

Irish Potato Pests

Table 1. Single active ingredient products.

	Active ingredient (insecticide group)	Trade Name	Target Pest(s)	Signal Word	Restricted Use?	REI	PHI (days)
FU	1,3 dichloropropene (soil fumigant)	Telone II (Salt Late Holdings)	symphytan, wireworm	Warning	Y	5 days	NA
F	Abamectin (6) (a.k.a. Avermectin b1)	Many brands and formulations	Colorado potato beetle, potato psyllid, spider mite, thrips	Warning	Y	12 hr	14
F	Acetamiprid (4A)	Anarchy (Loveland), ArVita (Addicus) Assail 30SG, Assail 70WP, Intruder Max 70WP (United Phosphorus), Azomar (AgBiome Innovations)	aphid, beetle, leafhopper*, potato psyllid*	Caution	N	12 hr	7
F	Afidopyropen (9D)	Sefina (BASF)	aphid, whitefly, potato psyllid*	Caution	N	12 hr	7
F	Bifenazate (20D)	Acramite (MacDermid), Banter (UPI), Bifenamite (Albaugh), Bizate (Loveland), Enervaten (Atticus), Vigilant (Macdermid)	spider mite	Caution	N	12 hr	14
IF, F	Bifenthrin (3A)	Many brands and formulations	beetle, various soil grubs, wireworm. Lepidoptera*, spider mite*, leafhopper*, lygus*, potato psyllid*	Warning	Y	12 hr	21
F, IF	Carbaryl (1A)	Carbaryl (Drexel, Loveland). First Choice (Loveland), Sevin 4F, Sevin 80S, Sevin XLR Plus (Bayer), Sevin 5 Bait (Nova Source, Wilbur Ellis)	beetle, Lepidoptera, stink bug, leafhopper, potato psyllid*; various soil-inhabiting arthropods (5 Bait)	Caution or Warning depending on formulation	N	12 hr	7
F	Chlorantraniliprole (28)	Coragen (FMC) Vantacor (FMC)	Colorado potato beetle, Lepidoptera	None	N	4 hr	14
F, IF	Clothianidin (4A)	Belay (Valent)	beetle, aphid, leafhopper, psyllid	Caution	N	12 hr	14
IF	Cyantraniliprole (28)	Verimark (FMC), Exirel (FMC)	Colorado potato beetle, Lepidoptera	Caution	N	4-12 hr	1-7
F	Cyfluthrin (3A)	Tombstone (Loveland)	beetle, Lepidoptera, leafhopper, potato psyllid,	Warning	Y	12 hr	0
F	Beta-cyfluthrin (3A)	Baythroid XL (Bayer)	beetle, Lepidoptera, leafhopper, potato psyllid	Warning	Y	12 hr	0

	Active ingredient (insecticide group)	Trade Name	Target Pest(s)	Signal Word	Restricted Use?	REI	PHI (days)
F	Lambda-cyhalothrin (3A)	Many brands and formulations	aphid, beetle, grasshopper, leafhopper, Lepidoptera, potato psyllid, stink bug	Warning	Y	24 hr	7
	Alpha-cypermethrin (3A)	Fastac CS, Fast EC (BASF)	aphid, beetle, grasshopper, leafhopper, Lepidoptera, lygus	Caution	Y	12 hr	1
	Zeta-cypermethrin (3A)	Cortes Maxx (Atticus) Mustang, Mustang Maxx (FMC)	aphid, beetle, grasshopper, leafhopper, Lepidoptera, lygus	Warning	Y	12 hr	1
F	Cyromazine (17)	Trigard (Adama), Trignata (Atticus)	Colorado potato beetle	Caution	N	12 hr	17
F	Deltamethrin (3)	Delta Gold (Winfield)	beetle, leafhopper, Lepidoptera, lygus	Danger/ Poison	y	12 hr	3
F	Dimethoate (18)	Many brands and formulations	aphid, grasshopper, leafhopper, potato psyllid*	Warning	N	48 hr	0
F, IF	Dinotefuran (4A)	Certador (BASF), Scorpion 35 SL (Gowan), Venom (Valent)	beetle, leafhopper, potato psyllid, lygus	Caution	N	12 hr	7
F	Esfenvalerate (3)	Asana (Valent), S- FenvaloStar (LG Lifesciences),	aphid, beetle, grasshopper, leafhopper, Lepidoptera, potato psyllid, lygus	Warning	Y	12 hr	7
IF	Ethoprop (1B)	Mocap (AMVAC)	flea beetle, cutworm, symphylan, wireworm	Danger/ Poison	Y	72 hr	- ²
F	Fenpyroximate (21A)	Miteus (Nichino), Portal (Nichino), Tyoga (Sipcam Agro USA)	leafhopper, potato psyllid, spider mite	Warning	N	12 hr	7
IF	Fipronil (2B)	Regent 4SC (BASF)	wireworm	Warning	Y	0 hr	90
F	Flonicamid (29)	Beleaf 50 SG (FMC) Carbine 50WG (FMC)	aphid, potato psyllid, thrips*, whitefly	Warning or Caution	N	12 hr	7
F	Flupyradifurone (4D)	Sivanto HL, Sivanto 200 SL, Sivanto Prime (Bayer)	aphid, leafhopper, potato psyllid, Colorado potato beetle, whitefly	Caution	N	4 hr	7
F	Hexythiazox (10A)	Many brands and forulations	potato psyllid, spider mite,	Caution	N	12 hr	21
IF, F, SP	Imidacloprid (4A)	Many brands and formulations	aphid, beetle, leafhopper, potato psyllid, wireworm (seed piece damage)	Caution	N	12 hr	7
F	Indoxacarb (22)	Avaunt, Steward (FMC) Comber (Sharda)	Lepidoptera, Colorado potato beetle	Caution	N	12 hr	7
F	Malathion (1B)	Many brands and formulations	aphid, blister beetle, grasshopper, leafhopper	Warning or Caution	N	12 hr	0
F	Methomyl (1A)	Lannate LV, Lannate SP (Corteva, NovaSource), Nudrin LV, Nudrin SP (Albaugh) Landveer NV (Invictus)	aphid, flea beetle, leafhopper, Lepidoptera, Colorado potato beetle*, lygus*, potato psyllid*, thrips*	Danger/ Poison	Y	48 hr	6
F	Novaluron (15)	Rimon (UPL NA)	Colorado potato beetle,	Warning	N	12 hr	14

