CIPC research

Investment: £256K over 3 years. Return: £513k p.a.

Challenge

CIPC (chlorpropham) is a hugely important sprout suppressant for the GB potato industry. It is now governed by a stewardship scheme (www.potato.org.uk/cipc) and scrutiny of its use has been scaled up following detection of high residue levels. It is critical therefore to follow best practice when using CIPC.

The potato processing sector is the biggest user of CIPC and has been instrumental in ensuring an on-going programme of research to find ways to improve the efficiency of use of the treatment. Reduction in CIPC use in the packing sector is also helping to retain use of this vitally important sprout suppressant.

If the suppressant was lost, the potential losses to the GB industry would be enormous as the majority of the processing crop could not be stored for more than a few weeks.

Key R&D

A major breakthrough came in research work conducted with funding in 2005-8 (Cost = £256K over 3 years) from Potato Council and undertaken by Sutton Bridge CSR, Glasgow University and industry partners (project R265). This, through the manipulation of store ventilation during the application of CIPC, has resulted in more even application of CIPC. And by applying the treatment more evenly there is also a net reduction in the need for repeat applications. Best practice is now recognised as following this regime.

In the UK, 1.8 million tonnes of potatoes stored in bulk were treated with CIPC in 2008 (Garthwaite et al., 2010*) and 4.1 million tonnes of treatments were applied. This equates to an average of 2.28 treatments per crop.

"Implementation of the findings from this research has allowed me to reduce my CIPC usage by up to 50%."

Andrew Chennells of North Scarle, Lincolnshire, a grower of processing potatoes for crisping.

Many other growers who have installed inverters are also seeing the benefits of this new approach.

To demonstrate the likely benefit for the processing sector, it is reasonable to assume a reduction in CIPC use can be achieved on a significant proportion of that 1.8 million tonnes treated nationally each year. Here are some figures based around some potential savings to illustrate:

Installation costs for an inverter are estimated at c. £3 000 for a 1 000 tonne store (£3/tonne over 10 year life = 30p/t per season). But an inverter also offers energy savings of at least this amount, so we can reasonably assess its use at zero net cost.

Therefore, payback on this R&D for the GB industry has been more than achieved in each scenario shaded green below in under one year (**1.4 years) and will continue to provide additional benefit in years to come.

Adrian Cunnington
Head of SBCSR

*D Garthwaite et al (2010) DEFRA Pesticide Usage Survey in Potato Stores, 2009. Report no 227. Fera, York.

CIPC saving %	30% of tonnage = 540 000 tonnes	50% of tonnage = 900 000 tonnes	70% of tonnage = 1 260 000 tonnes
15	0.34 treatments **£184K****	0.34 treatments **£308K**	0.34 treatments **£431K**
25	0.57 treatments **£308K**	0.57 treatments **£513K**	0.57 treatments **£719K**
35	0.80 treatments **£431K**	0.80 treatments **£719K**	0.80 treatments **£1 008K**

**Based on an average 2.28 treatments per crop per season at a saving of £1/tonne treated