

Maximising performance

Reduce drift and maximise coverage

Keeping late blight out of potato crops is a season long campaign for growers. SRUC specialist in blight epidemiology and control, Dr. Ruairidh Bain, believes that spray coverage is one of the key factors of the blight control programme that needs to be improved to protect potato crops against the new, more aggressive genotypes. Crusade is a flexible drift retardant specifically designed to maximise coverage with a range of different fungicides.

Developed to help tackle the practical problems growers face

Developed for use throughout the blight programme, Crusade has been designed to help maximise fungicide performance.

Features	Benefits
Anti-drift	<ul style="list-style-type: none"> ✓ Optimised dose on the target ✓ Optimised coverage to all parts of the canopy ✓ Extends the spray window

Proven efficacy in independent trials

Crusade has been rigorously tested and proven in SRUC and Eurofins blight trials over the last 5 years with a range of fungicides, where it has been shown to improve blight control and blight free yield by maximising fungicide dose throughout the crop canopy.

Proven performance in trials with:

- ✓ Percos
- ✓ Presidium
- ✓ Shirlan
- ✓ Revus
- ✓ Invader
- ✓ Shinkon
- ✓ Grecale
- ✓ Electis
- ✓ Hubble
- ✓ Infinito



For grower Mike Dagg of Crailing Tofts near Kelso in Roxburghshire, there's no doubt Crusade has an important place in the blight control programme:



Crusade kept us spraying

With Crusade, the spray pattern was noticeably improved with less drift and better coverage to the whole crop. With the potato crop putting on new growth every week it's vital every part of it is protected and Crusade kept us spraying. There were many days where we couldn't have sprayed if it wasn't for Crusade. The drift reduction was really quite significant and the leaves looked noticeably protected like a polished car bonnet.



Maximising fungicide performance

Crusade has been proven on farm with an extensive range of blight fungicides:

Amphore Plus, Axidor, Hubble, Infinito, Invader, Kunshi, Lieto, Mandrake, Nautile, Option, Proflux, Percos, Presidium, Ranman Top, Revus, Rhapsody, Tizca.

Crusade is also compatible with a range of insecticides:

Biscaya, Gocha, Hallmark Zeon, Laidir, Sumi-Alpha and Teppeki.

Crusade can also be used with a range of foliar feeds:

Calcium, Crop sure Mag TE, Intrafol, Magnor, Master Mag TE, Mobo, Nutriphite PGA, Opte-Phos, Opte Pro, Stop It.

Crusade product summary

Classification:	Anti-drift agent
Contains:	Specialist blend of oils and polymers
Crops:	Potatoes
Rate / ha:	0.25% of final spray volume
For use with:	Potato blight fungicides
Pack size:	5 litres

Key situations in which to use Crusade

- ✓ Large acreage where on-time application is hard to achieve
- ✓ Situations where drift will reduce coverage
- ✓ High blight risk
- ✓ Grower risk adverse

How to use Crusade

- Mixing order: 1. Crusade 2. Blight fungicide(s)
- Apply at 0.25% v/v - keep the rate up to optimise efficacy
- **Flexible label - can be used throughout the programme**
- **No timing restrictions**

Crusade against blight

Fight against blight

Keeping late blight out of potatoes is becoming increasingly challenging. With resistance to fluazinam and the increased pressure on remaining modes of action, a robust resistance management strategy is essential to safeguard crops and chemistry. The anti-drift agent Crusade is specifically designed to help maximise fungicide performance by reducing drift and aiding coverage to the lower canopy.

Fungicide coverage needs to be improved

Dr. Ruairidh Bain, SRUC

- The new genotypes, including EU36_A2 and 37_A2 are increasingly aggressive producing sporangia earlier and in greater numbers than many of the displaced genotypes
- The mean host resistance of the UK crop is lower than pre-mid 2000s
- Early in rapid canopy, leaf resistance is low
- Strong and weak fungicide actives can have weak spots due to poor coverage

Improving coverage is vital yet hard to achieve

Whilst full crop coverage is vital to prevent scattered infection, the "umbrella-like" structure of the canopy - a series of interlocking leaves - makes this very difficult to achieve. Leaves are good collectors of vertical moving spray in the upper canopy but leaves and stems lower down can be very hard to reach, moving the risk of tuber blight to the whole crop. The addition of Crusade to fungicide sprays manipulates droplet size to optimise dose and coverage to both the upper and lower canopy.



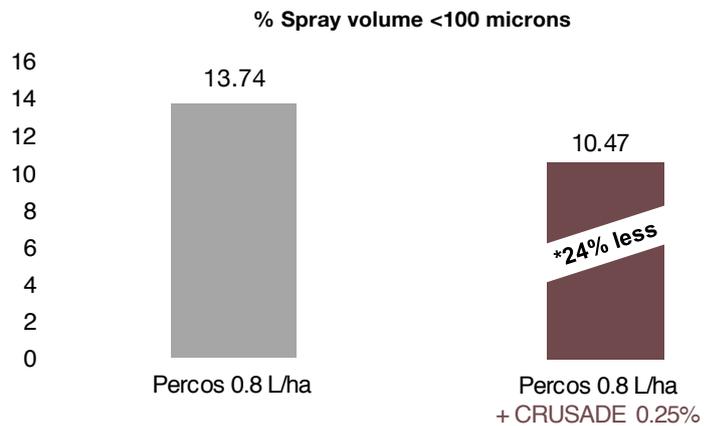
The potato crop is like an umbrella - interlocking leaves create a closed canopy - lower leaves and stem are hard to access putting the whole crop at risk of blight.

Crusade - The Goldilocks droplet

Droplets cannot be too big (-bounce off the leaf, miss the target) or too small (-evaporate, drift off target), they have to be just right. **Crusade creates droplets more capable of reaching the upper and lower canopy.**

Crusade reduces drift

Crusade significantly reduces the number of fine spray droplets smaller than 100 microns (most susceptible to drift) and increases spray angle uniformity at the nozzle, ensuring the correct dose is applied to the target.



Source: Silsoe Spray Applications Unit, 2018. Lurmark 03 F110 Flat fan, 200 l/ha water. Measurements made of droplet size distribution using laser diffraction. Crusade *significantly reduced the number of Percos droplets prone to drift.

Crusade aids coverage to the lower canopy

Crusade creates larger droplets better able to penetrate through to the lower canopy.

