

A.L. Tkachenko, USSR

CHEMICAL MEANS OF WEED CONTROL
ON SUNFLOWER FIELDS

Sunflower management practices are rather well developed at the Kirovograd Experimental Station. New supplies of up-to-date farm machinery and a widespread use of herbicides, however, have led to a revision of these practices.

Experiments were mainly centred on finding the means to intensify weed control before sowing.

Experimental data show clear advantages of a presowing cultivation.

Elimination of the first deep cultivation and fallow harrowing stimulate the emergence of weed seedlings later to be destroyed by presowing cultivation.

It was found that treflan treatment resulted in 2-3 c/ha of yield gain. Mixing treflan with the upper soil layer considerably increased its effectiveness. Compared with other herbicides, treflan dosage of 2 kg/ha was the most effective. Weed killing rate was 80%.

Treatment with eptam during sowing cultivation killed 74% of cereal weeds (Table 1). The weight of 1000 sunflower seeds and oil percentage of kernels were at the level of the check. Seed yield gain was about 2.2 c/ha.

Prometrin proved to be an effective weed killer. At the dosage of 2 kg/ha it reduced weed infestation by 60% and increased the yield by some 2.7 c/ha.

Thus, for weed control on sunflower fields in the Kirovograd region treflan should be administered at the rate of 2 kg/ha, eptam at the rate of 3 kg/ha and prometrin at the rate of 2 kg/ha. These herbicides should be administered at presowing cultivation.

Table 1

Herbicides' Effect on Sunflower (average for 1965-1968)

Variant	Dosage, kg/ha	Percent of weeds before harvest	Sunflower yields, c/ha			De- via- tion for 4 years the check	1000 Ker- nel oil per- cent				
			1965	1966	1967			1968			
Check		100	17.7	18.6	17.4	18.8	18.1	67.1	62.6		
Treflan	2	22	21.0	21.5	20.8	21.8	21.3	+2.9	76.2	62.1	
Prometryn	2	32	20.4	21.2	19.9	21.7	20.8	+2.7	71.3	63.8	
Eptam	3	26	20.1	20.5	21.1	19.5	20.3	+2.2	68.3	64.0	
Check without weeding		220	11.0	12.8	13.6	13.2	13.4	13.2	-4.9	52.1	60.6
P %			0.7	0.7	1.1	1.0					
NSR 0.95 c/ha			0.4	0.5	0.6	0.6					

Table 2

Effectiveness of Herbicide Mixtures on Sunflower Fields
(mean for 1973-1975)

Variant	Weeds per sq. meter before harvest		Sunflower yield per years, c/ha				Deviation, \pm	
	total	including coty- ledo- ne	1973	1974	1975	mean for 3 years		
Check	26	14	12	28.8	15.4	4.1	16.1	-
Prometrin 2 kg/ha	13	8	5	30.4	14.7	4.2	16.9	+0.8
Treflan 2 kg/ha	10	6	4	20.6	15.2	4.3	16.9	+0.7
Prometrin 1.5 kg/ha + Treflan	11	5	6	29.5	16.1	4.6	17.2	+1.1

We also studied treatments with mixtures of the most effective herbicides prometrin and treflan (Table 2).

It had been found that mixture was more effective in killing the weeds than separate treatments with prometrin and treflan.