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PRELIMINARY INFORMATION ON CHEMICAL WEED CONTROL IN STRAWBERRIES

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PRELIMINARY INFORMATION ON CHEMICAL WEED CONTROL
IN STRAWBERRIES

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The control of weeds in strawberries constitutes one of the major costs of production of this crop. At present, high labor cost of weed control in strawberries by hoeing and cultivation may run as high as \$75 to \$100 per acre per season depending on the degree of infestation. Within the past two years, considerable interest has been evidenced by growers and other interested parties as to the possibility of chemical weed control in strawberries. Such practices have been investigated and found to be highly practicable. For example, it has been found that hoeing costs may be reduced from 50 to 75 per cent through the proper use of the appropriate chemical.

Berry production in strawberries is dependent to a great extent on the late summer and fall growth of the plant. Yields are generally correlated with the leaf area produced in late summer and autumn, from late July until late November. It should be the objective of the grower to have the greatest possible leaf area produced during this period and nothing should be allowed to interfere with the maximum production of leaves at this time. As the days become shorter and temperatures lower, the leaves cease to function in their roles as the manufacturing organ for plant food which is stored in the crown of the plant. The leaves now turn yellow and many die as winter proceeds. Plants at this time are termed dormant and remain so until warmer temperatures and longer days start plant activity in the production of new leaves.

It is at this dormant time of the year, usually from late November through February in the Willamette Valley, that the crop can be treated with the chemical without injury to the subsequent crop. It is at this season of the year also that our most troublesome weed plants make their growth. These weeds include ryegrass, chickweed, vetch, groundsel, mustard, annual bluegrass, and a number of other plants. These plants, because of their growth habits, are known as winter annuals; therefore, the coincidence of dormancy in the strawberry with the growth of these plants is very opportune for application of chemicals for weed control.

The authors are indebted to Mr. George F. Waldo, Associate Pomologist at Oregon State College.

Through the use of chemical weed controls in strawberries, spring work will not be needed as early as where they are not used. The soil will be in better condition for cultivation at a later date and fewer of the feeder roots will be destroyed due to less cultivation being necessary. Later cultivations need not be deep and few roots will be destroyed.

It is quite generally agreed that strawberry production is lowered quite materially by damage done to feeder roots in the act of controlling weeds by mechanical methods.

As indicated above, the proper time to use these chemical weed killers will be during the months of November through February. Generally speaking, the later the chemical can be applied, the longer lasting the effect will be in the spring. If the strawberries are relatively weed free in November and December and the chemical weed killer is applied in February, the effect of the treatment will last considerably longer than if the treatment has been made at an earlier date. Delaying the application of chemical weed killer until after new growth begins in the strawberry plant may cause injury.

A number of chemicals have been tested for use as dormant sprays on strawberry fields. The materials which have shown the most promise are the various phenolic weed killers such as the dinitro general weed killers combined with oil. Certain formulations of pentachlorophenol have been tried and found to be reasonably effective. The most widely used formulation and the one that is suggested for use consists of one and one-half quarts of general weed killer or dinitro plus 30 gallons of diesel oil plus 80 gallons of water, and this mixture applied at the rate of 110 to 120 gallons per acre. For the pentachlorophenol type weed killer the formulation is somewhat as follows: Pentachlorophenol formulation equivalent to 8 to 12 pounds of phenol, 30 to 40 gallons of diesel oil, and 60 gallons of water. This total mixture is applied to one acre. It should be noted that the phenol is first mixed with the oil and then may be added to the water, or if they are mixed in the spray tank the water may be added later. Occasionally it will be necessary to add a suitable emulsifying agent, such as triton B1956 or nyon 218.

The spray rig used for applying these materials to the strawberries should be equipped with an efficient agitator and be capable of delivering from 75 to 150 pounds pressure per square inch. When applying at high volume, as is used in this spray procedure, nozzles delivering from three-fourths to one and one-fourth gallons per minute at 100 pounds pressure will be required for economic spraying.

The use of too much oil or too toxic an oil as, for example, the various contact weed-killing oils now available should be avoided in this spray mixture. Oils have a tendency to creep by means of a wick action in plants. Should the strawberries, even in the dormant stage, be sprayed with too heavy an application of oil, injury to the crown might result. It is important, therefore, to limit the amount of oil used and to use preferably such light oils as diesel oil and fuel oil for this purpose.

A number of new formulations are being tried for this purpose with the view of improving weed kill and safety. For example, the formulation now being used is not entirely satisfactory in the control of grassy plants. It has been found by adding some two or three pounds of IPC per acre to this formulation that more satisfactory results may be obtained on grass. As yet the addition of IPC is not recommended for general use because of limited information on this chemical. It is suggested for experimental trial use only. Further work is being done to eliminate the large volume that must be applied per acre. But again this must await final outcome of experiments now in progress before it may be recommended.

This report is in the nature of a preliminary communication on the progress of chemical weed control in strawberries and as further information develops it will be put out in more permanent form.