

## Conventional and drip irrigation systems in Tanzania: challenges and profitability

**Objective:** To assess irrigation methods used by farmers.

### Methods and materials

**Survey Area:** Arusha, Dar es Salaam and Kilimanjaro.

**Survey period:** July 2015 to March 2016.

The research, done by Sokoine University, consisted of a field survey using a semi-structured questionnaire to interview vegetable producers and key informants. Information was collected on type of irrigation methods used by vegetable growers, factors influencing use of the methods and challenges associated with adoption of drip irrigation. Profitability analysis was also done.

### Results

The percentage of farmers using different systems is shown in the table. Cost-benefit analysis showed that it is worth to grow vegetables during the dry season. The initial capital required for installation of establishing a drip irrigation system for a crop like tomato is about 3.8 million TShs/acre. However, compared to an estimated income of 1.06 - 2.7 million TShs/acre, the initial investment cost is considered to be too high for most small scale famers. The survey found six suppliers of drip irrigation kits; Balton, Irrico, Irrigrow Global, Dymo Trading, Madiveni Ltd and A to Z Textile Mills Ltd. It also found one supplier of mulching material (Balton).



Irrigation Methods	Water Source	Farmers using the system (%)
Furrow irrigation with water splashing	Deviated from a stream	45
Furrow irrigation with hose pipe	Deviated from a stream	8
Use of water pump for furrow, flooding or spot irrigation	Streams, river or open shallow wells	35
Spot irrigation using buckets	Streams, river or open shallow wells	10
Drip irrigation with water pump	Closed shallow well	1
Drip irrigation with water pump + tank	Closed deep well	1

Cost/Benefit analysis of tomato under the different irrigation methods

Irrigation method	Fixed costs	Variable Costs/ acre	Total costs	Revenue	Profit	Ratio (Profit/Total costs)
Furrow irrigation methods	0	2,267,000	2,267,000	3,040,000	773,000	0.34
Water pump and hose pipe	360,000	2,887,000	3,237,000	4,960,000	1,713,000	0.59
Drip irrigation + water pump	4,500,000	4,192,000	8,692,000	17,440,000	8,748,000	1.01
Drip irrigation + bore holes	9,800,000	4,192,000	13,992,000	17,440,000	3,448,000	0.25

\*Life span for the drip irrigation system 3-5 years

### Conclusion

Very few farmers in the study area use drip irrigation. Although the system is more profitable compared to the traditional irrigation methods, higher investment cost is one of the major factors that hinder adoption. There are also few suppliers of drip irrigation equipment.

*Note: The conclusions are based on work done in Arusha, Dar and Kilimanjaro and might not reflect the picture in the whole country.*