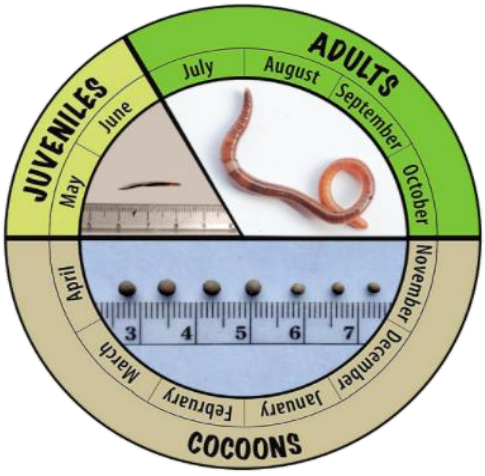
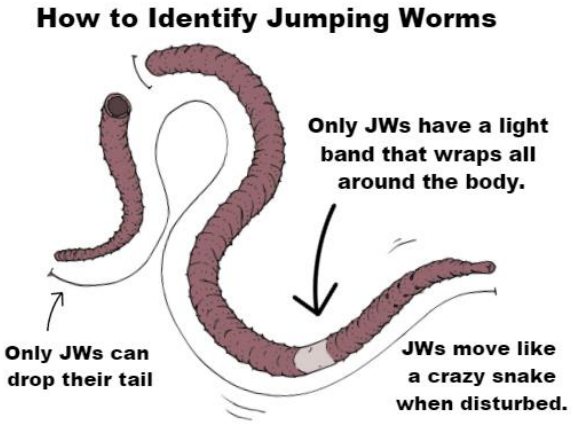
MASTER GARDENERS of ONTARIO

Invasive Jumping Worms – Information for Home Gardeners

What you Need to Know

- Almost all earthworms in Ontario are non-native and harm the environment. **However, invasive Jumping Worms (JWs) cause much more damage & spread much more quickly.** They can kill plants by removing nutrients from the soil, and leave behind bare, dry granular pellets. They are a threat to our gardens & lawns, farms & forests, as well as bird and animal life.
- Invasive Jumping Worms have been confirmed in Ontario. (Windsor-Essex County - 2014) (Dundas Valley, Toronto, Wheatley - 2021).
- There are currently **no controls or pesticides to stop** Jumping Worms once they are in a garden or natural area. **Early detection and rapid response are critical.** You can make a difference!
- **People spread worms** without realizing it. JW egg cases (cocoons) can be in soil, mulch, plants, landscaping equipment and in even the treads of shoes and tires. One cocoon or worm is enough to infest a garden.
- **Life Cycle & ID:** Plants and soil sold in spring may not show evidence of JWs. JWs die off in winter. Cocoons begin to hatch when soil temperatures reach 10°C/50°F and continue to hatch throughout the summer. Cocoons are the size of a poppy seed and new JWs will be tiny. When JWs mature (July to October), it's easier to tell them apart from other earthworms. This may be the best time to inspect plants and gardens.
- Although jumping worms are a major threat, don't let that fear or their presence overwhelm you. Do your part to limit their spread, enjoy your garden and support research. Report sightings of JWs at Ontario's Early Detection & Distribution Mapping System https://www.eddmaps.org/.





Jumping Worms die in winter and hatch from eggs in spring. From May to June, Jumping Worms are tiny. If you find a large worm in the spring, it won`t be a JW. When Jumping Worms mature (July to October), they develop a **light band** (clitellum) near their head. If agitated, JWs can **drop their tail**. JWs **thrash wildly** from side to side when disturbed. No other earthworms have these three features.

Stopping the Spread of JWs in Your Garden

- Grow your own plants from seed whenever possible.
- Make your own compost or leaf mulch.
- Buy plants and garden products from reputable sources. Bulk mulch or compost must be heat-treated to a temperature of 40°C/104°F for at least 3 days to destroy the cocoons. Ask nurseries, landscaping companies and soil, compost and mulch providers how they are controlling JWs. If they know nothing about JWs, then be concerned and share information with them.
- It is possible for bagged mulch or soil to be contaminated. Gardeners may want to treat purchased soil or mulch with solarization before using. (See page 3)
- Be aware that even municipal compost may be a source of cocoons or worms.
- When visiting private gardens, botanical gardens or trails, **arrive clean and leave clean**. Use a brush to remove soil and debris on footwear. Park on paved areas where possible.

