



Ready compost

Bangladesh - তৈরী জৈব সার

A combination of manure and chemical fertilizers through composting.

Ready Compost is a mixture of manure with chemical fertilizers, a harmless combination that provides an improved and rapid growth response to the horticultural crops.

It is a fact that chemical fertilizers are volatile and corrosive to the soil. Particularly urea- the biggest component of NPK fertilizer mixtures, adversely increases soil acidity. Again manure is a low nutrient containing organic fertilizer. Ready Compost is a mixture of non-harmful manure with corrosive NPK chemicals and its preparation process is as follows:

20 kgs of manure (of any origin), are mixed with 2 Kg Urea(N), 2 Kg TSP(P), 2 Kg MP(K) with sufficient water. The mixing procedure may follow cement-sand mixing procedure with gradual absorbent of water. As an immediate gas removal step- urea undergoes transformation within manure including its physical character, thereby getting safe availability of nitrogen for plant up-take through its neutral alteration. The mixture is kept at least for 48 hrs under a shade with a cover of sack. The ready compost can be applied in the field solely for mixing with additional organic manure on the standing horticultural crops. This compost can be used partially or wholly after 48 hours as per need. The Ready Compost of any amount can be prepared using 20 kg. organic manure: 2 Kg Urea: 2 Kg TSP: 2 Kg MP at 20:2:2:2 ratio.

left: Preparation of Ready Compost with manure mixed with NPK fertilizers at 20:2:2:2 ratio. (Francis Halder).

right: Transformation of mixture to Ready Compost after 48 hrs of preservation (Francis Halder).



Location: Village: Bhurvuria, Atia Union under Delduar Upazila of Tangail district, Bangladesh, AEZ - 9.

Technology area: 6 km²

Conservation measure(s): Agronomic

Land use type: Homestead land use

Stage of intervention: Reducing high soil acidity

Origin: Project support from Germany

Climate: Sub-humid, sub-tropical

BANCAT database reference: QT BAN-13

Related approach: QA BAN-10

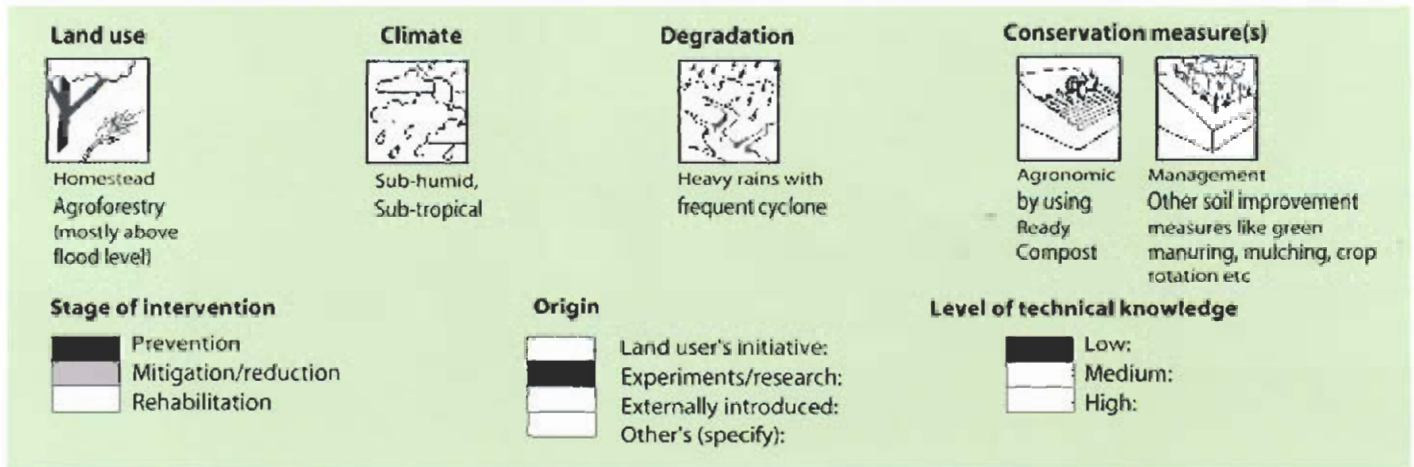
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Classification

Land use problems: Chemical fertilizers applied directly on soil, corrodes the soil, pollutes the water and air through release of gases like CH₄, NO₂, NO₃, etc. Simultaneously it burns the soil with its higher acidic by-products specially when applied with urea Co(NH₂)₂. Consequently it turns the top soil hard, gradually decreases the productivity of soil, and finally increases the gradual failure of crops.



