Leatherjackets
The Threat to Cereals and Grassland

DURSBAN WG

THE PROBLEM – Leatherjackets are the larvae of the Crane fly (*Tipula paludosa*) or 'Daddy Long-legs' and cause widespread damage to cereals, grassland, root crops and vegetables.

Eggs are laid in the early autumn, and the larvae hatch and feed over the winter period. Damage is most noticeable in the spring when feeding activity increases and larvae are up to 4cm in length.

Monitoring of Leatherjacket Populations

Nationwide monitoring of Leatherjackets is undertaken annually by Dow AgroSciences Limited. For information on Leatherjacket numbers in your area Pestwatch details can be obtained from the Technical Hotline on 0800 689 8899 or email: fhihotl@dow.com

Alternatively, use the **Risk Assessment Chart** or the Dursban* WG **Leatherjacket Testing Kit** to assess the risk to individual crops and fields. This will ensure that you make the most effective and economic use of Dursban WG insecticide to control Leatherjackets.

Dursban WG Leatherjacket Testing Kit

* Trademark of Dow AgroSciences LLC.

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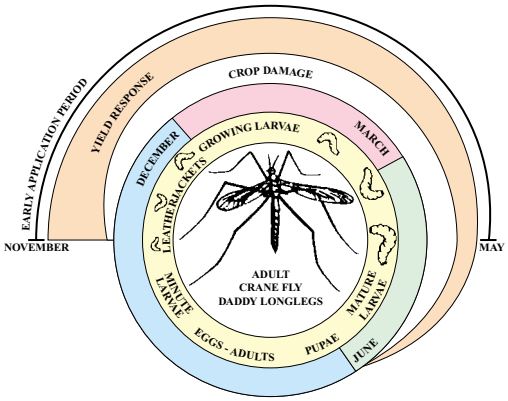
Threat to Winter Cereals

Crane Fly Life Cycle

Adult females of the Common Crane fly *(Tipula paludosa)* are seen on the wing from late July to September. They lay around 300 eggs in the soil surface which hatch within 2-3 weeks. The larvae immediately begin feeding on roots and underground stems, and feed voraciously, particularly during periods of mild weather throughout the winter but also as the temperature rises in the early spring months. The larvae are mature during late May and June. They then pupate in the soil and the adults emerge in late July to early September.



Identification of Crop Damage

Young cereals are attacked both below and above ground. Underground damage is noticed in winter and spring when seedlings turn yellow and die leaving bare patches.

Affected plants are easily pulled out of the ground once their root systems have been severed. In suitable weather conditions in spring, severed leaves indicate surface feeding during the night.

For winter cereals, damage may go un-noticed until the spring, when warmer conditions enable the crop to grow away. However, damage is still being caused despite the absence of visible symptoms.

By using the Risk Assessment Chart, fields at risk can be identified and treatment with Dursban WG can be applied before visible symptoms are seen.

Economic Damage to Cereals

- Yield can be reduced dramatically.
- Spring sown crops can fail completely.
- The threshold of 300,000/ha is equivalent to 30/m^2. At average seed rates for cereals this represents a high pest/plant ratio.
- By the time the threshold population is detectable in late spring, 250kg of grain has already been lost - early treatment will prevent this loss.

Threat to Spring Cereals

Spring cereals which follow grassland are particularly susceptible to Leatherjacket attack. The threshold for grassland which is to be ploughed up for spring cereals is 0.6 million per hectare. About 50% of grubs in a grassland population are killed by the combined activities of ploughing, cultivations and predators.

As crops are most susceptible to damage at the seedling stage, it is important to monitor larval numbers from emergence onwards.

In newly sown spring cereals the need for treatment can be assessed by scratching along drill lengths to a depth of 5cm and searching for Leatherjackets.

