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ADAMA

PRODUCT GUIDE

EASTERN CANADA | 2025

Listen ▸ Learn ▸ Deliver

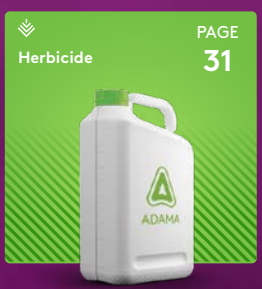
ADAMA.COM

ADAMA

WE ARE All In on you

ADAMA provides an extensive portfolio of crop protection products that give you the option to customize a solution that not only protects the crop but also your ROI.

Crop protection, built for you.



Want to view product solutions by crop? Check out our Crop Solutions section!

Learn More!
Scan this QR Code or visit:
AllinOnYou.ca

ADAMA

You asked, we listened...and we are delivering: **CHOICE**.

ADAMA has expanded our Eastern Canadian team and product offering to better serve our customers. With additional people, increased knowledge and expertise, and an expanded product line, you can trust ADAMA to deliver choice without compromise. From R&D to field reps and everyone in between, our dedicated team works hard to deliver improvements to formulations as well as new and unique products that protect not only the crop but the grower as well. This "field-up" approach provides quality choices on formulations that are effective, easier to use, and safe for you and your grower customers.

Eastern Canada's row crop and horticulture crops carry tremendous risk. You have told us that products that work consistently and that are easy and safe to use are key, and we are responding to those challenges by incorporating what we have learned from both retailers and growers into our portfolio offerings.

We are active in the field in all areas of Eastern Canada and are very excited to launch new products and formulations for the 2025 season, as well as many more solutions that are being screened for launch in the next five years.

ADAMA is committed to being a provider of **choice without compromise** for both retailers and growers.

Karin Younghans
Regional Sales Manager, Easterrn Canada
ADAMA Agricultural Solutions

MAKE THE SWITCH TO ADAMA!

Want to 'make the switch' to ADAMA? It's easy!

The chart below lists some of our leading products and the competitive product that they replace. For more information about each product as well as rates, tank-mix partners and other information, visit adama.com or contact your ADAMA sales rep.

PRODUCT COMPARISONS

FUNGICIDE

PRODUCT WITH ACTIVE	PRODUCT REPLACED
BUMPER® 432 EC Low VOC FORMULATION TECHNOLOGY PROPICONAZOLE	®Pivot 418 EC, Tilt® 250E
CAPTAN 480 SC NEW CAPTAN	Captan 48 SC
CUSTODIA® TEBUCONAZOLE & AZOXYSTROBIN	Unique to ADAMA
FOLPAN® 80 WDG FOLPET	Follow WDG
MAXENTIS® NEW POWERED BY Asorbital FORMULATION TECHNOLOGY AZOXYSTROBIN & PROTHIOCONAZOLE	Unique to ADAMA Similar to Delaro® Complete, Viatude™
ORIUS® 430 SC TEBUCONAZOLE	Folicur®
SORADUO™ POWERED BY Asorbital FORMULATION TECHNOLOGY PROTHIOCONAZOLE & TEBUCONAZOLE	Prosaro® XTR
SORATEL® POWERED BY Asorbital FORMULATION TECHNOLOGY PROTHIOCONAZOLE	Proline®
TOPNOTCH™ AZOXYSTROBIN & PROPICONAZOLE	Unique to ADAMA Similar to Quilt®
VANTANA™ NEW FLUAZINAM	Allegro® 500 F

INSECTICIDE

PRODUCT WITH ACTIVE	PRODUCT REPLACED
CORMORAN® NOVALURON & ACETAMIPRID	Unique to ADAMA Replaces Assail 70 WP, Delegate™, Rimon®, Vayego®
SILENCER® 120 EC LAMBDA-CYHALOTHRIN	Labamba Matador® 120 EC
ZIVATA® Low VOC FORMULATION TECHNOLOGY LAMBDA-CYHALOTHRIN	Labamba Matador® 120 EC

HERBICIDE

PRODUCT WITH ACTIVE	PRODUCT REPLACED
GRASSY WEEDS	
ARROW ALL IN® CLETHODIM	Advanced formulation compared to Select®, Statue™ and Clethodim 250
BISON® 400 L TRALKOXYDIM	Liquid Achieve™ SC Marengo®
LEOPARD® QUIZALOFOP-P-ETHYL	Assure® II Yuma®
BROADLEAF WEEDS	
2,4-D ESTER 700 2,4-D 2 EH ESTER	Other 2,4-D ester products
BADGE® BROMOXYNIL & MCPA ESTER	Buctril® M Mextrol®
BROMOTRIL® BROMOXYNIL	Brotex®, Koril® Pardner®
DAVAI® 80 SL IMAZAMOX	Unique to Eastern Canada
DAVAI® A PLUS NEW IMAZAMOX & CLETHODIM	Unique to Eastern Canada
DAVAI® Q PLUS NEW IMAZAMOX & QUIZALOFOP-P-ETHYL	Unique to Eastern Canada
ESTEEM ALL IN® NEW CLOPYRALID + MCPA ESTER + FLUROXYPYR	TruSlate® Pro
FORCEFIGHTER ALL IN™ NEW BROMOXYNIL + MCPA ESTER + FLUROXYPYR	Enforcer® M
GLUFOSINATE 150 SL GLUFOSINATE AMMONIUM	Other glufosinate products
MCPA ESTER 600 MCPA 2 EH ESTER	Other MCPA ester products
PHANTOM® 240 SL IMAZETHAPYR	Pursuit®
PYTHON® IMAZAMOX & BENTAZON	Unique to Eastern Canada
RUSH 24 ALL IN® NEW FLUROXYPYR & 2,4-D ESTER	OcTTain™ XL
SQUADRON® METRIBUZIN	Sencor® TriCor®
BURNDOWN: PRE-PLANT; PRE TO POST-HARVEST	
EMPHASIS® CARFENTRAZONE-ETHYL & BROMOXYNIL	Carfentrazone and bromoxynil
INVOLVE® 50 WDG TRIBENURON-METHYL	Express® SG
DESSICANT	
ARMORY® 240 DIQUAT	Reglone® Dessicash

“ADAMA R&D is focused on creating Value through Innovation. We invest over $2 M annually in Canadian product development, conducting nearly 300 trials at over 35 locations across Canada. Our research is conducted by third party contractors and academics, ensuring we generate the best unbiased data and product recommendations.

Rob Bahri
Product Manager

Formulation Mastery

ADAMA improves crop protection products based on your input to make them easier to use, more effective and more sustainable.

- Penetration-optimized ASORBITAL® Technology
  SORATEL®, SORADUO™ and MAXENTIS®
- Plant-based Low VOC Technology
  ZIVATA® and BUMPER® 432 EC
- High-Load Suspension Technology
  Canada is looking at this for the future.
- Enhanced Rainfast Technology
  Canada is looking at this for the future.

Crop protection, built for you.

See our formulation mastery at work by visiting AllinOnYou.ca

“Agriculture keeps evolving as we continue to work towards feeding more people with less land and resources. ADAMA works hard to deliver more choice and innovation through formulations that perform better for the plant and grower. It’s all about choice, and ADAMA is the right choice.

Karin Younghans
Regional Sales Manager

CROP SOLUTIONS

CROP SOLUTIONS

ADAMA PRODUCTS BY ACTIVE INGREDIENT

	ACTIVE INGREDIENT(S)	ADAMA PRODUCT NAME
HERBICIDE	2,4-D ester	ADAMA 2,4-D ESTER 700
	Bromoxynil	BROMOTRIL® 240 EC
	Bromoxynil & Carfentrazone	EMPHASIS®
	Bromoxynil & MCPA	BADGE®
	Bromoxynil & MCPA & Fluroxypyr	FORCEFIGHTER ALL IN™
	Clethodim	ARROW ALL IN®
	Diquat	ARMORY® 240
	Fluroxypyr & 2,4-D ester	RUSH 24 ALL IN®
	Fluroxypyr & Clopyralid & MCPA ester	ESTEEM ALL IN®
	Glufosinate	ADAMA GLUFOSINATE 150 SL
	Imazamox	DAVAI® 80 SL
	Imazamox & Bentazon	PYTHON®
	Imazamox & Clethodim	DAVAI® A PLUS
	Imazamox & Quizalofop	DAVAI® Q PLUS
	Imazethypyr	PHANTOM® 240 SL
	MCPA ester	ADAMA MCPA ESTER 600
	Metribuzin	SQUADRON®
	Quizalofop	LEOPARD®
	Tralkoxydim	BISON®
	Tribenuron	INVOLVE®
INSECTICIDE	Acetamiprid & Novaluron	CORMORAN®
	Lamba-cyhalothrin	SILENCER® 120 EC
	Lamba-cyhalothrin (LOW VOC)	ZIVATA®
FUNGICIDE	Azoxystrobin & Propiconazole	TOPNOTCH™
	Azoxystrobin & Tebuconazole	CUSTODIA®
	Captan	CAPTAN 480 SC
	Fluazinam	VANTANA™
	Folpet	FOLPAN® 80 WDG
	Propiconazole (LOW VOC)	BUMPER® 432 EC
	Prothioconazole	SORATEL®
	Prothioconazole & Azoxystrobin	MAXENTIS®
	Prothioconazole & Tebuconazole	SORADUO™
	Tebuconazole	ORIUS® 240 SC

SOYBEAN SOLUTIONS

	PRODUCT	ARMORY® 240	ARROW ALL IN®	DAVA!® 80 SL	DAVA!® A PLUS	DAVA!® Q PLUS	ADAMA GLUFOSINATE 150 SL*	INVOLVE® + Glyphosate**	LEOPARD®	PHANTOM® 240 SL	PYTHON®	SQUADRON®
WEED	Group	22	1	2	1 & 2	1 & 2	10	2	1	2	2 & 6	5
	Page	36	38	48	51	53	63	66	69	75	78	84
GRASSY WEEDS	Barnyard grass		●	●	●	●	●		●	●	●	●
	Crabgrass (large, smooth)		●		●					●		●
	Fall panicum		●		●	●			●			●
	Green foxtail		●	●[2]	●[2]	●[2]	●	●	●	●	●[2]	●
	Persian darnel		●	●	●	●		●			●	
	Proso millet		●		●	●			●	●		
	Quackgrass		●[1]		●[4]	●[4]	●		●[1]			
	Volunteer canary seed			●	●	●					●	
	Volunteer cereals (wheat, barley)		●	●	●	●	●	●	●		●	
	Volunteer corn		●		●	●			●			
	Wild oats		●	●[2]	●[2]	●[2]	●	●	●		●[2]	
	Witchgrass		●		●	●			●	●		●
	Yellow foxtail		●	●	●	●			●	●	●	●
BROADLEAF WEEDS	American nightshade											
	Canada fleabane							●[6]				
	Canada thistle						●	●[4]				
	Cleavers			●[4]	●[4]	●[4]	●				●[4]	
	Cocklebur									●		●
	Common ragweed							●		●		●
	Dandelion						●	●				●
	Eastern black nightshade									●		
	Kochia						●	●				
	Lady's thumb						●	●		●		●
	Lamb's quarters			●	●	●	●	●		●	●	●
	Narrow-leaved hawk's beard							●				
	Perennial sow thistle						●					
	Redroot pigweed			●	●	●	●	●		●[7]	●[7]	●
	Russian thistle						●					●
	Shepherd's purse			●	●	●	●				●	●
	Smartweed			●	●	●	●			●	●	●
	Stinkweed			●	●	●	●	●			●	●[9]
	Velvetleaf									●		●
	Volunteer canola			●[8]	●	●		●[5]			●[8]	
	Wild buckwheat			●[4]	●[4]	●[4]	●	●		●	●[4]	●[9]
	Wild mustard			●	●	●	●	●		●	●	●
	Desiccant	●										

⚠ Always read and follow pesticide label directions.

DISEASE	PRODUCT	BUMPER® 432 EC	CUSTODIA®	MAXENTIS®	SORATEL®	TOPNOTCH™	VANTANA™
	Group	3	3 & 11	3 & 11	3	3 & 11	29
	Page	111	122	129	136	141	144
Aerial web blight		•					
Anthracnose						•	
Asian soybean rust			•		•		
Frog-eye leaf spot		•	•		•		
Mycosphaerella blight						•	
Powdery mildew						•	
White mould				•		•[4]	•[4]

INSECT	PRODUCT	SILENCER® 120 EC	ZIVATA®
	Group	3	3
	Page	100	103
Bean aphid		•	•
Bean leaf beetle		•	•
Cutworms		•	•
Grasshopper		•	•
Lygus bugs		•	•
Pea aphid		•	•
Soybean aphids		•	•
Western bean cutworm		•	•

* In-crop on glufosinate-tolerant soybeans only

** Pre-plant application only

[1] Use highest rates for control

[2] Including Group 1-resistant biotypes; DAVAI®/PYTHON® A herbicide will not control weed biotypes that are multiple resistant to both Group 1 and Group 2 herbicides

[3] Including triazine-resistant biotypes

[4] Suppression

[5] Including glyphosate-resistant biotypes (Group 9)

[6] Excluding Group 9-resistant fleabane

[7] Excluding Group 2-resistant weeds

[8] Non-imidazolinone-tolerant varieties

[9] Post-emergent applications only

NOTE: Refer to the label for specific product information, full list of controlled pests and crop registrations and always read and follow the label.

