



## Selection of the best combination of herbicide for controlling broad and narrow leaved weeds in winter wheat crop

Mazher Farid Iqbal<sup>1\*</sup>, Muzzammil Hussain<sup>2</sup>, Zahid Iqbal<sup>3</sup> and Muhammad Saleem<sup>4</sup>,

<sup>1</sup>Adaptive Research Station, Sialkot, Punjab-Pakistan

<sup>2</sup>Directorate of Agriculture (Farm Training and Adaptive Research) Gujranwala Zone

<sup>3</sup>Department of Agriculture (Extension) Sialkot and <sup>4</sup>Khanewal

\*Corresponding author: [mazherfareed2004@gmail.com](mailto:mazherfareed2004@gmail.com)

### Abstract

A study was conducted to evaluate six different combination of herbicides viz. T-2 (Axial @ 750mlha<sup>-1</sup>+ Clean Wave @ 800mlha<sup>-1</sup>); T-3 (Puma Super @ 625mlha<sup>-1</sup>+ Buctril Super@ 750mlha<sup>-1</sup>); T-4 (Isoproturan @ 2500gha<sup>-1</sup>+ Starane-M @ 750mlha<sup>-1</sup>); T-5 (Sonik @ 300gha<sup>-1</sup>+Bromoxynal+MCPA @ 1250mlha<sup>-1</sup>) and T-6 (Metribuzen @ 125 gha<sup>-1</sup>) used after 1<sup>st</sup> irrigation at proper moist condition compared to untreated T-1 (control) during 2010-11; 2011-12 and 2012-13. Maximum mortality (%) was recorded by T-3 (89.06) followed by T-2 (88.45); T-4 (78.57) and T-6 (77.54). The lowest mortality was recorded by T-5 (75.28%) during 2010-2011. During 2011-12 maximum mortality (%) was recorded T-2 (93.71) followed by T-5 (88.87); T-3 (84.62) and T-4 (83.64) respectively. However the lowest mortality was recorded by T-6 (60.22). Maximum mortality (%) was recorded by T-2 (99.81) followed by T-4 (99.22); T-3 (96.87) and T-5 (95.19). However the lowest mortality was recorded T-6 (42.20%) during 2012-2013. At the end it was concluded that T-2 and T-4 treatments are most effective for controlling narrow and especially Matri and Rewari weeds in wheat crop under the agro ecological zone of Gujranwala.

**Keywords:** Combination; Herbicides; Efficacy; Narrow leaved; Broad leaved weeds; Gujranwala

### Introduction

Cereals belonging to the family Poaceae produced edible grains. One-half of calories of human's food are fulfilled by cereals. Wheat is one of them and direct source of food for human beings having 1<sup>st</sup> ranking in Pakistan. It occupied almost 66% of cropped area. One third population of world got protein and calories from wheat. Wheat is staple food for 160 millions of people in Pakistan; cheapest source of food provided 73% calories and protein to population of the world (Heyne, 1987). Wheat is cultivated on an area of 8.66 million hectares with annual production of 23.52 million tons

and an average yield of 2714 kg ha<sup>-1</sup> (Anonymous, 2011). Weeds posed serious threat to the crop which reduced yield. Weeds compete with crop for receiving light; moisture; nutrients and occupying space. Harvesting losses increased due to presence of weeds; quality of production reduced by weeds (Arnon, 1972). However loss of weeds was recorded annually Rs.1150 millions in Pakistan which was higher than losses by diseases (Haq, 1970). As weeds caused huge loss of national income therefore it is necessary to control weeds. Therefore to get better quality and

maximum yield of wheat, weeds should be controlled. Previously weeds were controlled manually but this was tedious and expensive method due to increase in labor cost. Further more that weeds were controlled by draft animals and implements (Iqbal, 1994). Now a day weeds are controlled chemically; so that time and input cost saved drastically. However choice of best herbicides, proper time of application and proper dose of herbicide is the important factor for getting maximum returns (Cheema et al., 2005). All herbicides decreased weed populations by which yield and economic increased (Hussain et al., 2003). Combination of grassy and broad leaved herbicides gave better results than their separate application for weed control in wheat (Fayad et al., 1998). Combination of herbicides are most effective than individual herbicides to control broad spectrum of weeds (Bostrom and Fogelfores, 2002). However the study had been planned to evaluate the six different combinations of herbicides for controlling broad and narrow leaved weeds and calculate percentage mortality (%) at Adaptive Research Farm, Gujranwala during Rabi 2010-2011; 2011-12 and 2012-13.

