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Night Soil Compost is as good as Farm Yard Manure for Paddy *

by

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Synopsis: The results of trials carried out on paddy at Rice Research Station, Tirur with night soil compost and farm yard manure on equal nitrogen basis are reported in this paper.

Introduction: The value of night soil as a source of manure is well known and hence it is being widely converted into compost. This is one of the most valuable form of fertilizers as it is rich in nitrogen and all the necessary elements for plant growth. The night soil compost is a dark crumbly and inodorous material that is as valuable as cattle manure or even better. The nitrogen content of the compost ranges from 0.5–1.0 per cent. The farmers round about municipalities realise its value and there a is good demand for the compost produced. Experiments carried out in different parts of India with this form of fertilizer have shown that large increases in yields of crops are obtained by its application.

Materials and Methods: With a view to determining the relative merits of night soil compost and farm yard manure, an experiment was conducted at the Rice Research Station, Tirur in the year 1949—'50 with the following treatments:

1. No manure.
2. Night soil compost to supply 60 lb N per acre (0.24% to 0.73% N)
3. Farm yard manure to supply 60 lb N per acre (0.27% to 0.62% N).

The experiment was conducted in double crop wet lands in *Sornavari* and *samba* seasons with Co. 13 (*Arupatham Kodai*) and Co. 2 (*Poombalai*) and in single crop wet land in *samba* season with Co. 19 (*Chingleput Sirumani*) in randomised and replicated plots. At the end of three years, the residual effect of the application of night soil compost and farm yard manure was assessed. The yields vary in different years due to partial or complete failure of the North-East monsoon and lack of adequate irrigation. Annual rainfall all these years was much below average. In *Sornavari* season the yields were steady due to the limited area cultivated under lift irrigation. In 1951—'52 *sornavari* season the yields were low due to mealy bug attack. The results are presented below:

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* Received on 5—8—1964.

SINGLE CROP WETLAND

Treatments:

1. No manure.
2. Night soil compost to supply 60 lb N per acre.
3. Farm yard manure to supply 60 lb N per acre.

1949—'50 : (*Samba* season — Sown : 23—8—'49
Rainfall : 44.29" — Planted : 16-10—'49
Variety : Co. 19 — Harvested : 14—2—'50

Particulars	Treatment 1	Treatment 2	Treatment 3	Genl. mean	Whether sig. or not	Standard Error	Critical difference P=0.05
Acre yield of grain in lb.	1509	2285	1853	1885		67.3	211.8
Percentage on control (1)	100.0	151.5	122.9	124.7	Yes	4.5	14.0
Acre yield of straw in lb.	1886	2679	2368	2310		138.6	436.5
Percentage on control	100.0	142.0	125.3	122.5	Yes	7.4	23.2
Flowering duration	134	133	133	...	...	...	...

Conclusion : Grain 2, 3, 1 Straw $\overline{2, 3}$, 1

Visual observation: Crop growth was best in night soil compost plot followed by farm yard manure and no manure plots.

1950—'51 : (*Samba* season) — Sown 9—9—'50
Rainfall : 38.01" — Planted : 30-10—'50
Harvested : 25—2—'51

Particulars	Treatment 1	Treatment 2	Treatment 3	Genl. mean	Whether sig. or not	Standard Error	Critical difference P=0.05
Acre yield of grain in lb.	1284	1407	1588	1427		41.4	130.4
Percentage on control (1)	100.0	109.7	123.7	111.1	Yes	3.2	10.2
Acre yield of straw in lb.	2022	2205	2414	2213		52.9	166.6
Percentage on control (1)	100.0	109.0	119.3	109.4	Yes	2.6	8.2
Flowering duration in days	129	129	128	...	...	...	...

Conclusion : Grain $\overline{3, 2}$, 1 Straw 3, 2, 1

Visual observation: Treatment differences not apparent at the time of crop growth.

1951—'52 : (*Samba* season)
Rainfall : 34.55"

Sown : 7—9—'51
Planted : 24-10—'51
Harvested : 12—2—'52

Particulars	Treatment 1	Treatment 2	Treatment 3	Genl. mean	Whether sig. or not	Standard Error	Critical difference P-0.05
Acre yield of grain in lb.	916	1372	1081	1123		14.0	45.0
Percentage on control (1)	100.0	149.8	118.1	122.7	Yes	1.6	5.0
Acre yield of straw in lb.	1624	2828	2000	2150		98.0	310.0
Percentage on control (1)	100.0	174.2	123.2	132.4	Yes	6.1	19.1
Flowering duration in days	128	128	128	...	...	...	...

Conclusion : Grain 2, 3, 1 Straw 2, 2, 1
Visual observation : Farm yard manure plots and night soil compost plots appeared alike and had better growth than no manure plots.

1952—'53 : (*Samba* season - Residual effect)
Rainfall : 32.48"

Sown : 29—8—'52
Planted : 13-10—'52
Harvested : 11—2—'53

Particulars	Treatment 1	Treatment 2	Treatment 3	Genl. mean	Whether sig. or not	Standard Error	Critical difference P-0.05
Acre yield of grain in lb.	1865	1778	2024	1889		45.3	144.0
Percentage on control (1)	100.0	95.2	108.5	101.2	Yes	2.4	7.7
Acre yield of straw in lb.	2113	1988	2201	2101		67.4	..
Percentage on control (1)	100.0	94.1	104.1	99.4	No	3.2	...
Flowering duration days	125	125	125	...	...	...	...