Main causes of land degradation:

- Increasing acidity by using NPK only
- Direct application of NPK to the soil
- Low or no use of manure
- Uneven and intensive rainfall

Main technical functions:

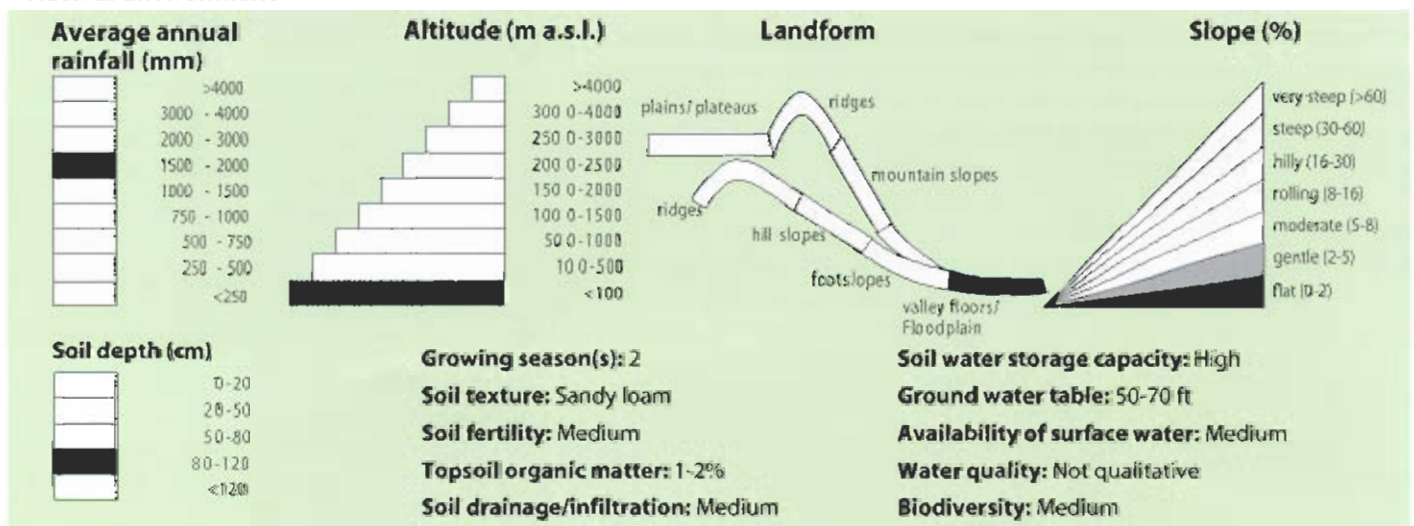
- Updating the formula of the mixture i.e. 20: 2: 2: 2
- Neutralizing the chemical fertilizer mixing proportionately with manure in due process
- Keeping the mixture more than 48 hours before application in the soil
- Neutralizing the soil acidity

Secondary technical functions:

- Maintaining organic matter content
- Increasing water holding capacity

Environment

Natural Environment



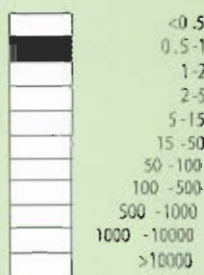
Tolerant of climatic extremes: It is very much tolerant as it neutralizes the soil as well as absorbs the gaseous emission of urea

Sensitive to climatic extremes: Not at all sensitive except to excessive continuous rains

If sensitive, what modifications were made / are possible: Drainage etc

Human environment

(*Type of) land per household (ha)



Land user: Homestead farmers both women & men

Population density: 850/ sq. kilometer

Annual population growth: 2.1%

Land ownership: Individual, titled

Land/water use rights: Open access(organized)

Relative level of wealth: Private ownership of homestead.

Importance of off-farm income: 50-60% family to depend as farm activities.

Access to service and infrastructure: Gradual urbanization with improved infrastructure. So, 5-7 person/ village are entering to service.