WHEAT SOLUTIONS

	WEED	PRODUCT	2-4,D ESTER 700	BADGE®	BISON® 400 L	BROMOTRIL®	EMPHASIS® + Glyphosate*	ESTEEM ALL IN®	INVOLVE® + Glyphosate*	MCPA ESTER 600	FORCEFIGHTER ALL IN™	RUSH 24 ALL IN®
		Group	4	4 & 6	1	6	6&14	4	2	4	4&6	4
		Page	33	41	43	45	56	59	66	72	61	81
	Registered Crops		Registered in Spring Wheat									
			Registered in Winter Wheat									
	Green foxtail						●		●			
	Persian darnel						●		●			
	Wild oats				●		●		●			
BROADLEAF WEEDS	American nightshade			●		●	●				●[4]	
	Annual sow thistle		●				●	●		●		
	Burdock		●					●		●		●
	Canada fleabane						●[1]		●			
	Canada thistle		●[4]	●[4]			●	●	●[2]	●[6]	●[4]	
	Cleavers						●	●			●[7]	●
	Cocklebur		●	●		●	●	●		●	●[4]	●
	Common ragweed		●	●		●	●	●	●	●		●
	Corn spurry									●[8]		
	Dandelion		●				●	●	●	●		
	Field bindweed		●							●[8]		
	Horsetail		●[6]					●[4]		●		●[4]
	Kochia		●	●		●	●	●	●	●	●[3,7]	●[7]
	Lady's thumb		●[6]	●		●	●		●	●[6]	●	●
	Lamb's quarters		●	●		●	●	●	●	●	●	●
	Narrow-leaved hawk's beard		●				●		●			
	Perennial sow thistle		●	●[4]				●		●[6]	●[4]	●[2]
	Redroot pigweed		●	●			●	●	●	●	●	●[2]
	Russian thistle		●	●		●	●		●	●	●	
	Shepherd's purse		●	●			●	●		●[6]	●	●
	Smartweed		●[6]	●		●	●			●[6]	●	
	Stinkweed		●	●		●	●	●	●	●	●	●
	Volunteer canola		●[5]	●[5]			●	●	●[3]		●	●
	Wild buckwheat		●[6]	●		●	●	●	●		●	●
	Wild mustard		●	●		●	●	●	●	●	●[7]	●

DISEASE	PRODUCT	BUMPER® 432 EC	CUSTODIA®	ORIUS® 430 SC	SORADUO™	SORATEL®	TOPNOTCH™
Group		3	3 & 11	3	3	3	3 & 11
Page		111	122	131	134	136	141
Fusarium head blight				●[2]	●[2]	●[2]	
Glume blotch		●		●		●	
Leaf rust		●	●	●		●	●
Powdery mildew		●		●			
Septoria leaf blotch		●	●	●		●	●
Stem rust		●	●	●			
Stripe rust		●	●	●			●
Tan spot		●	●	●		●	●

INSECT	PRODUCT	SILENCER® 120 EC	ZIVATA®
Group		3	3
Page		100	103
Armyworm		●	●
Grasshopper		●	●

* Pre-plant only

[1] Excluding Group 9-resistant fleabane

[2] Suppression only

[3] Including glyphosate-resistant biotypes (group 9)

[4] Top growth control only

[5] All types

[6] Use highest rate listed for suppression

[7] Including ALS-resistant biotypes (Group 2)

NOTE: Refer to the label for specific product information, full list of controlled pests and crop registrations and always read and follow the label.

BARLEY SOLUTIONS

	WEED	PRODUCT	2-4,D ESTER 700	BADGE®	BISON® 400 L	BROMOTRIL®	EMPHASIS® + Glyphosate*	ESTEEM ALL IN®	FORCEFIGHTER ALL IN™	INVOLVE® + Glyphosate*	MCPA ESTER 600	RUSH 24 ALL IN®
		Group	4	4&6	1	6	6&14	4	4&6	2	4	4
		Page	33	41	43	45	56	59	61	66	72	81
GRASSES	Green foxtail						●			●		
	Persian darnel						●			●		
	Wild oats				●		●			●		
BROADLEAF WEEDS	American nightshade			●		●	●		●[4]			
	Annual sow thistle		●				●	●			●	
	Burdock		●					●			●	●
	Canada fleabane						●[1]			●		
	Canada thistle		●[4]	●[4]			●	●	●[4]	●[2]	●[6]	
	Cleavers						●	●	●[7]			●
	Cocklebur		●	●		●	●	●	●[4]		●	●
	Common ragweed		●	●		●	●	●		●	●	●
	Corn spurry										●[4]	
	Dandelion		●				●	●		●	●	
	Field bindweed		●								●[6]	
	Horsetail		●[6]					●[4]			●	●[4]
	Kochia		●	●		●	●	●[7]	●[3,7]	●	●	●[7]
	Lady's thumb		●[6]	●		●	●		●	●	●[6]	●
	Lamb's quarters		●	●		●	●	●	●	●	●	●
	Narrow-leaved hawk's beard		●				●			●		
	Perennial sow thistle		●	●[4]				●	●		●[6]	●[2]
	Redroot pigweed		●	●			●	●	●[4]	●	●	●[2]
	Russian thistle		●	●		●	●		●	●	●	
	Shepherd's purse		●	●			●	●	●		●[6]	●
	Smartweed		●[6]	●		●	●		●		●[6]	
	Stinkweed		●	●		●	●	●	●	●	●	●
	Volunteer canola		●[5]	●[5]			●	●	●	●[3]		●
	Wild buckwheat		●[6]	●		●	●	●	●	●		●
	Wild mustard		●	●		●	●	●	●[7]	●	●	●

* Pre-plant only

[1] Excluding Group 9-resistant fleabane

[2] Suppression

[3] Including glyphosate-resistant biotypes (Group 9)

[4] Top growth control only

[5] All types

[6] Use highest rate listed for suppression

[7] including ALS-resistant biotypes (Group 2)

NOTE: Refer to the label for specific product information, full list of controlled pests and crop registrations and always read and follow the label.

DISEASE	PRODUCT	BUMPER® 432 EC	CUSTODIA®	ORIUS® 430 SC	SORADUO™	SORATEL®	TOPNOTCH™
Group		3	3 & 11	3	3	3	3 & 11
Page		111	122	131	134	136	141
Fusarium head blight					•[1]	•[1]	
Leaf rust		•	•	•			•
Net blotch		•	•	•		•	•
Powdery mildew		•		•			
Scald		•		•		•	•
Septoria leaf blotch		•	•	•			•
Spot blotch		•	•	•		•	
Stem rust		•	•	•			
Stripe rust			•	•			•
Tan spot			•				•

[1] Suppression only

INSECT	PRODUCT	SILENCER® 120 EC	ZIVATA®
Group		3	3
Page		100	103
Armyworm		•	•
Grasshopper		•	•

OAT SOLUTIONS

	WEED	PRODUCT	ARMORY® 240	BADGE®	BROMOTRIL®	EMPHASIS® + Glyphosate*	ESTEEM ALL IN®	INVOLVE® + Glyphosate*	MCPA ESTER 600
		Group	22	4 & 6	6	6&14	4	2	4
		Page	36	41	45	56	59	66	72
GRASSES	Green foxtail					●		●	
	Persian darnel					●		●	
	Wild oats					●		●	
BROADLEAF WEEDS	American nightshade			●	●	●			
	Annual sow thistle					●	●		●
	Burdock						●		●[7]
	Canada fleabane					●[1]		●	
	Canada thistle			●[4]		●	●	●[2]	●[6]
	Cleavers					●	●		
	Cocklebur			●	●	●	●		●
	Common ragweed			●	●	●	●	●	●
	Corn spurry		●						●[6]
	Dandelion					●	●	●	●
	Field bindweed								●[6]
	Horsetail						●[4]		●[4]
	Kochia			●	●	●	●	●	●[7]
	Lady's thumb			●	●	●		●	●[6]
	Lamb's quarters			●	●	●	●	●	●
	Narrow-leaved hawk's beard					●		●	
	Perennial sow thistle			●[4]			●		●[6]
	Redroot pigweed			●		●	●	●	●
	Russian thistle			●	●	●		●	●
	Shepherd's purse			●		●	●		●[6]
	Smartweed			●	●	●			●[6]
	Stinkweed			●	●	●	●	●	●
	Volunteer canola			●[5]		●	●	●[3]	
	Wild buckwheat			●	●	●	●		
	Wild mustard			●	●	●	●	●	●

⚠ Always read and follow pesticide label directions.

DISEASE	PRODUCT	BUMPER® 432 EC	CUSTODIA®	ORIUS® 430 SC	SORATEL®	TOPNOTCH™
	Group	3	3 & 11	3	3	3 & 11
	Page	111	122	131	136	141
Net blotch						•
Crown rust		•	•	•	•	•
Septoria leaf blotch		•	•			•
Stem rust			•	•		

INSECT	PRODUCT	SILENCER® 120 EC	ZIVATA®
	Group	3	3
	Page	100	103
Armyworm		•	•
Grasshopper		•	•

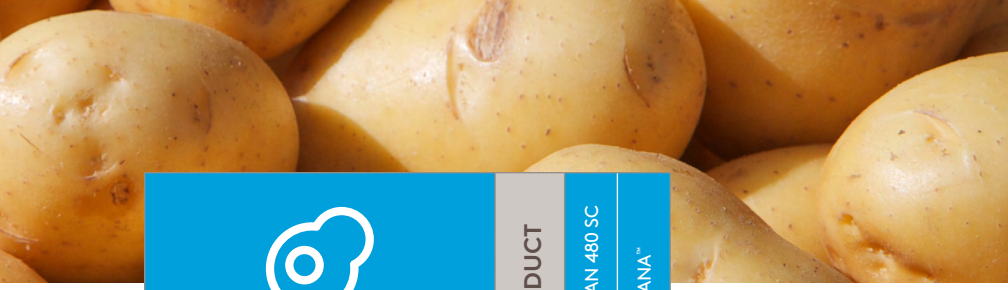
* Pre-plant only
[1] Excluding Group 9-resistant fleabane
[2] Suppression
[3] Including glyphosate-resistant biotypes (Group 9)
[4] Top growth control only
[5] All types
[6] Use highest rate listed
[7] Including ALS-resistant biotypes (Group 2)

NOTE: Refer to the label for specific product information, full list of controlled pests and crop registrations and always read and follow the label.

POTATO SOLUTIONS

	WEED	PRODUCT	ARMORY® 240	ARROW ALL IN®	SQUADRON®
		Group	22	1	5
		Page	36	38	84
GRASSY WEEDS	Barnyard grass			●	●
	Crabgrass (smooth and large)			●	●
	Fall panicum			●	●
	Green foxtail			●	●
	Persian darnel			●	
	Proso millet			●	
	Quackgrass			●[1]	
	Volunteer canary grass			●	
	Volunteer cereals (wheat, barley, oats)			●	
	Volunteer corn			●	
	Wild oats			●	
	Witchgrass			●	●
	Yellow foxtail			●	●
BROADLEAF WEEDS	Cocklebur				●
	Common ragweed				●
	Corn spurry				●[2]
	Dandelion				●
	Lady's thumb				●
	Lamb's quarters				●
	Redroot pigweed				●
	Russian thistle				●
	Shepherd's purse				●
	Smartweed				●
	Stinkweed				●[3]
	Wild buckwheat				●[3]
	Wild mustard				●
DESICCANT	Potato vine		●		

⚠ Always read and follow pesticide label directions.



DISEASE	PRODUCT	CAPTAN 480 SC	VANTANA™
	Group	M4	29
	Page	114	144
Early blight		•	
Late blight		•	•
White mould			•

INSECT	PRODUCT	CORMORAN®	SILENCER® 120 EC	ZIVATA®
	Group	4&15	3	3
	Page	93	100	103
Aphids		•		
Armyworm		•	•	•
Cabbage looper		•		
Colorado potato beetle		•	•	•
European corn borer		•	•	•
Leafhopper		•	•	•
Potato flea beetle			•	•
Tarnished plant bug			•	•
Tuber flea beetle			•	•

[1] Use highest rate listed for control
[2] Suppression with multiple post-emergence applications of 80 g/ac
[3] Post-emergence only

NOTE: Refer to the label for specific product information, full list of controlled pests and crop registrations and always read and follow the label.

APPLE SOLUTIONS

	WEED	PRODUCT	ARMORY® 240	SQUADRON®
		Group	22	5
		Page	36	84
GRASSY WEEDS	Suppression of perennial grasses under apple trees		•	
	Barnyard grass			•
	Fall panicum			•
	Green foxtail			•
	Witchgrass			•
	Yellow foxtail			•
BROADLEAF WEEDS	Cocklebur			•
	Common ragweed			•
	Corn spurry			•[1]
	Dandelion			•
	Lady's thumb			•
	Lamb's quarters			•
	Redroot pigweed			•
	Russian thistle			•
	Shepherd's purse			•
	Smartweed			•
	Stinkweed			•[2]
	Wild buckwheat			•[2]
	Wild mustard			•

DISEASE	PRODUCT	CAPTAN 480 SC	FOLPAN® 80 WDG	VANTANA™
	Group	M4	M4	29
	Page	114	125	144
Alternaria leaf spot			•	
Bitter rot		•		
Black Rot		•	•	•[3]
Brooks spot		•	•	•[3]
Bull's eye rot		•		
Cedar apple rust				•
Fly speck		•	•	
Quince rust				•[3]
Scab		•	•	
Sooty blotch		•	•	

⚠ Always read and follow pesticide label directions.

INSECT	PRODUCT	CORMORAN®	SILENCER® 120 EC	ZIVATA®
	Group	4&15	3	3
	Page	93	100	103
Aphids		•	•	•
Apple brown bug			•	•
Apple leaf midge			•	•
Apple maggot		•		
Codling moth		•	•	•
Dogwood borer		•		
European apple sawfly		•		
Fruit tree leafroller			•	•
Green fruitworm		•		
Gypsy moth		•		
Japanese beetle		•		
Leaf hopper		•		
Lesser appleworm		•		
Mullein bug		•		
Oblique-banded leafroller			•	•
Oriental fruit moth		•		
Pale apple leafroller			•	•
Plum curculio		•	•	•
Spotted tentiform leafminer			•	•
Tarnished plant bug		•	•	•
Tentiform leafminer		•		
White apple leafhopper			•	•
Winter moth			•	•
Woolly apple aphid			•	•

[1] Suppression with multiple post-emergence applications of 80 g/ac
[2] Post-emergence only
[3] Suppression

NOTE: Refer to the label for specific product information, full list of controlled pests and crop registrations and always read and follow the label.

