RESEARCH ARTICLE

EFFECT OF DIFFERENT HERBICIDE MIXTURES ON PERFORMANCE IN WHEAT AND THEIR RESIDUAL EFFECT OF LEGUME CROPS

H.L. Yadav[1]*, A.K. Gupta[2] and R.R. Choudhary[3]

[1and 3]Division of Agronomy, Rajasthan Agriculture Research Institute, Durgapura, Jaipur
[2]SKN College of Agriculture, Jobner,SKNAU, Jobner, Jaipur, Rajasthan
Email: jadam1984@gmail.com

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Abstract: The field experiment conducted at research farm, RARI, Durgapura for two consecutive years during *rabi* seasons 2013-14 and 2014-15. Results revealed that hand weeding recorded the lowest weed dry matter of 173.04 kg/ha at harvest stage than rest of the treatments. Sulfosulfuran @ 25 gma.i./ha, clodinafop-propargyl 15 % + metsulfuran methyl 1 % @ 64 g a.i. /ha, sulfosulfuran 75 % +metsulfuran methyl 5 WG @ 32 g a.i. /ha, carfentrazone ethyl 40 % DF @ 20 g a.i./ha, metsulfuran methyl @ 4 g a.i. / ha, 2,4-D ester @ 0.5 kg/ha as post emergence was found effective herbicidal treatment in reducing weed dry matter production.Yield attributes of wheat were also significantly improved due to different weed control measures. The maximum number of effective tillers per square meter (279), spike length (12.6)and grains/spike (43.6) were achieved under hand weeding and weed free treatment. Clodinafop-propargyl 15 % + metsulfuran methyl 1 % @ 64 g a.i. /ha also enhanced these characters by 27.7, 24.2, 74.7, 31.6 and 7.1 per cent, respectively over weedy check and stood as the next best herbicidal treatment. Further, none of the applied herbicides/mixtures in *rabi* season (wheat) had residual toxicity on plant height of succeeding crops (pearlmillet, mungbean and clusterbean) grown in *kharif* season.

Keywords: Herbicide mixture, Weed dry matter, Wheat, Succeeding crops

REFERENCES

Agrawal, K.K. and Jain, K.K.(1998). Weed control studies in wheat. *World Weeds*.**5**:69-72.

Bhumesh Kumar, Mishra, J.S., Singh, V.P. and Sharma, A.R.(2016). Challenges of weed management under changing climate.pp 203-219 Invenkateswalu*et al*. (Eds) Climate Resilient Agronomy, *Indian Society of Agronomy*, New Delhi

Chopra, N. and Chopra, N.K.(2005).Bioefficacy of fenoxaprop, clodinofop, mettribuzin alone and in combination against weed in wheat and their residual effect on succeeding crop. *Indian Journal of Weed Science* **37**: 163-166.

Kumar, J., Kumar, A. and Sharma, B.C.(2010). Effect of chemical and crop establishment methods on weeds and yield of rice and their residual effect on succeeding wheat crop.*Indian Journal of Weed Science***42** (1&2) : 78-82.

Nadeem, M.A., Tanveer, A., Ali, A., Ayub, M.K. and Tahir, M.(2007). Effect of weed control practices and irrigation levels on weeds and yield of wheat (*Triticumaestivum*).*Indian Journal of Agronomy***52** (1) : 60-63.

Sardana, V., Walia, U.S. and Mahajan, G.(2001). Management of broad leaf weeds in wheat (*Triticumaestivum* L.). *Indian Journal of Weed Science***33**: 69-71.

Sharma, A.R., Bhullar, M.S., Singh, V. Pratap, Singh, Mandeep and Das, T.K.(2016). Harnessing weed-fertilizer-water interactions for higher crop productivity and resource-use efficiency.*Indian Journal of Fertilizers*.**12**(11); 114-130.

Singh, P. and Ali, M.(2004). Efficacy of metsulfuron methyl on weeds and its residual effect on succeeding soybean crop grown on vertisols of Rajasthan.*Indian Journal of Weed Science* 36: 34-37.

Singh, J. and Singh, K.P.(2005).Effect of organic manures on yield and yield attributing characters of wheat.*Indian Journal of Agronomy***50**: 289-91.

Singh, R., Shyam, R., Singh, V.K., Kumar, J., Yadav, S.S. and Rathi, S.K.(2012). Evaluation of bioefficacy of clodinafop-propargyl + metsulfuron-methyl against weeds in wheat. *Indian Journal Weed Science***44**(2): pp 81–83.

Singh, I.D. and Stoskopf, N.C.(1971). Harvest index in cereals. *Agronomy Journal* 63: 224-226

Surin, S.S., Singh, M.K., Upasani, R.R., Thakur, R. and Pal, S.K.(2013).Weed management in rice (*Oryza sativa*)–wheat (*Triticumaestivum*) cropping system under conservation tillage. *Indian Journal of Agronomy* **58**(3): 288- 291.

Yadav,A., Mehta, R., Punia, S. S., Hooda, V., Malik, R. R.,Rana,V. and Brllinder,R. R.(2003).Resudual effect of four sulfonylurea herbicides applied on wheat on succeeding crops in rotation. *Indian Journal of Weed Science* **35**: 259-261.

Vala, G.R.(2005).Efficacy of various herbicides and determination of their persistence through bioassay technique for summer Groundnut (*Arachishypogaea* L.). Ph.D. (Agri.) thesis submitted to Junagadh Agricultural University, Junagadh (Gujarat).

*Corresponding Author