	Active ingredient (insecticide group)	Trade Name	Target Pest(s)	Signal Word	Restricted Use?	REI	PHI (days)
			Lepidoptera, lygus*, potato psyllid, thrips*, whitefly				
F, IF	Oxamyl (1A)	Vydate C-LV (Corteva) ReTurn XL (Albaugh)	aphid, beetle, leafhopper, potato psyllid, Lepidoptera*, lygus, thrips*	Danger/ Poison	Y	48 hr	7
F	Permethrin (3)	Many brands and formulations	beetle, leafhopper, Lepidoptera, potato psyllid, lygus, thrips*	Warning or Caution	Y	12 hr	14
IF	Phorate (10)	Thimet 20-G EZ Load, Thimet 20-G Lock 'N Load, Thimet 20-G SmartBox (Amvac)	aphid, beetle, leafhopper, potato psyllid	Danger/ Poison	Y	72 hr	90
F	Phosmet (1B)	Imidan 70-W (Gowan)	beetle, leafhopper, tuberworm, Lepidoptera*, potato psyllid	Warning	N	5 days	7
F	Propargite (12C)	Comite, Omite (UPL NA) Endomite (Atticus) Mitomax (Actylis)	spider mite	Danger	Y	2 days	14
F	Pymetrozine (9B)	Fulfill (Syngenta, Adama) Seville (Atticus)	aphid, potato psyllid	Caution	N	12 hr	14
F	Spinetoram (5)	Delegate WG, Radiant SC (Corteva)	Colorado potato beetle, Lepidoptera, thrips, lygus* potato psyllid,	Caution	N	4 hr	7
F	Spiromesifen (23)	Oberon 2SC, Oberon 4SC (Bayer)	spider mite, potato psyllid, whitefly	Caution	N	12 hr	7
F	Spirotetramat (23)	Movento, Movento HL, Kontos (Bayer)	aphid, potato psyllid, whitefly	Caution	N	24 hr	7
F	Sulfoxaflor (4C)	Transform CA, Transform WG (Corteva)	aphid, leafhopper, potato psyllid, whitefly, lygus*	Danger	N	24 hr	7
F, IF, SP	Thiamethoxam (4A)	Actara, Cruiser 5FS, Platinum, Platinum 75SG, Adage (Syngenta), Elliptica (NuFarm Americas), Artist (Sharda), Legend (Albaugh)	aphid, beetle, leafhopper, potato psyllid, wireworm (seed piece protection)	Caution	N	12 hr	14
F	Tolfenpyrad (21A)	Torac (Nichino)	aphid, Colorado potato beetle, leafhopper, potato psyllid, thrips	Warning	N	12 hr	14

All trade names may not be listed here. Product application codes: F = foliar; FU = fumigant; IF = in-furrow; SP = seed protectant. PHI = Pre-harvest interval. REI = Restricted entry interval. Insecticide Group codes refer to modes of action and should be used in managing insecticide resistance; for more on insecticide codes and resistance management, see: <http://www.nwpotatoresearch.com/>. Always consult specific pesticide labels before making recommendations or deciding on a product and treatment.

