CHANGES IN GROWTH PARAMETER AND YIELD COMPONENT OF MID DURATION RICE UNDER DIFFERENT LEVEL OF N, P AND K, GROWN UNDER AEROBIC CONDITION

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Abstract: The experiment was conducted during *kharif*season of 2010 at Instructional Cum Research Farm IGKV Raipur to investigate the "Effect of CPE Based Irrigation Schedules and Nutrient Management Practices On Aerobic Rice." The 24 treatment combinations consisted of 3 CPE based irrigation schedules *i.e.* @ 150% CPE, @ 100% CPE and @ 75% CPE and 8 nutrient management practices *i.e.* $N_0 P_{60} K_{100}$, $N_{60} P_{60} K_{100}$, $N_{120} P_{60} K_{100}$, $N_{180} P_{60} K_{100}$, $N_{120} P_{30} P_{100}$, $N_{120} P_0 K_{100}$, $N_{120} P_{60} K_{50}$ and $N_{120} P_{60} K_0$. The split plot design was followed with 3 replications having CPE based irrigation schedules as main plot treatment and nutrient management practices as sub plot treatment. A medium duration high yielding rice variety Mahamaya was taken as a test crop. The CPE based irrigation schedules did not influence significantly the growth parameters *i.e* plant height, No. of tillers, leaf area, dry matter accumulation and SPAD value. The growth parameters found to be equally effective under all irrigation schedules. Moreover effective tillers, grains panicle^{-1}, test weight, sterility per cent and yields of grain and straw remained at par under all the irrigation schedules. The nutrient management practices significantly affected the growth, yield and nutrient concentration and uptake of rice. The application of $N_{180}P_{60}K_{100}$, significantly increased the plant height, No. of tillers, leaf area, dry matter accumulation ,SPAD value at all the growth stages as compared to treatments of $N_0P_{60}K_{100}$, $N_{120}P_0K_{100}$ and $N_{120} P_{60}K_0$. The nutrients levels of $N_{120}P_{60}K_{50}$ and $N_{120}P_{60}K_{100}$ produced comparable plant height, No. of tillers, at all the growth stages to that of $N_{180}P_{60}K_{100}$. These nutrient levels also found to equally effective for increasing yield components, grain yield, N, P and K concentration in grain and straw. The uptake of these nutrients also increased at aforesaid levels of nutrients. The increase in yield was mainly associated with significant increase in number of leaves, leaf area and dry matter accumulation.

Keywords: Aerobic rice, cumulative pan evaporation, irrigation schedules, nutrient, growth parameter, yield.

REFERENCES

Anonymous (2010). Krishi Diary. Indira Gandhi KrishiVishvawidyalya Raipur (C.G.).

Bouman, B.A.M. and Tuong, T.P. (2001). Field water management to save water and increase its productivity in irrigated rice.*Agricultural Water Management***49**(1): 11-30.

Gomez, K.A. and Gomez, A.A. (1984). Statistical procedures for Agricultural Research. An International Rice Research Book, John Willey and Sons, New York. pp:77 and 199.

Nayak, R.L., Mandal, S.S, Zaman, A. and Das, M. (1981). Water management in dry rice.*Int. Rice Res. New letter***6:**5-6.

Pandey, R., Agrwal, M.M. and Deshmukh, M.R. (1998). Influence of fertility levels, varieties and transplanting time on rice (*Oryzasativa*). *Indian J. of Agron.***36**(4): 459-463.

Rao.P.C., Raghavulu, P., Reddy, S.R., Reddy, G.V. and Rao, K.R. (1990). Residual effect of phosphorus sources and levels in cereal- sequences. *Indian J. Agron.***36**:169-169-172.

Reddy, J.V, Singh, J.N. and Verma, A.K. (1985). Effect of time of N application on growth and yield of rice.*Agric. Sci Digest*.5 (2):82-85

Sharma, S.K., Tomar, R.K. and Gangwar, K.S. (1997). Effect of crop establishment and tillage practices on yield and economics of irrigated rice (*Oryzasativa*) – wheat (*Triticumaestivum*) system.*Indian J. Agric. Sci.***65**(2): 636-638.

Shivay, Y. S. and Singh, S. (2003). Effect of planting geometry and N level on growth, yield and N-use efficiency of scented hybrid.*Indian J. Agron.***12**(9):120-125.

Singh, S.P., Sreedevi, B. and Subbiah, S.V. (1996). Effect of seedlings age, nitrogen sources and their rates of application on growth and grain yield of rice.*Indian J. Agron.***44**(3): 530-533.

Subramanian, S., Singh, S. and Ramawamy, K.D. (1978). Crop response studies under different irrigation regimes and manuring for VaigaiPeriyar command area *Madras Agric.J.* **65**:567-571.