

Arino™ is a novel, liquid insecticide/nematicide, powered by RinoTec™ Technology that can help your crop get off to a strong start. This new technology aids in the management of nematodes and wireworms in potatoes, onions, and mint. Applied in-furrow at planting time, Arino is easy to work with and compatible with a wide range of fertilizers and crop protection products.

Five years of field testing by universities and independent researchers have helped define and validate Arino's value to growers looking for uncompromising efficacy, flexibility, and freedom to farm. Arino™ is exempt from residue tolerances and has established MRL's for export, ensuring that your crop finishes as strong as it starts.

BENEFITS:

- Maximizes yield potential
- Activity on nematodes, wireworms, and white grubs
- **Compatible** with fertilizers and other crop protection products
- **Complimentary** fit in soil pest rotational programs
- Easy to Use: Liquid, in-furrow, applied at planting
- Freedom to Farm: Minimal PPE, 4-hr REI, established **MRLs**
- Family and Employee Focused: Control you expect with the safety profile you demand
- Supports food processor and packer/shipper sustainability goals

SPECTRUM OF ACTIVITY



- Columbia Root Knot Nematode -Meloidogyne chitwoodi
- Northern Root Knot Nematode -Meloidogyne hapla





Wireworm - Larvae within the Elateridae family



White Grub - Larvae within the Scarabaeidae family

TECHNICAL & REGULATORY PROFILE				
Active:	RinoTec™ Technology			
Mode of Action:	Arino works through ingestion, feeding site disruption, and repellency.			
IRAC:	UNB - Bacterial Agents (Non-Bt) of Unknown or Uncertain MOA			
Formulation:	Liquid			
Translocation:	RinoTec™ Technology is absorbed and translocated locally within the developing root system creating a protective zone in and around the roots.			
REI:	4-Hours			
PPE:	Minimal			
PHI:	0-Day			

HOW ARINO WORKS:

When Arino is applied in-furrow, it loosely binds to soil particles. The material is then gradually released into the soil solution and absorbed by the roots, translocating locally in the developing root system.

Its persistence in soil and roots provides sustained protection by eliciting a powerful plant-based reaction that repels soil-borne insects and nematodes, creating a zone of protection around the young seedlings.

ARINO COMPLIMENTS EXISTING SPRAY PROGRAMS

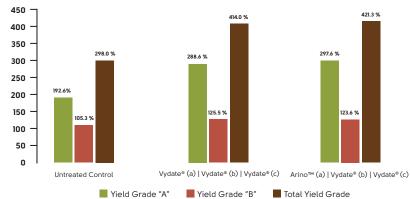
When Arino replaces the first insecticide/nematicide treatment of a potato IPM program, yield results were equal to or better than the grower standard.

Arino helps farmers reduce their overall spray program's environmental load without compromising on yield, quality, or expense.

ARINO[™] vs. GROWER STANDARD FOR YIELD

Mid Michigan Agronomy, 2023

Potato Yield – 'A's" "B's" & TOTAL



(a) = In-furrow (b) = Foliar 3 weeks after p

planting	(c) =	Foliar	6	weeks	after	planting

TREATMENTS Planting Date: April 28, 2023						
Treatment	а	b	с			
Timing	At Planting	3 Weeks After Planting	6 Weeks After Planting			
Application	In-Furrow	Foliar	Foliar			
Rate	Vydate: 1 qt./A Arino: 20 fl. oz./A	Vydate: 1 qt./A	Vydate: 1 qt./A			

BEST USE GUIDELINES:

- Apply in-furrow at planting
- Use Rate: 20 fl. oz./A
- Follow up with an alternative mode of action 14-21 days after planting
- Pack Size: 2 x 2.5 gal

ARINO FERTILIZER COMPATIBILITY 28-0-0 11-0-0 10-34-0 6-24-6 8-0-0-9

EFFICACY RESULTS

ARINO[™] vs. GROWER STANDARD FOR COLUMBIA ROOT KNOT NEMATODE

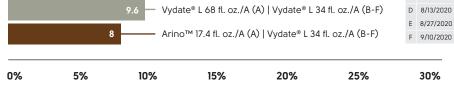
17% Less CRKN Incidence than Vydate Alone

 Hubbard Ag. Science, Connell, WA, 2020 • Variety: Ranger Russet
 PLANTING DATE: 4/23/2020

 Untreated Control
 25.4

 C
 7/10/2020

 C
 7/27/2020



Percent Incidence of CRKN Injury

Arino[™] vs. GROWER STANDARD FOR COLUMBIA ROOT KNOT NEMATODE

47% Less Damage from CRKN than with Vydate Alone

PLANTING DATE: Ag. Development Group, Eltopia, WA, 2021 • Variety: Clearwater 5/3/2021 TREATMENTS А 5/3/2021 46 В 5/28/2021 C 7/13/2021 ate[®] CLV 68 fl. D 7/27/2021 8/10/2021 Е Arino™ 24 fl. oz./A (A) | Vydate® CLV 34 fl. oz./A (B-F) 10 F 8/24/2021 0% 10% 20% 30% 40% 50%

