in Bogale and Mawlamyinegyun townships with project interventions involving from a post emergency to a long term development approach. With the current program with 4 projects called Delta RISE in partner with Welhungerhilfe, MyCulture in partnership with WorldFish, Promoting innovative irrigation techniques with the support of Foundation Louis Dreyfus and FIDEL, Gret is implementing rural development activities with 4 approaches one of which is the promotion of Agroecology for developing sustainable and safe production system.

Field visit date: **25th April 2016**

Observer: **Htet Kyu (facilitated by Gret Agronomists: U Kyaw Saing and Daw Yadana Win)**

Geographical Location : **(9° 38.135' N; 96° 36.886' E)**

Village profile: **Pan Kha village, Pyar Mut Shaw Chaung village tract, Mawlamyinegyun township
Total population of 282 with 89 HH that include 44 Farmer HH and 45 Landless HH
with a lowland paddy area of 257 acres.**



Farmer interviewed: **U Tin Cho, a paddy grower farmer, mobile: +95 9 3153 3277**

Land Holding: **8 Acre (Lowland Rice)**

Cropping: **Rice Double Cropping**

Rainy Season (3 acres of a little depression land = “Hnankar” Local Variety – 150d;
5 acres of a little elevated land = “Bay Kyar Yin” Local Variety – 145d)
Summer Season (8 acres of all land – “Thai Bay Kyar” High Yield variety - 110d)

His usual practice before was burning the remaining rice straw in the field after harvest to carry out the land preparation for the following monsoon season. By burning the rice straw in the field, they considered that the cycle of some rice diseases in the previous season can also be cut out. Although some farmers know that rice straw compost would be a very valuable organic fertilizer in their paddy cultivation, farmers in the area did not practice rice straw composting due to its long (5-6 months) time required for full decomposition. In fact the government (department of Agriculture) encourages the farmers to practice fast composting method using effective microorganisms (EM), but not all farmers can obtain the EM solution regularly. Therefore in 2015, Gret’s local agronomists introduced the local production of indigenous effective microorganisms called IEM from locally available materials as an alternative solution to most farmers for fast composting. After attending the Gret’s trainings, U Tin Cho started producing IMO solution

by himself and used them in composting the rice straw obtained from summer paddy after harvest in early 2015. Then he used the resulting compost both in nursery bed and in his cultivated fields. The following results were recorded by him.

2015 Rainy (Monsoon) Rice (transplanted: spacing 9"x9")

(1) Hnan Kar variety on a bit depressed lowland of 3 acre

Fertilizer rate(per acre): no fertilizer, no compost

Yield: 60 bsk per acre

Selling price: @4500 MMK per bsk

(2) Bay Kyar Yin variety (145d) on a little elevated lowland of 5 acre (transplanted: spacing 9" x 9")

Fertilizer rate(per acre): 320kg compost

Yield: 60 bsk/acre (*all rice plants lodged at harvest time due to heavier panicles but no yield loss*)

Selling price: @6800 MMK per bsk

Compared to usual practice of no chemical fertilizer with the yield of 45 bsk/acre

2016 Summer Rice

Thai Bay Kyar (110d) on all his 8 acres land (broadcast sowing: seeds 3bsk/acre)

Fertilizer rate(per acre): 400 kg compost + Urea 75kg + TSP 50kg + MOP 25kg

Yield: 120 bsk/acre (*all rice plants lodged at harvest time due to heavier panicles but no yield loss*)

Selling price: @5600 MMK per bsk

Compared to usual practice of Urea 125kg + TSP 50kg + MOP 25kg with the yield of 100 bsk/acre

He considered that rice lodging was due to too much compost rate he applied. Therefore he will reduce the rate in the next season. Presently there are another 10 farmers supported by Gret to multiply the practice.

Formulation of IEM

Recipe:

(1) Banana (1 viss) chopped into small slices

(2) Papaya (1 viss) chopped into small slices

(3) Pumpkin (1 viss) chopped into small slices

(4) 5 raw chicken eggs

(5) Jaggery solution by heating the water in a pot with 2 viss of jaggery

(the jaggery solution is cooled to a room temperature afterwards)

All the chopped fruits and raw eggs are put into a large container, and then mixed and kneaded by hands. Then they are mixed with jaggery solution. And the mixture is put into a big earthen pot (50 viss of water container) where water was prefilled to 2/3 of the total volume (30 litres) of the pot. Then the pot is covered with black cloth and kept in a shaded and cool place for 45 days. The pot is also shaken once every 7 days(weekly) regularly. After one and half month (45d), the concentrated IMO solution is obtained and ready to be used. Most of the solution is bottled and sold to other rice farmers at @1000 MMK/bottle. The validity of the solution produced is about 6 months.

Application method

For one compost heap of 6' x 4' x 3', one litre of concentrated IMO solution was mixed with 5 litre of ordinary water to get the diluted IMO solution. Then the diluted solution was sprinkled onto every layer of compost heap during the compost heap preparation. As one pot of solution is about 30 litres, the producer also sold the excess 25 litres to other farmers of interest @ 1000 MMK per litre.



Chopping the fruits into small slices



The chopped fruits were mixed with eggs and kneaded by hands.



They are mixed with jaggery solution.



The mixture is put into the earthen pot filled with water.



How it looks in the beginning of preparation.



The final product:- fermented IEM solution

Compost heap preparation

A cool and shaded place in the home compound is selected for composting. First a 6 inch layer of rice straw were evenly placed on a ground with a dimension of 6 feet x 4 feet. Then water was sprinkled all over the rice straw to soak them and fresh leaves of bamboo, banana, grass, and any kitchen waste like rotten fruits, peels of fruits and vegetable waste were put onto the layer. Then the diluted IMO solution was sprinkled on to the layer and another layer of rice straw was prepared the same until the heap becomes a height of 4 feet tall. Then the heap was covered with a large plastic sheet. After leaving the heap for one and half months, the plastic cover was removed and the heap was turn upside down. Then the heap was covered again with the same plastic sheet for another one month. Then the compost is ready to be used for paddy cultivation and home gardening.



8 feet x 5 feet x 3 feet (high) = ~ 1600 kg = 40 bags x 40 kg/bag compost



The final resulting matured compost