User: kanenah23@gmail.com

Farmer name: Nah KANE

General

The farm Mali-malo in Mali with a total surface to be irrigated of 4 Hectares and an irrigation source yield of 1000 m³/h shall be irrigated by Tank System

Water Requirements Report

Geolocation	12.65°North 7.99°East
Average temperature in hottest month	39 °C

Crops Water Demand

Tomato	
Water demand	96.163 m³/d
Surface share crop	1 Hectares
Plant spacing	Normal spacing
Irrigation method	Microsprinkler
Carrots	
Water demand	87.801 m³/d
Surface share crop	1 Hectares

Plant spacing	Normal spacing
Irrigation method	Microsprinkler

Livestock Water Demand

vache	
Water consumption	0.040 m³/d

Total Water Demand

Total crop water demand	183.964 m³/d
Total livestock water demand	0.040 m³/d
Total water demand	**184.004 m³/d**

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 Indirect Feed Irrigation Report

Related Information

Month with the highest temperature	April
Average temperature in this month	39 °C
Average solar irradiation	5.96 kWh/m²

Total Water Demand	184.00 m³/d

Irrigation System Design

General System Information	
Solar system losses	Standard (25%)
Static head	124.96 m
Pipeline	
Pipeline length	45.00 m
Pipeline diameter	85.00 mm

Irrigation System Requirements

Daily water requirement	184.00 m³/d
Volume flow	30.87 m³/h
Total dynamic head	126.05 m
Estimated Pump size	**23.57 kW**
Estimated Solar pumping system size	**29.46 kWp**
Estimated Solar Panel surface	**147.28 m²**

Remarks:

- Flowmeter and Filter in the pipeline 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.

Tank System Irrigation Design Report

General System Information	
Tank pressure in meters	27.00 m
Pipelines	
Irrigation head pipeline length	125.00 m
Irrigation head pipeline diameter	90.00 mm
Main feeder pipeline length (total)	50.00 m
Main feeder pipeline diameter	84.95 mm
Lateral feeder pipeline length (total)	0.00 m
Lateral feeder pipeline diameter	0.00 mm
Fittings	
Number of elbows	10
Number of gate valves	8
Number of tees	6
Number of reducers	0
Number of check valves	03
Pressure Requirements	
Irrigation method	Microsprinkler
Pressure requirements	7.00 m

Irrigation is feasible.

If irrigation is not feasible, try another irrigation method with less pressure requirements (e.g. drip), increase the height of the tank, decrease area of irrigation or choose direct irrigation.

Remarks:

• As material for all pipes, we consider only PVC or PE.

Turnover & Investments Report 2024

Total surface to be irrigated	4 Hectares
SPIS configuration	Intermediate

Income	
Crop sales and by-products income (sea…	4500000.00 USD
Livestock sales and by-products income	2000000.00 USD
Lease income	1500000.00 USD
Infrastructure and equipment income	2000000.00 USD
Expenses	
Crops expenses	100000.00 USD
Livestock expenses	100000.00 USD
Infrastructure and equipment expenses	25000.00 USD
Salaries expenses	1000000.00 USD
Distribution expenses	49999.97 USD
Management and administration expenses	0.00 USD
Turnover	**8725000.03 USD**

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: 2024-12-08

It was found that the soil contains:
- Percentage of sand: 40%
- Percentage of clay: 30%
- Percentage of silt: 30%

This makes it a soil type: Clay loam

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

Maintenance Report

Not enough data provided