BLUEBERRY SOLUTIONS

	WEED	PRODUCT	ARROW ALL IN®	INVOLVE® 50 WDG	SQUADRON®
		Group	1	2	5
		Page	38	66	84
LOWBUSH	Bracken fern			●[3]	
LOWBUSH	Bunchberry			●[3,4]	
LOWBUSH	Speckled alder			●[3]	
LOWBUSH	Wild rose			●[3]	
LOWBUSH	Yellow loosestrife			●[3]	
HIGHBUSH	Annual broadleaf weeds				●[2]
HIGHBUSH	Barnyard grass		●		
HIGHBUSH	Crabgrass (smooth and large)		●		
HIGHBUSH	Green foxtail		●		
HIGHBUSH	Fall panicum		●		
HIGHBUSH	Persian darnel		●		
HIGHBUSH	Proso millet		●		
HIGHBUSH	Quackgrass		●[1]		
HIGHBUSH	Volunteer cereals (wheat, barley, oats)		●		
HIGHBUSH	Witchgrass		●		
HIGHBUSH	Yellow foxtail		●		

[1] Use highest rate listed for control

[2] Newly planted

[3] Sprout year only

[4] Post-harvest. Make only one application per crop cycle (2 or 3 years).

[5] Suppression

[6] Registered for lowbush blueberries only

NOTE: Refer to the label for specific product information, full list of controlled pests and crop registrations and always read and follow the label.

DISEASE	PRODUCT	BUMPER® 432 EC	CAPTAN 480 SC	MAXENTIS®	SORATEL®	VANTANA™
	Group	3	M4	3&11	3	29
	Page	111	114	129	136	144
Fruit anthracnose						•[5]
Fruit rot			•		•[6]	
Leaf rust				•[5,6]	•[5]	
Mummy berry		•	•		•	•[5]
Phomopsis fruit rots						•[5]
Septoria leaf spot					•[5]	
Valdensinia leaf spot					•[6]	•[6]

INSECT	PRODUCT	CORMORAN®
	Group	4&15
	Page	93
Aphids		•
Blueberry gall midge		•
Blueberry flea beetle		•
Blueberry maggot fly		•
Blueberry spanworm		•
Cherry fruitworm		•
Cranberry fruitworm		•
Japanese beetle		•
Spotted wing drosophila		•
Strawberry rootworm		•
Thrips		•

CORN SOLUTIONS

WEED	PRODUCT	2-4,D ESTER 700	BADGE®	BROMOTRIL®
	Group	5	4 & 6	6
	Page	33	41	45
American nightshade			●	●
Annual sow thistle		●		
Burdock		●		
Canada thistle		●[1]	●[1]	
Cocklebur		●	●	●
Common ragweed		●	●	●
Field bindweed		●		
Horsetail		●[3]		
Kochia		●	●	●
Lady's thumb		●[3]	●	●
Lamb's quarters		●	●	●
Narrow-leaved hawk's beard		●		
Perennial sow thistle		●	●[1]	
Redroot pigweed		●	●	
Russian thistle		●	●	●
Shepherd's purse		●	●	
Smartweed		●[3]	●	●
Stinkweed		●	●	●
Volunteer canola		●[2]	●[2]	
Wild buckwheat		●[3]	●	●
Wild mustard		●	●	●

NOTE: Refer to the label for specific product information, full list of controlled pests and crop registrations and always read and follow the label.

[1] Top-growth control only

[2] All types

[3] Use highest rate listed for suppression

DISEASE	PRODUCT	BUMPER® 432 EC	SORATEL®
Group		3	3
Page		111	136
Eye spot		•	•
Gibberella ear rot			•[4]
Grey leaf spot		•	•
Helminthosporium leaf spot		•	
Northern corn leaf blight		•	•
Rusts		•	•
Southern corn leaf blight		•	

* Suppression

INSECT	PRODUCT	CORMORAN®	SILCERCER® 120 EC	ZIVATA®
Group		4&15	3	3
Page		93	100	103
Aphids		•[5]		
Corn earworm			•	•
Cutworms			•	•
European corn borer			•	•
Fall army worm			•	•

[5] CORMORAN® is registered on sweet corn only.

VEGETABLE SOLUTIONS

	WEED	PRODUCT	ARMORY® 240	ARROW ALL IN®	BROMOTRIL®	LEOPARD®	PHANTOM® 240 SL	SQUADRON®
		Group	22	1	6	1	2	5
		Page	36	38	45	69	75	84
DESICCANT	Weeds in stale seedbeds		•					
	Weeds in vegetables (inter-row directed)		•					
GRASSY WEEDS	Barnyard grass			•		•	•	•
	Crabgrass			•			•	•
	Fall panicum			•		•		•
	Green foxtail			•		•	•	•
	Persian darnel			•				
	Proso millet			•		•	•	
	Quackgrass			•[1]		•[1]		
	Volunteer cereals			•		•		
	Volunteer corn			•		•		
	Volunteer canary grass			•				
	Wild oats			•		•		
	Witchgrass			•		•		•
	Yellow foxtail			•		•	•	•
BROADLEAF WEEDS	American nightshade				•			
	Cocklebur				•		•	•
	Common ragweed				•		•	
	Kochia				•			
	Lady's thumb				•		•	•
	Lamb's quarters				•		•	•
	Redroot pigweed						•	•
	Russian thistle				•			•
	Shepherd's purse							•
	Smartweed				•		•	
	Stinkweed				•			•[2]
	Wild buckwheat				•		•	•[2]
	Wild mustard				•		•	•

⚠ Always read and follow pesticide label directions.

CROP	DISEASE	PRODUCT	BUMPER® 432 EC	CAPTAN 480 SC	FOLPAN® 80 WDG	VANTANA™
		Group	3	M4	M4	29
		Page	111	114	125	144
Asparagus	Rust		•			
Bulb onion (Crop sub-group 3- 07A)[3]	Botrytis leaf blight					•
	Purple blotch					•
Rutabagas	Powdery mildew		•			
Cucumbers (field only)	Anthracnose			•	•	
	Scab			•		
	Downy mildew				•	
Tomatoes	Anthracnose			•	•	
	Septoria leaf spot			•		
Ginseng	Alternaria blight					•
	Botrytis blight					•
	Cylindracarpon root rot			•[4]		
	Damping-off			•		
	Grey mould			•		
	Pythium root rot			•		
	Phytophthora root rot			•		
	Rhizoctonia root rot			•		•
Soil and greenhouse bench treatments	Damping-off			•		
	Fungus root rot diseases of seedlings			•		
Melons, Pumpkins, Squash	Anthracnose				•	
	Downy mildew				•	
Head and Stem Brassica (Crop sub-group 5A) [3]	Clubroot					•
Leafy Brassica Greens (Crop sub-group 5B) [3]	Clubroot					•

NOTE: Refer to the label for specific product information, full list of controlled pests and crop registrations and always read and follow the label.

[1] Use highest rates for control

[2] Use highest rate for suppression

[3] For the complete list of crops within the Crop sub-group, refer to label or the PMRA website.

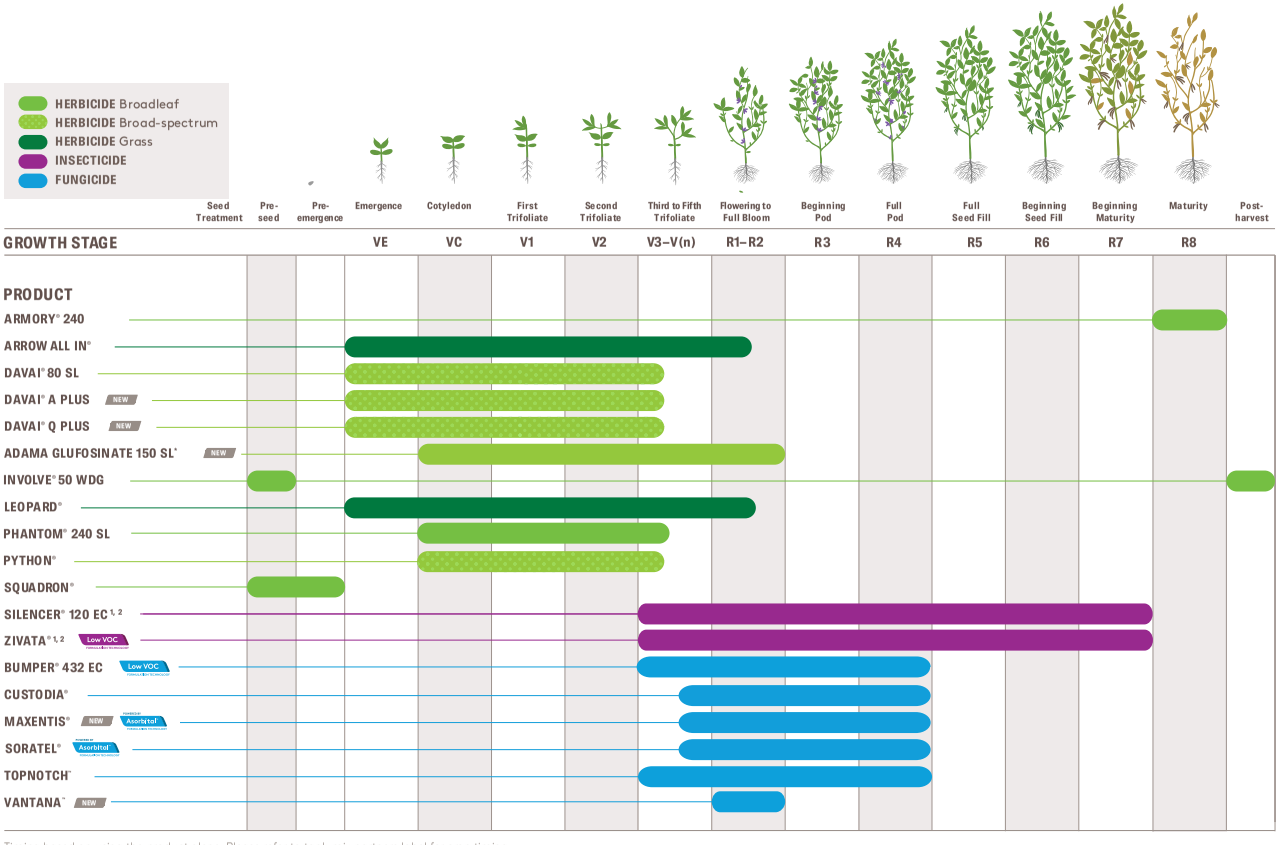
[4] Suppression only

VEGETABLE SOLUTIONS (CONT'D)

INSECT	PRODUCT	CORMORAN®	SILENCER® 120 EC	ZIVATA®
	Group	4 & 15	3	3
	Page	93	100	103
Alfalfa looper		•		
Aphid		•		
Armyworm		•		
Cabbage looper		•	•	•
Cabbage seedpod weevil			•	•
Colorado potato beetle		•	•	•
Cutworms			•	•
Diamondback moth		•	•	•
European corn borer		•	•	•
Flea beetle			•	•
Grasshopper			•	•
Imported cabbageworm		•	•	•
Leaf hopper		•	•	•
Lygus bug		•	•	•
Potato flea beetle			•	•
Potato leaf hopper			•	•
Swede midge		•	•	•
Tarnished plant bug		•	•	•
Tentiform leaf miner			•	•

NOTE: Refer to the label for specific product information and crop registrations and always read and follow the label.

GROWTH STAGE CHARTS & PRODUCT TIMING
SOYBEANS



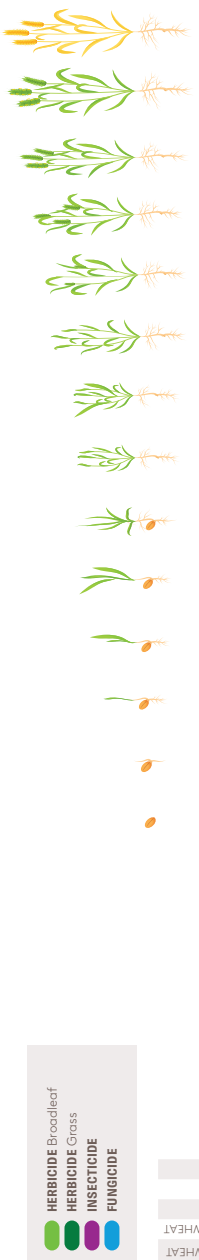
Timing based on using the product alone. Please refer to tank-mix partners label for crop timing.

[1] Dependent of Pre-harvest Interval (PHI)

[2] DO NOT cut treated fields for silage/forage. DO NOT graze treated fields. DO NOT feed treated crops to livestock. For grasses/nongrasses grown for seed production only, DO NOT feed seed screenings and aftermath to livestock.

