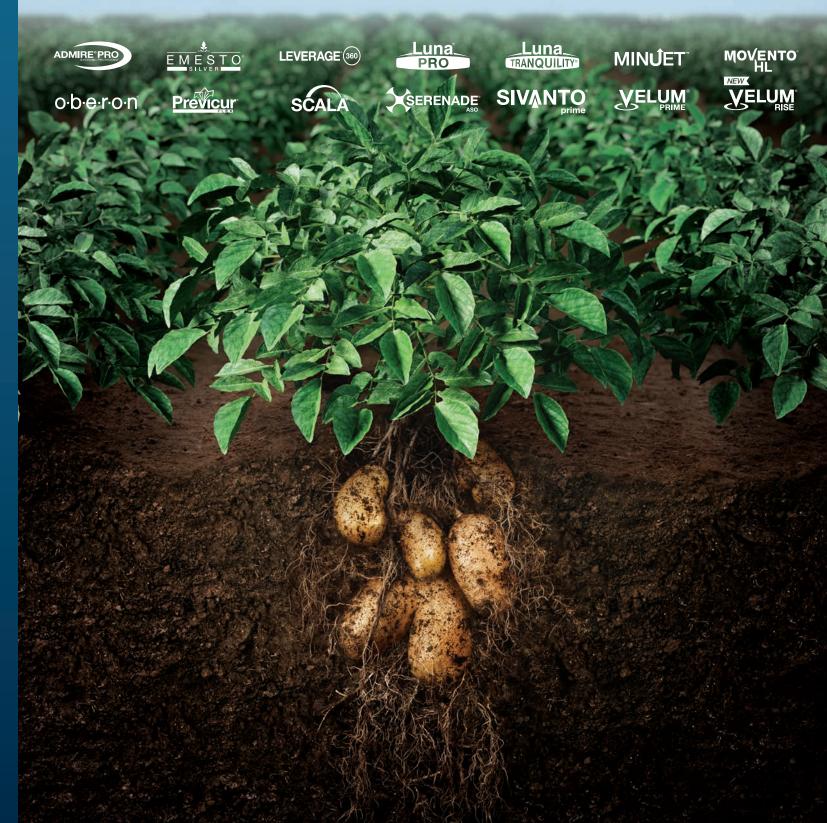




The Bayer family of products is powerful, especially when used together. It becomes a force, providing protection for potatoes throughout the first 75 days, because that's when potatoes are most likely to become victims of pests and disease. The Bayer 75-day Integrated Pest Management program creates an agronomic force field, safeguarding potatoes through whatever nature throws in the way.



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### Product Overview



Admire® Pro is a soil- and foliar-applied systemic insecticide that provides economical and enduring control of damaging insects in potatoes.

### EMESTO°

Emesto® Silver seed-treatment fungicide provides excellent protection against seedborne Rhizoctonia, Fusarium (including resistant strains) and good activity on Silver scurf. Emesto Silver-treated seed pieces withstand natural infection after being held for 61 days versus untreated.

#### LEVERAGE 360

**Leverage® 360** insecticide features two modes of action – one delivers fast knockdown, and the other extends residual control.



Luna® Pro and Luna Tranquility® fungicides protect against key diseases throughout the growing season and provide an effective approach to resistance management.

#### MINUET"

**Minuet**<sup>™</sup> is a soil-applied biological fungicide. It forms a symbiosis with the plant and triggers activation of root and plant growth to support healthy plants, increase crop quality and enhance yield potential.

### MOVENTO

Movento® HL insecticide features powerful, two-way movement throughout the plant to protect it from a broad range of insects, mites and nematodes.

#### o-b-e-r-o-n

Oberon® insecticide/miticide provides excellent control of mites and psyllids, making it a good miticide choice that fits well in IPM systems.

#### **Previcur**

Previcur® Flex fungicide provides proven control of damaging diseases by quickly penetrating the leaf surface and moving throughout the plant to protect new growth.



**Scala**® fungicide provides high-level preventive control against many economically damaging diseases and is an important addition to many spray programs.

#### SERENADE

Serenade® ASO biological fungicide provides protection against soil and foliar diseases through multiple sites of action with a flexible application.

#### SIVANTO

Sivanto® Prime insecticide precisely targets key damaging pests with minimal impact on beneficial insects.

