**Course: Water Management in Horticultural Crops 2(1+1),**

**Class: 1st year, 2nd semester**

**Topic: Lysimeter Studies**

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**LYSIMETER STUDIES**

**Lysimeter:** A device for measuring percolation and leaching losses from a column of soil under controlled conditions. It permits the specific measurement of ET, rainfall and water uptake by plants etc.

These are the drum or tanks like structure, buried in the ground to measure the percolation of water through soils. But there are some requirements for its installation.

1. Lysimeter should be very large and deep to reduce the boundary effect and to avoid restricted root development.
2. For short crops lysimeter should be at least one cubic meter in volume.
3. The physical conditions within the lysimeter must be comparable to those outside.
4. Lysimeter should be representative of the surrounding area, it should not be installed on the periphery of non cropped area.
5. Crop of the lysimeter should be same as in the field and same quantity of water applied in the field.

**Types of Lysimeter:**

1. Non weighing type (2) Weighing type
2. **Non-weighing Type:** This lysimeter is called drainage lysimeter. It operates on the principle that evapotranspiration is equal to the amount of rainfall and irrigation water added to the system minus leaching.

ET = Rainfall + Irrigation Water – Leaching

The drainage lysimeter is useful only in determining the PET rate and should be irrigated every four to five days, unless rainfall intervenes.

1. **Weighing Type:** Weighing type lysimeter are the most direct and accurate instrument for the determination of evapotranspiration. It gives ET for a short period, phenomenon of midday wilt, short term variation of energy partition, relationship between transpiration & soil moisture tension, effective rainfall etc. It also measures the water balances i.e. water added, water retained by soil and water lost through all sources i.e. evaporation, transpiration and deep percolation.