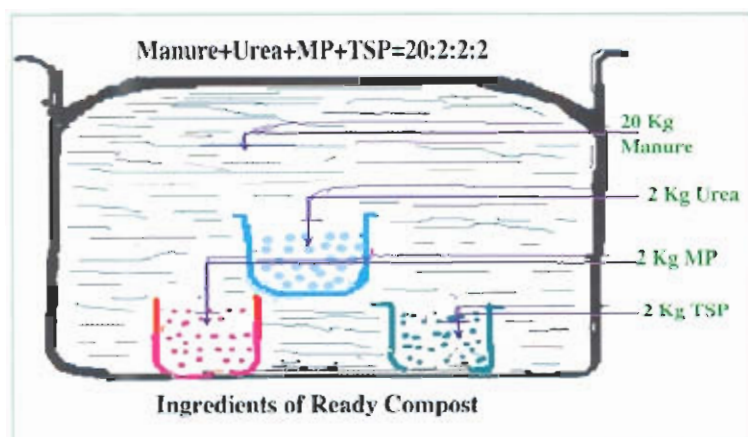
Market orientation: Village market including middle men's frequent visit to village for purchasing goods.

Mechanization: Traditional tillage is replaced by power tiller and improved equipments etc.

Livestock grazing on cropland: This is now gradually restricted for the interest of saving valuable crops.

Livestock density 20-30% families own livestock; a reducing trend.

Types of other land: Homestead farmers use the adjacent high value horticultural crops instead of cereal crops.



Technical drawing: Ready Compost (Francis Halder).

Implementation activities, inputs and costs

Establishment activities

1. Construction of manure shed
2. Agro-implements
3. Ingredients for Ready Compost

Establishment inputs and costs per ha

Inputs	Costs (US\$ or local currency)	% met by land user
Labour (5- person days)	57	100%
Equipment		
Spade, polyethylene, sack, jerricane, concrete pole -4, tin- 4 pcs, cement-2 bags, brick 300 pcs, sand 6 bags etc	90	100%
Materials		
Agricultural		
-		
TOTAL	147	100%

Maintenance/ recurrent activities

1. Mixing fertilizer for ready compost
2. Keeping it for 48 hours
3. Application at basal dose

Maintenance/recurrent inputs and costs per ha per year

Inputs	Costs (US\$ or local currency)	% met by land user
Labour (5-person days) for 3 days	45	100%
Equipment		
- As shown in establishment cost	--	%
Materials		
- Manure: N: P: K	37	100%
Agricultural		
-	82	100%
TOTAL	164	100%

Assessment

Impacts of the Technology

Production and socio-economic benefits

+ + + Needed low dose of harmless fertilizer for optimum action

+ + Healthier fruits and vegetables with low input cost

+ + + Farm income increases

Socio-cultural benefits

+ + + More community acceptance

+ + + Maximum growth of crops

Ecological benefits

+ + + Reduced soil acidity as well as minimize volatile gas release in the atmosphere

+ + Less chance of crop injury or physical injury

+ + + Good taste of fruits & vegetables

Off-site benefits

None

Production and socio-economic disadvantages

- For result-demonstration, it needed to set demonstration locally.

Socio-cultural disadvantages

None

Ecological disadvantages

None

Off-site disadvantages

None

Contribution to human well-being/livelihoods

+ + + Gradual improvement of soil with profitable production

Benefits/costs according to land user

Benefits compared with costs	short-term:	Long-term:
Establishment	Positive	Very positive
Maintenance/recurrent	Positive	Positive

Comment: It would reduce input cost, simultaneously enhance safe soil and human health.

Acceptance/adoption:

Motivated homestead land users are obliged to replicate the ready compost technology among their fellow community people as the technology reduces input cost with good soil health. Furthermore, ready compost is very less harmful with regard to ecological disruption.

Concluding statements

Strengths and → how to sustain/improve

Technology is simple, applicable and its impact is easily understood among the community → Community approach to diffusion of technology

Both women and men's participation and employment are ensured round the year → Gender equity may be maintained

Excess dose of urea does not affect composting.. → Reduce over dose to minimise cost.

Cost effective → Save cost using reduced dose of fertilizer using Ready Compost

Minimum investment in infrastructure → Community participation will reduce the investment cost

Weaknesses and → how to overcome

Updating of formula as well as managing all ingredients in time → The formulation needs to be demonstrated in front of the homestead land users' door in pictorial form for recollection & frequent use.

All homestead land users using the compost technology are not literate → So leaflets are to be distributed to the literate neighbours in local language for further use

Diffusion of the technology is time consuming. → Strong extension and motivation are a felt-need.

Temptation from the chemical fertilizer dealer could be a trap → Strong awareness and motivation against chemicals will be needed

Additional space for compost technology may not be available at all households → Community approach would overcome this weakness

Key reference(s):

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