PHENOLOGICAL EFFICIENCY AND YIELD TRAITS OF RICE (*ORYZA SATIVA* L.) UNDER DIFFERENT MOISTURE REGIMES

Navneet Kumar Mishra, Kamla Gandharv, Damini Thawait and Arti Guhey

Department of Plant Physiology, Indira Gandhi Krishi Vishwavidyalaya, Raipur (C.G.), India

Received-17.12.2014, Revised-02.02.2015

Abstract: Among the breeding lines R-RF-90, Mahamaya and MTU-1010 ranked relatively superior regarding there morpho- physiological and yield traits. Least reduction in yield was noticed in R-RF-89 and Vandana in rainfed and transplanted (TSD) condition. Mahamaya (57.88) exhibited maximum time to initiates the panicle followed by IR-64 (56.63). The maximum days taken to anthesis was recorded under rainfed condition (65.40) followed by irrigated (57.79) and transplanted (57.45). Mahamaya (68) exhibited maximum time to anthesis. Days to 50 % flowering was noticed maximum in rainfed condition (70.11) followed by irrigated (62.42) and transplanted (62.08). Direct sown (60.51) recorded minimum time to attain 50% flowering. Mahamaya (72.75) exhibited maximum time to days to 50 % flowering followed by IR-64 (71.38). Genotypes in direct sown condition (112.97) recorded more time to mature under different moisture regimes followed by irrigated (101.05) and rainfed condition (90.8). Rice genotypes in transplanted condition (88.25) exhibited minimum time to mature as compared to other moisture regimes. Mahamaya (110.13) exhibited maximum time to days to maturity followed by IR-64 (109.63). Among the breeding lines R-RF-90, Mahamaya and MTU-1010 ranked relatively superior regarding there morpho- physiological and yield traits. Least reduction in yield was noticed in R-RF-89 and Vandana in rainfed and transplanted (TSD) condition.

Keywords: Rice, Moisture regimes, Traits, *Oryza sativa*

REFERENCES

Anugus, J.F., Hasegawa, S., Hasiao, H.C., Liban, S.P. and Zandstra, H.G. (1993). The water balance of post monsoonal dryland crops. *J. Agric. Sci. Camb* **101**: 699-710.

Garrity, D.P. and O'Tootle, J.C. (1995). Selection for reproductive stage drought avoidance in rice using infrared thermometry. *Agron.J* **87**: 773-779.

Guhey, A., Saxena, R. R., Verulkar, S. B. and Nag, G. (2010). Physiological dissection of rice genotypes under different moisture regimes. *Indian J. Crop Science* **5**: 1-2.

Huke, R.E. and Huke, E.H. (1997). Rice area by type of culture: south, southeast, and east Asia. IRRI, Los Ban˜os, Philippines.

Lafitte, H.R. and Courtosis, B. (2002). Interpreting cultivar environment interactions for yield in upland rice. *Crop Sci* **42**: 1409-1420.

Lilley, J.M. and Fukai, S.C. (1994). Effect of timing and severity of water deficient on four diverse rice cultivars. *Field Crop Res* **37**: 215-223.

Li, Z.K. and Xu, J.L. (2007). Breeding for drought and salt tolerant rice (*Oryza sativa* L.): progress and perspectives. ***In***: Jenks MA *et al* (eds) Advances in molecular breeding toward drought and salt tolerant crops. Springer, USA, pp. 531-564.

Pandey, S., Bhandari, H., Sharan, R., Ding, S., Prapertchob, P., Naik, D., Taunk, K. S. (2005). Coping with drought in agriculture of developing countries : insights from rice farming in Asia. In : proceeding of the 2nd International Conference on Integreted Approaches to Sustain and Improve Plant Production under Drought Stress. *International Rice Research Institute* 203p.

Patil, P.A., Mahajan, C.R., Meheyre, S.S. and Hajare, D.H. (1993). Analysis of variability and heritability in upland rice. *Oryza* **30**: 154-156.

Venuprasad, R., Laffite, H.R. and Atlin, G.N. (2007). Response to direct selection for grain yield under drought stress in rice. *Crop Science* **47**(1): 285-293.

Widawsky, D.A. and O'Toole, J.C. (1990). Prioritization the rice biotechnology research agenda for eastern India. The Rockfeller Foundation. New York, NY (USA). pp. 384-388.

*Corresponding Author