#### **VELUM**

Velum® Prime nematicide moves from the plant's roots to the leaves, suppressing nematodes below ground while helping to protect root health.



Velum® Rise fungicide/nematicide is applied in-furrow, allowing you to start your season with wide-spectrum protection against soil-borne threats like Rhizoctonia, Black dot and nematodes.













It's more than just a rewards program — it's a program designed with you in mind. We're proud to stand by our potato producers and believe that their dedication to overcoming the unique challenges facing the industry is always worth rewarding.

Earn rewards on products that work for you, while we handle the paperwork so you can focus on your operation. With Bayer PLUS Potato, you decide when and where to redeem your rewards — and how to use them. That's the advantage of more control in your hands. That's the PLUS.

# **75-Day**

# IPM Potato Program



### **PRE-PLANT**

#### PREVENTION:

- Aphids
- Black Dot (suppression)
- Colorado potato beetles
- Early Dying/Verticillium (suppression)
- Flea beetles
- Fusarium tuber rot (suppression)
- Leafhoppers
- Psvllids
- Seed and Soil-borne Rhizoctonia
- (suppression)
- Silver scurf (suppression) White Mold (suppression)

#### PREVENTION:

- Aphids
- Black dot
- Colorado potato beetles
- Early blight (suppression)
- Early die

- Leafhoppers
- Nematodes (suppression)
- Psyllids
- Pythium
- Rhizoctonia
- White mold (suppression)

## **PLANTING AND**

### **EMERGENCE**

#### **PREVENTION:**

**EARLY** 

**DEVELOPMENT** 

- Aphids
- Black dot
- Botrytis
- Brown spot
- Colorado potato beetles
- Early die
- Fusarium
- Late blight
- Mites (suppression)
- Psyllids
- Rhizoctonia
- Verticillium
- White mold

### **TUBER BULKING**

#### **TUBER** INITIATION

#### **PREVENTION:**

- Aphids
- Black dot
- Botrytis

- Early blight
- Late blight
- Leafhoppers
- Mites (suppression)
- Nematodes (suppression)
- Psyllids
- Wireworms (suppression)

#### PREVENTION:

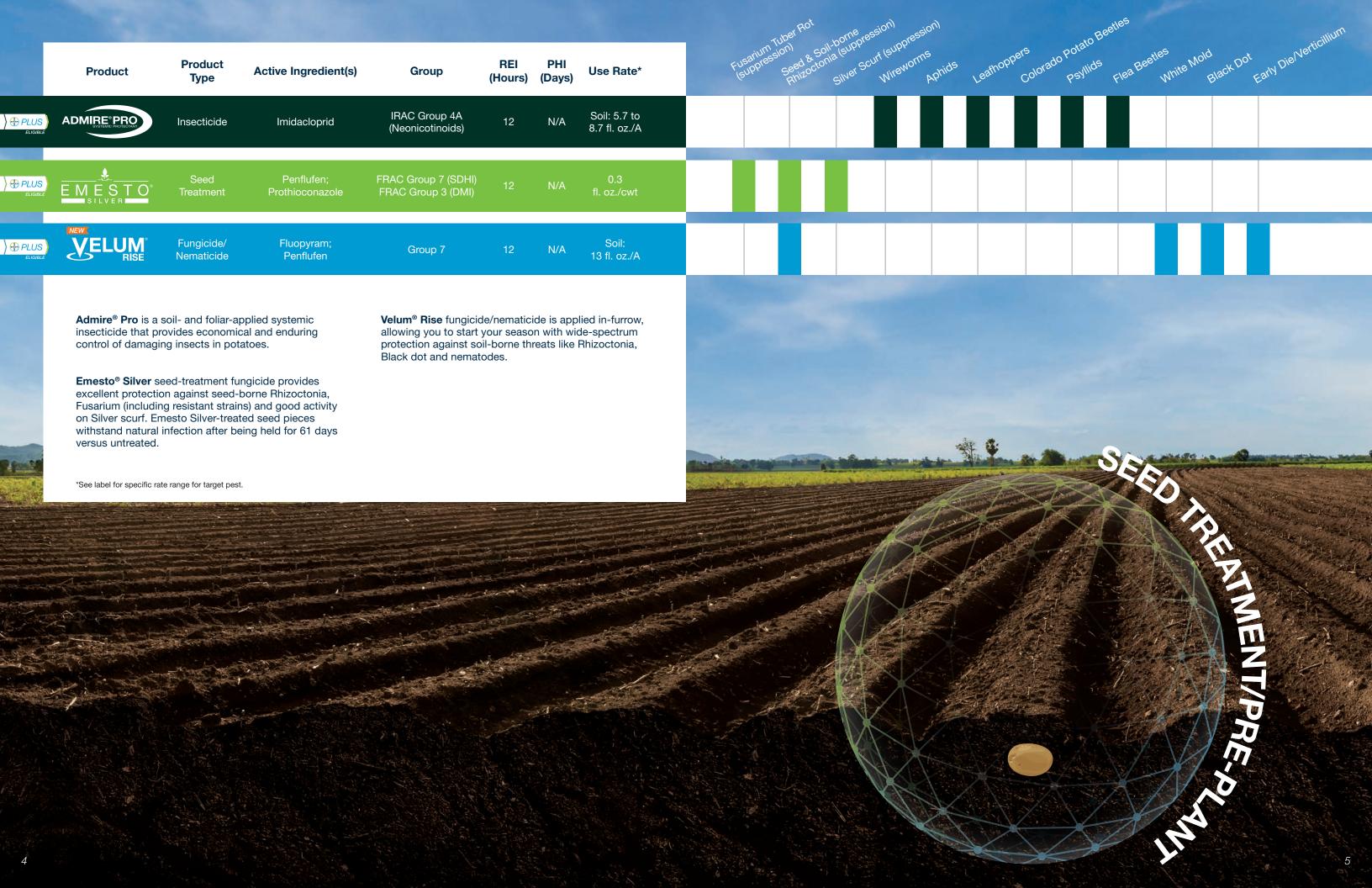
- Aphids
- → Black dot
- Botrytis
- Brown spot
- Cabbage loopers
- Early blight
- Late blight
- Leafhoppers