*For use on glufosinate-ammonium-tolerant soybeans

GROWTH STAGE CHARTS & PRODUCT TIMING
CEREALS

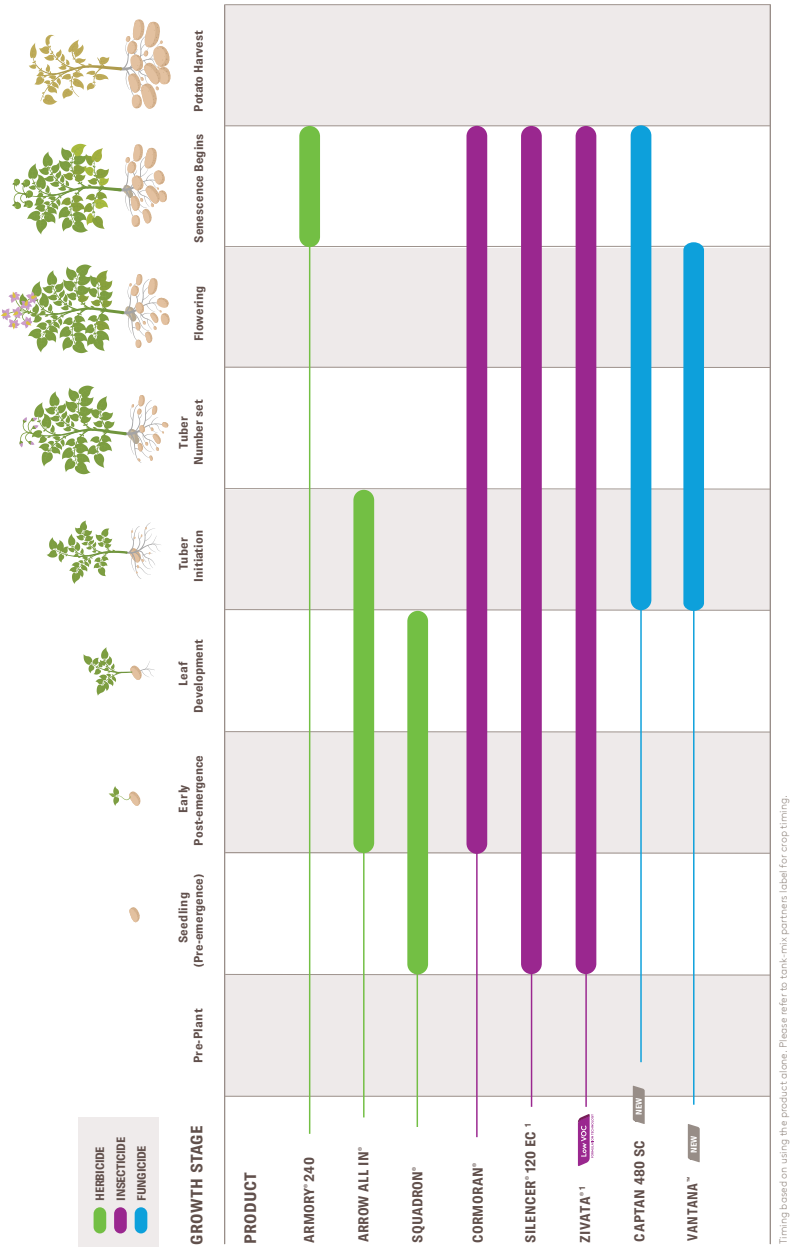


Timing based on using the product alone. Please refer to tank-mix partner labels for crop timing.

[1] Dependent of Pre-harvest Interval (PHI)

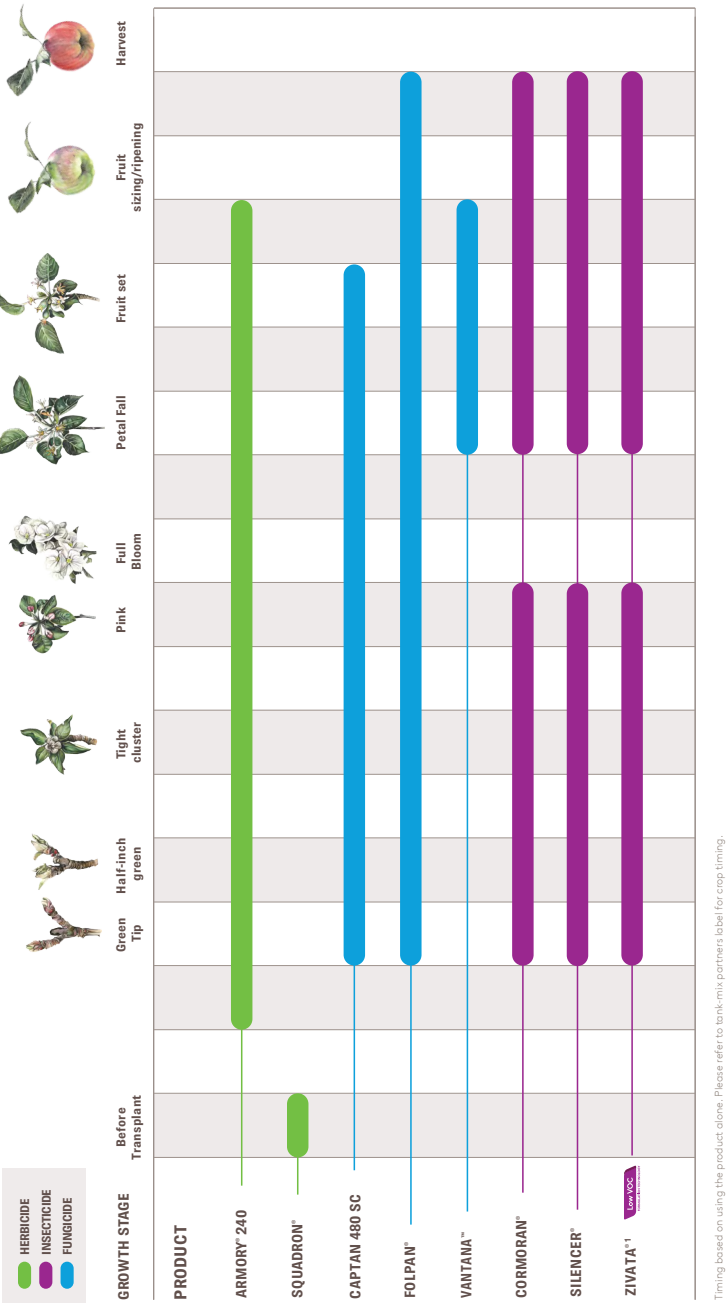
[2] DO NOT cut treated fields for silage/forage. DO NOT graze treated fields. DO NOT feed treated crops to livestock. For grasses/nongrasses grown for seed production only. DO NOT feed seed screenings and aftermath to livestock.

GROWTH STAGE CHARTS & PRODUCT TIMING
POTATOES



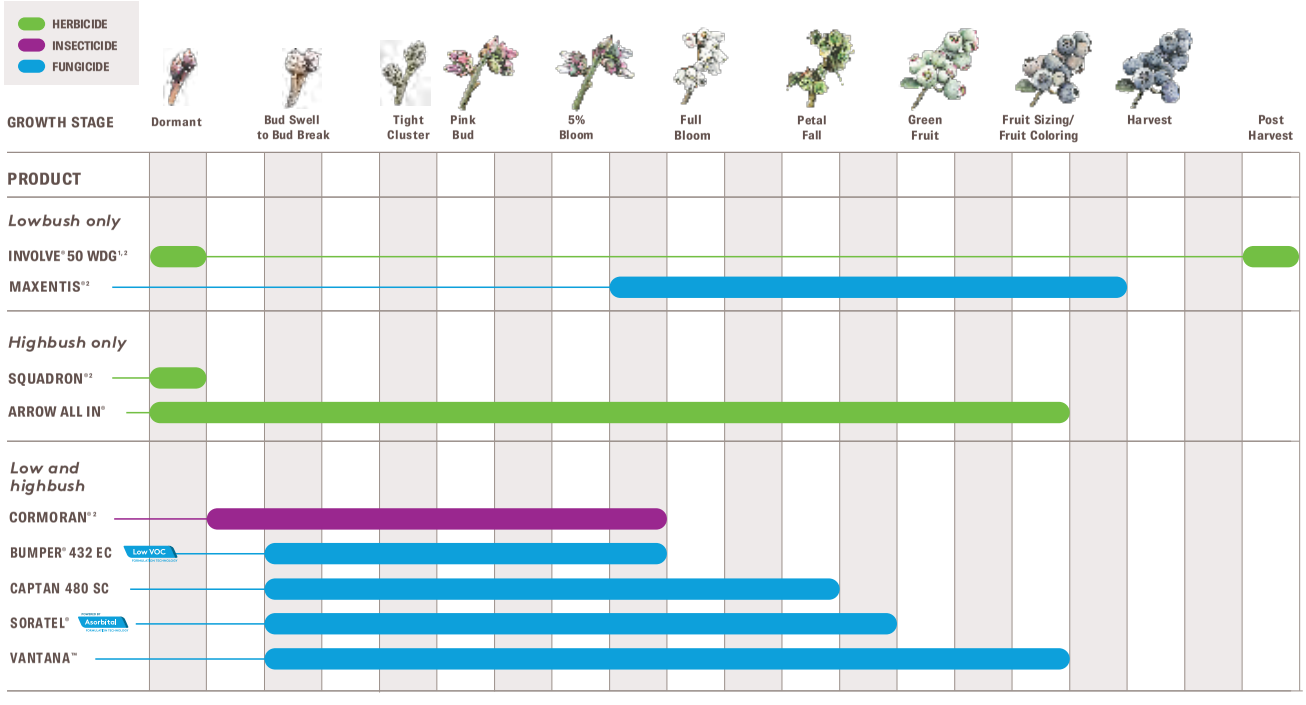
Timing based on using the product alone. Please refer to tank-mix partners label for crop timing.
Dependent of Pre-harvest Interval (PHI). DO NOT cut treated fields for silage/forage. DO NOT graze treated fields. DO NOT feed treated crops to livestock.
For grasses/rising grasses grown for seed production only). DO NOT feed seed screenings and aftermath to livestock.

GROWTH STAGE CHARTS & PRODUCT TIMING
APPLES



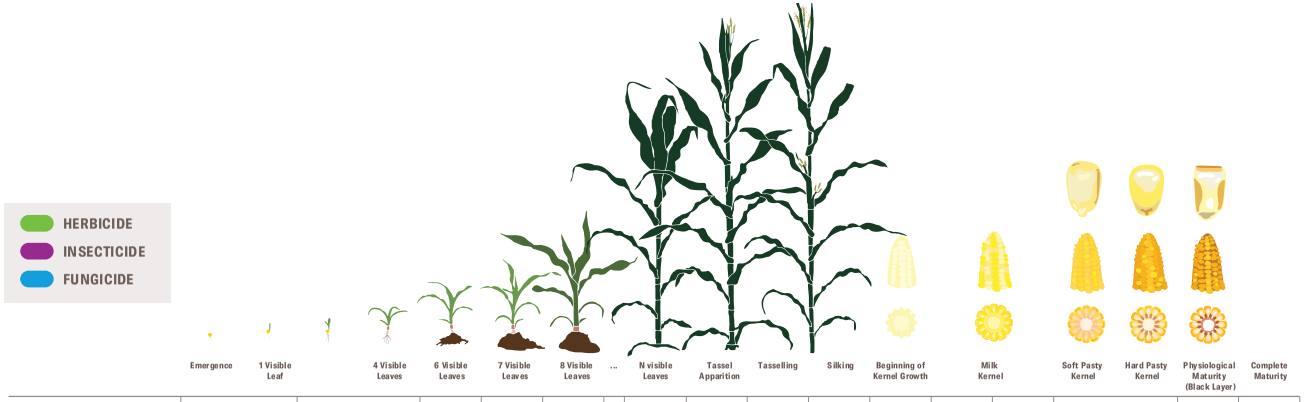
Timing based on using the product alone. Please refer to tank-mix partners label for crop timing.
[1]Dependent of Pre-harvest Interval (PHI). DO NOT cut treated fields for silage/forage. DO NOT graze treated fields. DO NOT feed treated crops to livestock.
For grasses/nongrasses grown for seed production only. DO NOT feed seed screenings and aftermath to livestock.

GROWTH STAGE CHARTS & PRODUCT TIMING
BLUEBERRIES



Timing based on using the product alone. Please refer to tank-mix partners label for crop timing.
[1] Early spring
[2] Spring application in sprout year only
[3] Newly planted

GROWTH STAGE CHARTS & PRODUCT TIMING
CORN



GROWTH STAGE	VE	V1	V3	V4	V5	...	VN		VT	R1	R2	R3	R4	R5	R6	
PRODUCT																
2,4-D ESTER 700		■														
BADGE®		■														
BROMOTRIL®[1]		■	■	■	■		■									
CORMORAN®[1]							■	■	■	■						
SILENCER® 120 EC[3,4]					■		■	■	■	■	■	■	■	■	■	
ZIVATA®[3,4] Low VOC					■		■	■	■	■	■	■	■	■	■	
BUMPER® 432 EC Low VOC					■		■	■	■	■	■	■				
SORATEL® Powered by Aloribital								■	■	■	■					

Timing based on using the product alone. Please refer to tank-mix partner labels for crop timing.

[1] Drop nozzles required once the corn is past the 8-leaf stage.
[2] Sweet corn only
[3] Dependent on PHI (Pre-harvest Interval)
[4] DO NOT cut treated fields for silage/forage. DO NOT graze treated fields. DO NOT feed treated crops to livestock. For grasses/nongrasses grown for seed production only, DO NOT feed seed screenings and aftermath to livestock.

“I think a big difference with ADAMA is that, in addition to improving efficacy, we also look at how we can make our products better for the user. Save farmers time, keep them safe and just keep ‘em rolling.

Drew Thompson
Technical Sales
Agronomist

HERBICIDES

WEED CONTROL

For new products that were not registered prior to the printing of this guide, please scan the QR code above to learn more details throughout the season.

HERBICIDES

HERBICIDE
PRE-PLANT, IN-CROP & POST-HARVEST · BROADLEAF

GROUP 4

2,4-D ESTER 700

Provides reliable post-emergent control of broadleaf weeds and great tank-mix flexibility in wheat, barley, rye, and corn.

