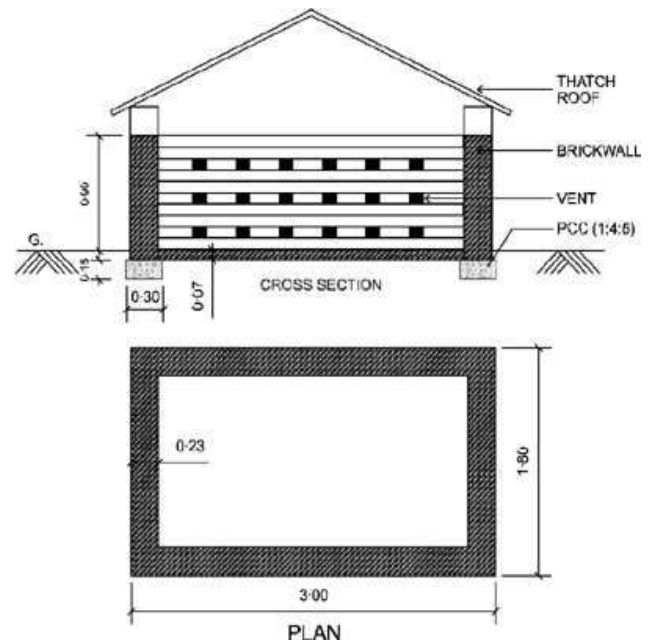


## NADEP COMPOST TANK TO ENHANCE FERTILITY OF FARM LAND

**COMPOSTING:** Composting is the process of reducing vegetable and animal refuses to quickly utilisable condition for maintaining soil fertility. NADEP method of composting is aerobic decomposition of organic matter. This method takes care of all the disadvantages of heaping with farm residue and cattle shed wastes, in open.

### SIZE: THE NADEP COMPOST TANK

It is a 3m long x 1.8m wide vat in 23 cm thick perforated / Lattice brick wall in cement mortar (1:6). Walls are 0.9m above ground. The perforated walls make easy passage of air required for aerobic decomposition. Nutrients are protected from seepage and evaporation. The floor of the tank is laid with bricks. The tank is covered above man height with a thatched roof. Thus the contents are not exposed to sun and rain.



Details of a typical NADEP Compost Tank

### METHOD OF COMPOSTING:

- i. The ingredients for producing compost are agro-wastes, animal dung and soil.
- ii. Inside the composting tank a series of layers of agricultural waste, dung and soil are successively laid. 100-110 kg of agricultural waste is first placed on the floor in a layer of about 6 inches. 4kg of dung mixed with 125-150 liters of water is applied on top of this layer. The quantity of water varies with season and atmospheric temperature, more water is necessary in the summer months. On top of the second layer, clean soil, roughly half the weight of the agricultural waste used (i.e. 50-55kg) is spread. Thereafter little water is sprinkled. In this manner successive layers are heaped to a height of about 1.5ft. above top of the trough. Then the top of the pile is sealed with a 3 inch plastering of soil mixed with dung (400-500kg). Within 2-3 months dark brown, friable, soft and moist compost, free of all foul odour is ready. The nutrient status of this manure is Nitrogen 0.5-1.5%, Phosphorous 0.5-0.9% and Potassium 1.2-1.4%.

**E. OUTCOME:** About 3 tons of compost is generated per tank per cycle. In the first year 2 cycles and from the 2nd year onwards 3 cycles can be produced. Thus one tank can produce 6 tons in the first year and 9 tons from the 2nd year onwards.

1 million NADEP compost tanks will facilitate in producing  $1000000 \times 9 = 9000$  Kilo tons of compost, which will be sufficient to enhance productivity of nearly 30 lakh hectare of land with application of compost @ 3.0 tons per hectare.

