

IMPACT OF NEW HERBICIDES ON THE PRODUCTIVITY OF MAIZE

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Abstract: A field experiment was conducted during the *kharif* season 2020-21 at Instructional-cum-Research Farm, Raj Mohini Devi College of Agriculture & Research Station, Ambikapur (C.G.). Soil of the experimental field was sandy loam in texture. To evaluate the “Impact of new herbicides on the productivity of maize” under Northern hill zone of Chhattisgarh to find out the best chemical weed management practices in maize. Eight treatments were evaluated in a randomized block design with three replications. 2 HW at 20 and 40 DAS were recorded lowest weed density, weed fresh & dry weight, weed index and higher weed control efficiency (72.64%) found very effective against complex weed flora and also recorded highest growth parameters, yield attributes *viz.*, no. of cob plant⁻¹, no. of kernel cob⁻¹ and kernel yield (5.98 t ha⁻¹) followed by atrazine 1000 g/ha as PE fb tembotrine 110g/ha as PoE (5.83 t ha⁻¹) and atrazine 1000 g/ha as PE fb topramezone 25 g/ha as PoE (5.67 t ha⁻¹). Highest net returns (Rs.108045 ha⁻¹) was also recorded under 2 HW at 20 and 40 DAS followed by atrazine 1000 g/ha as PE fb tembotrine 110g/ha as PoE (Rs.105487 ha⁻¹) but higher B:C ratio (2.58) was noticed under application of atrazine 1000 g/ha as PE fb tembotrine 110g/ha as PoE followed by atrazine 1000 g/ha as PE fb topramezone 25 g/ha as PoE (2.52) due to lower cost of cultivation as compare to 2 HW at 20 and 40 DAS.

Keywords: Maize, Weed management practices, Atrazine, Pre and post emergence herbicides

REFERENCES

Anonymous (2015). Annual progress report *kharif*. *Indian Institute of Maize Research*: pp. 10.

Biswas, S., Debnath, S., Saha, A. and Biswas, B. (2018). Weed Management in Maize System in New Alluvial Zone of West Bengal, India. *International Journal of Current Microbiology and Applied Sciences*. Vol. 7(4): pp.1344-1350.

Dass, S., Jat, M.L., Singh, K.P. and Rai, H.K. (2008). Agro-economic analysis of maize based cropping system in India. *Indian Journal of Fertilizers*. Vol.(4): pp. 49-62.

Ehsas, J., Desai, L.J., Ahir, N.B. and Joshi, J.R. (2016). Effect of integrated weed management on growth, yield, yield attributes and weed parameters On Summer Maize (*Zea mays* L.) under South Gujarat Condition. *International Journal of Science, Environment and Technology*. Vol. 5(4): pp.2050 – 2056.

Hatti, V., Sanjay, M.T., Ramachandra Prasad, T.V., Kalyanamurthy, K.N., Basavaraj Kumbhar and Shruthi, M.K. (2014). Effect of new herbicide molecules on yield, soil microbial biomass and their phytotoxicity on maize (*Zea mays* L.) under irrigated conditions. *The Bioscan*. Vol. 9(3):pp. 1127-1130.

Kolage, A. K., Shinde, S. H. and Bhilare, R. L. (2004). Weed management in *kharif* maize. *Journal of Maharashtra Agricultural University*. Vol. 29(1): pp.110-111.

Kumar, B., Prasad, S., Mandal, D. and Kumar, R. (2017). Influence of Integrated Weed Management Practices on Weed Dynamics, Productivity and Nutrient Uptake of Rabi Maize (*Zea mays* L.).

International Journal of Current Microbiology and Applied Sciences. Vol. 6(4): pp. 1431-1440.

Mundra, S.L., Vyas, A.K. and Maliwal, P.L. (2003). Effect of weed and nutrient management on weed growth and productivity of maize (*Zea mays* L.). *Indian Journal of Weed Science*. Vol.35 (1 & 2): pp. 57-61.

Patel, V.J., Upadhyay, P. N., Patel, J.B. and Meisuriya, M. I. (2006). Effect of Herbicide mixtures on weeds in *kharif* maize (*Zea mays* L.) under Middle Gujarat conditions. *Indian Journal of Weed Science*. Vol. 38 (1& 2):pp. 54-57.

Singh, V.P., Guru, S.K., Kumar, A., Banga, A. and Tripathi, N. (2012). Bioefficacy of tembotrione against mixed weed complex in maize. *Indian Journal of Weed Science* Vol.44(1):pp.1–5.

Sabir, Bahirgul And Babu, Ramesh (2019). Influence of early emergent herbicide mixtures on weed control and grain yield of maize (*Zea mays* L.). *Acta Scientific Agriculture*. Vol.3(5):pp. 26-28.

Swetha, K., Madhavi, M., Pratibh, G. and Ramprakash, T. (2015). Weed management with new generation herbicides in maize. Asian-Pacific Weed Science Society Conference on “Weed Science for Sustainable Agriculture, Environment and Biodiversity”, Hyderabad, India. *Indian Journal of Weed Science*. Vol.47(4):pp. 432-433.

Yadav, D. B., Punia, S. S. and Yadav, A. (2012). Tembotrione: a new post emergence herbicide for complex weed flora in maize. *Proceedings of Biennial conference of Indian society of Weed Science*. Thrissur (Kerala). CCS HAU Regional Research Station, Karnal (Haryana).

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