HERBICIDAL CONTROL OF POISON-LEAF/GIFBLAAR

Dichapetalum cymosum

INTRODUCTION

The development of herbicides (weedkillers) with a hormone-active ingredient in the 1950s renewed hope that gifblaar could be controlled. Meissner (1964) reviews the research done on these new herbicides in South Africa in the 1960s. Despite the fact that such herbicides were not specifically developed to control gifblaar, most of them were tested on it (ibid.). Although the results were generally disappointing, Meissner (ibid.) reported success with a few of the products, such as 2,4,5T, Erobon and Fenac (which are no longer available on the market). Carried in a rucksack, the herbicide was applied to the leaves and soil by means of a fine spray. The poison was absorbed either through the plant's leaves or its roots. Some of the new herbicides were also tested by Opperman and La Grange (1969) at the Sonop Research Station in the Grootfontein District in Namibia.

At this point it would be appropriate to enlighten the reader that many authors refer to the chemical control of plants. In fact, the correct term would be the herbicidal control of plants. This is because the hormone-active ingredients in the new herbicides are mainly organic compounds. When the plant absorbs the herbicide, it affects the plant's metabolism. For instance, it inhibits the plant's photosynthetic function and effectively causes it to die of hunger. These herbicides are usually registered to control a specific group of plants, and are marketed under commercial names.

RESULTS

Foliar and soil application of herbicides

The results with the foliar (leaf) spray were disappointing. According to Meissner (1964), this was due to the low ratio of leaves above ground, compared with the mass of stems and roots below ground. Thus, there were too few leaves to absorb enough herbicide to effectively kill the mass of stems and roots. The poor results were also ascribed to the plant's slow metabolism. Absorbing the herbicide through the leaves and transporting it to the roots was slow.

Phillips (1927) describes the appearance of the leaves of the gifblaar plant as leathery as the plant matures. In Namibia, observations in the field during the 1971-1977 trials using an aerial application of Tordon 225 showed that woody plants that had similar or hairy leaves were difficult to control by means of foliar application of the herbicide.

In general, the research done in South Africa showed that the best results were obtained when the herbicide was applied to the soil, allowing it to be absorbed through the stem (below soil level) of the plant. The reason was that these herbicides had a long residual effect in the soil, compared with foliar application. Therefore, it was also possible to apply the herbicides to the soil throughout the year, i.e. from when the plant sprouted in the spring until autumn when it died.

With foliar applications, the best results were obtained when the plant's leaves were wet thoroughly with the herbicide. This meant higher costs.

The main drawback of all the herbicides was that not one could control gifblaar successfully with only one season of application. One or more follow-up treatments were needed, which raised the cost of control considerably.

Opperman and La Grange's (1969) tests in Namibia also showed soil applications produced better results. Furthermore, the herbicide was more successful if applied in spring rather than late summer, because penetration was better in spring. The research (ibid.) also found that gifblaar could not be controlled with a single season's application.

Wessels (1983) reports successful results in South Africa with the herbicide Tordon 225. Tordon 225 was registered to control woody plants in general. A later Tordon product, K22, was registered specifically as a gifblaar herbicide.
The most recent work done on the herbicidal control of gifblaar in Namibia was done by Van Eck (2004). Herbicides that were tested were Access, Savana SC, and Tordon Super. Access yielded the best results, with a 100% success rate. Access also cost the least to use. Comparatively, the costs to eradicate gifblaar were 81 cents per plant for Access, 199 cents per plant for Tordon Super, and 140 cents per plant for Savana SC. The cost per plant plays an important role, considering that plant densities may be in the order of 100,000 to 200,000 plants per hectare.

Removing leaves and feeding plants through translocation

One of the methods farmers use to treat gifblaar chemically is to cut off the leaves above ground, and feed copper sulphate to the plant through a plastic pipe connected to the stem (Van Vuuren 1960). According to the popular literature, many farmers have used this method with success, with some even eradicating gifblaar from their farms. This method may be cheap, but it depends on the degree of gifblaar infestation in a specific area.

CONCLUSION AND RECOMMENDATIONS

Research has shown that it is possible to control gifblaar by using commercial herbicides. However, it should be kept in mind that while gifblaar can be controlled with these products, the plant cannot be eradicated unless the area is not densely infested.

In foliar applications, it is essential that the leaves are drenched with the herbicide fluid in order to ensure the best results. In general, when using herbicides it is essential to follow the recommendations on the label to ensure the best results.

Many farmers cannot afford commercial herbicides because they are expensive. Trying to cut costs by diluting the herbicide, for example, is not recommended: it will only lead to poor results.

References

Van Vuuren, DRJ. 1960. "Verslag van die plantkundige oor die ondersoek na gifblaar (Dichapetalum cymosum) in die Horabeblok". South West Africa Administration Report, August.

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