- Twospotted spider mites
- White mold

**HARVEST** 

#### PREVENTION:

- → Black dot
- Brown spot
- Colorado potato beetles
- Early blight





	100	THE R.		Marie Marie					
	Product	Product Type	Active Ingredient(s)	Group	REI (Hours)	PHI (Days)	Use Rate*		
	LEVERAGE 360	Insecticide	Imidacloprid; Beta-Cyfluthrin	IRAC Group 3 (Pyrethroids) IRAC Group 4A (Neonicotinoids)	12	7	2.8 fl. oz./A		
	Luna <sup>®</sup> PRO	Fungicide	Fluopyram; Prothioconazole	FRAC Group 7 (SDHI) FRAC Group 3 (DMI)	12	17	8 to 10.2 fl. oz./A		
	Luna_ TRANQUILITY®	Fungicide	Fluopyram; Pyrimethanil	FRAC Group 7 (SDHI) FRAC Group 9 (AP)	12	7	8 to 11.2 fl. oz./A		
	MINÚET	Biological Fungicide	Bacillus subtilis strain QST 713	FRAC Group 44	4	0	12 to 24 fl. oz./A		
	MOVENTO HL	Insecticide	Spirotetramat	IRAC Group 23 (Tetramic acids)	24	7	2 to 2.5 fl. oz./A		
	Previcur .	Fungicide	Propamocarb hydrochloride	FRAC Group 28 (Carbamates)	12	14	0.7 to 1.2 pt./A + tankmix partner		
	SCALA	Fungicide	Pyrimethanil	FRAC Group 9 (AP)	12	7	7 fl. oz./A		
}	SERENADE ASO	Biological Fungicide	<i>Bacillus subtilis</i> strain QST 713	FRAC Group 44	4	0	2 to 4 qt./A		
	<b>VELUM</b> ° PRIME	Nematicide	Fluopyram	FRAC Group 7 (SDHI)	12	7	6.5 to 6.84 fl. oz./A		
	Leverage® 360 ins action – one delive extends residual c	ers fast knockdo		Previcur® Flex fungic damaging diseases by and moving throughou	y quickly p	enetrating	the leaf surface		
		ses throughout the	ungicides protect e growing season and sistance management.	Scala® fungicide provides high-level preventive control against many economically damaging diseases and is an important addition to many spray programs.					
	symbiosis with the	e plant and trigge to support health	al fungicide. It forms a ers activation of root ny plants, increase tential.	against soil and foliar	Serenade® ASO biological fungicide provides protection against soil and foliar diseases through multiple sites of action with a flexible application.				
		ecticide features hout the plant to	s powerful, two-way o protect it from a	<b>Velum® Prime</b> nemat to the leaves, suppre- while helping to prote	ssing nema	atodes be			
	*See label for specific rat	te range for target pes	t.						