## Materials and Methods

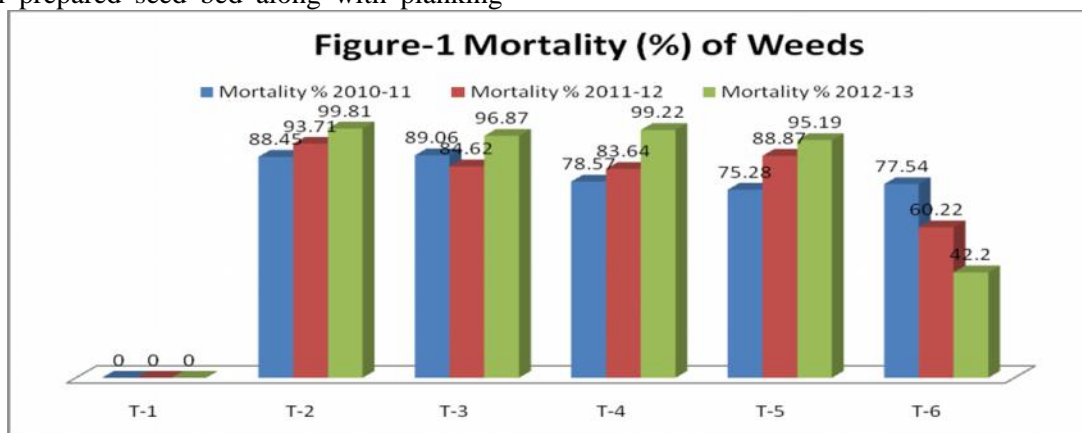
A study was conducted to evaluate six different combination of herbicides viz. T-2 (Axial @ 750mlha<sup>-1</sup>+ Clean Wave @ 800mlha<sup>-1</sup>); T-3 (Puma Super @ 625mlha<sup>-1</sup>+ Buctril Super@ 750mlha<sup>-1</sup>); T-4 (Isoproturan @ 2500gha<sup>-1</sup>+ Starane-M @ 750mlha<sup>-1</sup>); T-5 (Sonik @ 300gha<sup>-1</sup>+Bromoxynal+MCPA @ 1250mlha<sup>-1</sup>) and T-6 (Metribuzen @ 125 gha<sup>-1</sup>) used after 1<sup>st</sup> irrigation at proper moist condition compared to untreated T-1 (control) at Adaptive Research Farm, Gujranwala during Rabi 2010-2011; 2011-12 and 2012-13. The research trial conducted through Randomized Complete Block Design with three replications and six treatments with 25 x 44 feetsq. area. Wheat was cultivated on end of November each year at well prepared seed bed along with planking

using 225 kgha<sup>-1</sup> DAP and 125 kgha<sup>-1</sup> SOP with the help of tractor drawn Rabi Drill/hand drill in line sowing. 1<sup>st</sup> irrigation was applied in the field at 1<sup>st</sup> week of January each year and 125 kgha<sup>-1</sup> urea was broadcasted manually after irrigation. These herbicides were sprayed at 4-6 leaf stage of weeds in moist/watter conditions. These herbicides were sprayed by manually operated knapsack hand sprayer with volume of water @ 300 liters per hectare in each plot except control. Zinc Sulphate @ 25kg ha<sup>-1</sup> was mixed with 75 kgha<sup>-1</sup> of urea and broadcasted after 2<sup>nd</sup> irrigation in watter condition. All other agronomic and plant protection measures were kept constant to avoid any biasness. Number of weedsm<sup>-2</sup> was counted before and one month after spraying the herbicide; and mortality (%) of weed was calculated.