The following grub numbers are the threshold figures at which damage is likely to occur:

Drills spaced at 17.5cm (7")
15 or more larvae from
10 x 30cm (12") lengths of row

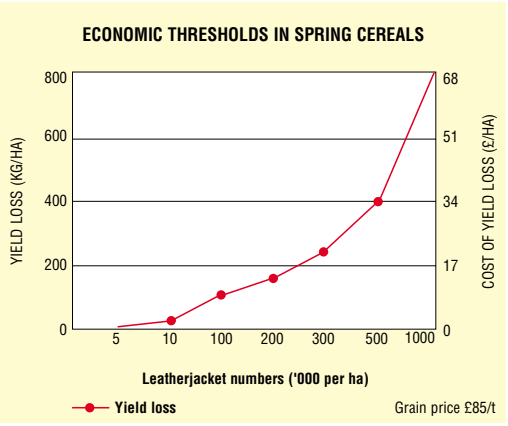
Drills spaced at 12cm (5")
10 or more larvae from
10 x 30cm (12") lengths of row

These levels are equivalent to 0.3 million larvae per hectare. All crops identified as being at risk, or showing signs of damage, should be treated.

The Solution - DURSBAN WG

Dursban WG should be applied at 1.0 kg/ha in a water volume of 200 to 1000 litres per hectare when damage is seen or predicted. Controlling Leatherjackets early gives the best economic response to treatment.

- Acknowledged by experts as the best treatment.
- Residual life in the soil controls Leatherjackets over a long period.
- Dursban WG is compatible with a wide range of herbicides and fungicides.
- Dursban WG is rainfast and will not be leached out of the soil.
- Dursban WG is a Dow AgroSciences Quality Product.



Threat to Grass

Leatherjackets occur in most pastures in the U.K. and Ireland, although populations tend to be higher and more damaging in the warmer and wetter areas of the British Isles.

Treatment Thresholds

The generally accepted threshold for treatment in established grass is 1 million per hectare. By the time the population reaches threshold levels, yield losses of 2.5 tonnes DM/ha can be expected. At this level, there are more than three times the weight of Leatherjackets feeding underground, as the stock feeding above ground.

Tell-tale Signs

- Large numbers of Daddy Long-legs in fields in the autumn.
- Birds, such as rooks, crows, gulls or starlings feeding in grass or crop fields.
- Bare patches in the crop.

Economic Damage

- Reseeded leys can be completely destroyed by Leatherjackets originating from the previous grass crop.
- Yield of grass is reduced, resulting in less grazing, silage or hay, and therefore the need to feed with more costly concentrates.
- Leatherjackets preferentially feed on ryegrasses and other high yielding species. Thus the quality of the sward, and subsequent feed, is reduced.
- Bare patches in the sward encourage weeds to invade, particularly Chickweed and Docks. This adds to the yield reduction and also adds to the cost burden of weed control.
- In the worst situation, Leatherjacket damage may mean having to plough up and re-seed the field. If the high yielding and quality grasses have been removed, the sward will need to be replaced much earlier, even if not in the year of damage. At around £280/ha to re-seed grass, this should be avoided if possible.

YIELD INCREASE FROM LEATHERJACKET TREATMENT

Risk Category	Treatment Timing Kg DM/Ha Late September	Early March
Low	341.8	126.5
Medium	616.1	228.2
High	827.0	306.2
Average	564.8	209.2

Source: DANI

Risk Assessment

RISK CATEGORY	RATING	Write in score here
1. CROP		
Winter/Spring cereals	★★★	
Established grassland	★★★	
New sown ley	★★★	
Brassicas	★	
Sugar beet	★	
Linseed	★	
Vegetables & Root Crops	★	
2. PREVIOUS GROUND COVER		
Established grass	★★★	
Grassy stubble	★★★	
Cereals	★★	
Other	★	
3. LOCALITY		
Predominantly grassland	★★★	
Mixed arable/grass	★★	
Mainly arable	★	
Other	★	
4. PAST HISTORY		
Problems noted previously	★★★	
Problems in neighbouring fields/farms	★★★	
No history of problem	★	
5. WEATHER LATE SUMMER/AUTUMN		
Warm/damp	★★★	
Cold/damp	★★	
Warm/dry	★	
Cold/dry	★	
	TOTAL SCORE	_____

STEP 1 Assess the risk using the 5 categories listed.