1												5448	ISUPPIE	ssion)	<sub>ISUP</sub> Pressi	<u>.                                </u>		
Product	Product Type	Active Ingredient(s)	Group	REI (Hours)	PHI (Days)	Use Rate*	White	<sup>S</sup> Wolg	Dot Botytis	Early Blig	Late Blight	lown Spot	todes (sur	MicMolu	Aphids	psyllids L	eathoppers	
Luna <sup>®</sup> PRO	Fungicide	Fluopyram; Prothioconazole	FRAC Group 7 (SDHI) FRAC Group 3 (DMI)	12	17	8 to 10.2 fl. oz./A												
Luna	Fungicide	Fluopyram; Pyrimethanil	FRAC Group 7 (SDHI) FRAC Group 9 (AP)	12	7	8 to 11.2 fl. oz./A		I	Τ	Г								
MOVENTO HL	Insecticide	Spirotetramat	IRAC Group 23 (Tetramic acids)	24	7	2 to 2.5 fl. oz./A												
Previcur <sup>®</sup>	Fungicide	Propamocarb hydrochloride	FRAC Group 28 (Carbamates)	12	14	0.7 to 1.2 pt./A + tankmix partner												
SCALA	Fungicide	Pyrimethanil	FRAC Group 9 (AP)	12	7	7 fl. oz./A			Τ	П								
SERENADE ASO	Biological Fungicide	Bacillus subtilis strain QST 713	FRAC Group 44	4	0	2 to 4 qt./A							7.					
SIVANTO° prime	Insecticide	Flupyradifurone	IRAC Group 4D	4	7	7 to 14 fl. oz./A		0 1 00 3 53										
Luna® Pro and Lur against key disease and provide an effe management.	es throughout th	e growing season	Scala® fungicide provagainst many econon important addition to	nically dam	aging dis	eases and is an										TUB		
Movento® HL insection movement through range of insects, m	out the plant to	protect it from a broad	Serenade® ASO biologagainst soil and foliar action with a flexible	diseases t	hrough m	ides protection ultiple sites of												
Previcur® Flex fung damaging diseases	gicide provides p by quickly pene		Sivanto® Prime insect damaging pests with insects.										A E					
*See label for specific rate	e range for target pest																	

	THE R. P. LEWIS CO., LANSING		and the										ers	ider Mites	Beetles		
Product	Product Type	Active Ingredient(s)	Group	REI (Hours)	PHI (Days)	Use Rate*	Muj	Black Black	K Dot Early Blig	nt Bothytis	ate Blight Brow	Cappage Spot	Loope Twospotted	Colousgo bots	syllids Abhi	ids <sub>Leath</sub> or	pPers
LEVERAGE 360	Insecticide	Imidacloprid; Beta-Cyfluthrin	IRAC Group 3 (Pyrethroids) IRAC Group 4A (Neonicotinoids)	12	7	2.8 fl. oz./A											
Luna <sup>*</sup> PRO	Fungicide	Fluopyram; Prothioconazole	FRAC Group 7 (SDHI) FRAC Group 3 (DMI)	12	17	8 to 10.2 fl. oz./A											
Luna_ TRANQUILITY®	Fungicide	Fluopyram; Pyrimethanil	FRAC Group 7 (SDHI) FRAC Group 9 (AP)	12	7	8 to 11.2 fl. oz./A											
o·b·e·r·o·n	Insecticide	Spiromesifen	IRAC Group 23 (Tetramic acids)	12	7	4 to 8 fl. oz./A (Oberon® 4 SC)											
<u>Previcur</u>	Fungicide	Propamocarb hydrochloride	FRAC Group 28 (Carbamates)	12	14	0.7 to 1.2 pt./A + tankmix partner			I								
SCALA	Fungicide	Pyrimethanil	FRAC Group 9 (AP)	12	7	7 fl. oz./A											
SERENADE	Biological Fungicide	Bacillus subtilis strain QST 713	FRAC Group 44	4	0	2 to 4 qt./A											
SIVANTO° prime	Insecticide	Flupyradifurone	IRAC Group 4D	4	7	7 to 14 fl. oz./A							S				
<b>Leverage® 360</b> ins action – one delive extends residual co	ers fast knockdov		Previcur® Flex fungic damaging diseases by and moving througho	y quickly p	enetrating	the leaf surface											
	es throughout the	ungicides protect e growing season and sistance management.	Scala® fungicide provagainst many econon important addition to	nically dam	aging dis	eases and is an							V				
<b>Oberon®</b> insecticid mites and psyllids, fits well in IPM syst	Serenade® ASO biolo against soil and foliar action with a flexible																
*See label for specific rate	e range for target pest	t.	Sivanto® Prime insection pests with minimal important terms of the section of the											A C			13

