



Best Use Guide

A pyrethroid insecticide **seed treatment** for use in **wheat & barley** sown in autumn/winter, up to **January 31**. Signal 300 ES provides 600g per tonne of cypermethrin, and is used to give a reduction in damage from Wireworm (*Agriotes* spp.) & Wheat Bulb Fly (*Delia coarctata*), this protection is optimised using these guidelines.

Wireworm

The larvae of click beetles, wireworms are soil-inhabiting pests, typically found in grassland but also capable of attacking a wide range of crops. **Increased use of grass in rotations increases the pressure of wireworm in arable crops** including wheat & barley. Suppressing wireworm is crucial, as larvae survive for **4-5 years** in the soil. Signal can help to reduce the overall population in cereal rotations, prior to more susceptible crops such as potatoes, sugar beet and other root crops.

Early attacks are the most damaging, therefore drilling date is not as important as it is for wheat bulb fly.

Optimising Signal 300 ES Wireworm Efficacy

1. Support with higher seed rates
2. Consolidate seed-bed to ensure it is fine and firm
3. Support with early fertiliser/biostimulants to boost tillering and root recovery

Wheat Bulb Fly

Wheat bulb fly (WBF) is one of the most serious wheat insect pests in the UK, although not abundant every year. Eggs are laid on bare soil in August following fallow or early harvested crops, and the larvae hatch January-February, attacking tillers and causing 'dead-heart' symptoms. WBF can be an issue in all cereal crops except oats, after a prolonged period of bare ground. Therefore, late-drilled **wheat after peas and potatoes** is particularly vulnerable.

Integrated Pest Management (IPM) is important when considering WBF control, and as well as Signal, the following tools should also be considered:

- **Avoid bare ground in July/August** and delay cultivation until after egg laying
- Use **thresholds** to determine associated risks. These are as follows:
 - Pre-November sown crops: Unlikely to benefit from seed treatment as they have more time to tiller and are better able to withstand WBF attack
 - November – December sown crops: when WBF populations exceed 100 eggs/m² (moderate risk).
 - January sowings: seed treatments should be considered irrespective of WBF population, unless none are present
- **Increase the seed rate** to compensate for attack, especially in late-drilled crops
- Drill as early as practical

Optimising Signal 300 ES WBF Efficacy

1. Drill at the correct depth (no deeper than 4cm)
2. Use on late drilled crops
3. Support with higher seed rates
4. Support with early fertiliser/biostimulants to help tillering