

# Manure management and making of liquid extracts

## A guide for small-scale farmers

### Use of animal manure in soil health management

- ▶ Animal manure refers to the droppings of both large and small livestock.
- ▶ Animal manures are an important component of any integrated farming system that aims to reduce or completely do away with the use of chemical fertilizers.
- ▶ Animal manures are a cheap source of valuable nutrients for crop growth and contribute significantly to the long-term fertility of the soil.

### What is manure management?

- ▶ Manure management refers to the processes and practices involved in the capture, storage, treatment and use of manure.
- ▶ There is need for proper management for one to get the best from animal manure.
- ▶ Good manure management also helps to reduce environmental contamination and other nuisances such as odor, flies, parasites, etc.
- ▶ Good manure management can help prevent livestock ailment such as abscesses, thrush, rain scald, and other diseases caused by mud and wet manure. Dry manure produces molds that contribute to respiratory problems in cattle.

Factors that affect the manure nutrient content and their availability to the crop quality include: (i) Method of collection and storage; (ii) Method and time of application in the field; (iii) whether the manure is applied fresh or processed into an organic fertilizer such as compost or Bokashi.

### What are manure extracts?

- ▶ Extracts are liquid fertilizers prepared by soaking compost, Bokashi, animal manure or nutrient-rich leafy materials in water for a number of days.

The following are some of the benefits of manure extracts:

- ▶ Easy to prepare - unlike the process of making most solid organic fertilizers, the process for making manure extracts is relatively simple and straight forward.
- ▶ Quick response of the crop to the application of the extract - because nutrients are already dissolved in water, the crop's response is almost immediate.
- ▶ No expensive equipment is needed to prepare and use the extract.

**Please note:** despite the numerous benefits, manure extracts cannot be used as a substitute to solid organic fertilizers, but rather as a complement.



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## Good manure handling practices



**1 Reduce exposure of manure to direct sunshine and rains as much as possible:** Exposure of manure to the sun leads to losses of N as ammonia volatilizes; exposure to the rain leads to leaching out of most nutrients. Manure should always be in a shade or covered as much as possible.



**2 Proper housing of livestock for effective preservation and collection of manure:** Good livestock housing helps in the collection of manure and preservation of its quality. Open rearing of livestock as is the case with most traditional practices makes it very difficult to collect and preserve the manure.



**3 Increase the effectiveness of animal manure by making organic fertilizers:** organic fertilizers such as compost or Bokashi have numerous benefits such as increased number and types of micro-organisms; no weed seed; organic matter already broken down so nutrients are readily available to crops; no risk of scotching the plant; etc.



**4 Use of bedding in livestock kraal or pen -** This practice ensures that all the animal droppings including the urine are trapped by the bedding. The regular removal of the bedding/manure mixture from the kraal or pen and placing it in a shade ensures that the nutrients are preserved and decomposition (in-situ composting) is allowed to proceed.



**5 Correct application of manure/organic fertilizer in the field:** Spot application is encouraged as opposed to broadcasting. For basal dressing, apply organic input in planting basins or riplines. For top dressing apply at the base of the crop prior to weeding so that you can cover as you weed. Broadcasting leads to wastage, exposure of the organic input to the sun and rain and weed pressure.



**6 Rate of manure/organic fertilizer application in the field:** Unlike chemical fertilizers whose application rates are fixed, there is no fixed rate for organic inputs as the rate is dependent on many factors. As a guide, two coca-cola tins at planting and two tins at 3 to 4 weeks after crop emergence can be used. Two coca-cola tins are roughly equivalent to a full double hand.

## Step-by-step guide for making extracts (liquid fertilizer)



**1** Place about 30 kg of manure, compost, Bokashi or nutrient-rich plant biomass in a 50kg sack. A combination of materials gives better results. Tie the sack to a stick and lower in a 210 L drum of water. Cover the drum with a sack or any material to prevent flies from going in, but allowing air circulation.



**2** Shake the sack twice a day, in the morning and late afternoon, for 2 to 3 weeks. Shaking is done by removing the cover and agitating the stick to which the sack is tied for 3 to 5 minutes. After 2 to 3 weeks, the extract is ready for use.



**3** Apply by drenching using a knapsack sprayer whose nozzle has been removed or a bucket and a cup. The soil should be moist when applying the extract. Application rates range from 100 ml to 300 ml depending on the crop type, the stage of growth and the soil fertility status.