

Field Trials with Toxic Bait for the Control of the Brown Garden Snail (*Helix aspersa*, Müller)

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Standard and new snail baits were evaluated for the control of the brown garden snail, *Helix aspersa* Müller in a vineyard. As a ground treatment, the proprietary bait Sluggem (carbaryl/metaldehyde) gave satisfactory control, whereas Mesurol (methiocarb) bait or Mesurol (methiocarb) wettable powder mixed with bran and water were less successful. The new proprietary bait formulation, Suprasnail (metaldehyde), was effective on the ground and arboreally (on the arms of the vine).

The brown garden snail *Helix aspersa* Müller, has been a pest of vines for many years. The principal method of control has been by means of granular toxic baits, which are applied to the soil surface close to the vine trunk. These baits have proved very effective when applied according to the recommendations of the VORI (De Klerk, 1986). However, occasions do arise when bait applications cannot be carried out in time, with the result that the snails gain access to the plant with subsequent damage to the succulent growth. Recently, a new proprietary chemical bait, known as Suprasnail (metaldehyde) was made available for testing. This new bait is viscous and has possibilities with regard to arboreal application. Following promising results obtained in preliminary tests conducted under controlled conditions, Suprasnail together with standard snail baits were evaluated in the field.

MATERIAL AND METHODS

An experiment was carried out in a young vineyard (cultivar: Chenin blanc) at Simondium in the Western Cape. The vines were approximately 750 mm in height and trellised according to the Perold system. A randomised design was followed consisting of single vine plots with six treatments and five replications for each treatment. Each data vine was separated by four vines in the row. An area of 300 x 300 mm around the trunk of each data vine was cleared and levelled for the purpose of application and assessments.

Treatments were applied during the middle of September and the data collected for 21 days after treatment. Solid baits in the form of pellets [Sluggem (treatment 1) and Mesurol (treatment 2)] were scattered around the base of each vine at the rate of 10 g per vine. A bait mixture (treatment 3), consisting of 25 g Mesurol (80% methiocarb), 1 kg bran and 1,5 litre of water was prepared and applied at the same rate as the pellets. Approximately 0,3 g of Suprasnail (treatment 4) was applied to the soil surface in an area of 25 mm diameter around the base of each vine. For the arboreal application of Suprasnail (treatment 5), approximately 0,15 g of the material was squeezed from the container onto each of the two arms of the vine.

The efficacy of the ground treatment was assessed by counting the number of dead and live snails in the clear-

ed space under each data vine as well as those found in the vine. In the case of the arboreal treatment, live snails found in the assessment zone on the ground were not taken into account. From these figures the percentage mortality was calculated. Counts were made at regular weekly intervals and the final results represent an overall average. The results were subjected to Friedman's two-way analysis of variance.

RESULTS AND DISCUSSION

The results appear in Table 1. Statistically these show a highly significant ($P \leq 0,01$) difference in mortality between treatment 1 (Sluggem) and treatment 6 (untreated control). Also, a significant difference ($P \leq 0,05$) is apparent between treatment 4 (Suprasnail – applied to soil) as well as treatment 5 (Suprasnail – arboreal) and treatment 6 (control). From a practical point of view the measure of control achieved is considered to be moderate. In the case of treatment 4 and 5 it was observed that the viscous bait soon dried out under the extreme temperature conditions that occurred on certain days during the investigation. Furthermore, the snails that were found in the vines characteristically became inactive when hot, dry conditions prevailed and

TABLE 1

Mortality of the brown garden snail, *Helix aspersa*, with toxic baits under field conditions.

| Treatment | Mortality | | Mean no. snails/vine |
|--|-----------|-----------|----------------------|
| | Means (%) | Rank sums | |
| 1. Sluggem (metaldehyde 3%, carbaryl 2%) | 72,44 | 25,00 | 271 |
| 2. Mesurol (methiocarb 2%) | 39,57 | 15,00 | 253 |
| 3. Mesurol 80% w.p. (methiocarb) + bran | 43,04 | 13,00 | 395 |
| 4. Suprasnail (metaldehyde 4%) on ground | 65,36 | 24,00 | 79 |
| 5. Suprasnail (metaldehyde 4%) arboreal | 63,86 | 23,00 | 38 |
| 6. Control (untreated) | 0,00 | 5,00 | 19 |

consequently they would not respond to the attractiveness of the bait. Treatment 2 and 3 (Mesurol) did not perform well when compared to the other standard treatment, i.e. treatment 1 (Sluggem).

The mean number of snails recorded for the trial period could be taken as the relative attractiveness of the different bait preparations, since the snails were obviously attracted from the weeds growing between the rows of vines into the cleared assessment zones. From these results it would appear that Sluggem- and Mesurol pellets as well as Mesurol-bran mixture were very attractive to the brown garden snail.

CONCLUSION

Although both Sluggem and Mesurol were very attractive to snails, Mesurol alone or mixed with bran did

not give the mortality expected.

The new proprietary bait formulation, Suprasnail, proved moderately effective for the control of the brown garden snail on the ground and in the plant. In the latter case the bait was applied to the arms of the vine where it proved to be toxic to the active stages of the snail. It is suggested that this strategy be adopted where ground control with any one of the standard toxic baits fails to prevent the snails from infesting the vegetative growth of the vine. All of the materials tested are registered for use on the ground only.

LITERATURE CITED

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