

NEW HERBICIDES FOR WEED CONTROL

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So many new chemical weed killers are now in use it is a bit difficult for one not working with them to be sure just which herbicide to use in a particular situation. It is very important to use the right material for the right situation in the right way. Otherwise poor weed control may be obtained on the one hand or crop injury on the other. The following classification may be of some help in properly cataloging the new herbicides that have received so much publicity. This classification does not include all types of herbicides but it does cover the important ones that are useful in this section of the country.

I. Permanent Soil Sterilants. These kill by rendering the soil toxic for a considerable period. Useful where no vegetation is desired such as on railroad beds, driveways, parking lots, etc. Examples: sodium chlorate, borax, arsenicals.

II. Temporary Soil Sterilants. Some are volatile liquids, and are used for killing certain deep-rooted perennials on crop land that do not respond to 2,4-D. Others like calcium cyanamide are used to kill weed seeds in plant beds. 2,4-D and other growth substances are promising as temporary soil sterilants for killing weed seed but their use is still in the experimental stage.

III. Contact Herbicides. These kill all top growth wet with the spray but do not kill roots of perennials. Oil and Phenolic contact sprays are examples. Used in the West for keeping ditchbank vegetation in check. Useful for "chemical mowing" where mechanical mowing is impractical. Phenolic contact sprays are useful on some crops such as onions for killing tiny weeds before the crop emerges. This is called pre-emergence spraying.

IV. Selective Herbicides. These are chemicals which will kill certain weeds without hurting certain crops. There are four types.

- A. Dinitro selectives such as Sinox and Dow Selective Weed Killer-- Useful on grain interplanted with legumes; also on peas and flax. Waxy leaves of these crops protect them from wetting with the spray and absorption of the toxicant.
- B. Certain petroleum fractions.--These kill most seedling weeds but do not harm carrots and related plants. Some physiological difference accounts for this selective action.
- C. 2,4-D and other growth substance herbicides--Herbicidal dosages for many kinds of weeds do not harm most members of the grass family because of some physiological differences. 2,4-D is very useful as a selective herbicide for small grain, rice, sugar cane and possibly other crops.
- D. Salt solutions--These may be used on beets for the control of certain small annual weeds. Apparently salt kills by plasmolysis. Beets and certain weeds are relatively resistant.

Time will not permit talking about all the new herbicides so I will confine the balance of my remarks to 2,4-D. In addition to its remarkable usefulness for ridding turf of noxious weeds this new type of herbicide has a definite place on the average farm in this territory. The ballyhoo period is over for 2,4-D and I believe we can now make some reasonably sound statements as to where it fits into farm practice. It will not eliminate the need for other methods of weed control but it will prove to be a valuable tool for the average farmer.

First, let us consider some fundamentals regarding 2,4-D and the way it acts.

1. 2,4-D has an effect on all plants if used in large enough dosages. However, many plants are very sensitive. Thus we can use small dosages as a selective treatment on the grasses and possibly certain other crops. There is a reasonable margin of safety between the amount required to kill many weeds on the one hand and injure certain crops on the other.

2. There are two types of formulations on the market and there is a place for both.

(a) The salts of 2,4-D. These are water soluble. Used on lawns, for selective treatment of grain, and other crops.

(b) The esters of 2,4-D. These are oil soluble and are sold in an emulsifiable form. They are a little more potent than the salts under conditions of slow growth and on weeds with waxy foliage such as sow thistle.

3. One does not have to apply 2,4-D spray in large volume because a continuous film over the surface of the leaf is unnecessary. If reasonably good distribution to all weeds can be obtained, a low volume of more highly concentrated spray, resulting in droplets here and there on the leaf, will do as well as a larger volume containing the same amount of 2,4-D.

There are several places where 2,4-D can be put to profitable use on the average farm in this territory.

1. Selective spraying of crops--Small grains, and corn (with certain precautions). For annual weeds, grains should be treated with 1/2 to 3/4 lb. 2,4-D per acre after stooling but before the heads emerge. Do not treat grain interplanted with legumes with 2,4-D. The dinitro selectives may be used in such instances.

2. Pasture weeds--Spot spray Canada and Bull thistle and possibly other weeds in May or early June. Killing weeds alone will not make poor pastures good. Fertilize as required and avoid over grazing.

3. Perennial weed eradication in tillable land.--Treat small patches as often as new growth emerges until eradicated. Where whole fields are infested, seed to spring grain and selectively spray with about 1 lb. 2,4-D equivalent per acre after weeds have put on some vegetative growth. Two years may be required but land will not be out of production.

4. Farm Sanitation--Use an ester formulation as a spray on fence rows, ditch banks, etc. Cut off woody plants in the winter and spray the suckers in the summer. Many noxious weeds, seeds of which spread to crop land, may be killed. Grass will thrive and prevent untilled areas from becoming reinfested.