ACTIVE INGREDIENT

2,4-D Ester 660 g/L = EC

PACKAGING

Case: 2 x 10 L jugs
Tote: 1000 L

APPLICATION RATES & ACRES TREATED

Rate: 200–600 ml/ac
Acres Treated:
- 17–50 ac/jug
- 1665–5000 ac/tote

WATER VOLUME

Ground: 20–60 L/ac (5–15 US gal/ac)
Aerial: Minimum 12 L/ac (3 US gal/ac)

RAINFASTNESS

2 hours

REGISTERED CROPS

- Barley
- Field corn
- Rye (spring, fall)
- Wheat (spring, winter)

WEEDS CONTROLLED

Susceptible weeds	Rate
Annual sow-thistle[1], Bluebur, Burdock[1], Cocklebur, Daisy fleabane, False flax, False ragweed, Flixweed, Giant ragweed, Goat's-beard, Kochia, Lamb's quarters, Mustards (except Dog and Tansy), Narrow-leaved hawk's-beard (in fall, and at the 1- to 2-leaf stage in spring), Plantain, Prickly lettuce, Ragweed, Redroot pigweed, Russian pigweed, Russian thistle, Shepherd's purse, Stinging nettle, Stinkweed, Sweet clover (seedling), Thyme-leaved spurge, Volunteer canola, Wild radish, Wild (prairie) sunflower	Small seedlings (2- to 4-leaf), growing rapidly, good growing conditions: 202–324 ml/ac (0.5–0.8 L/ha) Large weeds, dry or cold weather, heavy infestations: 324 ml/ac (0.8 L/ha)
Harder-to-control weeds	**Rate**
Curled dock[1], Dog mustard, Field peppergrass, Flixweed (if treated before bolting in spring), Groundsel, Hairy galinsoga, Hawkweed, Heal-all, Knotweed[1], Narrow-leaved hawk's-beard (if treated before bolting in spring), Oak-leaved goosefoot, Pineapple weed, Prostrate pigweed, Purslane, Sheep sorrel, Tansy mustard, Tumble pigweed, Velvetleaf, Volunteer canola (all types, 4- to 6-leaf)	Small seedlings (2- to 4-leaf), growing rapidly, good growing conditions: 364–526 ml/ac (0.9–1.3 L/ha) Large weeds, dry or cold weather, heavy infestations: 526 ml/ac (1.3 L/ha)

[1] All types

2,4-D ESTER 700

WEEDS CONTROLLED (CONT'D)

Very-Hard-to-Control Weeds	Rate
Biennial wormwood, Blue lettuce, Bull thistle, Burdock, Buttercup, Canada thistle, Chicory, Curled dock, Dandelion, Field bindweed, Field chickweed[2], Field horsetail[2], Gumweed, Hedge bindweed, Hemp-nettle[2] (if treated before the 4-leaf stage), Hoary cress, Lady's thumb[2], Leafy spurge, Mouse-eared chickweed[2], Perennial sow thistle, Russian knapweed, Scentless mayweed,Smartweed[2], Tartary buckwheat, Teasel, Volunteer sunflower, Wild buckwheat[2], Yellow rocket[1]	**Top growth only control to be expected.** Small seedlings (2- to 4-leaf), growing rapidly, good growing conditions: 445–526 ml/ac (1.1–1.3 L/ha) Large weeds, dry or cold weather, heavy infestations: 526 ml/ac (1.3 L/ha)

[1] 1- to 3-leaf stage

[2] Use highest listed rate for suppression.

CROP STAGING

Crop	Timing	Rate
Barley, Rye, Wheat (spring, winter)	Pre-plant or pre-emergent	200–500 ml/ac
Barley, Rye, Wheat (spring, winter)	4-leaf to flag leaf	Up to 500 ml/ac
Winter wheat, Fall rye	Pre-plant or pre-emergent	200–500 ml/ac
Winter wheat, Fall rye	In spring, from full tillering to shot blade stage. Do not apply during and after flag leaf stage. Do not apply to seedling cereals in fall.	Up to 300 ml/ac
Field corn	Before the 6-leaf stage. Application at later stages will damage corn. If applying at later stage, use a shielded spray, keep spray off corn foliage. Do not apply within 2 weeks of silking and tasseling.	
Established grasses for forage and seed production	In spring, up to shot blade of grasses or in fall after harvest. Application during flower or pollination development will reduce seed yield.	Seed production: Up to 300 ml/ac Hay and pasture crops: Up to 600 ml/ac

HERBICIDE

2,4-D ESTER 700

REGISTERED AND SUPPORTED TANK MIXES†

Herbicides:

- BISON® 400 L
- BROMOTRIL®
- Glyphosate
- INVOLVE® 50 WDG

Fungicide:

- BUMPER® 432 EC

† Refer to page 155 for PMRA tank-mixing directives.

MIXING INSTRUCTIONS

1. Fill sprayer tank ½ full of water.
2. Start sprayer tank agitation.
3. Add the required amount of 2,4-D ESTER 700 into the sprayer.
4. Agitate until the herbicide is thoroughly mixed.
5. Continue agitation while adding any required adjuvants or surfactants for tank-mix partners.
6. Complete filling the tank with water as agitation continues.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

CROP ROTATIONS

No restrictions

PRE-HARVEST INTERVAL

90 days

RE-ENTRY INTERVAL

N/A

GRAZING RESTRICTIONS

30 days

STORAGE

May be stored at any temperature.
Shake well before using.

QUICK TIPS:

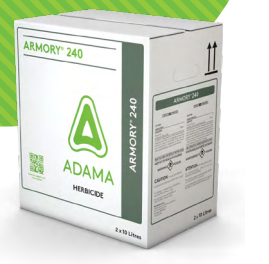
Avoid spray drift to any off-target vegetation. Coarse sprays are less likely to drift. Do not spray during periods of high winds.

HERBICIDE
PRE-HARVEST · HARVEST AID

GROUP 22

ARMORY® 240

Provides fast drydown of crops, protecting yield and grade, and reducing disease transmission late in the season.



ACTIVE INGREDIENT

Diquat 240 g/L = SL

PACKAGING

Case: 2 x 10 L jugs
Bulk: 5 x 120 L drums
Tote: 450 L
Tote Max: 1000 L

APPLICATION RATES & ACRES TREATED

Ground: 360–1860 ml/ac
Aerial: 690–1090 ml/ac
Acres Treated
- 7–28 ac/jug
- 83–333 ac/drum
- 320–1250 ac/tote
- 700–2775 ac/tote max

Potatoes:
- Ground: 510–1420 ml/ac
- Aerial: 690–930 ml/ac

Vegetables:
- Ground: 930–1860 ml/ac
- Aerial: Do not apply by air.

Beans, canola, chickpeas, lentils, field peas, sunflowers:
- Ground: 500–690 ml/ac
- Aerial: 690–930 ml/ac

Legumes:
- Ground: 690–1090 ml/ac
- Aerial: 690–1090 ml/ac

Oats:
Ground: 360–510 ml/ac
Aerial: Do not apply by air.

WATER VOLUME

Ground: 90–200 L/ac (24–53 US gal/ac)
Aerial: Minimum 18 L/ac (5 US gal/ac)

RAINFASTNESS

30 minutes

REGISTERED CROPS

This is only a partial list of crops registered for use with ARMORY® 240. For the full list, please refer to the ARMORY® 240 label.

- Alfalfa
- Beans (white and red kidney, adzuki)
- Birdsfoot trefoil
- Canola
- Chickpeas
- Lentils
- Peas (field and dry)
- Potatoes
- Red and white clover
- Soybeans
- Sunflowers

HERBICIDE

ARMORY® 240

OTHER USES AND WEEDS CONTROLLED

- Potato vines
- Corn spurry in oats
- Desiccation for beans, and legume forage seed crops
- Weeds in stale seedbeds (vegetables and field crops)
- Weeds in vegetables (inter-row directed)
- Suppression of perennial grasses under apple trees

HOW IT WORKS

ARMORY® 240 works on contact to disrupt plant cells and is rainfast in 30 minutes, leading to more rapid drydown of plants and weeds when compared to systemic herbicides. Harvesting can typically begin within 4–10 days, depending on crop and weather conditions.

REGISTERED AND SUPPORTED TANK MIXES†

- Agral® 90, LI 700, Liberate® and other non-ionic surfactants
- Carfentrazone

† Refer to page 155 for PMRA tank-mixing directives.

MIXING INSTRUCTIONS

1. Fill sprayer tank ¾ full with water.
2. Add the required amount of ARMORY® 240 into the sprayer
3. Agitate until the herbicide is thoroughly mixed.
4. Continue agitation while adding the required amount of registered surfactant at the recommended rate.
5. Complete filling the tank with water as agitation continues.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

ADJUVANT RATE

- LI 700® @ 0.25% v/v
- Non-ionic surfactant (NIS) @ 0.10% v/v

RE-ENTRY INTERVAL

24 hours

GRAZING RESTRICTIONS

Crop waste remaining after harvest may be used as a feed supplement for livestock.

STORAGE

Do not freeze.

QUICK TIPS:

Best results under cloudy conditions or in the evening. Suggested conditions for aerial applications are a temperature below 25°C, humidity above 50% and wind speed below 9 km/hr at flying height.

HERBICIDE
IN-CROP · GRASS

GROUP 1

ARROW ALL IN®

Grassy weed control, including volunteer corn, for soybeans and a variety of specialty crops with the convenience of a built-in surfactant

ACTIVE INGREDIENT

Clethodim 120 g/L = EC

PACKAGING

Case: 2 x 6 L jugs
Drum: 96 L
Tote: 450 L

APPLICATION RATES & ACRES TREATED

Rate: 100–300 ml/ac
Acres Treated:

- 20–60 ac/jug
- 320-960 ac/drum
- 1500–4500 ac/tote

WATER VOLUME

Ground: 40 L/ac (10 US gal/ac)
Aerial: Do not apply by air.

RAINFASTNESS

1 hour

REGISTERED CROPS

- Alfalfa, seedling
- Beans, dry (pinto, black, great northern, red, pink, navy)
- Canola
- Carnations
- Chickpeas (desi, kabuli)
- Coriander
- Cranberries
- Fenugreek
- Field peas
- Highbush blueberries
- Lentils
- Onions, dry
- Potatoes
- Soybeans
- Spinach
- Sunflowers

WEEDS CONTROLLED

Grassy Weeds	Leaf Stage	Application Rate
Foxtail (green, yellow), Wild oats, Volunteer cereals (wheat, barley, oats)	2–4	100 ml/ac*
Barnyard grass, Fall panicum, Proso millet, Volunteer corn, Volunteer canarygrass, Witchgrass	2–6	
Crabgrass (smooth, large), Foxtail (green, yellow), Persian darnel, Volunteer cereals (wheat, barley, oats), Wild oats Quackgrass (suppression)		150 ml/ac
Quackgrass (control)		300 ml/ac

*ARROW ALL IN® applied at 100 ml/ac for the control of weeds listed in this section of the table should only be applied under the following conditions: good crop stand, early application (prior to tillering), light to moderate weed infestation, adequate moisture and fertility, absence of stress, good growing conditions. Do not apply to volunteer winter cereals. If any one of the above is not present at the time of application, apply the 150 ml/ac rate of ARROW ALL IN®.

⚠ Always read and follow pesticide label directions.

HERBICIDE

ARROW ALL IN®

HOW IT WORKS

The active ingredient is translocated from the treated foliage to the growing points of the leaves, shoots and roots. Leaf foliage will first change from green to yellowish, then purplish and finally brown. Newest leaf of affected plant pulls out easily in 3–5 days. Time required for complete control is normally 7–21 days following treatment, depending on growing conditions and crop competition.

CROP STAGING

- Most crops are tolerant at all stages, so target applications at the optimal weed stage.
- Always adhere to the pre-harvest interval for each crop.

REGISTERED AND SUPPORTED TANK MIXES†

- Glyphosate-tolerant soybeans: glyphosate
- Soybeans, edible beans: DAVAI® 80 SL
- Canola: Lontrel™ XC or Muster®
- Clearfield® canola only: PHANTOM® 240 SL
- LibertyLink® canola only: ADAMA glufosinate 150 SL
- Field peas: DAVAI®80 SL, PHANTOM® 240 SL

† Refer to page 155 for PMRA tank-mixing directives.

MIXING INSTRUCTIONS

1. Fill clean tank ½ full with water and agitation on.
2. Add the required amount of tank-mix partner.
3. Add ARROW ALL IN® and agitate.
4. OPTIONAL: For use of ARROW ALL IN® alone (not in a tank mixture), add the correct amount of adjuvant.
5. Complete filling the tank with water as agitation continues.
6. Agitate thoroughly after prolonged pauses.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

[1] When mixing with glufosinate, first add ARROW ALL IN®, followed by glufosinate.

PRE-HARVEST INTERVALS

- Highbush blueberries, Spinach: 14 days
- Alfalfa (seedling), Cranberries, Fenugreek: 30 days
- Onions, dry: 45 days
- Canola, Chickpeas (desi, kabuli), Coriander, Dry beans (pinto, black, great northern, red, pink, navy), Lentils, Potatoes: 60 days
- Sunflowers: 72 days
- Field peas, Soybeans: 75 days

ARROW ALL IN®

ADJUVANT RATE

An optional additional adjuvant may be used under circumstances of heavy weed pressure or when environmental conditions (e.g., drought) are not ideal for weed control.

- 30% phosphate ester surfactant @ 0.5% v/v
- Methylated Seed Oil (MSO) @ 0.5% v/v
- Non-ionic surfactant (NIS) @ 0.25% v/v

CROP ROTATIONS

No restrictions

GRAZING RESTRICTIONS

Do not cut treated crops for feed or graze until 60 days after application.

STORAGE

Do not freeze.

