

## 3. Brews for Plant Nutrition

One way of improving plant nutrition is to make liquid teas or brews that will add fertility to the soil. This should be used as an additional soil fertility technique rather than the only one! Brews provide extra nutrients in case of small deficiencies, but cannot rectify major nutrient deficiencies.

Liquid manures/brews/ teas are a simple way of giving your plants a boost. They can be made from plant material or animal manures. The aim is to provide plants with natural plant foods quickly during their growing season. It is useful for heavy feeders like cabbages and to give seedlings a boost.

### How to make liquid manures from plants

A good plant for liquid manure is comfrey. Most soft green leaves and stems can also be used and weeds are ideal. Avoid plants which are very strong smelling. Plants are made of different quantities of nutrients and take up different nutrients from the soil. It is best to use a range of plant materials to make your liquid.

- ❖ Make sure your container is clean before you use it.
- ❖ Collect the plant material and fill up the container. You must keep on adding material to the container every week
- ❖ Place the rock on top of the plant material in the container and put the lid on. Do not add water. The plant material will make its own liquid. If you are only using weeds, and no comfrey or banana stems, you may need to add a little water, to just cover the compressed plant material.
- ❖ Place it in a sunny position and two weeks later check to see if the leaves have turned black. If you tilt the container you should find a black juice. This is the concentrated plant liquid manure.
- ❖ This liquid is very strong and should be diluted as follows:

**Seedlings:** 1 tin of liquid manure for every 4 tins of water.

**Bigger plants:** 1 tin of liquid manure to 2 tins water. If you make the mixture too strong it can burn the leaves of plants.

Every two weeks pour the mixture on the soil around your plants, after you have watered them. You should pour at least one tin of this diluted mixture around each seedling or plant. The tin should be the size of a big jam tin.

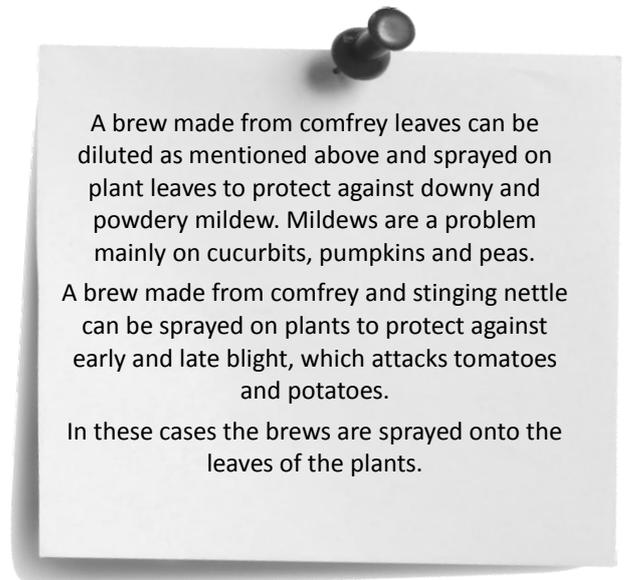
## Good plants for liquid manures

### COMFREY



**Comfrey**

From: Useful Plants for Land Design, Pelum



This plant has large hairy leaves and grows in wet shady places. The leaves contain a lot of potassium. These can be used to mulch your vegetable beds and also to make liquid feeds for your plants Comfrey is also a good spinach and medicine. A tea made from the leaves is good for high blood pressure and arthritis.

### STINGING NETTLE

This is one of the best plants you can use in plant brews. It contains a wide variety of nutrients and trace elements and is a well balanced plant food. It is best to collect these plants in the natural forests where they occur and plant a few in your garden. They do not survive frost, but otherwise grow almost anywhere.

### BANANA STEMS

These are chopped up and placed in the container with other plants and leaves. The stems have a high concentration of potassium and water and make a good liquid base for the brew.

