

## Influence of EM on soybeans

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### Harvest Farm: a demonstration site

Situated in Kottakarai village, Auroville, Harvest Farm is large of 6 acres and is the experimental and demonstration farm of the planned program of agricultural revival along ecological and sustainable lines envisaged for the bioregion. The purposes are to field test various techniques based on ecological and sustainable principles and design the extension packages, then to bring awareness and education through seminars and training in the farm for the farmers who want to convert to organic agriculture.

### Experimentation with EM

#### Aims:

The experimentation with EM on soybeans aims to:

- Study the influence of those microorganisms on the growth and yield of the plants,
- Help to increase the soil fertility.

#### Protocol:

Crop	Seeds treatment	Field treatments
Peanut	All the seeds have been soaked into EM (rate: 1:1000) during one hour	Application of EM in the irrigation water in one part of the field only (rate: 1:1000)

15 samples are taken in the both parts of the field.

Parameters observed:

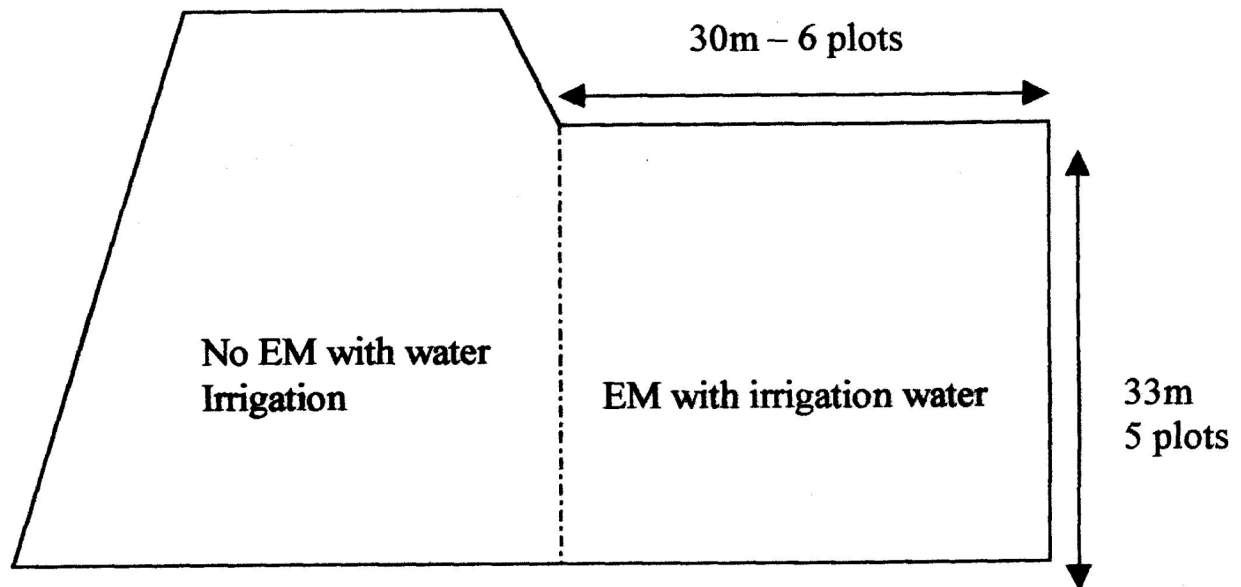
- Visual observations of the plants, pests, roots and plant development.
- Biomass measures ( $\text{g}/\text{m}^2$ ) before flowering and harvesting stages.
- Yield ( $\text{Kg}/\text{acre}$ )

#### Technical path of the crops:

Field operations	
Previous crop	Green manure
Basal fertilization	4 cart loads of compost
Sowing	Date: 20.01 , density: 35Kg/acre, mixed variety
Irrigation dates	21.01, 28.01, 7.02, 22.02
Bio pesticide	Date: 16.02, mixed 5L of cow urine, 5K of cow dung and 250ml of neem oil

Soil type: clayey loam

**Experiment location:**



EM with irrigation water area: 0.24 acres

Field area: 0.74 acres

**Memo of 23 February 2000: biomass measures**

**Visual Observations:**

Development stage of the plant: beginning of flowering.

The cover of the soil looks apparently the same in the both parts of the soybeans field. The individual observations of the plants does not show big differences in the plant height root length, except a number of nodules higher in the non EM irrigated part: 6% of the EM-irrigated plants have one or two nodules whereas 9% of the non EM-irrigated plants have one nodule.

**Biomass and density measures:**

	EM in irrigation		No EM in Irrigation	
	Bio mass	Density	Biomass	Density
Plot 1	480	84	660	76
Plot 2	660	92	760	32
Plot 3	760	96	840	64
Plot 4	700	68	340	24
Plot 5	680	116	660	64
Plot 6	200	28	400	24
Plot 7	1340	80	400	32
Plot 8	960	36	300	32
Plot 9	1120	84	400	36
Plot 10	740	52	480	/
Plot 11	/	/	980	64
Plot 12	/	/	320	40
Average	764	73.6	545	43.5

Biomass: g/m<sup>2</sup>

Density: plant number/m<sup>2</sup>

These measures reveal a biomass difference of 40% and a density difference of 69% for the field part irrigated with EM.