Percent Incidence of Tuber Damage

ARINO ${}^{\mbox{\tiny TM}}$ vs. GROWER STANDARD FOR COLUMBIA ROOT KNOT NEMATODE

31% Less CRKN Severity vs. Alternative Alone

Ag. Development Group, Eltopia, WA, 2022 • Variety: Russet Burbank							PLA	PLANTING DATE: 4/27/22		
							TF	REATMENTS		
							А	4/27/2022		
Untros	Untreated Control 67.5						В	5/27/2022		
United								7/26/2022		
Vydate [®] CLV 34 fl oz./A (A-G) 28.2						D	8/9/2022			
								8/23/2022		
19.5 — Arino™ 24 fl. oz./A (A) Vydate® CLV 34 fl. oz./A (B-G)							F	9/6/2022		
							G	9/20/2022		
							_			
0%	10%	20%	30%	40%	50%	60%		70%		

Percent Severity (# Stings/Tuber)

WORKER SAFETY

Based on the low toxicological profile of Arino, a "CAUTION" signal word is expected to be assigned by the EPA¹.

Refer to country-specific labels for information about application and handling, personal protective equipment (PPE), restricted-entry intervals (REI), and preharvest intervals (PHI).

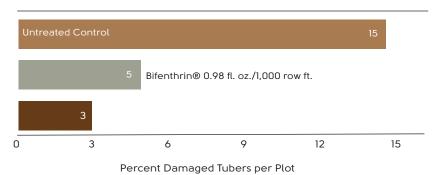
*Data on file. ¹Pending EPA Registration.

EFFICACY RESULTS

ARINO[™] vs. GROWER STANDARD FOR SUGAR BEET WIREWORM

40 % Less Tuber Damage than Bifenthrin® Alone

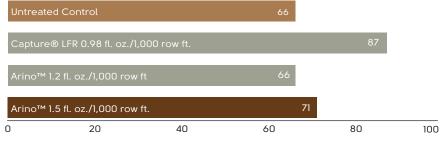
Dr. Silvia Rondon–OSU, Hermiston, OR 2021 • Variety: Ranger Russet



ARINO[™] vs. GROWER STANDARD FOR SUGAR BEET WIREWORM

19-24 % Less Tuber Damage than Capture® LFR Alone Dr. Tim Walters—WSU, Othello, WA 2021 • Variety: Clearwater



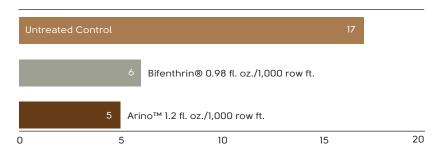


Percent Tubers with No Wireworm Damage

ARINO [™] vs. GROWER STANDARD FOR SUGAR BEET WIREWORM

17 % Less Tuber Damage than Bifenthrin® Alone

Dr. Siliva Rondon–OSU, Hermiston, OR 2022 • Variety: Ranger Russet



RINOTEC™

RinoTec[™] Technology refers to the microorganism, whole fermentation solution, proprietary processes, patents and trade secrets that comprise ProFarm's latest insecticide/ nematicide innovation.

EPA GREEN CHEMISTRY CHALLENGE AWARDS

The EPA Office of Chemical Safety and Pollution Prevention along with the American Chemical Society Green Chemistry Institute® recognized the favorable toxicological profile of RinoTec™ Technology—the power inside Arino™.

The ProFarm Group remains committed to developing crop protection solutions that allow growers the freedom to farm today and for future generations.

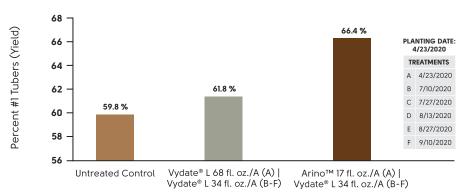


YIELD RESULTS

ARINO™ vs. GROWER STANDARD FOR POTATO YIELD

7% More #1 Tubers than Vydate Alone

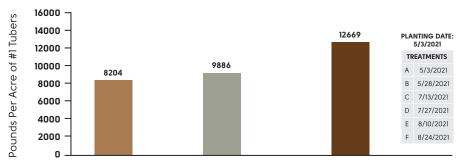
Hubbard Ag. Science, Connell, WA, 2020 • Variety: Ranger Russet



ARINO[™] vs. GROWER STANDARD FOR POTATO YIELD

28% Higher Yield than with Vydate Alone for CRKN Control

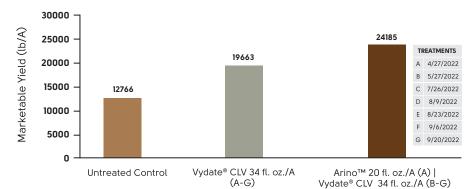
Ag. Development Group, Eltopia, WA, 2021 • Variety: Clearwater



Untreated Control Vydate® CLV 68 fl. oz./A (A) | Arino™ 24 fl. oz./A (A) | Vydate® CLV 34 fl. oz./A (B-F) Vydate® CLV 34 fl. oz./A (B-F)

ARINO™ vs. GROWER STANDARD FOR POTATO YIELD

4,522 More Pounds of Tubers Per Acre vs. Alternative Alone Ag. Development Group, Eltopia, WA, 2022 • Variety: Russet Burbank



OProFarm

1. Source: A Farm Guide to Nematode Diagnostics Management, Michigan State University https://www.canr.msu.edu/ent/uploads/files/George_Bird_bio_PDFs/ Potato_nematodes.pdf

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