



Technical Update 36

Pea Leaf Wax Assessment

January 2020

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 some simple method for carrying out a test on the plants was 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

As a 1% solution of crystal violet in water. Crystal violet can be purchased through some chemists and pharmaceutical suppliers. The crystals can be bought and 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 retaining the dye are where the wax deposit is either deficient or has been damaged. Several plants should always be tested. 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 there is less than 5% of the area of surfaces of upper leaves showing retention and less than 10% of surfaces of lower leaves showing retention, the crop would be 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 indeed under certain conditions virtually all 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 the plants when tested show a normal amount of dye retention. This will probably take at least 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 should be worn when carrying out tests and avoid getting the dye onto skin or clothes as it is difficult to remove although not dangerous. In this event 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.

The information in this publication must not be reproduced without the express written permission from the PGRO.

Information disseminated by the Processors & Growers Research Organisation is given after the exercise of all possible care in compilation, preparation and issue, but is provided without liability in its application or use.

Processors & Growers Research Organisation

The Research Station, Great North Road, Thornhaugh, Cambridgeshire PE8 6HJ, UK
Chief Executive: Roger Vickers **Tel:** +44 (0)1780 782585 email: info@pgro.org www.pgro.org
Company Limited by Guarantee - Registered in London No. 567232. Registered Charity No 284077.
VAT Reg No 281 7742 37GB