

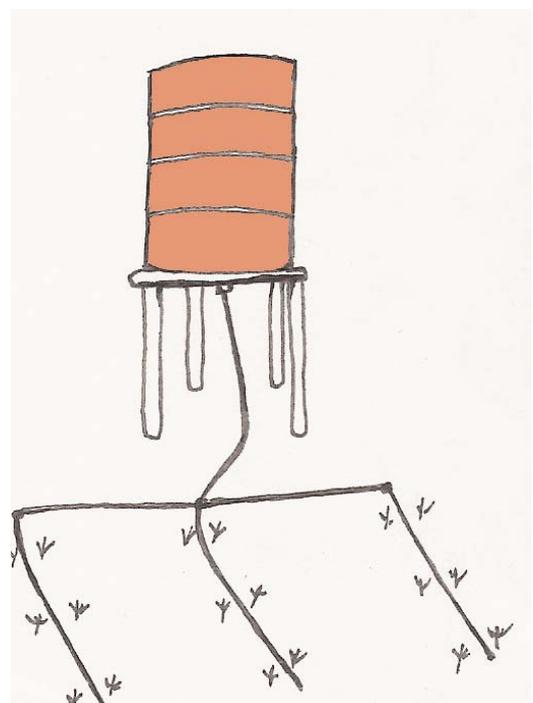
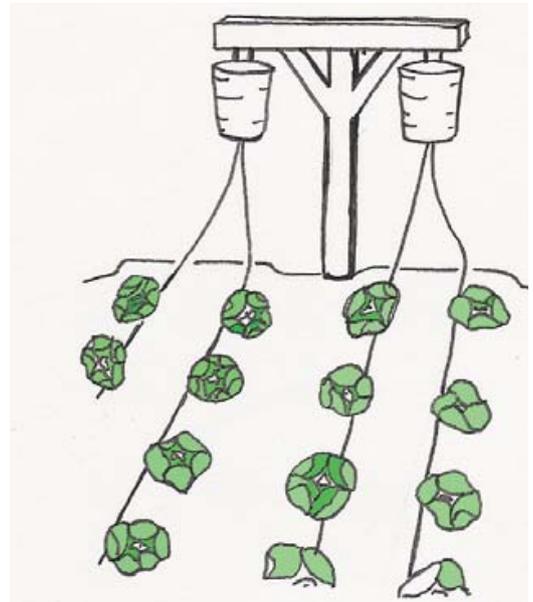
This Action Sheet is about drip irrigation, an efficient way to water vegetables and other crops in the dry season. In places where some water is available all year round, but supplies are limited for parts of the year, drip irrigation can help people to grow more food. Larger systems can help farmers increase yields of high-value crops.

## How does drip irrigation work?

Drip irrigation kits consist of a pipe and a bucket or drum. Farmers lay the narrow plastic pipe along the ground. The pipe is connected to a bucket or oil drum filled with water, placed 1 to 3 metres above the ground, so that water keeps flowing down into the pipe. Water is delivered to the crops through tiny holes in the pipe. Crops are planted next to the holes, so that the soil around the plant is kept wet without wasting any water.

## Benefits of drip irrigation

- More vegetables to eat and sell during the dry season.
- Kits are quite cheap (US \$15 to \$85 depending on the size). In some places, farmers can get loans or set up co-operatives to purchase the kit. With larger kits for market gardens, the investment will pay for itself within the first season.
- Not a drop of water is wasted – as long as the system is used correctly, less water is needed compared to other irrigation methods.
- Less time is spent on watering crops.
- Less weeds will grow, because water is delivered direct to the crop.
- Water drips out slowly, so nutrients in the soil are not washed away.
- Manure tea or fertilizer can be fed directly to crops through the pipes.



### **Are there are disadvantages to watch out for?**

- The systems can get clogged, especially if muddy water is used. It is important to filter the water. Kits often include a filter system.
- People need to be trained and supported when first using drip irrigation kits. Otherwise, they may use more water than is needed or find that the pipes get clogged.
- Fields need to be well fenced as animals can damage the system. Livestock can trample and damage pipes, and small vermin can gnaw pipes in their search for water. Fencing should be designed to exclude larger and small animals.
- Farmers need to have access to a reliable water source.
- Filling the bucket/drum, which is mounted high up, can present a challenge. You may need a ladder or another system.
- Drip kits are usually made from imported materials, so they are not yet available everywhere. If replacement parts are hard to find, farmers may have to abandon the system.

### **Kinds of drip irrigation kits**

Kits vary according to the size of the area to be watered. People with small home gardens can grow vegetables in the dry season with a bucket kit. A 20l bucket, hung 1m above the vegetable bed and attached to a 30m pipe, can water 100 plants. Two bucket kits will produce more than enough vegetables for a family of seven, helping them to eat more healthy food. However, some projects have found that the labour and water savings made by bucket kit systems are quite small, and they may not produce a surplus of crops to sell.

People with bigger vegetable gardens could invest in a drum kit. A 200l drum placed at a height of 1metre can provide water to over 500 plants. Farmers can get even larger systems with a 1000 litre drum placed 3m above the crops. This can supply water to a 15 x 30m plot. When used to water high value crops, large kits can help farmers make more money. Agricultural extension workers and relevant NGOs will know if drip irrigation kits are sold in your area. You can also learn from projects that are experimenting with this technology. Drip kit suppliers should give training and guidelines for use with different crops.

### **Acknowledgements**

This Action Sheet was written and illustrated by Nancy Gladstone, using information from the Practical Action (formerly known as ITDG) Technical Brief on Micro-Irrigation; the International Institute of Rural Reconstruction's Sustainable Agriculture Extension Manual and the Arid Lands Information Network in East Africa website. It was reviewed by Rachel Berger, Practical Action.

### **More information**

Practical Action: [www.practicalaction.org](http://www.practicalaction.org)

[www.iirr.org](http://www.iirr.org)

[www.itdg.org/docs/technical\\_information\\_service/micro\\_irrigation.pdf](http://www.itdg.org/docs/technical_information_service/micro_irrigation.pdf)

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