A CONTRACTOR'S EXPERIENCES

By - Mr. S. Sargent, Waimate.

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As a contractor I should like to outline, as briefly as possible, the work carried out in the field of chemical weed control in South Canterbury over the past two years.

The year 1948-49 saw the introduction of low volume weed sprayers to New Zealand. One of these machines sprayed hundreds of acres in South Canterbury, the majority of this work being for the control of Californian thistles in crop.

Some areas sprayed were so badly infested with Californian thistles and wild turnip, that they would normally have been grazed with sheep, then ploughed under. In such paddocks as these, where weed growth is so prolific, hormones really do a wonderful job, and one can be assured of a crop free from weeds that hamper the harvesting.

I could quote many cases where a farmer has decided to treat only the weediest portion of a crop, but after seeing the results, has regretted not doing all the paddock, as the absence of live weeds in the sprayed portion has shown up the weed growth in the untreated area.

The practice of spraying Californian thistles only at the bud stage cannot be adopted in crop work. The aim therefore is a control for that season. The spraying should take place before the thistles have affected the crop and when the crop is young enough to recover from wheel marks, and yet late enough to get the majority of weeds above the ground. Experience has shown where thistles growth is very uneven, the strength has to be increased to control the very advanced ones which have become tall and stalky, collecting less spray than those in the rosette stage. This often occurs where deep cultivation has taken place just prior to sowing.

All weeds are more susceptible when young and require less hormones to control, but unfortunately in South Canterbury they do not all come through the ground together, so, therefore, light application can never be used.

When spraying is delayed on account of uneven weed growth, damage occurs, both from weed competition and wheel marks, the latter being greatly reduced when a long boom is used. Also heavy weights on harrow tyres when ground or crop is wet should be avoided. Very good results have been obtained by spraying wet crop in the young stage, especially when using low volume methods. Further damage can occur in crop if spraying takes place when in ear.

For the control of thistles I have sprayed a crop 3'-6" in height. Although the wheel marks are visible throughout, as the plants remain leaning, this is not serious for the header harvester has no difficulty in collecting the heads with the remainder as they are seldom more than a few inches below the crop line.

Quite frequently two paddocks identically treated the same day, give entirely different results, and it would appear that the soil fertility in each case plays an even greater part than dry conditions.

The first season's pasture spraying taught us that while it was quite possible to get good results in cultivated areas, it was another thing to achieve a kill in uncultivated soil, the apparent reason being the slowness of growth in the latter case. Observations have shown that topdressed areas give the best results. Many experiments were carried out using different acid strength, but provided ample water was used to get a complete coverage, the results were very similar. Thistles in South Canterbury come in bud in December to January and by that time for the past two seasons, growth has slowed down to such an extent that only where

thistles are bruised by the wheels of the spray unit are satisfactory results obtained.

This led to experiments of bruising thistles by the use of a Cambridge roller immediately after spraying. While these results were an improvement many thistles escaped bruising by passing between the rings of roller and on uneven ground.

This being our first season we did not realise how nearly impossible it was to eradicate thistles in an old pasture.

By December 1949 the theory of cutting and spraying had been well established by very enthusiastic salesmen, and throughout South Canterbury claims of 100% results by these methods were frequently heard, but unfortunately I could not find any person who had tried it. Being very keen to try anything that promised to give better results on South Canterbury's most troublesome weeds, I had a well known Christchurch thistle cutter modified and fitted with spray boom for experimental purposes. With this machine I put down trial strips in most pastures sprayed. Although this machine was never designed to cut Californian thistles at slow speeds, it did serve the purpose of experimenting. Not until the spring growth appears can we get the true results of these experiments, but close observation has shown that many thistles which were cut off cleanly, died down, but regrowth appeared round the base of the stem, while the thistles that were skinned showed no regrowth at all. Concentrations up to 4 lbs. acid per acre proved insufficient when a stalk of a few inches was left to absorb the material. From these experiments we have learned that the eradication of Californian thistles from an old pasture is a greater problem than it at first appears. It is not sufficient just to obtain results where all the top growth goes black and disappears. This is not very difficult if spraying is done early when there is plenty of growth, but it is the root we must attack if success is to be ours.

The problem is how we are to get the hormones into the roots of all the thistles in the area. Most of us have seen cases where one application has completely eradicated small patches of thistles, such as roadsides, fence lines, or places where no stock has been for some time, but when a pasture, dotted with patches of thistles, is under consideration for spraying, many problems present themselves.