7		1000						Beetles
i	Product	Product Type	Active Ingredient(s)	Group	REI (Hours)	PHI (Days)	Use Rate*	White Mold Early Blight Botrytis Brown Spot Colorado Potato Beetles
	LEVERAGE 360	Insecticide	Imidacloprid; Beta-Cyfluthrin	IRAC Group 3 (Pyrethroids) IRAC Group 4A (Neonicotinoids)	12	7	2.8 fl. oz./A	
	Luna <sup>®</sup> PRO	Fungicide	Fluopyram; Prothioconazole	FRAC Group 7 (SDHI) FRAC Group 3 (DMI)	12	17	8 to 10.2 fl. oz./A	
	Luna	Fungicide	Fluopyram; Pyrimethanil	FRAC Group 7 (SDHI) FRAC Group 9 (AP)	12	7	8 to 11.2 fl. oz./A	
	<u>Previcur</u>	Fungicide	Propamocarb hydrochloride	FRAC Group 28 (Carbamates)	12	14	0.7 to 1.2 pt./A + tankmix partner	
	SCALA	Fungicide	Pyrimethanil	FRAC Group 9 (AP)	12	7	7 fl. oz./A	
	SERENADE	Biological Fungicide	<i>Bacillus subtilis</i> strain QST 713	FRAC Group 44	4	0	2 to 4 qt./A	
	<b>Leverage® 360</b> ins action – one delive extends residual co	rs fast knockdo		Scala® fungicide provagainst many econor important addition to	nically dam	aging dise	eases and is an	

**Luna® Pro** and **Luna Tranquility®** fungicides protect against key diseases throughout the growing season and provide an effective approach to resistance management.

**Previcur® Flex** fungicide provides proven control of damaging diseases by quickly penetrating the leaf surface and moving throughout the plant to protect new growth.

**Serenade® ASO** biological fungicide provides protection against soil and foliar diseases through multiple sites of action with a flexible application.

\*See label for specific rate range for target pest.





#### **Aphids (Insect)**

What: Aphids are notorious for spreading viruses that can wreak havoc on entire fields of commercial and seed potatoes.

Why: Aphids can significantly reduce yield potential and cause serious defects in tubers, mostly through the spread of Potato virus Y8-9 (PVY) and Potato leafroll virus (PLRV).

Solve: Scout fields, plant certified disease-free seed, apply pesticides, plant borders around seed potato fields.

Bayer Products: Admire® Pro Insecticide, Leverage® 360 Insecticide, Movento® HL Insecticide, Sivanto® Prime Insecticide

See: Seed Treatment/Pre-Plant, Planting, Early Development, Tuber Initiation, Tuber Bulking

#### **Black Dot (Disease)**

What: Caused by Colletotrichum coccodes. The fungus forms many minute, black sclerotia on senescing potato tissue (including roots, stolons, tubers and stems), especially toward the end of the growing season.

Why: Black dot attacks aging tissue or injured or stressed plants. Heat stress is a common problem. It can also overwinter in debris left in the field.

Solve: Plant certified seed tubers, maintain adequate levels of nutrients, avoid over-irrigation, apply fungicides.

Bayer Products: Luna Pro® Fungicide, Luna Tranquility® Fungicide, Serenade® ASO Biological Fungicide, Velum® Prime Nematicide/Fungicide, Velum® Rise Fungicide/Nematicide

See: Seed Treatment/Pre-Plant, Planting, Early Development, Tuber Initiation, Tuber Bulking, Post 75 Days: Harvest

#### **Botrytis (Disease)**

What: Caused by the fungus, *Botrytis cinerea*, an opportunistic pathogen with a wide host range that easily invades stressed, damaged or senescing tissue.

