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## General

The farm Mzuzu in Malawi with a total surface to be irrigated of 0.5 Hectares and an irrigation source yield of 1000 m<sup>3</sup>/h shall be irrigated by Direct Feed

## Water Requirements Report

Geolocation	11.46°South 34°East
Average temperature in hottest month	20 °C

## Crops Water Demand

<b>Sweet potato</b>	
Water demand	31.994 m <sup>3</sup> /d
Surface share crop	0.5 Hectares
Plant spacing	Normal spacing
Irrigation method	Microsprinkler

## Livestock Water Demand

## Goats

Water consumption	0.200 m <sup>3</sup> /d
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## Total Water Demand

Total crop water demand	31.994 m <sup>3</sup> /d
Total livestock water demand	0.200 m <sup>3</sup> /d
<b>Total water demand</b>	<b>32.194 m<sup>3</sup>/d</b>

### Remarks:

- In times of climate changes and droughts, precipitation is not considered.
- If the farm is located in a humid area, deduct a certain amount (10-50%, depending on the area) from the max. amount needed for irrigation (meaning from the pump flow rate).
- Water for household use is not considered.
- Planting month is not considered.
- Results are for orientation only, for more accurate results use the SPIS-Excel Toolbox.

## Pumpsizing For Direct Feed Irrigation Report

### Related Information

Month with the highest temperature	March
Average temperature in this month	20 °C
Average solar irradiation	5.63 kWh/m <sup>2</sup>
Total Water Demand	32.19 m <sup>3</sup> /d

## Irrigation System Design

### General System Information

Solar system losses	Standard (25%)
Static head	20 m
<b>Pipelines</b>	
Irrigation head pipeline length	20.00 m
Irrigation head pipeline diameter	2.00 in
Main feeder pipeline length (total)	20.00 m
Main feeder pipeline diameter	2.00 in
Lateral feeder pipeline length (total)	19.77 m
Lateral feeder pipeline diameter	2.00 in
<b>Fittings</b>	
Number of elbows	0
Number of gate valves	0
Number of tees	0
Number of reducers	0
Number of check valves	0
<b>Pressure Requirements</b>	
Irrigation method	Microsprinkler
Pressure requirements	5.00 m

### Irrigation System Requirements

Volume flow	5.72 m <sup>3</sup> /h
Total dynamic head	25.78 m
<b>Estimated Pump size</b>	<b>0.89 kW</b>
<b>Estimated Solar Panel surface</b>	<b>5.58 m<sup>2</sup></b>

Remarks:

- Flowmeter and Filter are not considered.
- Especially a filter can influence the pressure loss, so please keep this in mind.
- As material for the pipeline we consider only PVC or PE.

## Turnover & Investments Report 2024

Total surface to be irrigated	0.5 Hectares
SPIS configuration	Basic
<b>Income</b>	
Crop sales and by-products income (sea...	1000.00 EUR
Livestock sales and by-products income	200.00 EUR
Lease income	0.00 EUR
Infrastructure and equipment income	0.00 EUR
<b>Expenses</b>	
Crops expenses	100.00 EUR
Livestock expenses	100.00 EUR
Infrastructure and equipment expenses	0.00 EUR
Salaries expenses	0.00 EUR
Distribution expenses	0.00 EUR
Management and administration expenses	0.00 EUR
<b>Turnover</b>	<b>1000.00 EUR</b>

You will be able to use solar powered irrigation at least for 1 acre.

Get in touch with a supplier to determine the configuration for your specific case. Higher cost might incur because of your water source (e.g. deeper well), the crop you want to plant, the site (slope, soil, temperature, etc.).

You will be further guided in this tool to determine roughly the size of your pump and solar panels.

# Soil Type Report

A jar test to determine the soil type was performed on: 2025-01-07

It was found that the soil contains:

- Percentage of sand: 20%
- Percentage of clay: 40%
- Percentage of silt: 40%

This makes it a soil type: Silty clay

Medium to high water capacity, water held in the soil, favorable in dry periods.

# Maintenance Report

**Your farm has: Good result**

The maximum score is 56 points. You have achieved 49 points - you have fulfilled the essential criteria for a good installation and adequate maintenance of a solar irrigation system.

Nevertheless, we would like to expressly point out that a positive result does not necessarily mean that your installation is working perfectly. In individual cases, there may well be other criteria that can be important for the quality of the installation and maintenance of a solar irrigation system.