

Subsurface Water Retention Technology (SWRT)



Why to choose this solution?

The technology (membrane) prevents water and nutrients lost through deep percolation in sandy soil hence increase productivity and reduce soil based poverty.

Savings per day or production:

This is a long-term technology which last for more than 50years.while comparing two plots one with SWRT and control, the SWRT plot produces five times the control

Cost in money and in own time to construct:

A plot of 10m x 10m consumes a membrane of KSH. 4000 (USD 40) plus labor. Lets assume we use 3intsallers for 2 days to complete this plot each installer to be paid KSH 500 (USD 5) per day total cost of installation will be $3 \times 2 = 6 \times 500 = \text{KSH } 3000$. Total installation will cost a farmer KHS 7000 (USD 70).

Lifetime:

SWRT is predicted to last more than 50 years.

Maintenance needed:

Maintain shallow cultivation with no use of ox or tractor plough.

Resources needed in use:

Polythene membrane, Jembe (Shovel), Tape measure

Problems and limits:

The technology is applicable in only sandy soils. No deep ploughing such as OX-plough and tractor plough.

Where and how can you get it or make it?

Jomo Kenyatta University of Agriculture and Technology (JKUAT) Enterprise Limited

Skills needed to produce, install, maintenance, use:

There are trained persons on membrane installation

How to use it:

<https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwjDsNn9tbT3AhWIyaQKHxUmD6AQwqsBegQIBBAB&url=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv%3D4PtlQM0z8cU&usg=AOvVaw3MnRMCXd7PyfLQlGorz0>

How to maintain it:

N/A

Climate effect (if any):

Gases produced by the membrane have been collected, tested and found environmentally friendly to human beings.

Where it is used and how many users are there?

The technology has been tested in 16 countries, Kenya being one of them. There are 20 farms where the trials have been done in Mutito Andei, Makueni County (Kenya). The Enterprise is targeting to have more than 100 farmers adopt the technology before the end of this year.

Why is it successful?

Successful because the technology increases production up to 5 folds, very effective in semi- arid areas.

If you can make it, a short description, typical problems, materials needed:

You need to have the membrane which gauge .Jembe, shovel tape measure etc. installation is done by trained people. This technology is applicable to sandy farms with a depth of 1.2m. No use of ox or tractor plough.

How to make it (if possible):

<https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwin hqHvuLT3AhXH5KQKHVeZCdkQwqsBegQIBBAB&url=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv%3DT4Ro1UmAzIs&usg=AOvVaw2ImRlNRrNArIOoe9MSAp0>

How is it delivered and by whom?

Delivered by Jkuates, the International Center for Tropical Agriculture (CIAT), Saint Louis University (SLU).

Successful financial model

The technology is financed by Nordic Climate Facility (NCF).

What policies and strategies helped the success?

Established 20 trials in four villages in Makueni county, Kenya .This served as a learning point for other farmers. The project is also providing 10m² free membrane to early adopters where they will only pay for installation cost.

More info:

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Sources:

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