Why: The fungus overwinters on plant debris. Tuber infection can occur if the inoculum levels are high and the storage facility is very humid.

Solve: Promote healthy plant growth and minimize stress and plant injury, remove dead or infected plant parts such as flowers and foliage, time overhead irrigation to allow plants to dry faster, apply chemical and/or biological control.

Bayer Products: Luna Pro® Fungicide, Luna Tranquility® Fungicide, Scala® Fungicide, Serenade® ASO Biological Fungicide

See: Early Development, Tuber Initiation, Tuber Bulking, Post 75 Days: Harvest

#### Brown Spot (Disease)

What: Caused by Alternaria alternata, a fungus that overwinters as viable mycelium and spores in infected crop residue and is more commonly found now than prior to 2000.

Why: Severe infection of foliage by the early to midbulking period can result in smaller tubers, yield loss and lower tuber dry matter content. Lesions reduce the quality and marketability of fresh market tubers.

Solve: Instill tillage practices, plant certified disease-free seeds, apply foliar fungicides.

Bayer Products: Luna Pro® Fungicide, Luna Tranquility® Fungicide, Scala® Fungicide

See: Early Development, Tuber Initiation, Tuber Bulking, Post 75 Days: Harvest

#### Cabbage Loopers (Insect)

What: Also known as Irish loopers. They move in a looping fashion, like an inchworm. Loopers chew holes and ragged edges in potato leaves.

Why: The period of full bloom is the most sensitive plant growth stage but even then, defoliation on the order of 10% appears to cause little, if any, yield loss.

Solve: Scout fields, utilize floating row covers, apply insecticides.

Bayer Products: Leverage® 360 Insecticide

See: Tuber Bulking

#### **Colorado Potato Beetles (Insect)**

What: Of all the potato insects, the best known and most widespread is the Colorado potato beetle (Leptinotarsa decemlineata).

Why: CPB larvae are the most damaging form but adults also feed on the foliage. Vine damage results in yield loss due to loss of foliage to support tuber growth and misshaping of tubers is also possible. Severe damage may result in plant stunting as well.

Solve: Implement biological control, scout fields, maintain thoughtful selection of breeding material.

Bayer Products: Admire® Pro Insecticide, Leverage® 360 Insecticide

See: Seed Treatment/Pre-Plant, Planting, Early Development, Tuber Bulking, Post 75 Days: Harvest

#### Early Blight (Disease)

What: Caused by Alternaria solani, a fungus that overwinters as viable mycelium and spores in infected crop residue.

Why: Severe infection can result in smaller tubers, yield loss and lower tuber dry matter content. Tuber infection also presents a challenge to processors because tuber lesions often require additional peeling to remove the darkened lesions and the underlying tissues.

Solve: Plant potato varieties resistant to diseases (specifically late maturing), rotate crops, avoid overhead irrigation.

Bayer Products: Luna Pro® Fungicide, Luna Tranquility® Fungicide, Previcur® Flex Fungicide, Scala® Fungicide, Serenade® ASO Biological Fungicide, Velum® Prime Nematicide/Fungicide, Velum® Rise Fungicide/Nematicide

See: Seed Treatment/Pre-Plant, Planting, Early Development, Tuber Initiation, Tuber Bulking, Post 75 Days: Harvest

#### Early Die (Disease)

What: Potato Early Die (PED) is a disease complex primarily caused by the soil borne fungi Verticillium dahliae that infects the plant through the root system. Lesion nematode feeding creates entry points for the fungi to enter roots and invade the plant's vascular system leading to necrosis, which reduces water and nutrient uptake. There are several other abiotic and biotic stressors that contribute to PED taking hold, including other diseases like White mold, Black dot, Early blight, Brown spot and Botrytis.

Why: The disease causes early senescence and vine death. The diseased plants are unable to generate significant tuber size, decreasing total marketable yield and quality.

Solve: Plant disease-free seed, remove crop debris, rotate with non-host crops, start with fumigated fields (if possible) and proactively manage nematodes and the diseases that stress the crop in season.

Bayer Products: Velum® Prime Nematicide/Fungicide, Velum® Rise Fungicide/Nematicide

See: Seed Treatment/Pre-Plant, Planting, Early Development

#### Flea Beetles (Insect)

What: Flea beetles are common pests throughout the Pacific Northwest states of Idaho, Oregon and Washington.