Conclusion : Grain 3, $\overline{1, 2}$ Straw : Not significant.
Visual observation : Treatment differences not evident during crop growth.

DOUBLE CROP WET LAND

Treatments :

1. No manure.
2. Night soil compost to supply 60 lb N per acre.
3. Farm yard manure to supply 60 lb N per acre.

1950—'51 : (*Samba* season)
Rainfall : 38.01 ,,
Variety : Co.2

Sown 30—9—'50
Planted 3-11—'50
Harvested 23—2—'51

Particulars	Treatment 1	Treatment 2	Treatment 3	Genl. mean	Sig. or not	Standard Error.	Critical difference P=0·05
Acre yield of grain in lb	984	1037	1134	1052		17.3	54.4
Percentage on control (1)	100.0	105.4	115.3	106.9	Yes	1.8	5.5
Acre yield of straw in lb	1170	1430	1450	1350		26.3	83.2
Percentage on control (1)	100.0	122.2	123.9	115.3	Yes	2.3	7.1
Flowering duration in days	98	102	100	...	...	...	...

Conclusion : Grain 3, $\overline{2, 1}$ Straw $\overline{3, 2}$, 1
Visual observation : Treatment differences not apparent during crop growth.

1951—'52: (*Sornavari* season) — Sown on 25—4—'51
Rainfall: 34.55" — Planted on 23—5—'51
Variety: Co. 13. — Harvested 20—8—'51

Particulars	Treatment 1	Treatment 2	Treatment 3	Genl. mean	Whether Sig. or not	Standard Error.	Critical difference P=0·05
Acre yield of grain in lb	1631	1958	1939	1844		63.0	197.0
Percentage on control (1)	100.0	120.1	118.9	133.0	Yes	3.8	12.1
Acre yield of straw in lb	2769	3460	3314	3181		64.0	200.0
Percentage on control (1)	100.0	124.9	119.7	114.9	Yes	2.3	7.2
Flowering duration in days	85	85	85	...	...	...	...

Conclusion : Grain $\overline{2, 3, 1}$ Straw $\overline{2, 3, 1}$

Visual observations : Though the treatment differences were not apparent in the early stages of crop growth, in later stages manured plots were better than no manure plots. The crop had an attack of rice mealy bug.

1952—'53: (*Sornavari season*) — Sown 27—5—'52
Rainfall: 32.48" — Planted 5—7—'52
Harvested 20—9—'52

Particulars	Treatment 1	Treatment 2	Treatment 3	Genl. mean	Whether Sig. or not	Standard Error	Critical difference P=0·05
Acre yield of grain in lb	2701	2995	3091	2929		31.9	101.0
Percentage on control (1)	100.0	110.9	114.5	108.5	Yes	1.2	3.7
Acre yield of straw in lb	2948	3387	3181	3172		60.3	189.0
Percentage on control (1)	100.0	114.8	107.7	107.5	Yes	2.0	6.4
Flowering duration in days	86	85	86	...	...	...	...

Conclusion : Grain $\overline{3, 2}$, 1 Straw 2, 3, 1

Visual observations: Manured plots had better growth than no manure plots. Night soil compost plots and farm yard manure plots looked alike.

1953—'54: (*Sornavari* season—Residual effect) — Sown 4—5—'53
Rainfall: 38.92 — Planted 28—8—'53
Harvested 21—8—'53

Particulars	Treatment 1	Treatment 2	Treatment 3	Genl. mean	Significant or not	Standard Error	Critical difference P=0·05
Acre yield of grain in lb	2880	3138	3077	3033		36.4	112.2
Percentage on control (1)	100.0	109.0	106.9	105.3	Yes	1.3	3.9
Acre yield of straw in lb	5304	5597	5837	5578		133.9	...
Percentage on control (1)	100.0	105.5	110.1	105.2	No	2.5	...
Flowering duration in days	82	82	82	...		...	...

Conclusion : Grain 2, 3, 1 Straw—Not significant.

Visual observations: Manured plots had better growth than no manure plots. Night soil compost plots and farm yard manure plots looked alike.

Results and conclusions: From the results of six trials, it is seen that with regard to grain yield, in two trials night soil compost has given statistically higher yield than farm yard manure and no manure; in two trials farm yard manure has given statistically higher yield than night soil compost and no manure which were on a par and in two trials night soil compost and farm yard manure were on a par and statistically above no manure. With regard to straw yield night soil compost and farm yard manure were on a par in three trials, night soil compost was statistically superior to farm yard manure in two trials, and farm yard manure was statistically superior to night soil compost in one trial.

When residual effects were tested, it is seen that with regard to grain yield, night soil compost and farm yard manure had residual effect both being on a par in double crop wet land. In single crop wet land, farm yard manure alone had residual effect while night soil compost and no manure were on a par. With regard to straw yield treatment differences were not statistically significant. It may be concluded that night soil compost is as good as farm yard manure.

Summary: Trials carried out at the Rice Research Station, Tirur in the years 1949—'50 to 1953—'54 to determine the relative merits of night soil compost and farm yard manure for paddy are discussed. It has been concluded that for paddy night soil compost is as good as farm yard manure.