



Samarkand agroinnovation and Research University

Theme: Technology of cultivation and processing of medicinal ginger plant under greenhouse conditions

RESEARCHES GROUP

Project of members

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Problem

1. That the ginger plant does not occur naturally in Uzbekistan
2. The fact that the export of the ginger plant has not been started
3. Lack of recycling technology
4. Water shortage
5. Increasing demand for pure and ecological natural products
6. Low soil fertility

Solution

1. The ginger plant was successfully introduced to the environment of Uzbekistan
2. This plant takes the leading place in the world in terms of export potential
4. We started a drip irrigation system using snow and rainwater in the greenhouse
5. Creating a natural and high-quality raw material base from the rhizome of the ginger plant throughout the year
6. We observed that the ginger plant grows even in soils with low fertility when the moisture content is sufficient



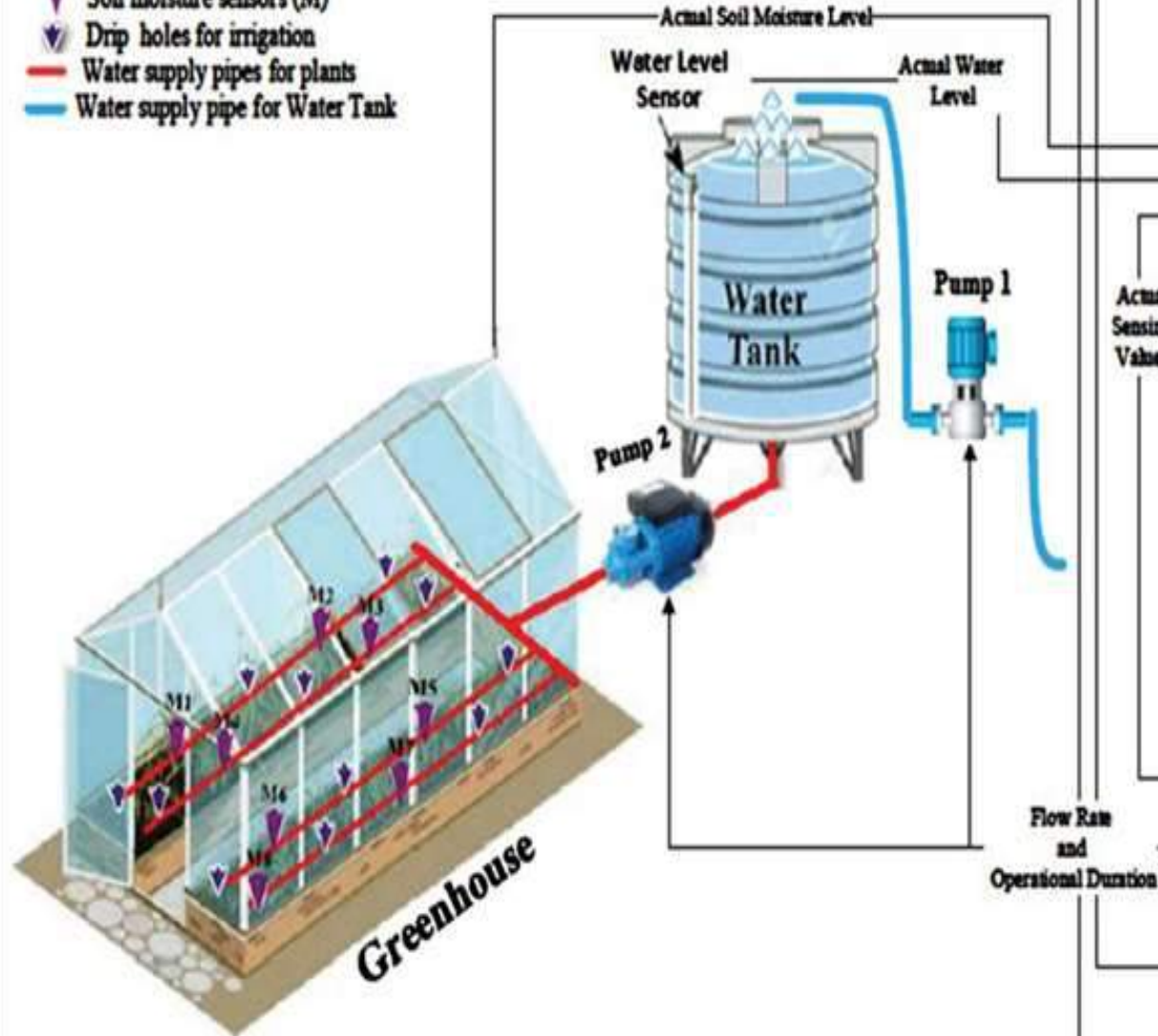
We planted the ginger plant in the greenhouse in late autumn on the 10th of December. Since it is a perennial rhizome plant, we cut the rhizomes into several pieces. Then we planted rhizomes at a depth of 10-12 cm, spacing of each plant 30-40 cm, the row 60-90 cm. The ginger plant requires a lot of water because it grows in tropical regions. The plant germinated in 20 days in greenhouse conditions with a humidity of 70-80 % and a temperature of 18-20 C. During research, the plant grew up to 5 cm in 30-35 days and up to 10-15 cm in 40-45 days. It reached 1 m by March and April. Biologically active substances accumulate in the rhizome. Therefore, the rhizome is harvested in late fall or early spring. We collected in November.



