Table 3 : Distribution of respondents according to number of sprays, time intervals and waiting period for use insecticides in cabbage crop

Sr. No.	Name of insect and insecticides used	No. of sprays		Time interval between sprays		Waiting period for picking after spraying	
		Sprays	f (%)	Days	f (%)	Days	f (%)
1.	Stem borer	2-3	6 (27.27)	7-9*	15 (68.19)	1*	15 (68.19)
	Sevin 50 WP	6-8*	5 (22.73)	9-10*	1 (4.54)	2*	7 (31.81)
	n=22	8-10*	11 (50.00)	10-11	6 (27.27)		
	Thiodan 35 EC	7-9*	4 (80.00)	6-9*	5 (100.00)	1*	5 (100.00)
	n = 5	9-10*	1 (20.00)				
	Rogor 30 EC*	6-7*	1 (100.00)	7-8*	1 (100.00)	2*	1 (100.00)
	n = 1						
	Basudin 20 EC*	7-8*	10 (43.47)	6-7*	11 (47.82)	1*	18 (78.27)
	n = 23	9-10*	13 (56.52)	8-10*	12 (52.18)	2*	5 (21.73)
2.	Diamond back moth	2-3	1 (33.33)	7-9*	2 (66.67)	1*	3 (100.00)
	Thiodan 25 EC	6-9*	2 (66.67)	10-11	1 (33.33)		
	n = 3						
	Ekalux 25 EC	2-3	1 (20.00)	7-9*	4 (80.00)	1*	1 (100.00)
	n = 5	6-8*	2 (40.00)	10-11	1 (20.00)		
		9-10*	2 (40.00)				
	Metasystox 25 EC*	7-9*	9 (90.00)	6-9*	9 (90.00)	1*	8 (80.00)
	n = 10	9-10*	1 (10.00)	10-11*	1 (10.00)	2*	2 (20.00)
	Nuvacron 36 SL*	9-10*	11 (100.00)	7-8*	4 (36.37)	1*	11 (100.00)
	n=11			9-10*	7 (63.63)		
3.	Aphid	2-3	3 (17.65)	5-8*	9 (52.94)	1*	12 (70.59)
	Malathion 50 EC	5-8*	6 (35.29)	8-10*	7 (41.18)	2*	5 (29.41)
	n = 17	8-10*	8 (47.06)	10-11	1 (5.88)		
	Sevin 50 WP*	2-3*	1 (16.67)	7-8*	5 (83.33)	1*	4 (66.67)
	n=6	6-9*	4 (66.67)	10-11*	1 (16.67)	2*	2 (33.33)
		10-11*	1 (16.66)				
	Metasystox 25 EC*	2-3*	6 (21.42)	7-8*	17 (60.71)	1*	20 (71.43)
	n=28	6-9*	22 (78.58)	10-11*	11 (78.57)	2*	8 (28.57)

Table 4 : Distribution of the respondents according to different indigenous practices followed for controlling aphid and jassid in cabbage

Indigenous practice	f	(%)	Dose (kg/acre)	No. of treatments	Time gap (days)
1. Ash (kg)	1	1.58	15-25	8-10	6-9

Authors' affiliations:
KANWALJIT KAUR AND BIKRAMDEEP SINGH, Department of Extension Education, College of Agriculture, Punjab Agricultural University, LUDHIANA (PUNJAB) INDIA

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Research Paper :

Effect of chemical and cultural weed control methods on weed parameters yield and economics of dwarf wheat under different dates of sowing

R.R. PARMAR AND V.C. RAJ

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See end of the article for authors' affiliations

Correspondence to :
R.R. PARMAR
Department of Agronomy, B.A. College of Agriculture, Gujarat Agricultural University, Anand Campus, ANAND (GUJARAT) INDIA

SUMMARY

Field study was conducted on the cultural and chemicals means use to control the weeds *viz.*, dates of sowing and herbicides at College Agronomy Farm, B.A. College of Agriculture at Anand, Looking to the weed parameters, yield and economics of normal date of sowing with application of isoproturon pre-emergence @ 1.0 kgha^{-1} + H.W. at 35 DAS (S_1W_3) had recorded maximum net return followed by hand weeding twice among all treatment combinations.

Key words : *Raphanus sativus* L., *Alternaria alternata*, Sugars, Phenols

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The matter of interest is that the cultural and chemical means used to control the weeds *viz.*, dates of sowing and use of herbicides are tested separately in irrigated wheat. But their interactive effects are not known. So, the integrated weed management technology may only be the appropriate technique to achieve optimum weed control with a minimum of crop and environmental hazards. Chemical weed control with a manipulation with appropriate cultural package of practices should only be the means to boost up crop yield.

Thus, the objectives of investigation aimed to know appropriate methodology for weed management in dwarf wheat grown under assured irrigated condition in rice-wheat cropping sequence.