*The pesticide label does not list this pest, but the insecticide has been shown to be effective in its control.

1 PennCap has a 5-day PHI.

2 Some products do not list PHI specifically.

Table 2. Package mixes of active ingredients.

Type	Active ingredient (insecticide group)	Trade Name	Target Pest(s)	Signal Word	Restricted Use?	REI	PHI (days)
FU	1,3 dichloropropene Chloropicrin	Telone C17 (Dow)	symphylan, wireworm	Danger	Y	5 days	NA
F	Abamectin (6) (a.k.a. Avermectin b1) Bifenthrin (3a)	Athena (FMC)	aphid, beetle, grasshopper, Lepidoptera, lygus, potato psyllid, spider mite, thrips	Caution	Y	12 hr	21
F	Abamectin (6) Zeta-cypermethrin (3a)	Gladiator (FMC)	aphid, beetle, leafhopper, Lepidoptera, lygus, potato psyllid, spider mite, thrips	Caution	Y	12 hr	14
	Abamectin (6) Cyantraniliprole (28)	Minecto Pro (Syngenta)	aphid, beetle, lepidoptera, potato psyllid, spider mite	Warning	Y	12 hr	14
F	Abamectin (6) Thiamethoxam (4a)	Agri-Flex (Syngenta)	beetle, leafhopper, potato psyllid, spider mite	Warning	Y	12 hr	14
F	Acetamiprid (4A) Novaluron (15)	Cormoran (Adama)	aphid, beetle, leafhopper, Lepidoptera, grasshopper, potato psyllid, whitefly	Caution	N	12 hr	14
F	Bifenthrin (3A) Imidacloprid (4A)	Brigadier (FMC), Skyraider (Adama), Swagger (Loveland), Avenger Bold (Innvictis)	aphid, beetle, leafhopper, Lepidoptera, grasshopper, potato psyllid, whitefly	Warning or Danger	Y	12 hr	21
F	Bifenthrin (3A) Imidacloprid (4A) Zeta-cypermethrin (3A)	Triple Crown (WinField United)	aphid, beetle, lepidoptera, leafhopper, grasshopper	Warning	Y	12 hr	21
F	Bifenthrin (3A) Zeta-cypermethrin (3A)	Hero, Hero EW (FMC), Steed (FMC)	aphid, beetle, grasshopper, leafhopper, Lepidoptera, spider mite	Caution or Warning	Y	12 hr	21
F	Bifenthrin (3A) Sulfoxaflor (4C)	Ridgeback (Corteva)	aphid, beetle, leafhopper	Warning	N	24 hr	21
F	Chlorantraniliprole (28) Lambda-cyhalothrin (3A)	Besiege (Syngenta)	aphid, beetle, grasshopper, leafhopper, Lepidoptera, stink bug, potato psyllid	Warning	Y	24 hr	14
F	Chlorantraniliprole (28) Thiamethoxam (4a)	Voliam Flexi (Syngenta)	aphid, beetle, leafhopper, Lepidoptera	Caution	N	12 hr	14
F	Beta-cyfluthrin(3A) Imidacloprid (4A)	Leverage 360 (Bayer)	aphid, beetle, Lepidoptera, psyllid, leafhopper, lygus	Caution	Y	12 hr	7
F	Lambda-cyhalothrin (3A) Thiamethoxam (4A)	Endigo ZC, Endigo ZCX (Syngenta)	aphid, beetle, Lepidoptera, grasshopper, lygus, stink bug, potato psyllid, leafhopper, whitefly	Warning	Y	24 hr	14
F	Lambda-cyhalothrin (3A) Imidacloprid (4A)	Kilter (Newfarm Americas)	aphid, beetle, Lepidoptera, grasshopper, lygus, stink bug, potato psyllid, leafhopper, whitefly, thrips, spider mite	Danger	Y	24 hr	7
F	Pyriproxyfen (7C) Spirotetramat (23)	Senstar (Valent)	aphid, potato psyllid	caution	N	24 hr	7
SP	Thiamethoxam (4A) Fludioxonil, (fungicide)	Cruiser Maxx (Syngenta)	aphid, beetle, leafhopper, potato psyllid, whitefly	Caution	N	12 hr	??
SP	Thiamethoxam (4A) Fludioxonil (fungicide) Difenoconazole (fungicide)	Cruiser Maxx Potato Extreme (Syngenta)	aphid, beetle, leafhopper, potato psyllid, whitefly	Caution	N	12 hr	NA
SP	Thiamethoxam (4A) Fludioxonil (fungicide) Difenoconazole (fungicide) Sedaxane (fungicide)	CruiserMaxx Vibrance	aphid, beetle, leafhopper, potato psyllid,	Caution	N	12 hr	NA

Product application codes: F = foliar; FU = fumigant; IF = in-furrow; SP = seed protectant. PHI = Pre-harvest interval. REI = Restricted entry interval. Insecticide Group codes refer to modes of action, and should be used in managing insecticide resistance; for more on insecticide codes and resistance management, see: <http://www.nwpotatoresearch.com/>. Always consult specific pesticide labels before making recommendations or deciding on a product and treatment.

