

## European crane fly (Leatherjackets)

Only a fraction of the insect species teeming from your lawn actually causes damage. Even Low Risk or Allowed Pesticides can kill both beneficial and harmful insects. Natural lawn and garden care practices increase the health and pest resistance of your lawn, and should help eliminate the need for pesticides. Being aware of your lawn's needs through careful monitoring and responding correctly to these needs are essential actions in pest prevention. Diagnosis of pest problems should be a careful process, because what may initially appear to be insect damage may be caused by a variety of other factors present in the dynamic environment of your lawn.

### Insect Identification

The European crane flies (*Tipula paludosa* Meigen) are grey/brown, narrow winged insects with long, slender legs. They are short lived and look a lot like a large mosquito. This insect does not sting or bite despite its appearance. The European crane fly lays eggs in turf grass. These small, black eggs grow into larvae, commonly called "leatherjackets". The name leatherjacket comes from their relatively thick, leathery appearance. Leatherjacket (larvae), which can be seen under the soil surface in the root zone, are light grey in colour, legless, tubular and large (3-4 cm) at maturity.

### Prevention

A deep rooted, healthy lawn will tolerate a few European crane fly larvae. Good horticultural practices such as: aerating, mowing high, de-thatching, and watering wisely will create a lawn that is insect resistant. Fertilization with a slow release fertilizer is ideal in the spring or fall and will help maintain a bug resistant turf. Adding compost (a slow release fertilizer) will increase the wealth of microorganisms in the soil, which help fend off turf predators. Fast release, nitrogen-rich fertilizers promote rapid plant growth. This provides a wonderful meal for leatherjackets as they feast on tender roots. Yearly, overseeding with a mixture of grass seed will help maintain a vigorous lawn. Ryegrass, which contains endophytes, protect against above-ground insects. Kentucky bluegrass roots provide a gourmet delicacy for grubs and also have shorter roots, which are more sensitive to drought. Lawns with a diversity of plant life (e.g. include Clover), are more hardy.

### Lawn Damage and Diagnosis

Leatherjackets feed on grass roots, which causes patches of grass to turn brown and die. Damage becomes more noticeable in late spring and summer as weather becomes warmer and larvae have reached their last stage before turning into adults. Monitor for European crane fly (adults) before damage occurs – this is best done August through September. A good indication of European crane fly larvae in your lawn is the secondary damage caused by birds digging in your lawn to eat the leatherjackets.

To check if your lawn has leatherjackets (larvae), cut three sides of a 12 by 12 inch square (30 x 30 cm) and 4 inches (10 cm) deep piece of sod. This is best done in September to October. Fold back, scrape off the soil, and count the larvae. In a healthy lawn, if more than 25 larvae are found per square foot then you can expect damage.

### Cultural Control

Eggs of the European crane fly are very sensitive to drought. One way to control this insect is to allow your lawn to dry out when the eggs have been laid, typically in August to mid September. When you see European crane flies flying around, stop watering your lawn and let the top 2 to 3 cm dry out. This will dehydrate and kill off eggs the adults have just laid. Remember, during the summer months a healthy lawn can go dormant (appear brown and dry) for between 6-8 weeks without sustained damage.

It is also necessary to repair a weak lawn to improve its health. De-thatch, aerate, top-dress with compost and re-seed with rye grass. Practice preventative horticultural techniques which will create healthy grass that can tolerate some pest damage.

### Biological Control

Beneficial parasitic nematodes can effectively combat an infestation of leatherjackets. Nematodes are found naturally in the soil. Nematodes are microscopic non-segmented worms that feed on larvae. You can also purchase nematodes and apply as per instruction on the label.



Beneficial nematodes do not affect worms, birds, pets or humans. Nematodes travel through water in the soil, so it is important to keep lawn moist after application. They will die if they dry out. If the thatch is more than ½" (1 cm) thick, de-thatch before applying nematodes so they can easily reach the soil. They start to work in 48 - 72 hours after application.

**Biological Control Treatment Frequency:**

- Can be done in September to mid-October
- Treat twice a year for bad infestation
- The soil must be 15 °C or more when treating. They can be applied when soil is cooler but the nematodes will not be as active.

**How:**

Nematodes (with directions for use) come on a damp sponge in plastic bags. They must be kept cool until within 30 minutes of use. The package is purchased with a cool-pack. The cool pack should be wrapped so that the plastic bag does not come in direct contact with the pack. The bag can be kept in the fridge for up to 2 months if the sponge is kept moist (adding a few drops of water when necessary).

- A pack contains 1 million that will cover 2000-3000 sq. ft. They also come in larger packs.
- Use a hose-end spray bottle, fill with water to intensity required (15 gals to 1 million) and jiggle the sponge around in the water. The sponge can be left in the spray bottle but be careful it doesn't block the spray mechanism. Rinse out the bag and add it to the bottle.
- Spray starting in the most infected area and move out from there. Cover the total area. They will penetrate only where they land on the ground via the water transport mechanism.
- Keep the jug agitated continually while spraying or all the nematodes will sink to the bottom and you will not get an even treatment.
- The spray must be used within ½ hour.

**Watering:**

The soil must be well soaked before applying nematodes as they need water for transport down to the root system. It is easiest to spray after a heavy rain, and grass is spongy to walk on. Water daily, for three days after application to keep the soil moist. Then water every five days to get good results. Nematodes will die without moisture.

If you hire a lawn care company to maintain your lawn, ask what alternatives to pesticides they offer or if they practice pesticide reduction/pesticide free strategies such as the cultural techniques mentioned above. Should you use pesticides yourself, read the label before use and follow the manufacturer's directions closely.

**Practical Solutions for Problem Areas**

For those areas that continue to suffer from leatherjacket infestation, consider ground covers instead of grass. Creeping juniper, wild strawberry, Ajuga, clover, pachysandra, sedums, daylilies, thyme, etc. require less maintenance, may be drought tolerant, are attractive and some stay green through all seasons.

If you hire a lawn care company to maintain your lawn, make sure they are aware of the City of Hamilton Pesticide Bylaw and ask which cultural techniques or low risk pesticides – "Allowed Pesticides" under the bylaw – they plan to use on your property. Should you use a low risk or allowed pesticide product yourself, read the label before use and follow the manufacturer's directions closely.

Call the **Yard Improvement Helpline** at **905-540-8787 ext. 18** for tips on natural lawn and garden care.  
Visit [www.naturallyhamilton.ca](http://www.naturallyhamilton.ca) for links to the Ministry of the Environment's Cosmetic Pesticide Ban.