INTRODUCTION

Prior to the 1950s, before herbicides (weed killers) were available, farmers tried all possible means to eradicate poison-leaf (more commonly known as gifblaar). These included piling salt over the leaves or spraying them with paraffin or locust poison. However, the methods were haphazard and led to no definitive results. Leemann (1935), therefore, saw the need to scientifically investigate gifblaar eradication. According to Meissner (1964), Leemann was the first researcher to control gifblaar successfully. The methods that he tested were to dig open and uproot the whole plant, or dig the main stem open and treat it with chemicals.

METHODOLOGY AND RESULTS

Uprooting of the whole plant

Digging the plant open, uprooting it, and removing the main stem by hand did not prove very successful. This was because the plant was still able to form new suckers despite being damaged or, worse, even small cuttings of the stem that remained in the soil tended to propagate new plants.

Removing the plant by hand even to 15 cm below ground level was not an option either, according to studies by Van Eck (2004), because the plants were able to flourish again.

Thus, controlling gifblaar by these methods means making sure that every part of the plant is dug out and removed. This is almost impossible in practice, however, and success depends on the number of plants in the infested area concerned.

Digging the main stem open and treating the plant with chemicals

The work initiated by Leemann (1935) was to test how effective different chemicals and combinations of such chemicals were in killing the gifblaar plant. From the onset, Leemann’s approach was to dig open the main stem and apply the chemical substance to it. Where a plant had several vertical stems, each had to be treated separately. Leemann (ibid.) postulated that the effects of the chemical would not last unless the main stem was treated. This contention was confirmed by his experiments.

In his trials, Leemann (ibid.) tested chemicals such as copper sulphate, sodium chlorate and sodium arsenate. In order to get a wide range of information, he applied the various chemicals in three separate treatments. In the first, he applied the chemical in crystal form directly to the main stem; in the second treatment, the chemical did not make direct contact with the stem; the third treatment was to ringbark the stem or leave it uninjured before applying the chemical compounds to it.

The best results were obtained when the stem was ringbarked and the chemical was in direct contact with the stem. However, the success rate was unsatisfactory. From the experiments it was concluded that the treatment should not be too extreme, because the plant died too quickly and did not transport the substance to its remote parts. Consequently, the plant was able to resuscitate itself from unaffected areas.

To overcome this problem, Leemann (ibid.) placed sand that had been thoroughly drenched with a soluble mixture of the chemical concerned
around the main stem, which had been girdled. With this method, the success rate increased satisfactorily. Although good results were obtained with all the chemicals, copper sulphate was the only one recommended for more general use: because it was not poisonous, it was not harmful to animals or humans.

At the Sonop Research Station, Opperman and La Grange (1969) also obtained good results by treating the girdled main stem with prussic acid. However, they found it time-consuming to locate the main stem of the plant to be treated. As with the other methods mentioned above, this one also depended on the degree of infestation in, and the size of, the area concerned.

**Digging the main stem open and stem burning**

According to Van Vuuren (1960), one can control small areas infested with gifblaar by digging the stems open and burning them. However, this method also depends on the degree of infestation and the size of the area concerned.

**CONCLUSION AND RECOMMENDATIONS**

Manual eradication is not recommended because gifblaar is able to set roots and regenerate even from fragments of the plant left in the soil after uprooting it. It may be argued that once new plants are established from such fragments, they could also be uprooted or treated with herbicides, but this is a tedious and a time-consuming method whose success is subject to the degree of infestation in the area concerned. If this method is used, however, care should be taken to remove all fragments of the plant in the soil so that it cannot regenerate.

In chemical treatments, girdling (ring-barking) is essential as it increases the uptake of the herbicide. However, this method is not recommended because it does not guarantee success – despite the fact that various chemical treatments have shown positive results. It is also essential that the main stem is located and treated with chemicals; otherwise, Leemann (ibid.) warns, the results will be poor. In addition, all the stems penetrating the soil need to be treated – but this is virtually impossible in highly infested areas.

The success of stem-burning also depends on the degree of infestation in a specified area.

**References**


Van Vuuren, D.R.J. 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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