The Pharma Innovation Journal 2023; 12(6): 4233-4235

www.ThePharmaJournal.com

The Pharma Innovation

ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2023; 12(6): 4233-4235

www.thepharmajournal.com
Received: 02-04-2023
Accepted: 03-05-2023

Rohit Chaurasiya
M.Sc. Agronomy, Faculty of Agriculture Sciences & Allied Industries, Rama University, Noida, Uttar Pradesh, India

Naveen Kumar Maurya
Assistant Professor, Faculty of Agriculture Sciences & Allied Industries, Rama University, Noida, Uttar Pradesh, India

Vikas Maurya
Senior Research Fellow, ICAR-Indian Institute of Pulses Research, Kanpur, Uttar Pradesh, India

Corresponding Author:
Naveen Kumar Maurya
Assistant Professor, Faculty of Agriculture Sciences & Allied Industries, Rama University, Noida, Uttar Pradesh, India

Effect of organic manures on growth and yield of Paddy in Central Uttar Pradesh

Rohit Chaurasiya, Naveen Kumar Maurya and Vikas Maurya

Abstract
The study on effect of organic manures on growth and yield of Paddy in Central region of Uttar Pradesh was conducted at Agriculture Research Farm, Faculty of Agriculture Sciences and Allied Industries, Rama University, Kanpur during the *Kharif* season of 2022-23. Randomized Block Design with eight treatments was used for the purpose. The study revealed that The study was revealed that maximum plant population was recorded with treatment T_6 Vermicompost (5 t/ha) followed by treatment Vermicompost (2.5 t/ha). In similar lines, the yield was also calculated highest for T_6 Vermicompost (5 t/ha).

Keywords: Paddy, organic mannues, vermi-compost, INM

Introduction
Modern agriculture was effective in its endeavour to remove the country from food trap and to achieve the period of independence in food grain production. Be that as it may, at the appointed time it began encountering a plenty of natural issues like decrease in efficiency of greater part of harvests, impoverishment of soil fertility, ecological contamination and so forth. Since this cutting edge framework has been in presence for under 50 years, it is simply n0w becoming conceivable to acquire conclusive disc0veries about the ongoing degree of yield leveling as well as declining pattern in grain yields, input use proficiency and absolute factor efficiency (Anonymous., 2010) [1]. In spite of progression in innovation concerning crop improvement and yield manage ment practices, manageability in agriculture production is deficient. Thus, there is interest for perspective change from chemical to organic agriculture. To support agrarian production, improve/keep up with soil productivity and fertility, diminish/capture soil debasement and natural issues and so on, the need of rehearsing natural cultivating which is equivalent for organic agribusiness is felt all over and consequently research programs are being started in farming framework in late 1990s.The agronomic upsides of organic manures as fertilizer have been tested and as a general rule, brought about more significant returns of different harvests. In any case, field studies and the hypothetical ways to deal with comprehend fundamental soil processes showed that, there is high potential for wasteful supplement the board in natural cultivating works on prompting different site explicit issues. Impact of organic resources on soil quality in the short and long term and how nitrogen (N) sources adjust this impact is significant for the effective usage of accessible organic resources. INM approach in any case, larger part of perceptions revealed come from transient impacts, however the impacts of rehashed use of various characteristics of organic resources alongside worldly supplement accessibility design should be figured out to put it plainly, medium and long haul in order to perceive the hidden elements upon their utilization. Rice is quite possibly of the main staple cereal food in human sustenance and significant food grain for in excess of 33% of the world's population (FAO, 2003). In world, 90% rice is produced and consumed in Asian nations. India and China represents half of the complete region under rice cultivation. Indian agriculture has progressed over the course of the last a long time with green revolution taking on technological accomplishments, which incorporates the utilization of high yielding verities, further developed irrigation and farming frameworks, composts and new cultivating frameworks. Rice is a superb wellspring of starches containing around 87% in grain. It contains 7 to 8% of protein, which has higher edibility, natural worth and more nutritious, has lower unrefined fibre and lower fat (1 to 2%). Nearly a fifth of the world's dietary energy is given by rice alone, which is higher than one or the other wheat or maize1. The most significant and fundamental plant supplement is nitrogen (N) and will build the harvest yield positively (Salman *et al*., 2012) [10].