Why: Below- and above-ground feeding damage can kill seedlings and small transplants. Scars on tubers from below-ground feeding and on a variety of foliage from above-ground feeding can reduce marketability. Feeding damage can sometimes lead to total crop loss.

Solve: Rotate crops, implement weed control, apply systemic soil insecticides at planting.

Bayer Products: Admire® Pro Insecticide

See: Seed Treatment/Pre-Plant, Planting

#### **Fusarium Tuber Rot (Disease)**

What: Fusarium tuber rot is characterized by an internal light to dark brown or black rot of the potato tuber and it is usually dry.

Why: Fusarium tuber rot of seed tubers can reduce crop establishment by killing developing potato sprouts.

Solve: Utilize seed treatment, implement biological and cultural control, and postharvest fungicides.

Bayer Products: Emesto® Silver Seed-Treatment Fungicide, Minuet™ Biological Fungicide

See: Seed Treatment/Pre-Plant, Planting, Early Development

#### Late Blight (Disease)

What: Phytophthora infestans, also known as Late blight, is a specialized pathogen that can cause infections in potato foliage and tubers.

Why: Spores produced on infected potatoes can travel through the air, land on infected plants, and if the weather is sufficiently wet, cause new infections.

Solve: Maintain thoughtful site and seed selection, practice hilling, apply fungicides, allow for air drainage.

Bayer Products: Previour® Flex Fungicide

See: Early Development, Tuber Initiation, Tuber Bulking, Post 75-Days: Harvest

#### Leafhoppers (Insect)

What: The leafhopper damages crops through direct feeding on the sap. It is a piercing, sucking insect that causes injury referred to as "hopperburn."

*Why:* Primarily adults cause feeding injury to potato plants. They feed on the underside of leaflets. The result is a reduction in yield. No effect on tuber quality has been reported from leafhoppers.

Solve: Scout the fields; there are many leafhoppers that do not damage potatoes. A threshold for treatment has been established for leafhoppers as one nymph per 10 leaves.

*Bayer Products:* Admire® Pro Insecticide, Leverage® 360 Insecticide, Sivanto® Prime Insecticide

See: Seed Treatment/Pre-Plant, Planting, Tuber Initiation, Tuber Bulking

#### Mites (Arthropod)

See Twospotted spider mites.\*

16 crop residue.

## Glossary (cont.)

#### **Nematodes (Roundworm)**

What: Nematodes are a common problem for potato growers in the Pacific Northwest. These microscopic roundworms feed on plant roots and transmit diseases, causing a variety of symptoms.

Why: Potato nematodes like root-knot, root lesion and stubby-root can cause up to 90% yield loss, according to USDA APHIS research. Nematodes also cause blemishes or tuber abnormalities that affect the marketability of the crop.

Solve: Rotate crops, conduct soil sampling, rotate between different modes of action.

Bayer Products: Movento® HL Insecticide, Velum® Prime Nematicide/Fungicide, Velum® Rise Fungicide/Nematicide

See: Seed Treatment/Pre-Plant, Planting, Early Development, Tuber Initiation

#### **Psyllids (Insect)**

What: Zebra chip (ZC) is a destructive disease of potatoes in North America and other parts of the world. ZC is transmitted by the potato psyllid, which is the only known vector in potatoes.

Why: Though the defect is harmless to consumers, the flavor and color of the product is altered, making infected tubers unacceptable in both fresh and processing markets. In addition to reducing tuber quality, ZC can cause significant yield reduction.

Solve: Implement biological control, monitor fields.

Bayer Products: Admire® Pro Insecticide, Movento® HL Insecticide, Oberon® Insecticide, Sivanto® Prime Insecticide

See: Seed Treatment/Pre-Plant, Planting, Early Development, Tuber Initiation, Tuber Bulking

#### Pythium (Disease)

What: The fungus is strictly soil-borne, survives a long time and is found in most soils but especially in wet areas where it overwinters in debris.

Why: Infection commonly occurs at harvest through wounds or bruises during hot and/or wet harvest conditions. The disease decays tubers but is not transmitted between tubers in storage.

*Solve:* Avoid overwatering near harvest, allow tubers to mature completely before harvest, apply fungicide two and four weeks before harvest in areas where leaking is a problem.