Table 3. Biological insecticides, essential oils, etc.

Type	Active Ingredient (Insecticide Group)	Trade Name	Target Pest(s)	Signal Word	Restricted Use?	REI	PHI (days)
F	azadirachtin	Many brands, and formulations	various insects	Caution	N	4 hr	0
	azadirachtin neem	Debug Optimo, Debug Tres, Debug Turbo (MGK)	various insects	Caution	N	4 hr	0
F	azadirachtin pyrethrins (3A)	Azera (Valent)	various insects	Warning	N	12 hr	0
F	<i>Bacillus thuringiensis</i> var. <i>aizawai</i> (11A)	XenTari (Valent), Agree (Certis)	Lepidoptera	Caution	N	4 hr	0
F	<i>Bacillus thuringiensis</i> var. <i>kurstaki</i> (11A)	Many brands and formulations	Lepidoptera	Caution	N	4 hr	0
F	<i>Bacillus thuringiensis</i> var. <i>tenebrionis</i> (11A)	Novodor (Valent), Trident (Certis)	Colorado potato beetle	Caution	N	4 hr	0
	<i>Beauveria bassiana</i> , strain ANT	BioCeres EC, BoiCeres WP (Anatis Bioprotection)	aphid, whitefly, thrips, lygus	Caution	N	4 hr	0
F	<i>Beauveria bassiana</i> , strain GHA	Botanigard ES, Botanigard 22WP, Mycotrol ESO, Mycotrol WPO (LAM International)	aphid, potato psyllid, whitefly	Caution	N	4 hr	0
F	<i>Beauveria bassiana</i> , strain PPRI	Velifer Bioinsecticide/Miticide, (BASF)	aphid, thrips, whitefly, spider mite	Caution	N	12 hr	0
F	<i>Burkholderia</i> spp.	Venerate CG, Venerate SC (Marrone Bio Innovations)	Lepidoptera, aphid, leafhopper, potato psyllid, whitefly, Spider mite	Caution	N	4 hr	0
F	<i>Chromobacterium subtsugae</i> strain PRAA4-1T	Grandevo CG, Grandevo WDG (Marrone Bio Innovations)	Lepidoptera, aphid, leafhopper, potato psyllid, whitefly	Caution	N	4 hr	0
F	kaolin	Novasource Surround WP (Tesserdenlo Kerley), Actimin-FE (Active Minerals International)	beetle, grasshopper, leafhopper, lygus, stink bug, spider mite	Caution	N	4 hr	0
F	neem oil	Many brands and formulations	Lepidoptera, aphid, leafhopper, mite, lygus, stink bug, whitefly, thrips, spider mite	Caution	N	4 hr	0
F	petroleum-derived oil	Many brands and formulations	leafhopper, mite, whitefly, aphid transmission of Potato Leafroll Virus and PVY	Caution	N	4 hr	0
F	potassium laurate	M-Pede (Gowan), DES-X Insecticidal Soap (Certis),	leafhopper, lygus, thrips, mites, whitefly	Warning	N	12 hr	0

Type	Active Ingredient (Insecticide Group)	Trade Name	Target Pest(s)	Signal Word	Restricted Use?	REI	PHI (days)
		General Hydroponics Exile (General Hydroponics), Kopa Insecticidal Soap (OHP),					
F	vegetable oils and combinations, including rosemary, peppermint, clove, thyme, garlic, sesame, soybean geraniol	Many brands and formulations	various insects	Caution or Warning	N	0-4 hr	0
F	spinosad (5)	Many brands and formulations	Lepidoptera, beetle, thrips, potato psyllid*	Caution	N	4 hr	3
IF	spinosad (5), iron phosphate	BUG-N-SLUGGO (Certis)	Lepidoptera, slug	Caution	N	4 hr	7
<p>All trade names may not be listed here. In some cases the PHI is not specifically mentioned, but is implied to be 0 days, thus, the REI becomes the PHI. Product application codes: F = foliar; IF = in-furrow. Insecticide group codes refer to modes of action, and should be used in managing insecticide resistance; for more on insecticide codes and resistance management, see: http://www.nwpotatoresearch.com/. Always consult specific pesticide labels before making recommendations or deciding on a product and treatment.</p> <p>*The pesticide label does not list this pest, but the insecticide has been shown to be effective in its control.</p>							