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Impact of Kissan Basmati paddy seed rate for sowing of rice nursery in trays

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Abstract

The size of Mat-Type trays measured two feet long and one foot wide designed to develop according to protocol of Nursery Raising Machine (NRM). Agriculture sector is becoming an industry day by day is the main source of employment for the majority of the work force in Pakistan. About 37-42% of Pakistan's labor force working in agriculture sector, however significant portion of this labor dedicated to rice production, wheat and other crops. The present study was conducted at Adaptive Research Farm, Kot Nainan during Kharif-2024 to evaluate the impact of 95-120g with the addition of 5g in every treatment paddy seed used per tray of Kissan Basmati rice. The study showed that maximum numbers of plants were recorded in 115g and 120g treatment in the studied area.

Keywords: *paddy seed; seed rate; nursery raising; Kissan basmati*

Introduction

Oryza sativa L. is one of the most important cereal crops in Pakistan after wheat. The rice transplanted through mechanical equipment is crucial for modernizing rice growing & ultimately enhancing yields (1). *Japonica* rice cultivated by Mechanically Transplanted Rice (MTR) recommended to use 120-150g paddy seeds tray^{-1}, with seedlings aged 20-25 days, requiring around 168 trays peracre^{-1} (2). Most popular seedlings used for MTR referred as mat type seedlings grown on soil in rectangular box having 56 cm long, 25cm wide and 2.5 cm deep used in nursery raising machine. The studies reported that conventional method of transplanting is laborious, expensive and time consuming process; moreover, unskilled labors retain the plant population less than optimum due to uneven plant spacing (3). The management of seeding rate and proper plant density is essential for better growth and development of rice crop (4). The establishment of the rice plant density plays a pivotal role in manipulating seedling populations (5). In MTR, optimum seeding rate is essential for acquiring better quality seedlings and their establishment after transplanting, optimum plant population (6). Our results suggested that biodegradable seedling tray transplanted with tray was beneficial for nursing strength seedlings under thin sowing model, improving mechanical transplanting quality and yield potentiality of hybrid rice. The present study was conducted to evaluate the impact of 95-120g with the addition of 5g in every treatment paddy seed used per tray of Kissan Basmati rice at Adaptive Research Farm, Kot Nainan during Kharif-2024.

Materials & Methods

The present experiment was performed at Adaptive Research Farm, Kot Nainan, Pakistan during Kharif 2024. The treatments of Kissan Basmati were comprised of different seeding rates including 95g, 100g, 105g, 110g, 115g and 120g. The nursery was sown in rectangular trays with two feet long and one foot wide to prepare the mats on May, 2024 using seeding rates according to treatments. The present study was conducted to evaluate the impact of paddy seeds used per tray of Kissan Basmati rice to obtain maximum plant populations in the field area.

Results & Discussions

The study was conducted to evaluate the impact of different seeding rates per tray of Kissan Basmati rice in the nursery to obtain maximum plant population in the field ecosystem. The results of the study showed that maximum numbers of seedlings/plants were recorded in which paddy seed used 115g and 120g tray^{-1}. These results are in line with the

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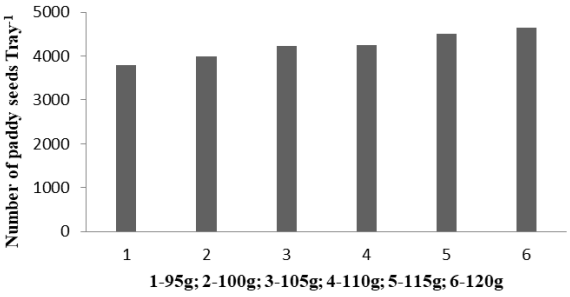
researchers who reported that during mechanical transplantation of rice missed holes present in the trays negatively affected the population resulting to decrease populations from 2.8 to 4% (7). Seeding rate significantly affected the number of plants tray^{-1} and hill^{-1} after transplanting, root length and root/shoot ratio of rice. High number of plantstray^{-1} (2574 and 2625) and number of plants hill^{-1} after transplanting (3.39 and 3.52) were recorded by increasing the seeding rate up to 110 g per trays. The results of the present study evaluated that the number of plants of rice tray^{-1} and average number of plants hill^{-1} were increased by increasing the seeding rate. These results are contradictory with the researchers who reported that increase in seeding rate tray^{-1} increased the number of seeds and plants but decreased the emergence percentage (8).



Seeding rate tray^{-1} of rice significantly affected the plant population & growth parameters, hence the study was performed to optimize seeding rate of Kissan basmati seedlings tray^{-1} for better plant growth. Our results are in-line with the researchers who reported that low seeding rate tray^{-1} produce less seedlings which results in greater number of missing hills and low plant population per unit area (6, 9). Mechanical transplanting of rice provides an alternative solution of labor shortage, and produces high yield due to optimum plant population and avoiding transplanting shock in comparison with conventional transplanting. Seeding rate per tray is important for attaining better quality seedlings, and optimum plant population and plants per hill in MTR. Increase in seeding rate in Kissan from 115-120g per tray successively increased number of plants per tray. The vigor of the pants increased by different seeding rates in Kissan Basmati was 120<115<110<105<100<95g per tray.

References

1. Zhang X, Ding J-S, Liu Y-L, Gu Y, Han K-F, Wu L-H. 2014. *The journal of applied ecology* 25: 783-9
2. Ruiping L, Shengcan L, Lijuan Z, Jiao YIN, Jiu Y, et al. 2021. *China Rice* 27: 134
3. Mann RA. 2001. *Speciality rices of the world. Breeding, production and marketing*
4. Huang H, Wu M, Wang N, Liu X, Jin F, Cao C. 2013. *Agricultural Science & Technology* 14: 1429
5. Liu Q, Zhou X, Li J, Xin C. 2017. *Scientific reports* 7: 1-10
6. Hossen MA, Hossain MM, Haque ME, Bell RW. 2018. *Bangladesh Rice Journal* 22: 9-23
7. Ling Y, Liu M, Feng Y, Xing Z, Gao H, et al. 2025. *Journal of Integrative Agriculture* 24: 101-13
8. Hossen MA, Hossain MM, Haque ME, Bell RW. 2018. *Field Crops Research* 225: 141-51
9. Yu G, Huang X, Ye B, Hu H, Yu T. 2013. *Transactions of the Chinese Society of Agricultural Engineering* 29: 16-22

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