

## EFFECT OF ORGANIC MANURES AND SPACINGS ON GROWTH AND YIELD OF LOWLAND RICE CV. "MELHITE KENYE LHA" UNDER RAINFED CONDITION IN NAGALND.

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A field experiment was carried out during July - December 2001 at the School of Agricultural Sciences and Rural Development (SASRD) Medziphema, Nagaland. The soil of the experimental site was acidic pH (4.5), available nitrogen (215.6 kg/ha) and potassium was low, phosphorus (37.13 kg/ha) was high and organic carbon content (1.08) was high. The experiment was laid out in Factorial-Randomised block design with three replications. There were 12 treatment combinations viz. T<sub>1</sub> - no manure + 60 × 90 cm., T<sub>2</sub> - FYM + 60 × 90 cm., T<sub>3</sub> - pig manure + 60 × 90 cm., T<sub>4</sub> - poultry manure + 60 × 90 cm., T<sub>5</sub> - no manure + 60 × 40 cm., T<sub>6</sub> - FYM + 60 × 40 cm., T<sub>7</sub> - pig manure + 60 × 40 cm., T<sub>8</sub> - poultry manure + 60 × 40 cm., T<sub>9</sub> - no manure + 40 × 40 cm., T<sub>10</sub> - FYM + 40 × 40 cm., T<sub>11</sub> - pig manure + 40 × 40 cm. and T<sub>12</sub> - poultry manure + 40 × 40 cm. spacing. All the organic manures were applied @ 80 kg/ha. The famous local variety of Nagaland "Melhite Kenye Lha" was used for the experiment. Thirty five days old seedlings were transplanted to the main field with two seedlings per hill at three different spacing. All the management practices were followed regularly.

The observation on growth and yield components were recorded on randomly selected five plants from the net plot. The data were analysed done following Panse and Sukhatme (1978).

Application of pig manure with 60 × 90 cm. spacing recorded significantly tallest plants (162.1 cm.) when compared to control (116.3 cm.) and combination of pig manure with any other spacing. Similar findings were observed by Gupta and Sharma (1991). Highest number of tillers (60.6) was also obtained from pig manure with 60 × 90 cm. spacing. This is similar with the findings of Shirame et al. (2000) and Yang Fu et al. (2000). It might be due to enough space between plants, wherein nutrient and space competition within the plants were highly reduced as compared to closer spacing by which the plants might have attained maximum growth.

Maximum number of fertile grains per panicle (177.9) was obtained from the treatment combination between pig manure with 60 × 90 cm. spacing and was significantly higher than control (141.9) and all other treatment combinations. Maximum straw yield (187.6 kg/ha) was obtained from the treatment combination of pig manure with 40 × 40 cm. spacing. There was at par relation between pig manure and poultry manure with 40 × 40 cm. spacing. The highest grain yield (88.2 q/ha) was obtained from the treatment combination between pig manure with 40 × 40 cm. spacing which was at par with poultry manure (84.9 q/ha). Similar findings were reported by Gupta (1995). Maximum cost benefit (3.24) ratio was observed from pig manure with 40 × 40 cm. spacing, which was mainly due to higher plant population. Hence combination of pig manure with 40 × 40 cm. spacing is most profitable than rest of the treatments.

### REFERENCES

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Table 1. Effect of Organic manures and spacing on growth and yield components of rice (cv. Melhite Kenye Lha)

Treatment combination	Height of plant (cm)	No. of effective tillers	No. of fertile grains/ panicle	Straw yield (q/ha)	Grain yield (q/ha)	Cost benefit ratio\
T <sub>1</sub> (60×90cm.+No manure)	116.3	28	141.4	75.5	35.8	1.15
T <sub>2</sub> (60×90 cm.+FYM)	128.9	41.7	154.1	82.8	41	1.19
T <sub>3</sub> (60×90 cm.+ pig manure)	162.1	60.6	177.9	100.3	49.3	1.36
T <sub>4</sub> (60×90 cm. + Poultry manure)	159.9	59.1	171.9	97.7	45.9	1.21
T <sub>5</sub> (60×40 cm. + no manure)	110.6	25.7	128.2	89.3	41.4	1.49
T <sub>6</sub> (60×40 cm. + FYM)	126.3	40.3	121.3	141.8	68.7	2.66
T <sub>7</sub> (60×40 cm. + pig manure)	160.5	52	172.9	183.6	53.6	3.02
T <sub>8</sub> (60×40 cm. + poultry manure)	158.3	48.1	168.8	162.1	76.3	2.67
T <sub>9</sub> (40 × 40 cm. + no manure)	109.1	24.4	107.2	123.9	52	2.12
T <sub>10</sub> (40×40 cm. + FYM)	123.9	37.5	140.5	159.8	76	3.05
T <sub>11</sub> (40×40 cm. + pig manure)	157.1	45.1	149.8	187.4	88.2	3.24
T <sub>12</sub> (40×40 cm. + poultry manure)	155.6	38.1	146.2	165.8	84.9	3.08
CD at 5%						
Manures (M)	.58	.55	1.50	4.54	5.02	
Spacings (S)	.50	.48	1.30	3.93	4.35	
M × S	1.01	1.65	2.58	7.86	8.70	