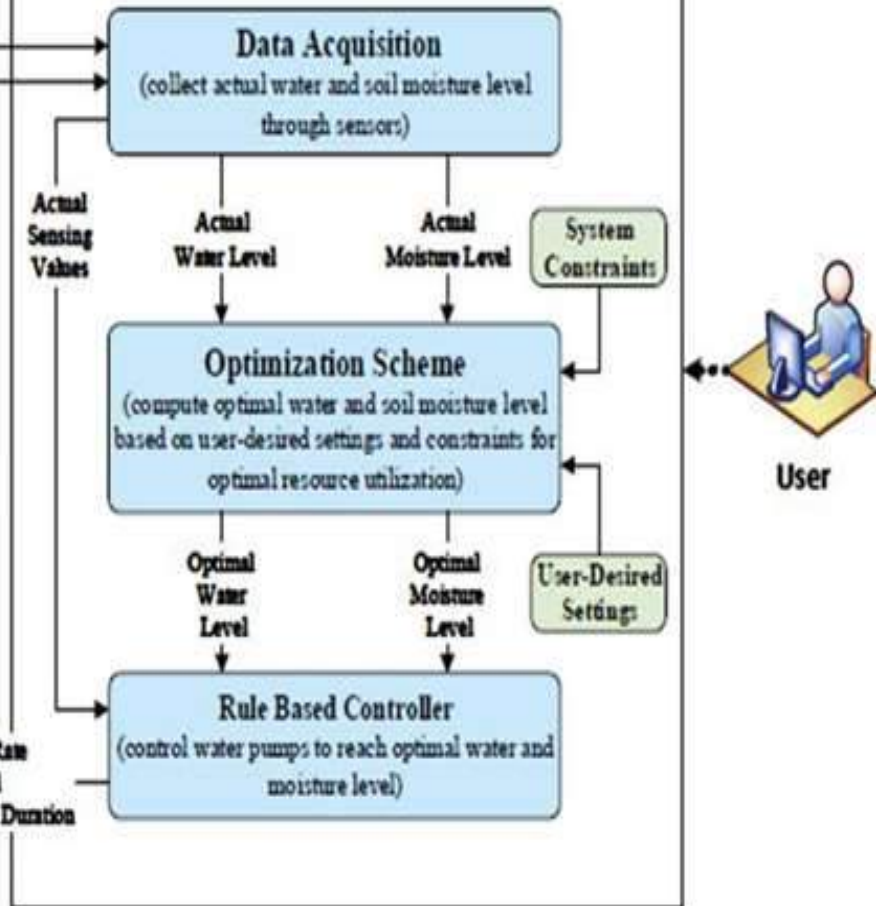


Greenhouse Environment

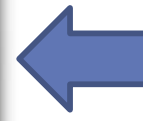
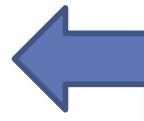
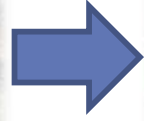
- Soil moisture sensors (M)
- Drip holes for irrigation
- Water supply pipes for plants
- Water supply pipe for Water Tank



Proposed Optimization and Control



Medicinal plant is *Zingiber officinalis* planting processes



35-40 days



40-45 days





Cleaning and Peeling
Machine



Slicer



Dryer



Grinder



Packing Machine

Processing technology

The ready-collected rhizomes are washed, cleaned, divided into pieces and dried in a drying oven at a temperature of 60-65 C for 3-4 hours. Then the dried finished product is ground into powder using a grinder and packed, 100-150 g of powder is obtained from 1 kg of rhizomes.



1.Fresh Ginger



2.Ginger Peeling & Washing



3.Ginger Slicing



4.Ginger Flakes Drying



5.Ginger Drying Effects



6.Ginger Flake Packing

Necessary equipment	Number	Usd	Euro
Cleaning and peeling machine	1	1,980,00	1 898
slicer	1	895,00	858,13
grinder	1	900,00	862,92
Packing machine	1	100,00	95,88
Greenhouse	1	7 725,11	7 407



Thank you for
attention

ginger