RE-ENTRY INTERVAL

12 hours

QUICK TIPS:

Most effective control is achieved when application is made prior to tillering when annual grasses are small and actively growing.

HERBICIDE
IN-CROP · BROADLEAF

GROUPS 4 & 6

BADGE®

Get proven control of almost 30 broadleaf weeds in cereals and corn with easy-to-use tank-mix options for one-shot weed control.

ACTIVE INGREDIENT

Bromoxynil 225 g/L and MCPA 2 EH Ester 600 225 g/L = EC

PACKAGING

Case: 2 x 10 L jugs

APPLICATION RATES & ACRES TREATED

Rate: 500 ml/ac
Acres Treated: 20 ac/jug

WATER VOLUME

Ground:
- Cereals: 20–40 L/ac (5–10 US gal/ac)
- Corn: 80–120 L/ac (20–30 US gal/ac)
- Forages: 60 L/ac (15 US gal/ac)

Aerial: 8–20 L/ac (2–5 US gal/ac)

RAINFASTNESS

1 hour

REGISTERED CROPS

- Barley
- Corn
- Fall rye
- Oats
- Wheat (spring, winter)

WEEDS CONTROLLED

- American nightshade
- Ball mustard
- Bluebur
- Canada thistle [1]
- Cocklebur
- Common buckwheat
- Common groundsel
- Common ragweed
- Cow cockle [2]
- Flixweed
- Green smartweed
- Kochia [3]
- Lady's thumb
- Lamb's quarters
- Night-flowering catchfly
- Pale smartweed
- Perennial sow thistle [1]
- Redroot pigweed
- Russian thistle [3]
- Scentless chamomile [4]
- Shepherd's purse
- Stinkweed
- Tartary buckwheat
- Velvetleaf [5]
- Volunteer canola (all types)
- Volunteer sunflower
- Wild buckwheat
- Wild mustard
- Wild tomato
- Wormseed mustard

[1] Top growth control
[2] Up to 4-leaf stage
[3] When sprayed before plants are 2 inches high
[4] Spring annual only
[5] When sprayed before plants are 3 inches high

HERBICIDE

BADGE®

HOW IT WORKS

A combination of systemic and contact activity with weeds yellowing within 2–4 days and exhibiting abnormal growth (twisting and cupping of leaves) in 2–10 days.

CROP STAGING

Crop	Timing
Barley, Oats, Spring wheat	2-leaf to early flag
Corn	4- to 6-leaf
Fall rye	When growth commences in spring to early flag leaf
Timothy (established for seed production)	Prior to shot blade in the seed production year
Winter wheat (includes underseeded with red clover)	2- to 4-leaf stage in the fall or after growth resumes up to early flag leaf

REGISTERED AND SUPPORTED TANK MIXES†

- **Corn:** atrazine
- **Oats:** MCPA ESTER 600
- **Spring wheat and barley:** Avenge®, MCPA ESTER 600, Refine Extra®, BISON® 400 L
- **Winter wheat:** MCPA ESTER 600, Refine Extra®

† Refer to page 155 for PMRA tank-mixing directives.

MIXING INSTRUCTIONS

1. Fill sprayer tank ½ full of water.
2. Start sprayer tank agitation.
3. Add the required amount of BADGE®.
4. If necessary, add any required adjuvants or surfactants for tank-mix partners.
5. Complete filling the tank with water as agitation continues.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

CROP ROTATIONS

No re-cropping restrictions the year after treatment

PRE-HARVEST INTERVAL

30 days for feed. Refer to tank-mix partner label.

RE-ENTRY INTERVAL

24 hours

STORAGE

Do not freeze.

GRAZING RESTRICTIONS

Do not graze treated grain or established timothy crops or cut for feed within 30 days of application.

QUICK TIPS:

BADGE® herbicide is well known for being gentle on the crop. Avoid spraying if temperatures are above 25°C.

HERBICIDE
IN-CROP · BROADLEAF

GROUP 1

BISON® 400 L

Get a wide window of application and excellent control of annual grasses in cereals and seedling forage grasses grown for seed.

ACTIVE INGREDIENT

Tralkoxydim 400 g/L = SC

PACKAGING

One case includes:
· 1 x 8 L jug of BISON® 400 L
· 1 x 8 L jug of Addit® adjuvant

APPLICATION RATES & ACRES TREATED

Rate: 200 ml/ac
Acres Treated: 40 ac/case

WATER VOLUME

Ground: 20–40 L/ac (5–10 US gal/ac)
Aerial: 12–18 L/ac (3–5 US gal/ac)

RAINFASTNESS

1 hour

REGISTERED CROPS

Field crops:
· Barley
· Rye (spring, winter)
· Triticale
· Wheat (spring, winter)

Cereal crops underseeded to forage legumes:
· Alfalfa
· Birdsfoot trefoil
· Clovers
· Sainfoin

WEEDS CONTROLLED

Weed	Leaf Stage
Wild oats	1–6

HOW IT WORKS

A systemic post-emergent herbicide that translocates the active ingredient to the growing point. Yellowing of the growing point in 1–3 weeks. The newest leaf pulls out easily in 3–5 days.

CROP STAGING

Generally there are no restrictions. Always read the label for tank-mixing instructions and additional restrictions.

HERBICIDE

BISON® 400 L

REGISTERED AND SUPPORTED TANK MIXES†

Do not apply any broadleaf herbicide tank mixes to underseeded forage legumes.

Herbicides:

- 2,4-D ESTER 700
- Attain®
- BADGE®
- BROMOTRIL®
- Bromoxynil + 2,4-D ESTER 700
- Dichlorprop + 2,4-D ESTER 700
- ESTEEM ALL IN®
- FORCEFIGHTER ALL IN™
- Infinity®
- Lontrel™ XC
- MCPA ESTER 600
- Pixxaro™
- Prominex™
- RUSH 24 ALL IN®
- Trophy®

Insecticides:

- Decis®
- SILENCER® 120 EC
- ZIVATA®

Fungicides:

- BUMPER®432 EC

† Refer to page 155 for PMRA tank-mixing directives.

MIXING INSTRUCTIONS

1. Begin to fill spray tank or pre-mix tank with clean water, and engage agitator.
2. Agitation must be continued throughout the entire mixing and spraying procedure.
3. When the spray tank or pre-mix tank is ¾ full of water, add BISON® 400 L. If more than one(1) case of BISON® 400 L is to be used, add the BISON® 400 L from all cases prior to adding tank-mixed products or Addit® adjuvant.
4. Add Addit® adjuvant.
5. Complete filling the tank with water as agitation continues.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

ADJUVANT RATE

Addit® adjuvant @ 0.5% v/v

CROP ROTATIONS

Do not replant treated areas to tame oats or corn for at least 4 weeks after application.

PRE-HARVEST INTERVAL

60 days

RE-ENTRY INTERVAL

12 hours

GRAZING RESTRICTIONS

- Immature cereal crops may be grazed or cut for hay 16 days after treatment.
- Mature straw may be fed to livestock.
- Do not feed or graze underseeded forage crops in the year of treatment.

STORAGE

- Shake well before use.
- Do not freeze.

QUICK TIPS:

For optimal crop safety, spray in warm weather with moist soil. Avoid stressful growing conditions, and avoid applying within 2–3 days of temperatures at 4°C or below.

HERBICIDE
PRE-PLANT & IN-CROP · BROADLEAF

GROUP 6

BROMOTRIL®

Tough broadleaf weed control with tank-mix flexibility and excellent crop safety.

ACTIVE INGREDIENT

Bromoxynil Octanoate Ester 240 g/L = EC

PACKAGING

Case: 2 x 9.7 L jugs

APPLICATION RATES & ACRES TREATED

Pre-Plant:
- **Rate:** 490 ml/ac
- **Acres Treated:** 20 ac/jug

In-Crop Broadleaf:
- **Rate:** 490–570 ml/ac
- **Acres Treated:** 17–20 ac/jug

WATER VOLUME

Ground: 20–80 L/ac (5–20 US gal/ac)
Aerial (in-crop only):
- 8–16 L/ac (3–5 US gal/ac)
- Wheat and barley only
- Do not apply pre-plant

RAINFASTNESS

30 minutes

REGISTERED CROPS

Crop	Timing
Barley, Canola, Oats, Wheat	Pre-plant burn-off with glyphosate

Crop	Crop Stage
Alfalfa (seedling)	2–6 trifoliate
Alfalfa (established for seed production only)	**Spring:** before the crop begins to shield the weeds
Barley, Oats, Triticale, Wheat (spring)	2-leaf to early flag
Winter wheat	**Fall:** 2- to 4-leaf **Spring:** first growth to early flag
Corn (field, sweet)	4- to 8-leaf (beyond 8-leaf requires drop pipes)
Fall rye	Spring: from first growth to early flag
Forage millet, Sorghum	4-leaf to 8 inches

BROMOTRIL®

WEEDS CONTROLLED

Seedling up to 4-leaf stage:

- American nightshade
- Bluebur
- Cocklebur
- Common ragweed
- Cow cockle[1]
- Green smartweed
- Kochia[2]
- Lady's thumb
- Pale smartweed
- Pigweed[1]
- Russian thistle[2]
- Stinkweed[1]
- Velvetleaf[3]
- Wild mustard[1]

Seedling up to 8-leaf stage:

- Common buckwheat
- Common groundsel
- Lamb's quarters
- Tartary buckwheat
- Wild buckwheat

[1] In normal conditions, it will be controlled up to 4-leaf stage. Plants beyond this stage are unlikely to be controlled; the higher rate generally gives better results.

[2] Spray before plants are 2 inches high.

[3] Spray before plants are 3 inches high.

HOW IT WORKS

BROMOTRIL® is a contact herbicide which controls Group 2- and Group 9 resistant biotypes. Leaves will yellow in 2–4 days with complete control in 7–14 days.

REGISTERED AND SUPPORTED TANK MIXES†

Post-emergent herbicides:

- Barley, wheat (spring, winter): 2,4-D ESTER 700, MCPA ESTER 600, BISON® 400, Liquid Achieve™ SC
- Oats, fall rye: MCPA ESTER 600
- Corn: Accent® 75 DF , atrazine, Banvel® (dicamba), Banvel® II

Pre-plant herbicide:

- Glyphosate

Fungicide:

- BUMPER® 432 EC

† Refer to page 155 for PMRA tank-mixing directives.

MIXING INSTRUCTIONS

1. Fill sprayer tank ½ full of water.
2. Start sprayer tank agitation.
3. Add the required amount of BROMOTRIL®.
4. If necessary, add any required adjuvants or surfactants for tank-mix partners.
5. Complete filling the tank with water as agitation continues.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

HERBICIDE

BROMOTRIL®

CROP ROTATIONS

No crop rotation restrictions

PRE-HARVEST INTERVAL

30 days

RE-ENTRY INTERVAL

24 hours

GRAZING RESTRICTIONS

- Do not use treated crops for grazing of livestock or green feed until 30 days after application.
- Do not cut treated crops for forage until 30 days after application.

STORAGE

Do not freeze.

QUICK TIPS:

Avoid spraying if temperatures are above 25°C. Leaf scorching may occur in corn if applied during or after adverse growing conditions, such as cool and wet or hot (above 27°C) and humid weather. For best results, spray when weeds are in the seedling stage.

HERBICIDES
IN-CROP · BROAD-SPECTRUM

GROUP 2

DAVAI® 80 SL

Broadleaf and grassy weed control in a convenient package that allows for flexible tank-mix options in soybeans, dry beans and field peas.

ACTIVE INGREDIENTS

Imazamox 80 g/L = SL

PACKAGING

Case: 2 × 8 L jugs

APPLICATION RATE & ACRES TREATED

Rate: 100 ml/ac
Acres treated: 80 ac/jug

WATER VOLUME

Ground: 40 L/ac (10 US gal/ac)
Aerial: Do not apply by air.

RAINFASTNESS

3 hours

REGISTERED CROPS

- Dry Beans
- Field Peas
- Soybeans

WEEDS CONTROLLED AND APPLICATION TIMING

Unless otherwise noted below, apply to young and actively growing weeds.

BROADLEAF WEEDS

Cotyledon–4 leaf:

- Cleavers [1]
- Cow cockle
- Flixweed
- Green smartweed
- Lamb's quarters
- Redroot pigweed
- Shepherd's purse
- Stinkweed
- Stork's bill
- Volunteer canola*
- Wild buckwheat [1]
- Wild mustard

GRASSY WEEDS

1- to 4-true leaf:

- Barnyard grass
- Green foxtail [2]
- Japanese bromegrass [1]
- Persian darnel
- Volunteer cereals (barley,oats,wheat)
- Volunteer canary seed
- Wild oats [2]
- Yellow foxtail

[1] Suppression only

[2] Including Group 1-resistant weeds. DAVAI® 80 SL will NOT control weed biotypes that are multiple-resistant to both Group-1 and Group-2 herbicides.

* Non imidazolinone-tolerant varieties

⚠ Always read and follow pesticide label directions.

HERBICIDE

DAVAI® 80 SL

HOW IT WORKS

DAVAI® 80 SL is readily absorbed through both leaf and root uptake, and it is translocated in the plant to inhibit amino acid production and cell division. Plant growth is inhibited, and a few days after application, chlorosis and terminal bud injury become evident. Leaves and stems become yellow and purple, and root growth may be inhibited. Crop competition is quickly reduced, although complete plant death is relatively slow.

CROP STAGING

- Dry beans, Soybeans: Emergence to 3-expanded trifoliate leaves
- Field peas: 1 to 6 true-leaf stage

REGISTERED AND SUPPORTED TANK MIXES†

- ARROW® 240 EC
- ARROW ALL IN®
- Basagran® Forté
- Broadloom®
- LEOPARD®
- PHANTOM® 240 SL

† Refer to page 155 for PMRA tank-mixing directives.