N is expected for all non-vegetable yields on all dirt sorts. Nitrogen is provided by native sources, for example, soil minerals, soil natural matter, rice straw, compost, and water through downpour or water system. In which crop buildups are not getting back to land these days because of concentrated use as creature feed and fuel. Soil natural matter must be recharged in the momentary by the utilization of natural matter, for example, manures (Glaser *et al*., 2001) [3]. Be that as it may, natural composts contain moderately low supplement content and hence improbable to meet the prerequisite of high-yielding rice cultivars when utilized alone. To accomplish the better return of rice, inorganic composts were utilized with practically no expansion of natural excrement. Despite the fact that the inorganic composts were brought about higher harvest yield, over dependence on them related with declined soil properties and debased soils and thus diminished yield in resulting period (Hepperly *et al*., 2009) [4]. In the western world the current cultivating framework thoroughly relies upon substance manures, development controllers, pesticides for upgrading crop productivity. A few sick impacts in human wellbeing and ecological risks were recorded because of the utilization of substance fertilizer (Padmanabhan, 2013) [6]. Keeping these perspectives in thought, there is need for mid-way approach among organic and inorganic manure use for agriculture production. So, to make the soil very much provided with all the plant supplements in the promptly accessible structure and to keep up with great soil health, it is important to involve natural excrements related to inorganic composts to get ideal yields. With a mix of safe modern technology joined with conventional natural farming not in standard variant can possibly be acknowledged for better return. Organic strategies used for agriculture production progressively well known to reflect customer requests. Use of 0rganic fertilizers had given huge impact on advancement of yield plants and growth **(**Somasundaram 2007) [12]. The available literature fails to reflect the effect of organic sources of nutrients on growth, yield attributes and yields of paddy in central zones of Uttar Pradesh. So the study has conducted in the region to cater the purpose.

Research Methodology

The study was conducted at Agriculture Research Farm, Faculty of Agriculture Sciences and Allied Industries, Rama University, Kanpur during the *Kharif* season of 2022-23. Randomized Block Design with eight treatments was used for the purpose. In Similar lines, Paddy variety variety *Basmati 370* was used for the investigation on effect of organic sources of nutrients on growth, yield attributes and yields of rice. The data on Growth, Yield characteristics and Yield attributes was collected 20, 30, 60 and after harvest.

Result and Discussion

The study was revealed that maximum plant population was recorded with treatment T_6 Vermicompost (5 t/ha) followed by treatment Vermicompost (2.5 t/ha) with value of 32.68 and 30.67 followed by treatment T_1 FYM (10 T/ha) having 29.95 and 28.52 at 15 days after sowing and at harvest, respectively. The minimum plant population (26.54 and 24.56) was observed in T_1 (Control treatment) at both the growth stages. However, all the treatments were at par with each other for plant population at 15 DAS and at harvest stage.

In the similar lines, after 30 days highest plant height (20.21cm) was observed with treatment T_6 Vermicompost (5 t/ha) followed by T_2 FYM (5 T/ha) and Vermicompost (2.5 t/ha) was observed 20.21 cm and 19.80 cm respectively whereas, lowest plant height 14.53 cm was studied with T_1(Control treatment). In the similar sense after 60 days after sowing, significantly highest plant height 33.07 cm was observed with treatment T_6 Vermicompost (5 t/ha) was significantly at par with T_2 FYM (5 T/ha) and Vermicompost (2.5 t/ha. The highest plant height observed 33.07 cm and lowest was observed 24.93 cm. At 90 DAS the treatment T_6 Vermicompost (5 t/ha) recorded significantly highest plant height (42.33 cm) over other treatments followed by treatment T_5 (40.50 cm) and T_1 (40.50 cm) however, both the follower treatments were statistically significantly different from with each other. But Treatment T_{11} is significantly at par with T_{10} (50% DAP + FYM (5 t/ha)). The significantly lowest plant height (23.81 cm) was depicted with treatment T_1 (control). It is clearly stated from the data presented in table 4.2.1 that the grain yield of paddy was deviated significantly due to various treatments. The significantly highest grain yield (2234.60 kg/ha) was obtained under the treatment T_6 Vermicompost (5 t/ha) followed by the treatment T_5 Vermicompost (2.5 t/ha) with 2146.23 kg/ha and T2 FYM (5 T/ha) (2043.37 kg/ha) while, significantly lowest grain yield (1423.57 kg/ha).