MATERIALS AND METHODS

A field experiment was conducted at the College Agronomy Farm, B.A.College of Agriculture, Gujarat Agricultural University, Anand Campus, Anand. The soil of the experimental area was loamy sand in texture having good drainage capacity with 7.8 pH.

Eighteen treatments combination comprising three different sowing dates (20th November – normal sown; 5th December and 20th December – midlate and late sown, respectively) and six weed management practices (W_1 = Isoproturon pre emergence @ 1.0 kgha^{-1}, W_2 = Isoproturon pre emergence @ 1.0 kgha^{-1} + 2,4-D Na salt @ 0.50 kgha^{-1} at 35 DAS, W_3 = Isoproturon pre emergence @ 1.0 kgha^{-1} + HW at 35 DAS, W_4 = 2,4-D Na salt @ 0.750 kgha^{-1} at 21 DAS, W_5 = Hand Weeding twice at 20 and 40 DAS and W_6 = Weedy check) were studied in split plot design with four replications.

Wheat cv. GW-496 was sown 22.5 cm apart using 125 kg ha^{-1} seed rate. Fertilizers were applied @ 120-60-0 N, P_2O_5 and K_2O kgha^{-1}, respectively and irrigations were applied in accordance with package of practices.

RESULTS AND DISCUSSION

The dominant weed flora recorded in the experimental field was consisted of *Chenopodium album* L., *Amaranthus spinosus* L., *Eleusine indica* and *Cyperus rotendus*.

The normal date of sowing had gave significantly higher weed population at 21 and 41 DAS and almost same trend in weed biomass at harvest. The plant height, and total tillers/plant of weeds were maximum under normal sowing. These characters showed declining trend. Corresponding with the delay in the sowing as midlate and late. The late sown wheat produced lower grain yield and economic returns might be abruot rise in temperature in

Table 1 : Effect of date of sowing and herbicides on weed parameters, yield and economics dwarf wheat

Treatments	Weed population		Weed	WCE	Grain	Net return
	21DAS	41DAS	biomass	(%)	yield	Rs./ha
Date of sowing (S)						
S_1=Normal 20th Nov.	3.28	3.00	400.39	95.56	4605	19526
S_2=Midlate 5th Dec.	3.06	2.76	368.23	96.75	4167	16836
S_3=Late 20th Dec.	2.75	2.47	337.01	96.88	3561	13027
C.D. (P=0.05)	0.18	0.08	NS	-	273.09	
Weed control						
W_1=Isoproturon (PE) @1.0 kgha^{-1}	3.06	3.57	127.03	93.35	4112	16404
W_2=Isoproturon (PE) @1.0 kgha^{-1} +2,4-D 0.50 kgha^{-1} at 21 DAS	2.28	2.32	36.20	98.10	4328	17312
W_3=Isoproturon (PE) @1.0 kgha^{-1} + H.W. at 35 DAS	1.96	1.40	21.53	98.87	4725	19741
W_4=2,4-D @ 0.750 kgha^{-1} at 21 DAS	3.88	2.54	101.83	94.62	4099	16639
W_5=HW at 20 and 40 DAS	1.99	1.53	24.67	98.40	4448	18471
W_6=Weedy check	5.00	5.11	19.00	-	2954	10207
C.D. (P=0.05)	0.22	0.14	83.53	-	149.87	

the month of February and thereafter at reproductive phase, which might have induced early maturity of the crop and lower economic returns.

It is evident from Table 1 that all weed control treatments caused identical reduction in weed population, weed biomass and increased the weed control efficiency as compared to weedy check. Application of Isoproturon pre emergence @ 1.0 kgha^{-1} + HW at 35 DAS produced significantly lesser weed population at 21 and 41 DAS (1.96 and 1.40 m^{-2}) weed biomass (21.53 kgha^{-1}) and maximum weed control efficiency (98.87 %) but found at par with isoproturon pre emergence @ 1.0 kgha^{-1} + 2,4-D Na salt @ 0.50 kgha^{-1} at 35 DAS and hand weeding twice at 20 and 40 DAS. The application of isoproturon pre emergence @ 1.0 kgha^{-1} + H.W. at 35 DAS produced 4725 kgha^{-1} of grain yield which was 59.95 % higher over weedy check (2954 kgha^{-1}) followed by hand weeding twice (4448 kgha^{-1}). The maximum net realization of Rs.19741 ha^{-1} was received under treatment of isoproturon pre emergence @ 1.0 kgha^{-1} + H.W. at 35 DAS while weed check recorded a net return of only 10207 Rs. ha^{-1} while hand weeding twice had registered a net profit of Rs. 18471 ha^{-1}.

Authors' affiliations:
V.C. RAJ, Department of Agronomy, B.A. College of Agriculture, Gujarat Agricultural University, Anand Campus, ANAND (GUJARAT) INDIA

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