### WEED

Black Jack, Amaranthus, Chickweed, Galant Soldier. All fast growing weeds, with soft

dark green leaves are good. Avoid using grasses and sedges.

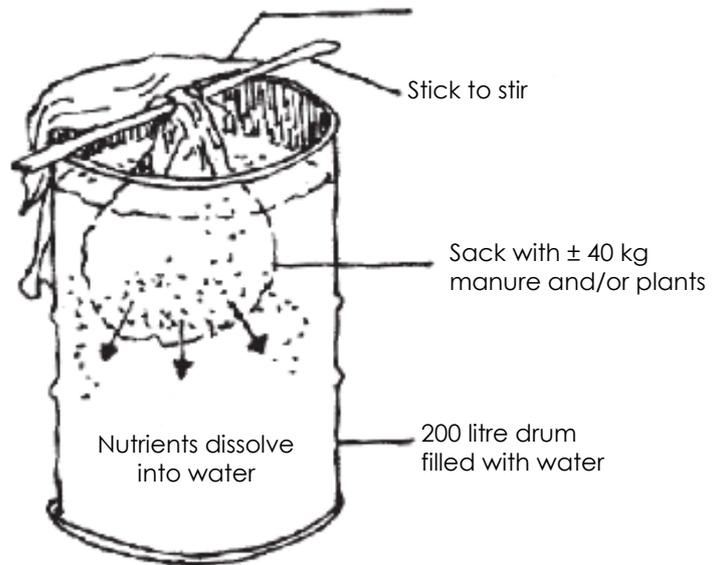
### Advantages and disadvantages of plant brews

ADVANTAGES of plant brews	DISADVANTAGES of plant brews
Plant brews are easy to prepare and use	Resources such as containers with lids are required
If diluted these brews do not harm plants	Plant brews can burn plants if they are too strong
Plant brews increase disease resistance in crops	Effects of the brews on plant growth are only visible after 3-5 days.
Plant brews provide a quick and cheap plant booster food	It is not possible to know exactly which nutrients these brews contain.
Plant brews provide mainly potassium, phosphorus and trace elements.	Some people do not like the smell of these brews, which can smell very rotten
Nitrogen can be provided if the brew is used early in the fermentation cycle (after 1 week) and care is taken to avoid it's evaporation by keeping the containers closed and cool	Nitrogen is volatile and is lost from the brews quite early in the fermentation cycle

## How to make liquid manure from animal manure

Manure can be used from chickens, rabbits, cows, goats and sheep. A mixture of manures is best.

- ❖ Put your fresh manure mixture into the bag and tie the top of the bag.
- ❖ Put the bag in the container and attach it to the stick or the rope. Then fill the container with water. For every 1 kilogram of manure you will need 5 liters of water. This means an orange sack full of manure in a large bucket (50l), or half the bag in a normal sized household bucket (20l). This is a way of keeping the manure and the water separate, because you should not put the wet manure on your plants.
- ❖ Cover the container with a lid. Stir every few days.
- ❖ After two weeks the mixture will be ready to be used. It should look like weak tea. Before using the liquid, stir the mixture well.
- ❖ This liquid will be very strong and should be diluted:



**Seedlings:** 1 tin of liquid to 8 tins of water (or buckets or bottles)

**Bigger plants:** 1 tin liquid to 4 tins of water

If you make the mixture too strong it can burn the leaves of plants.

Every two weeks pour the mixture on the soil around your plants, after you have watered them. Again, use at least one big jam tin full for each seedling or plant. Avoid applying your mixture in the middle of the day or on very hot days.

## Good sources for animal liquid manures

### **KRAAL MANURE (CATTLE):**

Either use fresh manure or use manure that has been collected in a kraal. In this way you can ensure that the manure contains as many nutrients as possible and that the nutrients have not been lost into the air through baking in the sun and drying out. This is especially important if you need your liquid manure to contain some Nitrogen.