Table 1: Effect of organic treatments combination on Plant population, plant height and grain yield

Treatment	Plant Population		Plant Height				Grain Yield
	15 DAS	At harvest	30 DAS	60 DAS	90DAS	At harvest	
T0	26.54	24.56	14.53	24.93	33.60	50.10	1423.57
T_1	29.95	28.52	15.57	31.40	40.50	54.33	2043.37
T_2	25.46	25.46	14.77	27.27	36.00	51.70	1200.43
T_3	29.56	29.56	14.70	26.73	35.03	52.87	1234.40
T_4	31.54	31.45	15.13	27.60	36.33	52.40	1322.47
T_5	32.84	31.10	15.73	32.53	40.80	53.37	2146.23
T_6	32.68	32.07	16.27	33.07	42.33	56.73	2234.60
T_7	29.95	24.24	15.60	28.20	35.17	53.17	1999.30
T_8	28.64	30.05	15.57	28.10	36.43	52.60	1771.70
CD	1.41	1.63	0.31	0.82	1.29	0.33	126.731
CV	2.72	3.21	1.17	1.66	2.009	0.37	4.034
SE. m	0.46	0.549	0.11	0.28	0.44	0.11	42.95

Conclusion

The conducted study revealed that the maximum plant population was recorded with treatment T_6 Vermicompost (5 t/ha) followed by treatment Vermicompost (2.5 t/ha) with value of 32.68 and 30.67 followed by treatment T_1 FYM (10 T/ha) having 29.95 and 28.52 at 15 days after sowing and at

harvest, respectively. In contrast the minimum plant population (26.54 and 24.56) was observed in T_1 (Control treatment) at both the growth stages. After 60 days after sowing, significantly highest plant height 33.07 cm was observed with treatment T_6 Vermicompost (5 t/ha) was significantly at par with T_2 FYM (5 T/ha) and Vermicompost (2.5 t/ha. The highest plant height observed 33.07 cm and lowest was observed 24.93 cm. At 90 DAS the treatment T_6 Vermicompost (5 t/ha) recorded significantly highest plant height (42.33 cm) over other treatments followed by treatment T_5 (40.50 cm) and T_1 (40.50 cm) however, both the follower treatments were statistically significantly different from with each other. But Treatment T_{11} is significantly at par with T_{10} (50% DAP + FYM (5 t/ha)). The significantly lowest plant height (23.81 cm) was depicted with treatment T_1 (Control).

References

1. Anonymous. Vision (2025). Directorate of Rice Research, Hyderabad; c2010. http://www.drricar.org/index.php 29.07.2010.
2. Food and Agriculture Organization. Sustainable rice production for food security, in: Preceding of the 20th K. Moe *et al*., 1060 Session of the International Rice Commission; c2003.
3. Glaser B, Lehmann J, Führböter M, Solomon D, Zech W. Carbon and nitrogen mineralization in cultivated and natural savanna soils of Northern Tanzania. Biol. Fertil. Soils. 2001;33(4):301-309. Doi: 10.1007/s003740000324.
4. Hepperly P, Lotter D, Ulsh CZ, Seidel R, Reider C. Compost, Manure and Synthetic Fertilizer Influences Crop Yields, Soil Properties, Nitrate Leaching and Crop Nutrient Content. Compost Sci. Util. 2009;17(2):117-126. doi:10.1080/1065657X.2009.10702410.
5. Nutrient Management. J. Rice Res. 2012, 5.
6. Padmanabhan M. Effect of different organic Padmanabhan, M. Effect of different organic manures on growth and yield of transplanted rice in coastal Karnataka, Ph.D. Thesis, Department of Agronomy University of Agricultural Sciences Bengaluru; c2013.
7. Rama Lakshmi C, Rao P, Sreelatha T, rice incoastal Karnataka, Ph.D. thesis, Salman, D., Morteza, S., Dariush, Z., Nasiri, A., Reza, Y., DelavarEhsan, G. and Nasiri Ali Reza, N. Application of Nitrogen and Silicon Rates on Morphological and Chemical Lodging Related Characteristics in Rice (*Oryza sativa* L.) at North of Iran Journal of Agriculture Science 2012;4:6. doi:10.5539/jas.v4n6p12.
8. Sireesha A. Nitrogen Use Efficiency and Somasundaram E, Mohamed M, Manullah A, Thirukkumaran K, Chandrasekaran R, and Vaiyapuri K *et al*., Biochemical changes, nitrogen flux and yield of crops due to organic sources of nutrients under maize based cropping system. Journal of Applied Science Research. 2007;3(12):1724-1729.