### Typical Estimate of NADEP Compost Tank (3.00 m x 1.8 m x 0.9 m)

S. No	Detail	No.	L	W	H/D	Unit	Qty	Labour Component			Material Component			
								USK	SSK	SK	Stone	Cement	Brick / Sand	
1	Earth work in excavation in mixed medium hard soil within initial labd of 80'-0" and lift upto 5'-0" @ 52 cft/usk													
	For foundation of long walls	2	3.00	0.30	0.15	cum	0.27							
	For foundation of short walls	2	1.34	0.30	0.15	cum	0.12							
	Earth work excavation for brick on edge flooring.	1	2.54	1.34	0.11	cum	0.37							
	Total						0.76=26.81 cft.	0.5						
2	Plain Cement Concrete PCC (1:4:8) in foundation including cost and conveyance of 20 mm metal, sand, cement and water. A group of 2 SK & 3USK/2.1 m <sup>3</sup>													
	Long Wall	2	3.00	0.30	0.15	cum	0.27							
	Short Wall	2	1.34	0.30	0.15	cum	0.12							
	Total						0.39	0.6Nos.		0.4Nos.	0.37 m <sup>3</sup>	0.05 m <sup>3</sup>	0.19 m <sup>3</sup>	
3	Country Brick/Cement block masonry in cement mortar 1:6 including cost and conveyance of bricks, sand, cement and water for mortar and curing and masonry charges. @ A group of 1 SK & 2-USK/1.4 m <sup>3</sup>													
	Long Wall	2	3.00	0.23	0.90	cum	1.242							
	Short Wall	2	1.34	0.23	0.90	cum	0.555							
	Total Brick Masonry						1.797							
	Deduction for Aeration 5% of Masonry Work						-0.09							
	Net Masonry Work						1.707	2.4		1.2		0.09m <sup>3</sup>	664Nos & 0.53 m <sup>3</sup>	
4	Plastering 20 mm thick at top 1:6 Cement motor @ A group of 1SK, 5USK/140 m <sup>2</sup>													
	Long Wall	2	3.00	0.23		sqm	1.38							
	Short Wall	2	1.34	0.23		sqm	0.62							
	Total Plastering						1.99	0.07		0.014		0.008 m <sup>3</sup>	0.05 m <sup>3</sup>	
5	Brick on edge flooring @ A group of 1 SSK, 4 USK / 29 m <sup>2</sup>	1	2.54	1.34		sqm	3.40	0.50	0.12				104Nos.	
6	Plastering 20 mm thick (1:4) on brick on edge flooring @ A group of 1 SK, 5 USK / 140 m <sup>2</sup>	1	2.54	1.34		sqm	3.40	0.12		0.02		0.02m <sup>3</sup>	0.08 m <sup>3</sup>	

7	Unskilled Labour Charges for laying of thatched roof including collection of locally available bamboos and wooden sticks etc.	1	3	1.8		Person days	L.S.	4						
	<b>Total</b>							8.19	0.12	1.634				
								8 No.Say	0.5 (Say)	1.60Say	0.37	0.168 m <sup>3</sup>	768Nos.& 0.85 m <sup>3</sup>	

**Wage Component :**

USK – 8 Nos. @ Rs. 180 = Rs. 1440.00

**Non-Wage (Material) Component :**

SSK – 0.5 Nos. @ Rs. 270 = Rs. 135.00

SK – 1.6 Nos. @ Rs. 360.00 = Rs. 576.00

20 mm stones metal 0.37 m<sup>3</sup> @ Rs. 1500/m<sup>3</sup>= Rs. 555.00

Cement 0.168 cum= 4.8 Bags=say 5 Bags @ Rs. 370/-/ Bag =Rs.1850.00

Bricks 768 Nos. @ Rs. 8000/1000 = Rs. 6144.00

Sand 1 m<sup>3</sup> @ Rs. 550/m<sup>3</sup> = 550.00

Locally available  
Bamboo sticks / wooden sticks for thatched roof / polythene sheet Signboard  
L.S. = 500.00  
Total of Non-Wage component.

