

## Response of dwarf wheat to date of sowing and weed control methods

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### ABSTRACT

Result of an experiment conducted at college Agronomy Farm, B.A. College of Agriculture, G.A.U., Anand revealed that normal date of sowing gave significantly higher grain yield than midlate and late sowing. The yield components were markedly affected due to an anomaly of prevalent weather condition and finally the grain yield. Weed control methods significantly reduced the total weed population and weed biomass at harvest. The application of isoproturon pre emergence @ 1.0 kgha<sup>-1</sup> + HW at 35 DAS recorded the lowest number of total weed count and weed biomass at harvest, while they were the highest under weedy check.

**Key words :** Constraints, Suggestion *Rabi* jowar

### INTRODUCTION

With the introduction of high yielding dwarf wheat varieties and increased use of fertilizer and irrigation, problem of weeds has increased (Malik *et al.*, 1984). In rice-wheat rotation sowing of wheat is often delayed. The competition of weeds depends on the type of competing species and their population, besides environmental conditions, including sowing time. Isoproturon and 2,4-D Na salt have shown good promise as weed killers in wheat (Bhan and Malik, 1983). The aim of the present study was to find out the influence of sowing time and herbicides on the competition and control of weeds in wheat.

### MATERIALS AND METHODS

Field experiment was conducted during the winter season of 2001-2002 at the College Agronomy Farm, B.A. College of Agriculture, Gujarat Agricultural University, Anand Campus, Anand on a loamy sand soil. The soil was low in nitrogen medium in available phosphorus and high in available potash having 0.40 % organic matter and pH of 7.8.

The experiment laid in a split plot design with four replications. Eighteen treatment combinations comprising of three different sowing dates (20<sup>th</sup> November – normal sown; 5<sup>th</sup> December and 20<sup>th</sup> December – midlate and late sown, respectively) and six weed management practices ( W<sub>1</sub> = Isoproturon pre emergence @ 1.0 kgha<sup>-1</sup>, W<sub>2</sub> = Isoproturon pre emergence @ 1.0 kgha<sup>-1</sup> + 2,4-D Na salt @ 0.50 kgha<sup>-1</sup> at 35 DAS, W<sub>3</sub> = Isoproturon pre emergence @ 1.0 kgha<sup>-1</sup> + HW at 35 DAS, W<sub>4</sub> = 2,4-D Na salt @ 0.750 kgha<sup>-1</sup> at 21 DAS, W<sub>5</sub> = Hand weeding twice at 20 and 40 DAS and W<sub>6</sub> = Weedy check) were tested.

Wheat cv. GW-496 was sown 22.5 cm apart using 125 kgha<sup>-1</sup> seed rate. Fertilizers were applied @ 120-60-0 N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O kgha<sup>-1</sup>, respectively and irrigations

were applied in accordance with the package of practices.

### RESULTS AND DISCUSSION

The field was dominated by *Chenopodium album* L., *Amaranthus spinosus* L., *Eleusine indica* and *Cyperus rotendus*. The population of weed flora at 21 and 41 DAS decreased significantly with the delay of sowing from normal to midlate and late sown condition. Similar results were obtained by (Panwar *et al.*, 1990) That means the climatic conditions prevailing in the month of November were more favourable for weed population and growth. Isoproturon pre emergence @ 1.0 kgha<sup>-1</sup> + HW at 35 DAS, Isoproturon pre emergence @ 1.0 kgha<sup>-1</sup> + 2,4-D Na salt @ 0.50 kgha<sup>-1</sup> at 21 DAS and Hand weeding twice at 20 and 40 DAS provided equal and better control of weeds than weedy check and rest of treatments lack isoproturon pre emergence @ 1.0 kgha<sup>-1</sup> alone and 2,4-D Na salt @ 0.750 kgha<sup>-1</sup> at 21 DAS alone. Similar results were obtained by Malik *et al.* (1988).