MIXING INSTRUCTIONS

1. Fill sprayer tank ½ full of water.
2. Start sprayer tank agitation.
3. Add the required amount of DAVAI® 80 SL.
4. Add any required adjuvants or surfactants for tank-mix partners.
5. Complete filling tank with water as agitation continues.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

ADJUVANT RATE

- Methylated Seed Oil (MSO) such as Merge®, NORAC MSO, Hasten NT Ultra® @ 0.50% v/v
- ADAMA Adjuvant 80, Agral® 90, Sentry™ @ 0.25% v/v

CROP ROTATIONS

- Barley
- Canola
- Canary Seed
- Corn
- Field Peas
- Imidazolinone-tolerant sunflowers
- Oats
- Soybeans
- Wheat (spring)

HERBICIDE

DAVAI® 80 SL

PRE-HARVEST INTERVALS

- Field peas: 60 days
- Dry beans: 75 days
- Soybeans: 85 days

RE-ENTRY INTERVAL

12 hours

GRAZING RESTRICTIONS

- Field peas: 30 days
- All other treated crops: Do not graze.

STORAGE

Do not freeze.

RECROPPING RESTRICTIONS

There are several factors that affect the recropping following an imidazolinone application. If you are planning to use DAVAI® 80 SL, DAVAI® A PLUS, DAVAI® Q PLUS or PYTHON®, please consult the recropping restrictions and guidelines on page 88.

QUICK TIPS:

Cool weather conditions or drought will delay herbicidal activity and if prolonged, may result in poor weed control. Use of DAVAI® 80 SL herbicide in hot, humid weather may result in temporary leaf yellowing, leaf flecking, bronzing or burning. The crop usually outgrows this condition within 10 days. When weeds are stressed due to drought, flooding, hot or prolonged cool temperatures (15° C or less), control can be reduced or delayed since weeds are not actively growing. Weeds escapes or regrowth may occur under prolonged stress conditions or low fertility. Do not make applications to weeds stressed longer than 20 days due to lack of moisture, as unsatisfactory control can result.

HERBICIDE
IN-CROP · BROADLEAF

NEW

GROUPS 1 & 2

DAVAI® A PLUS

DAVAI® 80 SL, is conveniently packaged with ARROW ALL IN® to offer broad-spectrum control in dry beans, peas and soybeans.

ACTIVE INGREDIENTS

Imazamox 80 g/L = SL
Clethodim 120 g/L = EC

PACKAGING

Co-pack includes:
- 1 x 4 L jug of DAVAI® 80 SL
- 1 x 6 L jug of ARROW ALL IN®

APPLICATION RATE & ACRES TREATED

Rate:
- DAVAI® 80 SL: 100 ml/ac
- ARROW ALL IN®: 150 ml/ac

Acres Treated: 40 ac/case

WATER VOLUME

Ground: 40 L/ac (10 US gal/ac)
Aerial: Do not apply by air.

RAINFASTNESS

3 hours

REGISTERED CROPS

- Dry beans
- Field peas
- Soybeans

WEEDS CONTROLLED AND APPLICATION TIMING

BROADLEAF WEEDS

Cotyledon–4 leaf:

- Cleavers [1]
- Cow cockle
- Flixweed
- Green smartweed
- Lamb's quarters
- Redroot pigweed
- Shepherd's purse
- Stinkweed
- Stork's bill
- Volunteer canola*
- Wild buckwheat[1]
- Wild mustard

GRASSY WEEDS

1–6 true leaf:

- Barnyard grass
- Crabgrass (smooth, large)[3]
- Fall panicum
- Green foxtail[2]
- Japanese brome grass[1]
- Persian darnel
- Proso millet
- Quackgrass[1]
- Volunteer canary grass
- Volunteer canary seed[4]
- Volunteer cereals (barley, oats, wheat)
- Volunteer corn[3]
- Wild oats[2]
- Witchgrass
- Yellow foxtail

[1] Suppression

[2] Including Group 1-resistant weeds. DAVAI® A PLUS will NOT control weed biotypes that are multiple-resistant to both Group 1 and Group 2 herbicides.

[3] 2- to 6-leaf

[4] 1- to 4-leaf

*Non imidazolinone-tolerant varieties

DAVAI® A PLUS

HOW IT WORKS

DAVAI® A PLUS combines two (2) actives to tackle broadleaf and grassy weeds. See DAVAI® 80 SL and ARROW ALL IN® for more information.

CROP STAGING

- Dry beans, Soybeans: Emergence to 3 expanded trifoliate leaves
- Field peas: 1–6 true leaf

REGISTERED AND SUPPORTED TANK MIXES†

None registered

† Refer to page 155 for PMRA tank-mixing directives.

MIXING INSTRUCTIONS

1. Fill clean tank ½ to ¾ full of clean water and turn agitation on.
2. Start sprayer tank agitation.
3. Add the required amount of DAVAI® 80 SL herbicide and continue to agitate.
4. Add the required amount of ARROW ALL IN® herbicide and continue to agitate.
5. If necessary, add any required adjuvants or surfactants for tank-mix partners.
6. Complete filling the tank with water as agitation continues.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

ADJUVANT RATE

No adjuvant required

CROP ROTATIONS

(Can be seeded the following year)

- Barley
- Canary seed
- Canola
- Corn
- Field peas
- Oats
- Soybeans
- Imidazolinone-tolerant sunflowers
- Wheat (spring)

RECROPPING RESTRICTIONS

There are several factors that affect the recropping following an imidazolinone application. If you are planning to use DAVAI® 80 SL, DAVAI® A PLUS, DAVAI® Q PLUS or PYTHON®, please consult the recropping restrictions and guidelines on page 88.

PRE-HARVEST INTERVALS

- Field peas: 60 days
- Dry beans: 75 days
- Soybeans: 85 days

RE-ENTRY INTERVAL

12 hours

GRAZING RESTRICTIONS

- **Field peas:** 30 days
- **All other crops:** Do not graze.

STORAGE

Do not freeze.

QUICK TIPS:

For best results, apply DAVAI® A PLUS to actively growing weeds. If the plants are under environmental stress, expect to see temporary yellowing or burning on the leaves.

NEW

HERBICIDE
IN-CROP · BROADLEAF

GROUPS 1 & 2

DAVAI® Q PLUS

Two modes of action that offer control of tough clumping grasses, like barnyard grass and volunteer corn, proven control of broadleaf weeds and rotational freedom.

ACTIVE INGREDIENTS

Imazamox 80 g/L = SL
Quizalofop-P-ethyl 100 g/L = EC

PACKAGING

Co-pack includes:

- 1 x 4 L jug of DAVAI® 80 SL
- 1 x 7.8 L jug of ADAMA Quizalofop
- 1 x 8 L jug of ADAMA MSO Adjuvant

APPLICATION RATE & ACRES TREATED

Rates:

- DAVAI® 80 SL: 100 ml/ac
- ADAMA Quizalofop 195 ml/ac
- ADAMA MSO Adjuvant: 0.5% v/v

Acres treated: 40 ac/co-pack

WATER VOLUME

- **Ground:** 40 L/ac (10 US gal/ac)
- **Aerial:** Do not apply by air.

RAINFASTNESS

3 hours

REGISTERED CROPS

- Dry beans
- Field peas
- Soybeans

WEEDS CONTROLLED AND APPLICATION TIMING

Unless otherwise noted below, apply to young and actively growing weeds.

BROADLEAF WEEDS

Cotyledon–4 leaf:

- Cleavers (suppression)
- Cow cockle
- Flixweed
- Green smartweed
- Lamb's quarters
- Redroot pigweed
- Shepherd's purse
- Stinkweed
- Stork's bill
- Volunteer canola*
- Wild buckwheat (suppression)
- Wild mustard

* Non imidazolinone-tolerant varieties

DAVAI® Q PLUS

WEEDS CONTROLLED AND APPLICATION TIMING (CONT'D)

GRASSY WEEDS

1- to 4-leaf:
- Persian darnel
- Volunteer canary grass
- Volunteer canary seed

1- to 5-leaf to early tillering:
- Wild oats [1,2]

2- to 4-leaf + 3 tillers:
- Foxtail barley

2-leaf to early tillering:
- Barnyard grass
- Fall panicum
- Green foxtail[1]
- Proso millet

2- to 5-leaf:
- Downy brome
- Japanese brome grass

2- to 6-leaf:
- Quackgrass (suppression)
- Volunteer corn
- Volunteer barley, oats[2], wheat
- Witchgrass
- Yellow foxtail

[1] Including Group 1-resistant weeds. DAVAI® Q PLUS will NOT control weed biotypes that are multiple-resistant to both Group-1 and Group-2 herbicides.

[2] Best results on volunteer/wild oats if application is made before tillering begins.

HOW IT WORKS

DAVAI® Q PLUS combines two actives to tackle broadleaf and grassy weeds. See the labels for DAVAI® 80 SL and ADAMA Quizalofop for more information.

CROP STAGING

- Dry Beans, Soybeans: Emergence to 3-expanded trifoliate leaves
- Field Peas: 1 to 6 true-leaf stage

REGISTERED AND SUPPORTED TANK MIXES†

None registered

† Refer to page 155 for PMRA tank-mixing directives.

MIXING INSTRUCTIONS

1. Fill clean tank ½ to ¾ full of clean water and turn agitation on.
2. Start sprayer tank agitation.
3. Add required amount of DAVAI® 80 SL herbicide and continue agitating.
4. Add the required amount of ADAMA Quizalofop herbicide and continue to agitate.
5. Add ADAMA MSO Adjuvant while agitating.
6. Complete filling the tank with water as agitation continues.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

HERBICIDE

DAVAI® Q PLUS

ADJUVANT RATE

ADAMA MSO Adjuvant @ 0.5% v/v

CROP ROTATIONS

- Barley
- Canary Seed
- Canola
- Corn
- Field Peas
- Oats
- Soybeans
- Imidazolinone-tolerant sunflowers
- Soybeans
- Wheat (spring)

PRE-HARVEST INTERVALS

- Field peas: 60 days
- Dry beans: 75 days
- Soybeans: 85 days

RE-ENTRY INTERVAL

12 hours

RECROPPING RESTRICTIONS

There are several factors that affect the recropping following an imidazolinone application. If you are planning to use DAVAI® 80 SL, DAVAI® A PLUS, DAVAI® Q PLUS or PYTHON®, please consult the recropping restrictions and guidelines on page 88.

RE-ENTRY INTERVAL

12 hours

GRAZING RESTRICTIONS

Do not cut treated crops for hay.

STORAGE

Do not freeze.

QUICK TIPS:

For best results when targeting wild oats apply prior to tillering. Application when plants are actively growing will lead to best results. Application at cooler temperatures or in drought conditions can result in reduced efficacy.

GROUPS 6 & 14

EMPHASIS®

A co-pack of two actives — carfentrazone-ethyl and bromoxynil — that, when tank-mixed with glyphosate, offers three modes of action for fast burndown control of approximately 70 broadleaf and grassy weeds.

ACTIVE INGREDIENTS

Carfentrazone-ethyl at 240 g/L as an EC = EMPHASIS® A , and Bromoxynil (octanoate ester) at 240 g/L as an EC = BROMOTRIL®

PACKAGING

Co-pack includes:
- 2 x 0.6 L jugs of EMPHASIS® A
- 2 x 9.7 L jugs of BROMOTRIL®

APPLICATION RATE & ACRES TREATED

Canola

Rate: 15 ml/ac of EMPHASIS® A + 236 ml/ac of BROMOTRIL®
Acres treated: 80 ac/case

Barley, Oats, Wheat

Rate: 30 ml/ac of EMPHASIS® A + 472 ml/ac of BROMOTRIL®
Acres treated: 40 ac/case

WATER VOLUME

Ground: minimum 40 L/ac (10 US gal/ac)
Aerial: Do not apply by air.

RAINFASTNESS

30 minutes

REGISTERED CROPS AND STAGING

- Barley
- Canola
- Oats
- Wheat (spring, winter)

HOW IT WORKS

EMPHASIS® is a multi-mode, contact herbicide that controls broadleaf weeds including Group-2- and Group-9-resistant* biotypes such as kochia. Within a few hours following application, the foliage of susceptible weeds shows signs of desiccation, and in subsequent days, necrosis and death of the plant occur.

* Does not control Group-9-resistant fleabane.

MIXING INSTRUCTIONS

1. Fill spray tank with ½ of the volume of clean water needed.
2. With agitator running add the required amount of EMPHASIS® A to spray tank.
3. Next add the required amount of BROMOTRIL®.
4. Add more water, then add glyphosate.
5. Complete filling the tank to desired level.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

HERBICIDE

EMPHASIS®

CROP ROTATIONS
No restrictions

STORAGE
Do not freeze.

PRE-HARVEST INTERVALS
N/A

RE-ENTRY INTERVAL
24 hours

WEEDS CONTROLLED

Canola: Pre-Plant (80 acres/case)		
Weeds controlled by EMPHASIS® alone:		**Rate:**
• Black nightshade • Eastern black nightshade[1] • Lamb's quarters[2] • Morning glory[3]	• Redroot pigweed • Tall waterhemp[1] • Velvetleaf • Volunteer canola[6]	• EMPHASIS® A: 15 ml/ac • BROMOTRIL®: 236 ml/ac
Additional weeds controlled when EMPHASIS® is tank-mixed with glyphosate (at stated rate)*†		
EMPHASIS® alone weeds, plus:		
• Cocklebur • Cow cockle • Green foxtail • Green smartweed	• Lady's thumb • Smooth pigweed • Volunteer cereals (barley, oats, wheat) • Wild mustard	• EMPHASIS® A: 15 ml/ac • BROMOTRIL®: 236 ml/ac • Glyphosate: 180 g a.i./ac
180 g a.i./ac weeds, plus:		
• Bluegrass (annual) • Canada fleabane[4] • Canada thistle (rosette stage, summerfallow) • Cleavers • Crabgrass • Dandelion (less than 15 cm) • Downy brome • Flixweed • Giant foxtail • Hemp-nettle • Kochia	• Narrow-leaved hawk's beard • Narrow-leaved vetch • Quackgrass[5] • Ragweed (common) • Russian thistle • Stinkweed • Prickly lettuce • Sow thistle (annual) • Shepherd's purse • Wild buckwheat	• EMPHASIS® A: 15 ml/ac • BROMOTRIL®: 236 ml/ac • Glyphosate: 360 g a.i./ac

[1] Up to 5 cm
[2] Up to 7.5 cm
[3] Up to 3 leaves
[4] Does not include Group 9-resistant fleabane
[5] Light to moderate infestations, 3-4 green leaves or more
[6] Including glyphosate-tolerant varieties

* Additional weeds controlled with glyphosate pertain to both canola and wheat/oat/barley applications.

