

## Chemical Weed Control

China Lettuce Control in Ladino Clover

It was pointed out in the 1952 report that China lettuce can be one of the serious weeds in Ladino clover seed production.

The results of the 1952 data indicates that of the several chemicals used, all chemicals, with the exception of CMU, tended to control China lettuce and increase seed production.

In a second trial in which there was little China lettuce to control, seed production was also increased. The order of seed increase was similar to the order of severity of injury caused by the chemical. The order of seed increase by chemicals was 2,4-D, MCPA, 2,4-DS and DNS.

The question arose as to whether the chemicals increased seed production by serving as a physiological stimulus or whether they increased seed production by injuring the plant and causing it to come into bloom at a time more favorable for pollination.

With this information in mind, a trial was established in 1953. The trial included the treatments shown in Table No. 57; the hand weeding treatment was included in order that it would be possible to differentiate between seed increase from weed control and seed increase from the effect of the chemical itself.

The trial was established on the Art Carlson farm 6 miles NW of Madras on the Warm Springs Highway. The field had a uniform stand of China lettuce plants in the rosette stage of growth. The experiment was of a randomized block design with three replications. The chemicals were applied with commercial pack sprayers.

The chemicals were applied on May 2, 1953; the weeding was done nine days after the chemicals were applied. The weather was cool but fair, the soil moist, three days after irrigation, and the soil temperatures relatively low. Plant growth was slow and remained slow until the middle of June. In general it was a very poor year for clover seed production; the weather was cold and windy until nearly the first of July and then it turned quite warm.

Nine days after application the field was visited and it was noted that 2,4-D and MCP treatments resulted in the usual distortion. There was very little effect observed from any of the selectives. 2,4-DS appeared to have the greatest effect. Premer at the 1# level exhibited very slight burn on the clover and poor weed kill. Premer at the 3# level resulted in heavier burn; however, in many cases the burned China lettuce plants exhibited regrowth. The premer had no effect on the cheatgrass (*Bromus tectorum*).

The experiment was not revisited for several weeks. In the meantime, easily 99% of the China lettuce had died, both in and out of the trial area. The cause of the death was unknown. As a result, the trial could not be considered on the basis of weed control but was maintained and harvested to observe the effect of these chemicals on yield.

Table No. 57

Effect of Several Sources and Rates of Chemicals on Ladino Clover Seed Yield  
 Art Carlson Farm  
 Madras, Oregon  
 1953

Treatment (1)	Seed Yield in Pds. Per Acre				Mean
	By Replication				
	I	II	III	IV	
Check	157.2	173.2	114.6	106.6	137.9
Hand Weeding	119.9	87.9	102.6	151.9	115.6
1/2# 2,4-D Amine	103.9	122.6	135.9	121.3	120.9
1# 2,4-D Amine	165.2	111.9	123.9	69.3	117.6
3/4# MCP Amine	146.6	72.0	44.0	106.6	92.3
1# MCP Amine	53.3	119.9	88.0	138.6	100.0
4# 2,4-5 TS	95.9	93.3	111.9	73.3	93.6
4# 2,4-DS	64.0	119.9	131.9	114.6	107.6
4# MCPS	127.9	77.3	106.6	162.6	118.6
1# Premerge	107.9	69.3	133.3	165.2	118.9
3# Premerge	151.9	103.9	66.6	114.6	109.3

Date of Application - May 2, 1953

(1) Applied with 80 gallons of water.

The yield estimate was made by harvesting 3 nine square foot samples from each plot. The samples were composited, brought to a uniform dryness in a dryer, threshed and cleaned. The yield obtained is recorded in pounds per acre. The seed yields from the treatments are presented in Table No. 57.

Statistical analysis indicates no significant difference between treatments. This could indicate that error masked the effect of treatment or that effects other than treatment were responsible for previous increases in seed yields from the treatments. Possibly date of bloom is an important factor in seed yield.

#### Chemical Control of Western Witchgrass

Western witchgrass (Panicum barbipulvinatum), while not considered a noxious weed by seed certification standards, can be a very serious weed in Ladino clover because of the competition it offers and because the seed size makes it very difficult to separate from Ladino clover. During the 1952 season there was a serious infestation of witchgrass in Jefferson County and it was considered advisable to evaluate IPC and Chloro IPC as chemical controls for witchgrass. Previous experiments on cheatgrass and other annual grasses throughout the state have indicated that application of IPC and Chloro IPC have resulted in excellent control of those annual grasses.

Most of the work done has been in the control of annual grasses in perennial grasses and the effect of the chemical on Ladino and red clover had not been observed.

Because the chemicals are preemergence treatments, it was necessary to locate the trials in areas which had been observed to have witchgrass infestation during 1952. At both locations the 1952 growth could be found along the ditch banks, and at the Schallhorn location seedlings which were believed to be witchgrass were seen in the field.

The experiment consisted of 2, 4 and 6# rates of Chloro IPC, and 4 and 6 pound rates of IPC. The experiment was a randomized block design with three replications. The materials were mixed with water at the rate of 80 gallons of water per acre and applied with a commercial pack-type hand sprayer.

Clover seed yield estimates were made by harvesting 3 nine square foot samples from each plot. The samples were composited, dried to uniform moisture and threshed. Yield is expressed in pounds of clover seed per acre.

The trial on the Bill Schallhorn farm at Culver was on red clover and on Ladino clover at the Clarence Sandwick farm at Madras.

Witchgrass did not materialize at either location so that it was impossible to note effect of the chemicals on witchgrass. At the Schallhorn location spring wheat had been used as a companion crop on the red clover during 1952, and there was considerable volunteering in 1953. All rates of both chemicals were effective in partial control of the volunteer wheat even though the wheat was 1-1½ inches tall at the time of application. No stand counts on the wheat were taken; however, it appeared that the wheat stand had been reduced by 1/2 - 2/3 by the chemicals. Weed population in this trial was low. The Sandwick trial had some China lettuce but the stand was thin and uniform. The chemicals had no apparent affect on the China lettuce.

Clover seed yield results are presented in Tables No. 58 and 59. In both trials the large variation between replication detracts from the value of the data; however, certain general trends can be noted. Ladino clover appears to be more sensitive to the IPC's than does red clover. The 6 pound rate of either IPC or Chloro IPC is probably detrimental to the yield of both red and Ladino clover.

Table No. 58  
 Effect of Several Sources and Rates of Chemicals  
 on the Seed Yield of Red Clover  
 1953

Bill Schallhorn

Culver, Oregon

Pounds Per Acre	Treatment (1) Chemical	Red Clover Seed Yield - Pounds Per Acre				Mean
		By Replication				
		I	II	III	IV	
--	No treatment	430.0	374.9	430.0	305.6	385.1
2#	Chloro I.P.C.	559.7	577.4	428.2	380.2	486.4
4#	Chloro I.P.C.	277.2	412.2	355.4	369.6	353.6
6#	Chloro I.P.C.	250.5	556.1	353.6	458.4	404.7
4#	I.P.C.	419.3	483.3	462.0	394.4	439.8
6#	I.P.C.	378.4	410.4	350.0	373.1	378.0

(1) Treatment applied with 80 gallons of water.

