

Using organic materials and manures



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What are organic materials and manures

Organic material and manures are those materials that come from plant or animal waste or byproducts such as cattle or poultry manure, composted rice straw or other crop residues, sewage sludge, oil cakes, green manures, and legume clippings.

How to use organic materials and manures

Organic material or manure is normally applied uniformly across the field, two or more weeks before, and incorporated into the soil during land preparation. Sometimes rice straw is directly composted in the field.

Why use organic materials and manures

Manures and other organic sources are used to improve soil fertility and soil organic matter content and to provide micronutrients and other growth factors not normally supplied by inorganic fertilizers. Application of these materials may also enhance microbial growth and nutrient turnover in soil.



Addition of rice straw in the field and manure

| Organic material | % N | %P2O5 | % K2O |
|---------------------------|---------|-----------|---------|
| Crop residue (rice straw) | 0.5-0.8 | 0.15-0.26 | 1.2-1.7 |
| FYM (cattle manure) | 0.8-1.2 | 0.44-0.88 | 0.5-1.0 |
| Compost | 0.5-2.0 | 0.44-0.88 | 0.4-1.5 |
| Sewage sludge | 1.6 | 1.76 | 0.2 |
| Pig manure | 0.7-1.0 | 0.44-0.66 | 0.6-0.9 |
| Sheep & goat manure | 2.0-3.0 | 0.88 | 2.1 |
| Poultry manure | 1.5-3.0 | 1.15-2.25 | 1.0-1.4 |
| Oil cakes | 2.5-8.0 | 0.66-2.86 | 1.2-2.3 |
| Green manures | | | |
| Sesbania | 1.7-2.8 | 0.1-0.2 | 1.4-1.9 |
| Azolla | 2.0-5.3 | 0.16-1.59 | 0.4-6.0 |

(Examples for the nutrient content of various organic materials)

| Urea (46% N) | Poultry Manure (2% N) | Cattle Manure (1 % N) | Compost (0.5% N) |
|--------------|-----------------------|-----------------------|------------------|
| 217 kg | 5,000 kg (or 5 t) | 10,000 kg (or 10 t) | 20,000 kg (20 t) |

| Nutrient source | N (%) | P2O5 (%) | K2O (%) | Price (INR/kg) | Amount required (Kg) | Price (INR) for 100 kg N, 50kg P ₂ O ₅ & 50 kg K ₂ O per ha |
|-----------------|-------|----------|---------|----------------|----------------------|--|
| Cattle manure | 0.8 | 0.3 | 1 | 2.00 | 10000 | Rs. 20000 |
| Urea | 46 | - | - | 6.00 | 217 | Rs. 6135.20 |
| SSP | - | 16 | - | 9.00 | 312.5 | |
| KCl | - | - | 60 | 24.2 | 83.5 | |



Assam Agribusiness and Rural Transformation Project (APART)

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