

## PERFORMANCE OF INTERCROPS IN HYBRID MAIZE UNDER NORTH CENTRAL PLATEAU ZONE OF ODISHA

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**Abstract:** An experiment was conducted at Field Experimental Block, Regional Research and Technology Transfer Station, Keonjhar, during *Kharif* season for two consecutive years of 2017 and 2018 under RKVY project to study the performance of maize based intercropping system under North Central Plateau Zone of Odisha. The experiment was laid out in RBD design. The experiment comprised of thirteen treatments viz. T1- Maize + Cowpea (1:1), T2-Maize + Cowpea (2:2), T3-Maize + Radish (1:1), T4-Maize + Radish (2:2), T5-Maize + Cluster bean (1:1), T6-Maize + Cluster bean (2:2), T7-Maize + Arhar (1:1), T8-Maize + Arhar (2:2), T9-Maize (sole), T10-Cowpea (sole), T11-Radish (sole), T12- Cluster bean (sole), T13-Arhar (sole). The varieties taken were: Maize-Pioneer 3396(Hybrid), Cowpea-Kasi Kanchan, Cluster bean -Pusa Navbahar, Arhar- Corg 9701 and Radish- Pusa Chetki Long. Results revealed that Maize + cowpea (1:1) proved to be the most profitable system being at par with maize + cowpea (2:2) & maize + radish (1:1 & 2:2) systems in both the years. However, maize + arhar (1:1) returned the highest amount per rupee invested (1.78) among all the systems when number of days occupied in the field is not taken into account. Therefore for North Central Plateau Zone of Odisha cowpea and radish are the most suitable intercrops with maize in *Kharif* season in the above row ratios.

**Keywords:** *Kharif*, Intercropping, Maize, Cowpea, Profitable

### REFERENCES

- Ahmed, F., Rahman, M. A., Jahan, M. A. H. S., Ahmed, M. and Khayer, M. A. (2006). Effect of different planting systems in maize/spinach-red amaranth intercropping. *Bangladesh J. Agric. and Environ.* 2(2): 69-76.
- Alam, M.S., Paul, N.K. and Quayyum, M.A. (2008). Performance of hybrid maize (*Zea mays* L.) under intercropping systems with mungbean in different planting methods. *SAARC J. Agri.* 6: 73-82
- Bandyopadhyay, S. K. (1984). Nitrogen and water relations in grain sorghum legume intercropping systems. Ph. D. Dissertation, Indian Agricultural Research Institute (IARI), New Delhi- 110012, India.
- Basak, N. C., Hossain, S. M. A., Islam, N., Bhuiyan, N. I. (2006). Intercropping wheat with groundnut at variable plant population. *Bangladesh J. Agril. Res.* 31(2):207-215.
- Bhowal, S. K., Chowdhury, M. M.U., Bhuiyan, M. S., Faisal, A. H. M. A., Farhad, I. S. M. and Bhowmik, S. K. (2014). Yield and Yield Attributes of Lentil (*Lens Esculenta*) as a Mixed Crop with Mustard (*Brassica Campestris*). *Sci. Agri.* 4 (2), 76-79
- Bhuiyan, M. K. A., Haque, M. M., Khaliq, Q. A., Begum, J. A. and Mawla, A. H. M. R. (1999). Productivity and economics of grain legumes intercropped with maize. *Bangladesh Agron. J.* 9 (1&2): 35-42.
- Bhuiyan, M.S., Bhowal, S.K., Farhad, I.S., Chowdhury, M.M.U. and Amin, M. (2013). Intercropping soybean with kaon in varying plant population in the coastal area of Noakhali region. *Bangladesh Agron. J.* 16(1): 81-86.
- Directorate of Economics and Statistics (2012). Agriculture Statistics at a Glance, 2012. Directorate of Economics and Statistics, Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India.
- Farhad, I. S. M., Chowdhury, M. M. U., Bhowal, S. K., Chowdhury, A. K. and Khan, A.S.M.M.R. (2014). Chilli – Garlic Intercropping System In Coastal Saline Area. *App. Sci. Report.* PSCI Publications. 2 (2): 47-50.
- Government of Odisha (2012). Odisha Agriculture Statistics, 2011-12. Directorate of Agriculture and Food Production. Government of Odisha, India. Available at: [www.agriodisha.nic.in](http://www.agriodisha.nic.in)
- Hashem, A., Maniruzzaman, A. F. M. and Akhtaruzzaman, M.A. (1990). Study on the productivity, profitability of potato intercropped with vegetables and relayed with onion. *Bangladesh Agron. J.* 3: 39-43.
- Isalm, M. N. (2002). Competitive interference and productivity in maize-bushbean intercropping system. A PhD. Dissertation, Dept. of Agronomy, Bangabandhu Sheikh Mujibur Rahman Agricultural University, Gazipur.
- Islam, M. N., Haque, M.M. and Hamid, A. (2004). Productivity and competitive interference in maize + bushbean intercropping system in different sowing dates. *Bangladesh Journal of Agricultural Research* 29(2): 200.

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- Mehta, N. K. and Dey, R.** (1980). Intercropping maize and sorghum with soybean. *J. Agric. Sci. Camb.* **95**: 117-122
- On-Farm Research Division (OFRD)**, Bangladesh Agricultural Research Institute, Joydebpur, Gazipur. 2006. Intercropping maize with short duration vegetables crop. Annual Research Report. pp 291-297.
- Rao, M. R. and Willey, R. W.** (1980). Evaluation of yield stability in intercropping, sorghum rpigeon pea. *Expt. Agric.* **16**(2): 105-116.
- Razzaque, M.A., Rafiguzzaman, S., Bazzaz, M.M.M., Ali, A. and Talukdar, M.M.R.** (2007). Study on the intercropping groundnut with chilli at different plant populations. *Bangladesh J. Agril. Res.* **32** (1): 37-43.
- Reddy, M. S. and Willey, R. W.** (1981). Growth and resource use studies in an intercrop of pearl millet/groundnut. *Field crops res.* **4**: 13-24.
- Santalla, M., Rodino, A. P., Casquero, P. A. and Ron, A. M.** (2001). Interactions of bush bean with field and sweet maize. *European J. Agron.* **15** (3): 185-196.
- Uddin, M. S. and Satter, M. A.** (1993). Prospects of intercropping maize with legumes and vegetables in hill tracts. *Bangladesh J. Agril. Res.* **18**(2): 227-230.
- Sharma et al.,** (1991).
- Singh, D. P., Rana, N. S. and Singh, R. P.** (2000). Growth and yield of winter maize (*Zea mays*) as influenced by intercrops and nitrogen application. *Indian J. Agron.* **45**: 515-519.
- Uddin, M. J., Quayyum, M. A. and Salahuddin, K. M.** (2009). Intercropping Of Hybrid Maize With Short Duration Vegetables At Hill Valleys Of Bandarban. *Bangladesh J. Agril. Res.* **34**(1) :51-57
- Umrani, N. N., Shinde, H. S. and Dhonde, P. M.** (1984). Studies on intercropping of pulses in Kharif Sorghum. *Indian J. Agron.* **29**(1):27-30.