

Influence of EM on Peanuts

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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 farm for the farmers who wants to convert to organic agriculture.

Experimentation with EM

Aims:

The experimentation with EM on soybean aims to:

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

Protocol:

Application of EM: -on the green manure at the rate of 4:1000
 -After ploughing at the rate of 4:1000
 -In the irrigation water at the rate of 1:1000

3 samples on an area of 0.25m² each are taken in the both parts of the field.

Parameters observed:

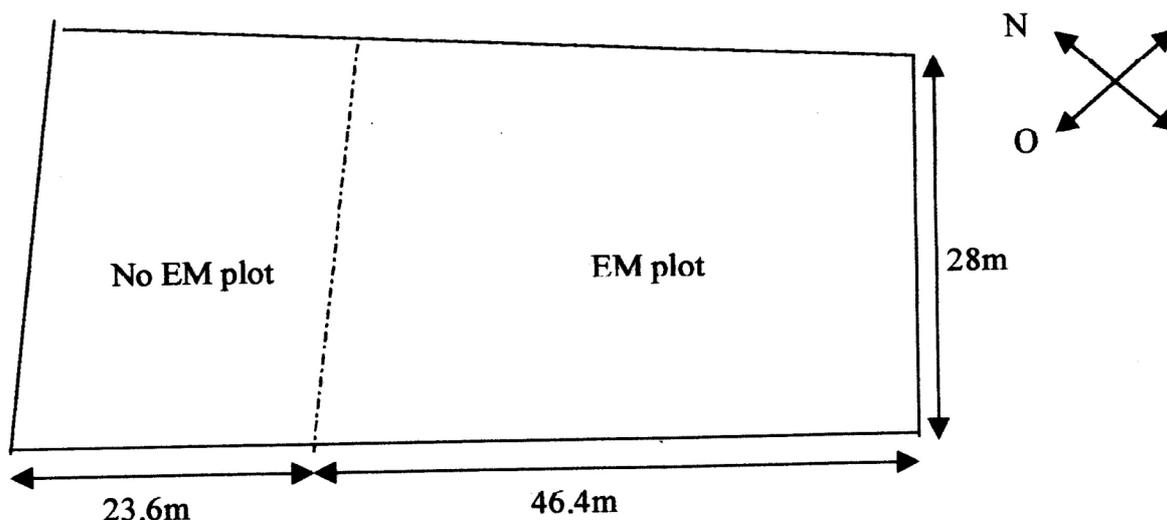
- Visual observations of the plants, pests, roots and plant development.
- Density measures (number of plants/m²).
- Biomass measures (g/m²) at the pod formation.
- Yield (kg/acre).

Technical path of the crops:

Field operation	
Previous crop	Green manure (<i>Senhemp</i>)
Basal fertilization	4 cart-loads of compost
Sowing	Date: 1.02, density: 75kg/acre
Irrigation dates	1.02, 15.02, 9.03
Bio-pesticide	Date: 14.02, mixed 5L of cow urine, 5kg of cow dung and 250ml of neem oil + 2 Pheromone traps

Soil type: clayey loam

Experiment location:



EM with irrigation water area: 0.31 acres

Field area: 0.47 acres

Memo of 24 march 2000:

Plant development measures: (pod formation stage)

	EM Plot			No EM Plot		
	Pods/plant	Height (cm)	Nb stems	Pods/plant	Height (cm)	Nb stems
Sample1	13.3	52.1	5.5	13	53.8	5.1
Sample2	14	60.1	5.3	14.5	54.6	4.6
Sample3	14	52.6	5.8	8.6	52.1	4.6
Average	13.76	54.94	5.6	12.04	53.5	4.76

The cover of the soil is good in the both parts of the peanut field. The individual plant observations do not show any differences in the plant height, root length and only a light difference in the number of stems/plant. On the both parts of field and in an equivalent rate, we can notice some yellow spots in the lower leaves. However the number of pods/plant reveals a difference of 14.3% for the EM plot (13.76 pods/plant in EM part and 12.04 pods/plant in no-EM part).

Biomass and density measures:

	EM Plot		No EM Plot	
	Biomass	Density	Biomass	Density
Sample1	3040	28	2600	24
Sample2	3600	36	2400	24
Sample3	3280	36	2400	32
Average	3306	33.3	2466	26.6

Biomass: g/m²

Density: plant number/m²

The EM applications increased the germination rate as the density is higher of 25% in EM plot. A biomass difference of 34% in EM part has been noticed too.

Estimated yield:

The yield can be estimated by the following calculations:

Number of plant/m² x Number of pod/plant x average weight of the pod (g)

If we suppose that the pod weight is the same in the both parts of the field, we get:

In EM plot: $33.3 \times 13.76 \times 1 = 458.21 \text{ g}$

In No-EM plot $26.6 \times 12.04 \times 1 = 320.26 \text{ g}$

The difference of yield between the two plots would be then of 43% for the EM plot.