HAPPENING AND CONTROLLING OF BROOMRAPE

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ABSTRACT

Broomrape (Orobanche Cumana Lorfl) is a kind of parastic weed on sunflower. It comes from surface of soil in the middle of July every year in the infection area of JiLin Province. In general the percentage of parasitism is about 20%, sometimes we can find more than 100 broomrapes parasitize one sunflower plant. By referring to a large number similar research information, we did chemical control experiments in 1989—1993 and found sethoxydim alachlor and PCP-Na are effective for control sunflower broomrape.

Key Words: Broomrape Chemical control

INTRODUCTION

Broomrape (Orob nche Cumana Lorfl) is a parasitic weed on sunflower, which commonly occurs in the growing area in JiLin province and caused serious harmfulness for sunflower production. Because broomrape usually spread its seed by soil, chemical control should be a effective method for control broomrape growth. We started the research work in 1989, the research objective is to make sure which chemicals are effective for controlling sunflower broomrape. We have got some good results.

MATERIALS AND METHOD

The experiments were conducted in JiLin province Taonan city Najin town where occured broomrape in 1989—1993 growing seasons. The sunflower variety is Baikuiza No1, the chemicals used included:(1) 48% trifluralin; (2) 12.5% Sethoxydim; (3)48% alachlor; and (4) 65% PCP-Na powder. For the sunflower field where broomrape parasitic serious, take soil treatment with chemicals, plot area for every treatment are 30 square metres, three reptacations. Field invistigation be taken before harvest. The items tested included: parasitic intensity, control effect, economic benefit and effect. Practice treatment measure see table 1.

Table 1. Different treatments for chemical control of broomrape *

Treatments	Chemicals	Dosage for per hectare	Dosage for per plot	Time
1	Trifluralin	1500 ml	4.5 ml	before sowing
2	Sethoxydim	1500 ml	4.5 ml	〃 〃
3	PCP-Na	15 kg	45 g	〃 〃
4	Alachlor	8000 ml	24 ml	〃 〃
5	C K	0	0	——
6	Trifluralin	3000 ml	9 ml	before sowing
7	PCP-Na	15 kg	45 g	final singling
8	Alachlor	8000 ml	24 ml	〃 〃
9	Sethoxydim	1500 ml	4.5 ml	〃 〃

Every treatment of chemical control of broomrape, at first the chemicals were mixed with soil become poisonous soil, put the poisonous soil around sunflower roots.

RESULTS AND ANALYSIS

The effects of chemical control of sunflower broomrape see table 2.

Table 2. The effects of chemical control of sunflower broomrape

Teat-ment	The number of sunflower	The number of broomrape	Parasitic degree	Theeffect ofcontrol	Yield per plot
1	19	162	8.53	54.70	1.97
2	18	178	9.89	47.57	1.92
3	20	217	10.85	42.41	1.89
4	27	197	7.30	61.25	2.01
5	19	358	18.84	0	1.62
6	19	154	8.11	56.95	1.98
7	12	21	1.75	90.71	2.20
8	20	43	2.15	88.59	2.18
9	19	40	2.10	88.80	2.18

The analysis result of difference significance for chemical control effects shown in table 3.

Table3. The difference significance analysis of chemical control effects

Treatments	The average of chemical control effects	Difference significance	
		0.05	0.01
7	90.49	A	a
9	88.80	B	b
8	88.52	B	b
4	61.12	C	c
6	56.95	D	d
1	54.56	E	e
2	47.57	F	f
3	42.29	G	g
5	0	H	h

According to the results of table 3, the difference between treatment 7 and other treatments achieved extremely significan level, so treatment 7 is the best chemical control method, i.e. use 65% PCP-Na powder 15Kg per hectare mixed with soil get poisonous soil, put it around sunflower root after final singling. The difference between treatment 8 and 9 are not significant, but the difference between them and other treatments are significant, so treatment 8 and 9 are better chemical control methods, i.e. use 12.5% Sethoxydim 1500ml per hectare mixed with soil get poisonous soil, or use 48% alachlor 8000ml per hectare mixed with soil get poisonous soil, and put the poisonous soil around sunflower roots after final singling.

In 1992 and 1993 we did demonstration experiments of chemical control of sunflower broomrape total 350 hectares in changling county, Qian'an county and Taonan city, the chemical control effect are very well, we think use sethoxydim, alachlor and PCP-Na to chemical control of sunflower broomrape are effective.