

AZOLLA

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Azolla is a water fern. It can fix atmospheric nitrogen. Therefore Azolla can be grown in paddy fields and incorporated into the soil to enrich the soil.

Nutritional requirements of Azolla.

Studies done at International Rice Research Institute shows that -

Deficiency of Iron, Phosphorus and Calcium affects growth of Azolla. Deficiency of these nutrient elements can -

- retard growth of Azolla
- lowers rate of nitrogen fixation.

Azolla tolerates Potassium and Magnesium deficiency.

Field experiment with Azolla.

In this experiment 1.25 Kg. (Fresh weight) of Azolla innoculum was added to experimental plots of 25 square meter size.

Results of the experiment. Table A1

<u>Treatment</u>	<u>Grain Yield tons/ha</u>
None ...	1.48
Mid-season puddling ...	2.36
Azolla inoculation ...	1.85
Azolla inoculation and mid-season puddling ...	2.15
Phosphorous fertilization	1.86
Phosphorous fertilization and Azolla inoculation	2.02
Phosphorous addition, Azolla inoculation and mid-season puddling ...	2.35

Observations.

- (1) Addition of 30 Kg. Phosphorus/ha. stimulated Azolla growth.
- (2) In Phosphorus : treated plots one surface coverage of Azolla was as follows :-

22 Days later 40 Days later

Without Phosphorus	62%	76%
With Phosphorus	85%	96%

(3) On 41st day after transplanting Azolla was incorporated in the soil.

Incorporation of Azolla in the soil

- 1: Drain water from the plots.
- 2: Incorporate Azolla by using a hand weeder between rows of rice plants.

Azolla production.

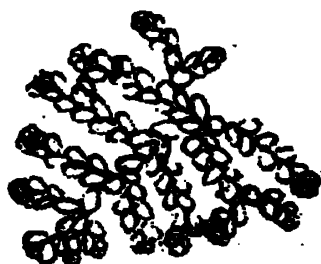
80-120 Kg. Azolla (Fresh weight) is adequate for one hectare. In about 25 days fresh weight of Azolla will be about 15 t/ha. 15 t/ha. (fresh weight) of Azolla has 30-40 Kg.N/Ha.

Therefore Azolla can be grown in paddy fields as well as in swamps and canals near paddy fields and incorporated into the soil.

Field experiments with Azolla in Bg.11-11

A preliminary field experiment was conducted using Azolla on small plots (1.2 m. x 1.2m) with rice (variety BG.11.11). The plots were inoculated with Azolla 3 weeks before transplanting followed by a second inoculation one week after transplanting. 150 g.fresh weight of Azolla was used on each plot. Azolla-treated plots gave as high yield as plots which received 88 Kg.N/ha. (Table A2).

TABLE A2: Effect of Azolla on yield of rice :



Azolla	Treatment	Grain yield Index
	Treatment	
No	None	100
Yes	None	132
Yes	P, K, MO	232
No	PK, MO, and 88 Kg.N/ha	195