Introducing New Plants to Your Garden

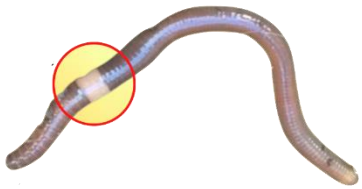
- **Isolate and inspect** all plants *before* you add them to your garden. Is the soil intact or granular? Intact soil is likely OK. Granular soil may indicate the presence of JWs.
- If you get a plant before July, you may want to keep the plant in its pot until JWs are more easily identified. **Quarantine** new plants by placing them in a container (e.g., sturdy plastic bag, pot, tub) that prevents worms from escaping or cocoons from washing away.
- Plants can also be **root washed** to remove JWs and cocoons. Gently rinse plants in a basin to remove all soil. Place soil and water in sealed plastic bags set out in the sun. If thoroughly solarized in a minimum of 40°C/104°F temperatures for at least 3 days, the soil should be safe to re-use in the garden.

Testing for JWs

If you think you have JWs, you can follow these instructions to test your soil:
Note: This test is most useful later in the summer, when JWs are mature and can be distinguished from other earthworms. It can be done in suspected garden areas or with purchased potted plants.

- Mix 1/3 cup ground mustard seed in 4.5 liters (1 gallon) of water.
- Brush away any leaves or mulch on top of the soil.
- Slowly pour the mustard solution onto the soil. The solution irritates worms and sends them to the surface. All earthworms will react, but look for the **light band (clitellum)** of the mature JWs and remove the worms as they appear. If you are not sure, it is safest to destroy and dispose of all of the worms.
- If JWs are confirmed, solarize (heat treat) the soil as described in the next section.

Look for this **light band (clitellum)** found near the head of mature JWs. It goes all around the worm. Other earthworms have a band that is red/pink and saddle shaped.



Jumping Worm & Cocoon Treatment

- Kill suspected JWs by freezing, leaving in a bag out in the sun, or soaking in vinegar or rubbing alcohol. Discard in garbage. Do not put JWs in any compost pile, garden or natural lands.
- **Cocoons** can survive temperatures of -40°C/-40˚F so winter temperatures do not kill them. **Heat treatment of 40°C/104°F is currently the only known method of killing cocoons.**

Treating Soil, Mulch and Compost

Solarizing (heat-treating) soil, compost & mulch under plastic may be used to kill cocoons & worms. In general, clear plastic is more effective than black plastic. Heat treating in bags or sandwiched between two sheets of plastic had the best results as worms were not able to escape. . Solarizing in garden areas had mixed results as worms may simply move away. Soil, compost & mulch must be heat-treated to a temperature of 40°C/104°F for at least 3 days. If outside temperatures drop, it will take longer. Solarizing works best in sunny areas. Solarising may be an effective way of killing JWs and cocoons in purchased soil, mulch and compost.

- **Solar Sandwich**: Place a sheet of translucent plastic drop cloth in a sunny location. Pile soil/mulch/compost on the sheet. Place a second translucent drop cloth on top. Pull the sides of the bottom sheet over the top sheet and secure in place to stop worms from escaping. Solarize so the contents reach 40°C/104°F temperatures for at least 3 days.
- **Solarizing in Bags:** Place soil/mulch/compost in sturdy plastic bags and moisten. Secure bags tightly so worms can't escape. Set out in the sun. If thoroughly solarized in a minimum of 40°C/104°F temperatures for at least 3 days, the soil should be safe to re-use in the garden.
- **Garden Areas**: Moisten soil & cover area with clear plastic. Digging a 4-6-inch-deep trench around the area and pushing the plastic down into the trench may stop worms from escaping. Fill the trench with soil to secure plastic in place. Time will vary according to conditions, but the soil temperature needs to exceed 40°C/104°F for at least 3 days. Keep plastic in place for a **minimum of 2 to 3 weeks**.
- **Disposal:** Many municipalities do not allow soil to be disposed of in the garbage. There is growing concern that moving infested soil or disposing of it in municipal waste may increase the spread of JWs.

For more information scan this QR code or click on this link.