### **CHICKEN MANURE:**

With chicken manure it is important to collect the droppings while they are fresh. Again this keeps the nitrogen and other plant food concentrated in the dry droppings. It is possible to collect the droppings daily and keep them in a sack in a cool dark place, until you have enough to make a brew.



Liquid manure made from chicken manure can burn plants, as it can contain a high level of Nitrogen. It is important to dilute this brew properly before use. If you are unsure, test the brew on a few plants only and come back the next day. If the edges of the leaves have gone brown and crinkly overnight, the brew is too strong and has "burnt" your plants.

**GOAT MANURE:**

This is a very mild manure and is well balanced. It is unlikely to “burn” plants, but may also be a little low in phosphorus, depending on the diet of the goats.

**OTHER MANURES:**

Manure from rabbits can also be safely used. It is suggested not to use the manure from pigs, due to the possibility of carrying worm eggs that can infect people. Do not use manure from dogs and cats for the same reason.

**Advantages and disadvantages of animal liquid manures**

ADVANTAGES of animal liquid manures	DISADVANTAGES of animal liquid manures
Liquid manures are easy to prepare and use	The liquid manure is only as good as the manure of origin. If the animals are suffering from deficiencies these will be transferred into the manures. As an example, there is likely to be a lack of phosphorus in cattle manure, where cattle have only been grazed on veld. This means the liquid manure made from this source will also lack phosphorus.
If diluted properly, these liquid manures do not harm plants	Liquid manures are generally low in nitrogen. Using chicken manure drastically increases the nitrogen content.
Liquid manures increase disease resistance in crops	The source manures have to be handled well to retain their nutrients before using as liquid manures.
Liquid manures provide a quick and cheap plant booster food	Effects of the liquid manures on plant growth are only visible after 3-5 days.
Liquid manures provide mainly potassium, phosphorus and trace elements.	It is not possible to know exactly which nutrients these brews contain.
Nitrogen can be provided if the liquid manure is used early in the fermentation cycle (after 1 week) and care is taken to avoid it's evaporation by keeping the containers closed and cool	Some people do not like the smell of these liquid manures, which can smell very rotten

**How to make a foliar spray**

This is brew made from a mixture of plant and animal material. It is used by spraying onto the leaves of plants from where it is absorbed. This brew contains antibiotics, microbes and plant hormones as well as plant nutrients (potassium, phosphate and

trace elements). (from :EMBRAPA; Brazilian Agriculture Research Institute)

- ❖ Place the following ingredients in a container with a lid:
  - 30kg of fresh cow manure
  - 50-60liters of water
  - 5liters of milk (without salt)
  - 5liters of sugar cane juice/ 15kg of chopped sugar cane/2kg of brown sugar (personal variation)
  - 4kg of wood ash (not coal ash!!)
  - 4kg crushed bones or bone meal (fish bones are ideal if available. If possible do not use chicken bones) (We use bone meal bought from a gardening shop)
  - 3-5x 20l buckets of chopped weeds
  - 2-3kg of agricultural lime/ crushed eggshells
- ❖ Leave this mixture for 10-15 days
- ❖ Dilute 2-10liters of this mixture in 100 liters of water.

This spray is highly effective!! It is possible to keep the brew going for a period of time, by adding more weeds and manure and fermenting the mixture again for about 10 days.

### Advantages and disadvantages of foliar sprays

ADVANTAGES of foliar sprays	DISADVANTAGES of foliar sprays
Foliar sprays are very effective and act quickly in the plants.	Some inputs for foliar sprays need to be bought; such as agricultural lime and potentially wood ash, sugar and milk
If diluted properly, these foliar sprays do not harm plants	This mixture is exceptionally smelly while it is fermenting
Foliar sprays increase disease resistance in crops	Foliar sprays can "burn" plants if they are too strong.
Foliar sprays provide a quick and cheap plant booster food	
Plant hormones and antibiotics are also supplied through the fermentation process in the making of foliar sprays	

