

RATIONALE

Conversion and utilization of farm wastes into another farm by products like animal feed and organic fertilizer: are the key for a successful organic farming. A friendly environmental technology like vermiculture and vermicomposting is recommended.

WHAT IS VERMICULTURE AND VERMICOMPOSTING?

Vermiculture is the production of earthworms as feed either. Fresh or processed (vermimeal) while quality organic fertilizer is thru vermicomposting. The earthworms being utilized are the African night crawler (*Eudrilus euginae*). They mate once a week and produced 3-5 eggs/capsule which hatch in 2 to 5 weeks and sexually matured in six months. Earthworms are hermaphrodite with 2 pair of testes and 1 pair of ovaries. The number of hearts and length are 3-5 and 5-12 inches long, respectively.

Earthworms are housed in rectangular frame box with plastic sheet as floor and cover in shady place. The substrate (feed) under-goes anaerobic (1 month or more) and aerobic (2 - 3 months) decomposition. Harvesting of the earthworms and vermicompost depend on the needed size/weight and appearance of black granules at the top of the mound, respectively. It is recommended to withdraw the watering a week before scheduled harvesting and re-stocking of the earthworms to the available substrate. Air drying of the vermicompost is at 30% moisture. It is the recommended substrate for earthworm production.

Substrate (feed) combination of cocodust/sawdust (75%) and ipil-ipil/kakawate leaves (25%) is best for earthworms' production. The production ranged from 1,540 to 4,514 earthworms depending on the number and age of earthworms stocked and amount of feed. Earthworms must see each other for possible mating, once a week, old

ALL ABOUT VERMICULTURE AND VERMICOMPOSTING

Earthworms laid more eggs compared to newly sexually matured one and earthworms eat its weight daily. Monthly separation of the previously stocked earthworms is suggested to promote uniform size/weights which is essential in fresh feeding. The harvested earthworms is a nutritious feed being 64% protein and given as fresh feed to fish (tilapia, lapu-lapu and tropical fish) eel, crabs, prawn, duck, chicken and bird or processed into vermimeal.

PRODUCTION OF QUALITY VERMICOMPOST

Vermicompost is the organic fertilizer produced thru the action of earthworms, Grasses (75%) mixed with kakawate leaves (25%) gave quality vermicompost having both macro and micro elements. Analysis revealed that it contained nitrogen (2.74%), phosphorous (1.33%) and potassium (3.54%) with pH 7.20. Other elements present are calcium (0.29%), magnesium (0.52%), iron (0.43%), manganese (0.03%), copper (0.005%), and zinc (0.01%) Important considerations on vermicomposting are as follows:

- Age of grasses: to promote quick decomposition and palatable feed, grasses should be at vegetative and before flowering if just chopped and all ages for machine shredded.
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- Right watering: watering is necessary when less than 10 drops of water was squeezed on the substrate during anaerobic and aerobic decomposition.
- Proper decomposition: substrate must be soft and tender
- Correct stocking densities: more stocked earthworms the faster is the production of vermicompost.
- Method of application: it is being applied like inorganic fertilizer for seeds and transplanted seedlings

EFFECTIVENESS OF VERMICOMPOST AS ORGANIC FERTILIZER

Crops (eggplant, cabbage, cauliflower, tomato, onion, cucumber, pole sitao, okra) fertilized with vermicompost exhibited excellent growth comparable or better than inorganically fertilized. The effectiveness of the vermicompost is attributed to the different element's presence, all needed by the crops.

Application of 3 kilos vermicompost for eggplant and hot pepper, 4 kilos for pole sitao and 2 kilos for okra per sack yielded 14, 72, 12, and 13 fruits per plant, respectively. Application of vermicompost was done at monthly application.

STARTING CAPITAL FOR VERMICULTURE/VERMICOMPOSTING

For beginners, a kilo of earthworms (1000 pieces) which costs P500.00 and P360.00 per wormbin is the starting capital. In six months the expected production is 30,000 earthworms and 220 kilos of vermicompost.

Source: *Plant Industry Production Guide*
Bureau of Plant Industry

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