Rs. 10310.00

Wage component

Rs. 1440.00

Grand total = Rs.11750.00

## CONSTRUCTION OF VERMI COMPOST PIT

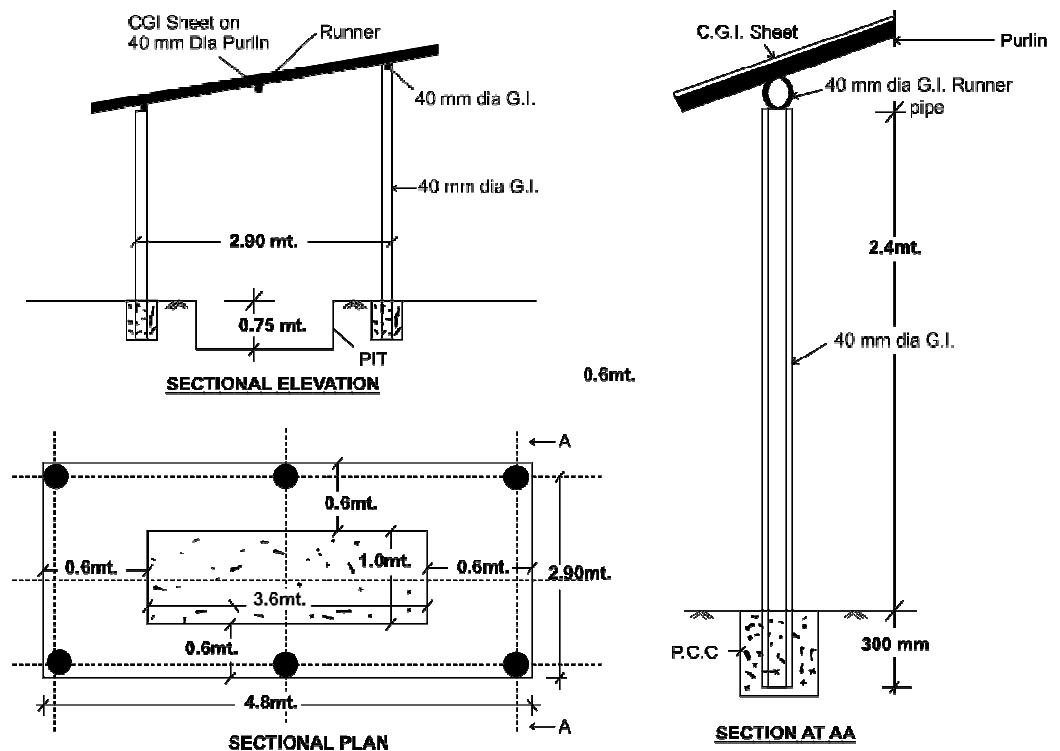
Vermi compost is the

### TYPICAL DRAWING FOR CONSTRUCTION OF VERMI COMPOST PIT

product of the composting process using various species of worms, usually red wigglers, white worms, and other earthworms, to create a heterogeneous mixture of decomposing vegetable or food waste, bedding materials, and vermicast, also called worm castings, worm humus or worm manure, is the end-product of the breakdown of organic matter by an earthworm. These castings have been shown to contain reduced levels of contaminants and a higher saturation of nutrients than do organic materials before vermicomposting.

Containing water-soluble nutrients, vermicompost is an excellent, nutrient-rich organic fertilizer and soil conditioner. This

process of producing vermin compost is called vermin composting.



Vermi composting is generally known as a nutrient rich source of organic compost used in farming and small scale sustainable, organic farming.