I would not recommend pasture spraying except in a young paddock where the thistle growth is very even or if grass seed or clover is to be harvested. In this case it is classed as a crop and must be sprayed just as soon as the thistles are through the ground. By this practice very weedy paddocks have yielded good crops with no weeds to hamper the harvesting.

On account of thistles some districts have great difficulty in growing a clean crop of Brassica, especially rape. Pre-emergence spraying has given great results in retarding thistles until the crop grows well above them, which is all that is required. Great care must be taken if Brassica are to be planted after spraying in dry areas. No definite time can be set down to leave treated areas before sowing Brassica. Only by testing with a fast striking plant such as radish can one be sure that all the hormones have disappeared. A week to ten days is usually long enough in damp areas if light cultivation is carried out after four or five days. In my opinion, although pre-emergence spraying has been very successful, I would only recommend it where cultivation cannot control the weeds, such as Californian thistles.

BLACKBERRY SPRAYING - Last season 50 gallons of Blackberry material were used, but I would not say anything like 50 acres of Blackberry were sprayed.

As it is too soon yet to see how much regrowth there is going to be this Spring, very little can be said about the results, but where complete coverage was obtained, the foliage died down, giving us hopes of a kill.

I realize that this is just a new material, and like all hormone work, much experimenting must be done before we get the best results.

Every article on the subject that I have read recommends one gallon of material to 80-100 gallons of water, this mixture to be sprayed at the rate of 100 gallons per acre when the blackberry is in full growth, ensuring that the stems as well as the leaves are thoroughly wetted. I would be very pleased if any person here could explain to me how one acre of blackberry can be covered with only 100 gallons of liquid. One does not require to do much blackberry work in South Canterbury to prove how impossible this is. I assume the North Island acre must be smaller than ours, as in all past recommendations more material is required to achieve results in South Canterbury.

In concluding, I should like to mention the very essential work that is being done by the New Zealand Weed Control Contractors' Association. This body, whose membership now includes over 90% of known operators in the chemical weed control field in this country, came into existence, firstly, to provide a medium through which knowledge gained by one worker could be recorded and circulated in due course to all members: secondly, to protect the farming community and the contractors by setting standards for its members that will lead to general confidence in registered operators; thirdly, to campaign for general registration by the State of all workers in the contract field.

We would ask for the support of the farming industry at large so that we may be able to put chemical weed control on the highest plane of efficiency.

QUESTIONS AND DISCUSSION

MR. MATTHEWS (Dept. of Agriculture):- I am in sympathy with Mr. Sargent when he claims that 100 gallons to the acre is insufficient, specially with high volume nozzles. I think it takes 200 or 300 gallons to cover an acre of blackberries. That is why I dropped right down to 28m nozzles. Even then I am not satisfied you can get coverage of an acre with that quantity of water.

MR. SARGENT: I agree, but I think it takes more like 500 gallons to cover an acre. It is a sore point among contractors because it does affect the cost of treating an acre.

MR. BAIGENT (Gisborne): I am a contractor in the North Island on some of those small acres Mr. Sargent talks of. I have recently sprayed 50 acres of blackberries and using a reasonable pressure and cutting down on the size of the jet I have had very close to 80 gallons to the acre. I am so confident of my results that I take work on contract rather than on the number of hours worked. It is just a question of trial and error. As far as density of growth is concerned, I can get every first-growth blackberry. Where you have to spray every individual bush you lose a lot of spray but with big bushes you can cover the area much quicker.

MR. SARGENT: In my experience, to get coverage of those big bushes you have to spray it on direct.

MR. BROWN (New Plymouth): I think there is a bit of misunderstanding here. For smaller bushes you use a 59 nozzle and walk at 2 miles p.h. using 50 lb p.s.i. pressure - then you must put on 100 gallons to the acre. For the taller bush you use a blackberry spear. This shoots the spray upwards and wets the stems. You should be able to run 100 gallons to the acre. I have sprayed big bushes in Taranaki and used only 100 gallons.

MR. SARGENT: The spear has a nozzle on a 6 ft. pipe. I would like to see Mr. Brown using a 6 ft. spear on some of the bushes in South Canterbury. I have used a 15 ft. spear at times and still not get to the middle of the bush.

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