Bayer Products: Minuet™ Biological Fungicide

See: Planting, Early Development

#### Seed and Soil-Borne Rhizoctonia (Disease)

What: Rhizoctonia solani is a fungus that is a common soil inhabitant and has a wide host range. Seed pieces can carry the fungus but soil-borne inoculum can be equally as damaging.

Why: Presence of sclerotia on the tubers decreases tuber quality, especially in seed potato production. Rhizoctonia potato disease can cause marketable yield losses up to 30%.

Solve: Implement cultural practices and biological/chemical control, plant in warm soil, apply a fungicide treatment.

Bayer Products: Emesto® Silver Seed-Treatment Fungicide, Minuet™ Biological Fungicide, Velum® Rise Fungicide/Nematicide

See: Seed Treatment/Pre-Plant, Planting, Early Development

#### Silver Scurf (Disease)

What: Caused by Helminthosporium solani, a fungus which is spread primarily by infected seed but can survive a short time on potato debris in soil.

Why: Some tubers initially become infected in the field, but the greatest damage occurs in storage. The longer the tubers spend in storage, the greater the damage.

Solve: Use seed that is relatively free from Silver scurf, apply chemical seed treatment, rotate crops.

Bayer Products: Emesto® Silver Seed-Treatment Fungicide

See: Seed Treatment/Pre-Plant

#### \*Twospotted Spider Mites (Arthropod)

What: Twospotted spider mites are tiny, spider-like animals that produce webs and are generally found on the undersides of leaves.

Why: Damage is often underestimated since the wounds and the pests are not apparent to our eyes without close inspection. Feeding can cause defoliation.

Solve: Rotate modes of action, scout the field, utilize chemical and cultural control.

Bayer Products: Movento® HL Insecticide, Oberon® Insecticide

See: Early Development, Tuber Initiation, Tuber Bulking

#### **Verticillium (Disease)**

What: Caused by the fungus Verticillium dahliae, which survives in soil or in infected plant parts.

Why: It infects potatoes through roots and invades the plant's water-conducting tissues, ultimately causing a wilt issue. This disease can greatly reduce yield from the onset of disease symptoms.

Solve: Sample the soil and scout the field, utilize nonfumigant treatment programs.

Bayer Products: Minuet™ Biological Fungicide, Velum® Prime Nematicide/Fungicide, Velum® Rise Fungicide/Nematicide

See: Seed Treatment/Pre-Plant, Planting, Early Development

#### White Mold (Disease)

What: Caused by a fungus, Sclerotinia sclerotiorum, that overwinters in soil as hard black sclerotia.

Why: Causes a rapidly spreading, cottony, white growth and might cause plant death. It also overwinters, potentially resulting in ongoing losses.

Solve: Implement proper irrigation management, rotate crops, implement cultural practices and/or chemical control.

Bayer Products: Luna® Pro Fungicide, Luna Tranquility® Fungicide, Serenade® ASO Biological Fungicide, Velum® Prime Nematicide/Fungicide, Velum® Rise Fungicide/Nematicide

See: Seed Treatment/Pre-Plant, Planting, Early Development, Tuber Initiation, Tuber Bulking, Post 75 Days: Harvest

#### Wireworms (Insect)

What: Wireworms are the larvae or immature stages of click beetles.

Why: Injury is most severe to seeds and seedlings and can result in stand loss. Root feeding causes wilting, stunting and distortion of seedlings that usually kills the plant.

Solve: Cultivate crops to bring pests to the surface so birds will eat, implement crop rotation and chemical control, utilize wireworm resistant varieties and wireworm traps.

Bayer Products: Admire® Pro Insecticide, Movento® HL Insecticide

See: Seed Treatment/Pre-Plant, Planting, Early Development, Tuber Initiation



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### **Worksheet: IPM Potato Program**

	Block/Field L	ocation:	Known Issues to Address:	Year/Season:						
	Date of App.	Product Name	Application Method	Method Pests/Diseases to Address Notes Use Ra						
							REI (Hours)	PHI (Days)		
ant										
Pre-Plant										
<u>a</u>										
nd										
ng a										
Planting and Emergence										
Сш										
Jev										
Early Dev										
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Initiation										
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Tuber Bulking										
er B										
Tub										
Harvest										
Ha										



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the newest member of the Force in the Field

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