Disease, not feeding, the real threat from aphids

It’s true that massive aphid feeding can damage a potato crop, but it’s an aphid’s role in the spread of viral disease that is the real threat. Aphids feeding on potato plants infected with Potato Leaf Roll Virus, for example, can carry and transmit the virus from one potato plant to another. Once an aphid has ingested the virus, it can carry it for up to 12 hours and then move on to another potato plant, spreading the infection. This can result in reduced yields, stunted plants, and a dark discolouration (net necrosis) in the flesh of potatoes.

Unique mode of action stops aphid feeding fast

Unlike many insecticides, Fulfill doesn’t act as a general toxin. Fulfill’s active ingredient pymetrozine protects the plant by interfering with the aphid’s ability to feed. Within one to two hours of contact or ingestion of Fulfill, aphids stop feeding and thereby stop spreading PLRV.

Although aphids can remain alive for a few days, and will continue to move on the plant, Fulfill will have shut down the feeding processes almost immediately.

Fast-acting aphid control

Whether they contact Fulfill directly at spraying, or ingest residual Fulfill later on, aphids stop feeding within two hours and die within the next few days. Here’s how:

Fulfill interferes with the aphid’s salivary pump, thereby making it unable to suck juices from the plant. Once an aphid ingests Fulfill, it removes its stylet and stops feeding within a couple of hours. Aphids that have fed on Fulfill are unable to suck even if their stylet remains inserted in the leaf.

Once Fulfill has shut down the feeding process, the aphid tucks its stylet back under its body. Growers may still see aphid activity. In fact, aphids often display erratic, confused movement after a Fulfill application, so they may be more noticeable. However, these aphids have stopped feeding and no longer pose a threat to the crop.

Reducing the risk of Potato Leaf Roll Virus

Fulfill is a potato grower’s best choice for reducing the risks of Potato Leaf Roll Virus. This damaging viral disease is transmitted by several species of aphids, which act as vectors. Green peach aphids are the most problematic, often leading to yield and marketability losses.

Aphids can acquire PLRV after feeding for only a few minutes, but it takes at least 12 hours for maximum transmission efficiency to develop. Once PLRV is acquired, an aphid generally retains the virus for life. The virus cannot be transmitted by direct plant-to-plant contact, but depends entirely on aphids to move it from one plant to another. Fortunately, when an aphid ingests Fulfill, its feeding process is shut down within two hours – helping to reduce the spread of PLRV.

Fulfill’s combination of contact and residual control – up to two weeks – is very effective at stopping PLRV transmission.
**Fulfill in the field**

**Aphid Control in Potatoes**

![Graph showing aphid control](image)

**Setting new standards**

**Fulfill is a leader in setting new standards for IPM compatibility and user friendliness. Here’s why:**

**Active against aphids, safe for other species**

Fulfill acts quickly to stop aphid feeding but has minimal impact on a wide range of beneficial insects. Its mode of action is very specific to the feeding mechanism of aphids. In other words, Fulfill is so selective that it doesn’t affect beneficial insects (even when contacted directly by spray application) such as the lady beetle, which also helps to control aphid populations.

**Quick rainfastness means less worry**

Fulfill is rainfast as soon as the spray dries so application is less dependent on perfect weather or working around an irrigation schedule.

**Effective, targeted aphid control in Potatoes**

**An excellent choice for Integrated Pest Management (IPM)**

Because of its unique mode of action, low use rate and wide safety margin to beneficials, Fulfill is especially suitable for IPM programs.

**Application recommendations**

- Monitor aphid populations and apply Fulfill as aphid numbers reach economic thresholds.
- Broadcast as a foliar spray at a rate of 193 g/ha (78 g/ac). One jug treats 10 acres.
- Use a penetrating adjuvant such as LI 700®. Consult the label for adjuvant options and rates.
- Apply in sufficient water to ensure thorough coverage.
- Allow at least 7 days between applications.
- Do not make more than 2 applications per crop season.
- Allow 14 days between the last application and harvest.

**Controls even resistant aphids**

Fulfill is an excellent fit for any resistance management program because it represents a unique, new class of insecticide and it affects aphids that are resistant to other classes of insecticides.

Field trials conducted in Canada have demonstrated Fulfill’s exceptional control of aphids. This trial, conducted in Portage, Manitoba in 2002, demonstrates that small aphids are present after application, they will have stopped feeding and die over the next four days, and thus no longer pose a threat to the crop.

**Field trials conducted in Canada have demonstrated Fulfill’s exceptional control of aphids.**

**Always read and follow label directions.** For more information about Fulfill or any of our products, please call our Customer Resource Centre:

- 1-800-459-2422 (Eastern Canada)
- 1-800-665-9250 (Western Canada)

www.farmassist.ca

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