### TYPICAL ESTIMATE FOR CONSTRUCTION OF VERMI COMPOSTING UNIT

1	Earth work in excavation in foundation trenches or drain in all sorts of soil ..... required complete.	1	3.6	1	0.75	2.700	0	0	0	0	0	0	0	1.1448			
		6	0.3	0.3	0.3	0.162											
2	Earth work in filling in foundation trenches or plinth with good earth ..... Layer complete.	1	1/5th of the earth work in excavation			0.572	0	0	0	0	0	0	0	0	0.185	0	0
3	Cement concrete with graded jhama khoa (40mm size) excluding shuttering (6:3:1).	6	0.3	0.3	0.3	0.162	0	0.078	0.026	0.156	0	0	0	0.231	0	0.154	
4	Supplying fitting & fixing 40mm. Dia old G.I pipe	3	5.1	0	0	15.3	0	0	0	0	0	0	36.6	0	0	0	
		6	2.0			12.0											
		3	3.1			9.3											
5	Supplying fitting & fixing 'J'hook connection with C.G.I Sheet.					4.5	0	0	0	0	0	4.5	0	0	0	0	
6	Supplying fitting & fixing C.G.I sheet for Roof Cover	1	5.1	3.1		15.81	0	0	0	0	15.81	0	0	0.855	1.709	0.041	
<b>TOTAL</b>							<b>0.000</b>	<b>0.078</b>	<b>0.026</b>	<b>0.156</b>	<b>15.810</b>	<b>4.500</b>	<b>36.600</b>	<b>2.415</b>	<b>1.709</b>	<b>0.195</b>	

#### WAGE COST :

1	USK Cost	2.00	Nos.	180	Nos	360.00
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#### NON-WAGE COST

1	Course Sand	0.08	Cum	720.00	Cum	56.02
2	Cement (ISO 9001)	1.00	bag	370.00	bag	370.00
3	Brick Chips	0.16	Cum	972.00	Cum	150.85
4	C.G.I Sheet	15.81	Sqm.	100.00	Sqm.	1581.00
5	Iron 'J' Hook	4.50	Kg	75.00	Kg	337.50
6	Old G.I Pipe	36.60	mt.	90.00	Sqm.	3294.00
7	SSK With 1 no. Supervisor Cost	3.00	nos.	270.00	nos.	810.00
8	SK Cost	1.00	nos.	352.00	nos.	360.00
9	Display Board	1.00	nos.	L.S.		1600.00
<b>Total</b>						<b>8559.37</b>

## PREPARATORY COMPONENTS FOR VERMI COMPOSTING PROCESS

### Labour Component

Item Of Works	Particulars of Expenditure	Mandays	Rate	Amount	Remarks
1	Collection of Water Hyacinthe	2	180.00	360.00	
2	Collection of <span style="color: red;">Cow-dung</span>	2	180.00	360.00	
3	Collection of Earth Warm	2	180.00	360.00	
4	Cutting and Placing to the Chamber with covering gunny bags and net.	2	180.00	360.00	
5	Lifting after Decomposed and bagging	2	180.00	360.00	
	<b>Total</b>	<b>10</b>	<b>Total Rs.</b>	<b>1800.00</b>	
1	Carriage of Water Hyacinths by Tractor per Nos.	1	600.00	600.00	
2	Earth-worm (Species)	2 kg	1000.00/kg	2000.00	
			<b>Total</b>	<b>2600.00</b>	

### ABSTRACT OF COST

1	<b>WAGE COMPONENT :</b>				
	PIT & Shed Construction	Wage Cost	<b>2 USK</b>	<b>360.00</b>	
	Cost of Working Materials		<b>10 USK</b>	<b>1800.00</b>	
	<b>Total Wage Cost</b>			<b>2160.00</b>	
	<b>NON WAGE COMPONENT :</b>				
	Total Cost Part for PIT & Shed Construction	Non wage Cost		<b>8559.37</b>	
	Total Cost for Working Materials			<b>2600.00</b>	
	<b>Total Non wage Cost</b>			<b>11159.37</b>	
	<b>Grand Total</b>			<b>13319.37</b>	<b>Wage Component 16.22%</b>