



Technical Update 36

Pea Leaf Wax Assessment

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One of the problems encountered annually is to decide whether pea plants have sufficient leaf wax to enable post-emergence applications of contact-acting herbicides to be made without damaging the crop. It is not always possible to know the previous weather conditions which might affect this issue and therefore a simple method for carrying out a test on the plants is required. Such a test was developed at Chesterford Park Research Station (1) using a solution of crystal violet. This has proved to be an excellent method of determining leaf wax deposits on peas. The test should be carried out before applying any sprays which include Basagran. Some approved MCPB products also recommend that leaf wax is tested prior to application.

METHOD

Use a 1% solution of crystal violet in water. Crystal violet can be purchased through some chemists and pharmaceutical suppliers. The crystals are dissolved in water. The crystal violet is held in a wide-necked jar, sealed with a strong screw top. A 500ml glass jar is suitable.

The plants to be tested should be carefully handled and a large pair of forceps should be used to pull the plant by gripping the base near the soil. It is then completely immersed in the dye. The plant is removed quickly, and the surplus dye shaken off. Areas of the plant that retain the dye are those where the wax deposit is either deficient or has been damaged. Several plants should be tested from each field. Different varieties should be tested separately before spraying.

A normal healthy pea plant will retain a certain amount of dye on the stem, the midribs, the tendrils, the leaf margins and on the oldest leaves at the very bottom of the plant. There is very little retention on the upper leaf areas and on the unopened growing points. Any mechanically damaged areas will also show retention.



If less than 5% of the surface area of upper leaves shows retention and less than 10% of surface area of lower leaves shows retention, the crop is safe to spray.

On a plant with either insufficient or damaged leaf wax the dye will be retained on a considerable proportion of the leaf area and under certain conditions most of the surface may show retention. If more than 5% of the upper leaf surface or more than 10% of the lower leaf surface retains the dye, spraying should be delayed until plants show a lower amount of dye retention. This may take 5 - 7 days.

With a little experience this test can rapidly indicate whether pea crops are safe to treat, although knowledge of previous weather conditions will also be of value in helping to decide whether to spray or not.

Simple tests on various weeds will help the operator to develop experience of various degrees of dye retention.

It is recommended that rubber gloves are worn when carrying out tests to avoid getting the dye onto skin or clothes, as it is difficult to remove, although not dangerous. In the event of contamination wash thoroughly as soon as possible with soap and methylated spirits. When the dye is dissolved rinse with water. The container should be securely packed in a box or cardboard container and padded absorbent wadding or paper.

(1) Assessment of wettability of leaves by dipping in crystal violet. R.C. Amsden & C.P. Lewins, World Review of Pest Control 1966, Vol. 5, No. 4.

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