



# Substrate systems chrysanthemum, first results

## Systems and production

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**A novel method for designing growing systems was used to assess 11 systems for chrysanthemum growing with recirculation of the nutrient solution. Four basic systems and one derivate system were realized for testing in research greenhouse compartments.**

### Goal

The goal is to capture and re-use drainage water from chrysanthemum growing within the boundaries of economic viability. As cost rise when drain water is captured and re-used, yields must rise considerably too to cover the costs.

### Substrate beds

A new design system matches system requirements to system properties quantitatively while using the same measurement methods and units for both. Costs are included as investments costs and as running costs per year. The matches for all properties considered are expressed in one overall mark. The systems selected were:

1. A deep soil bed with a water tight foil at 70 cm and a drain system on the foil. Irrigation is supplied exclusively overhead.
2. A sand bed with 15 cm coarse sand on a bed of clay pellets with a drainage system in the pellets. Sub-irrigation through the drains.
3. A peat bed with 25 cm peat on sub irrigation benches.
4. Narrowed lily boxes with 20 cm peat on sub irrigation benches.
5. Cassette beds (3 cm) with 15 cm peat on sub irrigation benches.

Systems 3-5 are irrigated with the sub irrigation system of the benches and bare cuttings were directly stuck in the beds.



System 1, Deep soil bed



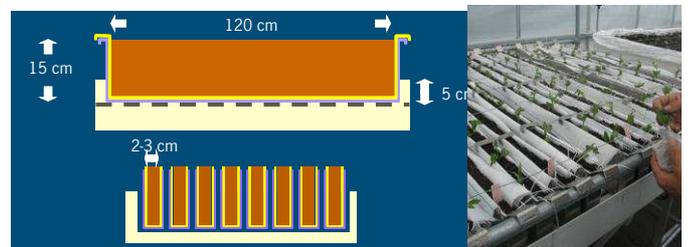
System 2. Sand bed



System 3, Peat bed



System 4, Narrow lily crates



System 5, Cassette beds

### Preliminary results

Table 1. Preliminary harvest on 28-08-2009

	Plant date	Length	W-fresh
Soil bed*	14-7-2009	97.5	83.3
Sand bed*	14-7-2009	94.5	89.8
Peat bed	9-7-2009	87.4	107.4
Lily crate	9-7-2009	86.3	112.2
Cassette bed	9-7-2009	88.9	107.4

- propagated in press pots

### Discussion

- Direct sticking grows faster (> 10 days) than press pots.
- Starting on sand beds is faster than in soil (>3 days).
- Fresh weight on cassette beds was initially higher than on lily crates but later lost the advantage (not in the table).

