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## Effect of Different Herbicides on Weed Population and Yield of Wheat (*Triticum aestivum* L.)

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### Abstract

Evaluation of different Herbicides for the control of weeds in wheat was conducted at the area of Adaptive Research Model Farm Quetta, during the year 1997-98. Five different Herbicides were applied at recommended commercial rates. The highest 1000-grain weight (46.32 gm) was recorded with application of T<sub>6</sub> (Banvel-M) which was statistically at par with T<sub>1</sub> (Buctril-M) 45.25 gm 1000-grain weight. Weedicides significantly affected the weed population, weed biomass, an various yield components. The highest grain yield 5030 kg ha<sup>-1</sup> was obtained in plots treated with Banvel-M close to it 5010 kg ha<sup>-1</sup>. Buctril-M yield, as compared to control 4195 kg ha<sup>-1</sup>.

### Introduction

Wheat (*Triticum aestivum* L.) plays an important role in the economy of Pakistan. Decrease in wheat production severely affects the economy of Pakistan.

In spite the best effects and intensive research work, wheat yield in Pakistan is low (2026 kg ha<sup>-1</sup>) with much gap to potential yield because of intensive cultivation and better inputs like higher rate.

Weeds may cause yield reduction (Anonymous, 1997). Weed reduced crop yields by competing for height, nutrients, water and carbon dioxide and interfere with harvest and increase the time and costs involved in crop production. In addition, weeds harbor insects and plant disease organisms and in some cases, they serve as essential alternate host for these pests.

Weed can be controlled physically, biologically and chemically. In general, cultural methods are still a useful tool but are getting expensive laborious and time consuming. Keeping in view, chemical weed control is an important alternative. This methods is quite effective and efficient. Weed control in wheat with herbicides has been suggested by many Researchers (Shah *et al.*, 1989; Randhawa and Sandhu, 1989; Subhan and Khan, 1991). Herbicide application is not only more effective and cheap but is also efficient method to check weed infestation and may help in achieving a speedy break through wheat production.

The study was, therefore, planned to evaluate different pre and post emergence herbicides to control weed in wheat.

### Materials and Methods

Studies pertaining to the effect of different herbicides on weeds population and yield of wheat variety "Inqulab-91" was conducted at the Adaptive Research Area Model Farm Quetta. Experiment was laid out in Randomized Complete Block Design (RCBD) with four replications. Net plot size was measured 3.0 x 6.0 m. The following experimental treatments were used:

T<sub>1</sub> = Buctril-M at 1.5 ha<sup>-1</sup> (Post emergence)

T<sub>2</sub> = Logran-M at 250 gm ha<sup>-1</sup> (Post emergence)

T<sub>3</sub> = Agroxone at 1.5 lit ha<sup>-1</sup> (Post emergence)

T<sub>4</sub> = Buctril-M at 1.5 lit ha<sup>-1</sup> (Pre emergence)

T<sub>5</sub> = Banvel-M at 0.75 lit ha<sup>-1</sup> (Post emergence)

T<sub>6</sub> = Control

As area of 1 m<sup>2</sup> from two different places was Ear-marke at random in each plot, for counting wheat germination and weed population. Initial weed population was recorded just before spraying. Second weed population was recorded twenty days after weedicides spray to calculate mortality percentage. The data on various parameters were recorded during the course of study.

The data collected were tabulated and analyzed statistical by using appropriate statistical methods (Steel and Torrie, 1980).

### Results and Discussion

All the herbicides decreased weed density and increase yield 19 percent, over untreated control plot T<sub>6</sub>. These results agree with those reported by Lidder *et al.* (1990) Application of Banvel-M (Post emergence) and Buctril-M (Pro-emergence) found to be more efficient than the post emergence of Buctril-M. Agroxone and Logran again weeds. Weedicides significantly affected the weed population weed biomass and various yield components i.e., number tillers per unit area, number of fertile tillers per unit are number of spikelets per spike, number of grain per spill and yield per hectare were substantially affected and application Banvel-M at 0.75 lit and Buctril-M at 1.5 lit han. resulted in more positive influence on these parameted These results agree with those reported by Subhan and Khan (1991).

Among these herbicides Banvel-M resulted relatively many number of tillers per unit area, number of grains per spill number of spikelet per spike than rest of treatments (T<sub>1</sub>, T<sub>2</sub>, T<sub>3</sub>, T<sub>4</sub>).

Table 1: Effect of different herbicides on weed population and yield of wheat (*Triticum aestivum* L.)

Particulars	Treatment					
	T <sub>1</sub> Buctruil	T <sub>2</sub> Logran	T <sub>3</sub> Agroxone	T <sub>4</sub> Buctril-M	T <sub>5</sub> Banvel-M	T <sub>6</sub> Control
Dose/ha	1.50 lit	250.00gm	1.50lit	1.50lit	0.175lit	0.00
Weeds population and mortality of weeds per units area (m <sup>2</sup> )						
No. of weeds before spray	178.29b	163.50c	175.25b	-	190.39a	188.26a
No. of weeds after spray	30.25b	38.50b	33.65b	28.50bc	23.50c	215.25a
Mortality (%)	83.03b	76.45c	80.79b	-	87.65a	-
No. of fertile tillers per unit area (m <sup>2</sup> )	399.59c	397.98c	398.07c	410.25b	428.50a	287.00d
No. of spikelets per spike	21.50b	20.92c	21.15b	21.67b	22.08a	17.25d
No. of grains per spike	59.10b	58.12c	59.00b	60.23a	62.85a	50.25d
Plant height at maturity (cm)	89.13b	8.53b	89.03b	90.10a	91.12a	87.90c
1000-grain weight (gm)	45.25a	44.78b	43.27b	44.75b	46.32a	39.50b
Grain yield kg ha <sup>-1</sup>	4990.25b	4930.00b	4945.68b	5010.05a	5030.29a	4195.25c

The highest grain yield 5030 kg ha<sup>-1</sup> was obtained in plots treated with Banvel-M close to it 5010 kg ha<sup>-1</sup> Buctril-M yielded (Table 1).

The use of 0.75 lit and Buctril-M 1.5 lit/hectare seems to be optimum to get increased yield of wheat under conditions. However, further studies of this nature are warranted. The highest 1000-grain weight (46.32 gm) was recorded with application of T<sub>5</sub> (Banvel-M) which was statistically at par with T<sub>1</sub> (Buctril-M) 45.25 gm 1000-grain weight.

The maximum grain yield 5030.29 and 5010.05 kg ha<sup>-1</sup> was recorded in T<sub>5</sub> and T<sub>4</sub> as compared to control. The rest of the treatment were statistically at par with one another.

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