STEP 2 The risk value is worked out on the basis of:
★★★ High Risk
★★ Medium Risk
★ Low Risk

STEP 3 Score the crop against each category.

STEP 4 Add up the total score.
The higher the number of stars, the higher the risk.

STEP 5 Your Spraying Strategy should be determined by the total score.

SCORE	SPRAYING STRATEGY
12+	Apply Dursban WG at 1.0 kg/ha as routine.
8-12	Check field for signs of damage or presence of larvae. An early indication of Leatherjackets may be given by the presence of birds, particularly rooks, crows and starlings searching for the grubs. Apply Dursban WG at 1.0 kg/ha if necessary.
< 8	Treatment may not be needed.

The Solution - DURSBAN WG

Dursban WG at 1.0 kg per hectare gives the highest level of control of Leatherjackets. It is acknowledged by all the leading experts, such as ADAS, SAC, and DARDNI, as the treatment for Leatherjackets.

Trials and commercial use have shown that the earlier the pest is controlled, the better the yield response. Dursban WG works throughout the autumn and winter, so that where Leatherjacket problems are identified or expected, treatment can be carried out early and thus reduce the damage to the crop.

In this model, yield response from September treatments is 2½ times that of March treatment, a value of £22.76 in the average situation. Thus controlling Leatherjackets early gives the best economic response to treatment.

Mixing Instructions For Dursban WG

Dursban WG is a very absorbent material, and to get the best out of the product, it is necessary to observe closely the following advice.

IN ALL SITUATIONS

Fill the spray tank with water to approximately 90% capacity.
Apply agitation and maintain throughout tank filling and application.
Pour Dursban WG into the tank first, before any additional tank mix products.
Agitate for at least 5 minutes by recirculation before adding any other tank mix partners to the spray tank.

Using an induction hopper

DO Maintain continuous flow of water through the hopper.
Pour Dursban WG in a steady even flow into the water.

DO NOT Put Dursban WG into the hopper first and then add water.

Using the filter basket

DO Remove the filter basket.
Always add Dursban WG to the spray tank directly in a steady even flow.
Maintain agitation throughout this process.

DO NOT Pour Dursban WG into the basket.
Put excessive quantities of Dursban WG into the tank at one time.

If you require any additional information regarding the mixing of Dursban WG please contact Technical Services on 0800 689 8899.

COMPATIBILITY

Dursban WG is NOT compatible with boron or products containing boron, zineb or highly alkaline materials. Please ensure that spraying equipment is thoroughly cleaned if using Dursban WG after these substances. For further details of compatibility, please contact your supplier or Technical Services at the number above.

Financial Benefits

Cereals

At the threshold level of 300,000/ha, yield losses of 250kg/ha can be expected. At a grain price of £85.00/tonne, this is worth £21.25/ha, more than 1.5 times the cost of Dursban WG

Grassland

At the threshold level of 1 million/ha, yield losses of 2.5 tonnes DM/ha can be expected. At an energy value of £75.00/tonne, this is worth £187.50/ha

Summary of Recommendations

- Leatherjackets can devastate most crops
- Crops following grass represent the highest risk of economic damage
- Established grass can suffer serious losses in quality of the sward and economic performance
- Use Risk Assessment Chart to establish fields at most risk
- Soil sampling indicates pest levels in individual fields
- Dursban WG is established as the product of choice for control of Leatherjackets

Dow AgroSciences™

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ALWAYS READ THE LABEL. USE PESTICIDES SAFELY.

Dursban WG contains chlorpyrifos.

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