## Results and Discussion

### Mortality (%)

Maximum mortality (%) was recorded by T-3 (89.06) followed by T-2 (88.45); T-4 (78.57) and T-6 (77.54). The lowest mortality was recorded by T-5 (75.28%) during 2010-2011. During 2011-12 maximum mortality (%) was recorded T-2 (93.71) followed by T-5 (88.87); T-3 (84.62) and T-4 (83.64) respectively. However the lowest mortality was recorded by T-6 (60.22). Maximum mortality (%) was recorded by T-2 (99.81) followed by T-4 (99.22); T-3 (96.87) and T-5 (95.19). However the lowest mortality was recorded T-6 (42.20%) during 2012-2013. Result described (Figure-1) that Puma Super + Buctral Super; Axial + Clean Wave and Isoproturan + Starane-M performed better against narrow and broad leaved weeds with mortality (96.87%); (99.81%) and (99.22%) respectively. This result were in accordance to Bostrom and Fogelfores, (2002); Fayad et al., (1998); Haq, (1970); Baghestani et al., (2008); Khan et al., (2001) and Virender et al., (2001).



## Conclusion

At the end it was concluded that T-2 and T-4 treatments are most effective for controlling narrow and especially Matri and Rewari weeds in wheat crop under the agro ecological zone of Gujranwala.

## References

- Anonymous. 2011. Economic Survey of Pakistan. Finance and Economic Affairs Division, Islamabad. pp. 21-22.
- Arnon, I. 1972. Crop production in dry regions. Leonard hill book, London.
- Baghestani, M., A. E. Z., S. Soufizdeh, M. Beheshtian, M. Haghghi, A. Bargasteh, A. Birgani and D. G. Deihimfard. 2008. Study on the efficacy of weed control in wheat (*Triticum aestivum* L.) with tank mixtures of grass herbicides with broad leaved herbicides. Crop Prot. 27(1): 104-111.
- Bostrom, U. and H. Fogelfors. 2002. Response of weeds and crop yield to herbicide dose decision support guidelines. J. Weed Sci.50 (2): 186-195.
- Cheema, M. S. and M. Akhtar. 2005. Efficacy of different post emergence herbicides and their application methods in controlling weeds in wheat. Pak. J. Weed Sci. Res.11(1-2): 23-30.
- Fayad, T. B., S.R.S. Sabry and E.S.H. Aboul. 1998. Effect of herbicides on weed density, wheat grain yield, and yield components. Conf. Weed. Biol. and Control. Stuttgart-Hohenheim, Germany, 14 March.
- Haq, A.1970. Losses caused by crop pests in Pakistan. J. Agric. Res. 8 (3): 297-303.
- Heyne, E.G. 1987. Wheat and wheat improvement. 2nd ed. Madison, Wisconsin, USA.
- Hussain, N., M.B. Khan, B. Khan, M. Tariq and S. Hanif. 2003. Spectrum of activity of different herbicides on wheat. Int. J. Agric. Biol. 5 (2): 166-168.
- Iqbal, S. 1994. Screening of different herbicides for controlling weeds in wheat crop. M.Sc. (Hons) Thesis, Faculty of Agric., Gomal Univ., D.I. Khan.
- Khan, I., Z. Muhammad, G. Hassan and K. B. Marwat. 2001. Efficacy of different herbicides for controlling weeds in wheat crop-I. Pak. J. Weed Sci. Res.14 (1-2):51-57.
- Virender, S., U. Walia, M. Gulshan, V. Sardana and G. Mahagan. 2001. Management of broad leaf weeds in wheat. Indian J. Weed Sci.33 (1): 69-71.

| Access this Article in Online  |  |
|--|--|
|               | Website:<br><a href="http://www.ijarbs.com">www.ijarbs.com</a> |
|  | Subject:<br>Agricultural<br>Sciences                           |
| <b>Quick Response<br/>Code</b>   |  |
| DOI: <a href="https://doi.org/10.22192/ijarbs.2017.04.06.004">10.22192/ijarbs.2017.04.06.004</a> |  |

### How to cite this article:

Mazher Farid Iqbal Muzzammil Hussain, Zahid Iqbal and Muhammad Saleem. (2017). Selection of the best combination of herbicide for controlling broad and narrow leaved weeds in winter wheat crop. Int. J. Adv. Res. Biol. Sci. 4(6): 25-27.

DOI: <http://dx.doi.org/10.22192/ijarbs.2017.04.06.004>