Growth and yield attributing characters of wheat like plant height, effective tillers per plant, earhead length, test weight and grain yield of wheat were reduced when the sowing was delayed by midlate and late condition of wheat indicating that delay sowing of wheat was relatively more sensitive than normal sowing. Thus, it seems that wheat crop sown under normal condition gets longer congenial period for vegetative growth and yield attributing characters and reproduction.

The reason for the lower yield in midlate and late sowing may be ascribed to higher temperature during early stage of crop growth that caused less growth and early flowering and early maturity and ultimately lower yield.

The growth and yield attributing characters and yield of wheat were significantly greater in plots treated with Isoproturon pre emergence @ 1.0 kgha<sup>-1</sup> + HW at 35

**Table 1 : Effect of date of sowing and herbicides on weed population/m<sup>2</sup> area, growth yield attributing characters and yield of wheat**

Treatments	Height (cm)	Effective tiller/plant	Earhead length	Test weight	Grain yield (kg/ha <sup>-1</sup> )	Weed population(m <sup>2</sup> )	
						21 DAS	41DAS
Date of sowing (S)							
S <sub>1</sub> =Normal 20 <sup>th</sup> Nov.	91.75	5.88	8.11	43.87	4605	3.28	3.00
S <sub>2</sub> =Midlate 5 <sup>th</sup> Dec.	90.67	5.71	7.75	42.89	4167	3.06	2.76
S <sub>3</sub> =Late 20 <sup>th</sup> Dec.	88.04	5.15	7.02	41.75	3561	2.75	2.47
C.D. (P=0.05)	0.87	NS	0.08	0.11	273.72	0.18	0.08
Weed control							
W <sub>1</sub> =isoproturon (PE) @1.0 kg/ha <sup>-1</sup>	90.50	5.63	7.76	42.47	4112	3.06	3.57
W <sub>2</sub> =isoproturon (PE) @1.0 kg/ha <sup>-1</sup> +2,4-D @ 0.50 kg/ha <sup>-1</sup> at 21 DAS	89.42	5.47	7.39	42.55	4328	2.28	2.32
W <sub>3</sub> =isoproturon (PE) @1.0 kg/ha <sup>-1</sup> + H.W. at 35 DAS	92.08	6.00	8.08	43.45	4725	1.96	1.40
W <sub>4</sub> =2,4-D @ 0.750 kg/ha <sup>-1</sup> at 21 DAS	90.08	5.55	7.66	42.67	4099	3.88	2.54
W <sub>5</sub> =HW at 20 and DAS	90.25	5.63	7.77	42.87	4448	1.99	1.53
W <sub>6</sub> =Weedy check	88.58	5.18	7.08	41.91	2954	5.00	5.11
C.D. (P=0.05)	0.82	0.40	0.10	0.17	149.87	0.22	0.14

DAS. The differences were, however, not significant as compared to weed free check and Isoproturon pre emergence @ 1.0 kg/ha<sup>-1</sup> + 2,4-D Na salt @ 0.50 kg/ha<sup>-1</sup> at 35 DAS. From one year experimentation it can be concluded that normal sown condition *i.e.* 15<sup>th</sup> November may be treated optimum period of sowing and application of Isoproturon pre emergence @ 1.0 kg/ha<sup>-1</sup> + HW at 35 DAS for the efficient weed management to obtain higher profitable yield of dwarf wheat.

## REFERENCES

**Bhan, V.M. and Malik, R.S. (1983).** Integrated weed management (IWM) - an approach. In : Proc. Int. Soc. Weed Sci., **1** : 289-297.

**Panwar, R.S., Malik, R.K. and Malik, R.S. (1990).** Effect of herbicides and sowing time on wilt oats control in wheat. *Haryana agric. Univ. J. Res.*, **29** (4) : 268-272.

**Malik, R.K., Panwar, R.S. and Malik, R.S. (1984).** Chemical control of broad leaf and grassy weed in wheat. *Indian J. Agron.*, **37** (2) : 324-327

**Malik, R.S., Yadav, A. and Panwar, R.S. (1988).** Efficacy of isoproturon, diclofopmethly and Tralkosaydim alone or in mixture against weeds in wheat. *Indian J. Weed Sci.*, **31** (1&2) : 64-66.

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