Drip Irrigation by PEPSEE System
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Abstract:
Due to scarcity of water and its resources the use of each drop of water is costing us to bite of food. In this condition water losses and use of available resources became need of time. For this adaptability of new and efficient technology becomes important. This report is presenting one of such efficient method for drip irrigation can be fruit plants and gardens. Also economics of method also mentioned.

I. INTRODUCTION

Irrigation is the artificial application of water to the land or soil. It is used to assist in the growing of agricultural crops, maintenance of landscapes, and vegetation of disturbed soils in dry areas and during periods of inadequate rainfall. Additionally, irrigation also has a few other uses in crop production, which include protecting plants their usable life. Longevity is variable.

II. GENERAL INSTRUCTIONS

DRIP IRRIGATION: Drip irrigation is a micro irrigation method in which the rate of water application is very low and without any pressure. i.e., drop by drop. Drip irrigation is based on the basic concept of irrigation only the roots zone of crop.

ADVANTAGES OF DRI P IRRIGATION

- Less requirement of irrigation water
- Water supply at optimum level.
- Water logging is avoided
- High yield
- Over irrigation is avoided.

DISADVANTAGES OF DRI P IRRIGATION

High cost: drip irrigation systems are expensive because of their requirements of large quantity of piping & filtration equipment to clean the water.

Expense: Initial cost can be more than overhead systems.

Waste: The sun can affect the tubes used for drip irrigation, shortening

III. PEPSEE SYSTEM

The PEPSEE system is as system in which the pipe used is made up of plastic which is light in weight. This system is mainly practices for fruit like grapes. This system is mainly practice or they have practice in Jalgaon and West Nimar.

Features of PEPSEE system

The PEPSEE is adopted at place where there exits acute scarcity of irrigation water & other salt. Water is slowly & directly applied to the road zone of the plants. Minimize the losses by evaporation & percolation.

ADVANTAGES OF PEPSEE SYSTEM

Low cost. Low initial investment. Skill labours are required is less. Fewer transportation and less storage is require.

DISADVANTAGES OF PEPSEE SYSTEM

Limited life span of the pipe. More no of labour are requiring. Unequal distribution of water. Cannot with stand high pressure

IV. DESIGN

Data collection

Types of soil
- Infiltration characteristics of soil
- Types of crop
- Consumptive use of water by crops
- Water quality
- Climate condition
- Availability of funds
- Contour map

Type of soil

Choosing the right location for planting is an important maintains growth and prevent disease. As we had taken the crop grapes it requires sandy and loamy soil. The soil should be with an average fertility and good drainage.
Water quality

The water which we are using for the drip irrigation should be pure. It should not contain any suspended particle which may block the pipe.

Figure 2. Water

Climatic condition

Grapes generally require hot and dry climate during the growth and fruiting period. It is successfully grown in the areas where the temperature range is 15 degree to 40 degree Celsius.

Figure 3. Climatic condition

In general the grapes do not required heavy amount of fertilizer once they are well established. But one commonly used fertilizers known as contain 16 % nitrogen 16% potassium 8% potash. Generally if required ½ to ¼ cup can be provided to help younger plant to produce fruit.

Equipment used for pepsee system

Water requirement (1pd/plant)=15

Material required
1. Main line
2. Lateral
3. No of plants 1112
4. Drippers
5. Micro tubes
6. Tees, end-plugs
7. Screen filters
8. Regulators, Joints etc.

Financial viability

The financial viability of the scheme is as given below:

- Area = 1 ha (100x100m)
- Plant spacing = 3mx3m
- Total number of plants = 1112
- Total cost = Rs.28,300.00
- The Internal rate of Return works out to 30.62%. As such, the proposal is financially viable.

Table 1. Comparison

<table>
<thead>
<tr>
<th>Pepsee system</th>
<th>Micro tube system</th>
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<tbody>
<tr>
<td>Water requirement is less</td>
<td>Water requirement is more</td>
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<tr>
<td>as compare to micro tube</td>
<td>as compare to pepsee system.</td>
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<td>system.</td>
<td>It is cheaper as compare to</td>
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<td></td>
<td>micro tube system.</td>
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<tr>
<td>Pepsee system cost</td>
<td>Pepsee system suitable for</td>
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<td>(R4000/ha)</td>
<td>0.1-2 ha.</td>
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Estimation of pepsee system

Figure 4. Comparison

Figure 5. pepsee pipe

Micro tubes & Lateral (7000/ha). It is suitable for any plot 0.4 ha.
V. CONCLUSION

All the Irrigation schemes are so designed that they increase the food production of the country. Apart from the increase in food, there are many indirect benefits or advantages of Drip irrigation with pepsee system. This study was conducted to explore the various aspects of the Pepsee system, its history and spread, to make a comparative technical/financial evaluation of Pepsee with conventional drip/micro-tube and flood irrigation techniques, to analyse the conditions and factors that lead to successful adoption of Pepsee systems and finally to suggest a marketing strategy for replication of the technology.

VI. REFERENCES:

[1]. Kisaan call center (Ministry of Agriculture and Farmers welfare Government of India)