† Refer to page 155 for PMRA tank-mixing directives.

EMPHASIS®

WEEDS CONTROLLED (CONT'D)

Wheat, Oats, Barley: Pre-Plant (40 acres/case)

Weeds controlled by EMPHASIS® alone:		Rate:
• Buckwheat (common, tartary) • Carpetweed • Groundsel (common) • Jimsonweed • Lamb's quarters[2] • Morning glory[3] • Mustard (tansy) • Nightshade (American, Black, Eastern black[1], hairy)	• Pigweed (red root, tumble) • Purslane (common) • Smartweed (pale) • Velvetleaf • Volunteer canola • Waterhemp (common, tall[1])	• EMPHASIS® A: 30 ml/ac • BROMOTRIL®: 472 ml/ac

The EMPHASIS® + glyphosate combination controls approximately **70 weeds** (not all are listed here).
See the glyphosate label for a complete list of weeds controlled at each rate.

[1] Up to 5 cm
[2] Up to 7.5 cm
[3] Up to 3 leaves
[4] Does not include Group 9-resistant fleabane
[5] Light to moderate infestations, 3-4 green leaves or more
[6] Including glyphosate-tolerant varieties

* Additional weeds controlled with glyphosate pertain to both canola and wheat/oat/barley applications.

† Refer to page 155 for PMRA tank-mixing directives.

QUICK TIPS:

Wait at at least one day after application before seeding to allow adequate time for weed control.

Avoid overnight storage of spray mixtures when possible.

Premixing EMPHASIS® spray solutions in nurse tanks is not recommended.

NEW

HERBICIDE
IN-CROP · BROADLEAF

GROUP 4

ESTEEM ALL IN®

Superior control of hard-to-kill broadleaf weeds like thistles, dandelions and cleavers, in a convenient formulation with flexible use rates in cereal crops!

ACTIVE INGREDIENTS

Fluroxypyr 59.7 g/L + Clopyralid 40 g/L + MCPA 2 EH Ester 240.5 g/L = EC

PACKAGING

Case: 2 × 10.93 L jugs

APPLICATION RATE & ACRES TREATED

Low rate: 730 ml/ac
High rate: 970 ml/ac
Acres Treated: 11–15 ac/jug

WATER VOLUME

Ground: minimum 20–40 L/ac (5–10 US gal/ac)
Aerial: 12–20 L/ac (3–5 US gal/ac)

RAINFASTNESS

4 hours

REGISTERED CROPS

- Barley
- Oats
- Wheat (spring, winter)

KEY WEEDS CONTROLLED*

At the low rate of 730 ml/ac:

- Burdock
- Canada thistle (low infestations)
- Cleavers
- Cocklebur
- Field Horsetail (top growth)
- Flixweed
- Kochia
- Lamb's quarters
- Plantain (top growth)
- Prickly lettuce
- Ragweed
- Shepherd's purse
- Stinkweed
- Stork's bill
- Wild buckwheat
- Wild mustard
- Vetch

At the high rate of 970 ml/ac, the above weeds plus:

- Annual sow thistle (season-long control)
- Canada thistle (medium to high infestations; season-long control)
- Chickweed
- Common groundsel
- Dandelion (spring rosettes only)
- Hemp-nettle
- Perennial sow thistle
- Redroot pigweed
- Russian pigweed
- Scentless chamomile
- Smartweed
- Tartary buckwheat
- Volunteer canola

* For complete list of weeds controlled, refer to the label.

ESTEEM ALL IN®

HOW IT WORKS

ESTEEM ALL IN® moves within the plant to control exposed and underground plant tissues. It mimics naturally occurring plant hormones which control weeds by disrupting normal plant growth patterns. Symptoms of effect include epinasty (twisting of the stems) and swollen nodes.

MIXING INSTRUCTIONS

1. Fill sprayer tank ½ full of water.
2. Start sprayer tank agitation.
3. Add the required amount of ESTEEM ALL IN®.
4. If necessary, add any required adjuvants or surfactants for tank-mix partners.
5. Complete filling tank with water.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

SUPPORTED TANK MIXES†

- Liquid Achieve™ SC [1]
- Puma® Advance
- Simplicity™ GoDRI™ [2]
- BISON® 400 L
- Traxos®
- Varro®

[1] Tank mixes with Liquid Achieve™ SC may cause temporary injury if applied before the 4-leaf stage, however, yield will not normally be affected.

[2] Use only the 730 ml/acre (low) rate when mixing with Simplicity™ GoDri™

† Refer to page 155 for PMRA tank-mixing directives.

PRE-HARVEST INTERVALS

- Forage: 7 days
- Wheat, barley, oats: 60 days

CROP ROTATIONS

Fields previously treated with ESTEEM ALL IN® can be:

- seeded to wheat, barley, oats and rye (not underseeded to forage legumes, clover or alfalfa), canola, field peas, flax, forage grasses, mustard, or;
- summer-fallowed.

GRAZING RESTRICTIONS

- Do not cut or graze treated fields of wheat, barley or oats within 7 days after application.
- Withdraw meat animals from treated fields at least 3 days before slaughter.

ADJUVANT RATE

Adjuvant only required, if tank-mixing with Liquid Achieve™ SC:
Turbocharge® @ 0.5% v/v

Field peas:
A rainfall of 140 mm (5.5″) between herbicide application and August 31 (in the year of application), as well as an annual precipitation greater than 175 mm (6.9″) is required.

RE-ENTRY INTERVAL

12 hours

STORAGE

Do not freeze.

QUICK TIPS:

Flexible rates — choose what works best for you:

- **970 ml/ac:** heavy weed pressure OR hard-to-control weeds;
- **730 ml/ac:** standard weed pressure

NEW

GROUPS 4 & 6

FORCEFIGHTER ALL IN™

FORCEFIGHTER ALL IN™ provides three active ingredients and two modes of action for post-emergent control of annual and perennial broadleaf weeds in wheat (spring) and barley.

ACTIVE INGREDIENTS

Bromoxynil + Fluroxypyr + MCPA Ester = EC

PACKAGING

Case: 2 x 11.37 L jugs

APPLICATION RATE & ACRES TREATED

Rate: 567 ml/ac
Acres treated: 20 ac/jug

WATER VOLUME

Ground: 20–40 L/ac (5–10 US gal/ac)
Aerial: Do not apply by air.

RAINFASTNESS

1 hour

REGISTERED CROPS

- Barley
- Wheat (spring)

WEEDS CONTROLLED

Top growth control only:

- American nightshade
- Canada thistle
- Cocklebur
- Perennial sow thistle

Up to 4-leaf:

- Bluebur
- Cow cockle
- Flixweed
- Lady's thumb
- Night-flowering catchfly
- Redroot pigweed
- Shepherd's purse
- Smartweed (green, pale)
- Volunteer canola
- Volunteer sunflower

Up to 8-leaf:

- Common groundsel
- Lamb's quarters
- Stinkweed
- Wild buckwheat
- Wild mustard**
- Wormseed mustard

Other:

- Cleavers (up to 4 whorls)**
- Kochia (up to 5 cm)***
- Russian thistle (up to 5 cm)
- Wild radish

** Including Group 2-resistant biotypes
*** Including Group 2- and glyphosate-resistant biotypes

HERBICIDE

FORCEFIGHTER ALL IN™

CROP STAGING

2-leaf to early flag leaf

HOW IT WORKS

Quickly causes plants to stop growing. This convenient all in one formulation controls a wide range of weeds, including glyphosate-resistant and Group 2-resistant kochia, Group 2-resistant cleavers and Group 2-resistant wild mustard.

MIXING INSTRUCTIONS

1. Fill sprayer tank ½ full of water.
2. Start sprayer tank agitation.
3. Add the required amount of FORCEFIGHTER ALL IN™.
4. If necessary, add any required adjuvants or surfactants for tank-mix partners.
5. Complete filling tank with water.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

REGISTERED AND SUPPORTED TANK MIXES†

Spring wheat:
- BISON® 400 L
- Simplicity® GoDRI Herbicide
- Traxos® Herbicide

Barley:
- BISON® 400 L

† Refer to page 155 for PMRA tank-mixing directives.

CROP ROTATIONS

Can be seeded the following year to barley, canola, flax, forage grasses, lentils, oats, peas, rye and wheat or fields can be summerfallowed.

STORAGE

Do not freeze.

PRE-HARVEST INTERVAL

60 days

GRAZING RESTRICTIONS

30 days

RE-ENTRY INTERVAL

24 hours

STORAGE

Do not freeze.

QUICK TIPS:

Do not apply before the 2-leaf stage as crop injury may occur.

Use 40 L/ac application volume when there is a heavy canopy or when most weeds are at an advanced stage of growth.

Activity is influenced by weather conditions. Optimal application temperature is 12–24° C. Avoid application 3 days before or after frost.

HERBICIDE
IN-CROP · BROADLEAF

NEW

GROUP 10

ADAMA GLUFOSINATE 150 SL

Reliable formulation for post-emergent control of almost 30 broadleaf and grassy weeds for use in glufosinate-ammonium-tolerant canola and soybeans.

ACTIVE INGREDIENT

Glufosinate ammonium 150 g/L = SL

PACKAGING

Case: 2 x 13.5 L jugs
Tote: 432 L
Drum: 108 L
Tote Max: 1000 L

APPLICATION RATES & ACRES TREATED

Rate: 0.8–1.62 L/ac
Acres Treated:
- 8–17 ac/jug
- 267–540 ac/tote
- 67–135 ac/drum
- 617–1250 ac/tote max

WATER VOLUME

Ground: 45 L/ac (12 US gal/ac)
Aerial: 23 L/ac (6 US gal/ac)

RAINFASTNESS

4 hours

REGISTERED CROPS

- Glufosinate-ammonium-tolerant canola
- Glufosinate-ammonium-tolerant soybeans

Crop	Timing	Recommended Rate
Glufosinate-tolerant Canola	Apply from the cotyledon stage up until, but prior to, the early bolting stage of canola.	**One (1) pass:** 1.35–1.62 L/ac **Two (2) passes:** 1.35 L/ac followed by 1.35 L/ac (and up to 1.62 L/ac) OR 1.62 L/ac followed by 1.35 L/ac NOTE: Do not apply more than a total of 2.97 L/ac in one season.
Glufosinate-tolerant Soybeans	Apply from the cotyledon to the flowering stage of the crop.	0.8–1.35 L/ac

NOTE: Please refer to label for additional rates.

HERBICIDE

ADAMA GLUFOSINATE 150 SL

WEEDS CONTROLLED

Broadleaf Weeds:

- Canada thistle[1]
- Cleavers
- Common chickweed
- Cow cockle
- Dandelion
- Flixweed
- Hemp-nettle
- Kochia
- Lady's thumb
- Lamb's quarters
- Perennial sow thistle
- Redroot pigweed
- Round-leaved mallow
- Russian thistle
- Scentless chamomile
- Shepherd's purse
- Smartweed
- Stinkweed
- Stork's bill
- Volunteer flax
- Wild buckwheat
- Wild mustard

Grasses:

- Barnyard grass
- Green foxtail
- Quackgrass[3]
- Volunteer barley[2]
- Volunteer wheat
- Wild oats

[1] Top growth suppression only
[2] Suppression only
[3] Season-long control for heavy populations at 1.62 L/ac

HOW IT WORKS

ADAMA GLUFOSINATE 150 SL is a non-selective herbicide that provides control of a broad spectrum of grassy and broadleaf weeds in canola and soybean varieties and hybrids that are specially developed to be tolerant to glufosinate ammonium.

ADAMA GLUFOSINATE 150 SL is a contact herbicide with limited translocation within the plant. Control is best when weeds are actively growing and not under stress.

CROP STAGING

- Pre-plant, Post-harvest, Summerfallow

REGISTERED AND SUPPORTED TANK MIXES†

- Facet® L
- ARROW ALL IN®
- LEOPARD®

† Refer to page 155 for PMRA tank-mixing directives.

SUPPORTED ADJUVANTS

- Agral 90®
- Not all tank mixes require an adjuvant, see label for details.

HERBICIDE

ADAMA GLUFOSINATE 150 SL

MIXING INSTRUCTIONS

1. Fill the tank ¾ full with clean water.
2. Start sprayer tank agitation.
3. Add the required amount of ADAMA GLUFOSINATE 150 SL.
4. If necessary, add any required adjuvants or surfactants for tank-mix partners.
5. Complete filling tank with water.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

CROP ROTATIONS

- Buckwheat, barley, millet, oats, rye, sorghum, triticale: 70 days
- All other crops (except alfalfa, canola, carrots, dry common beans not grown for seed, field corn, lettuce, onion, potatoes, and soybeans): 120 days

PRE-HARVEST INTERVAL

Canola: 60 days
Soybeans: 70 days

GRAZING RESTRICTIONS

Canola:

- Grain and meal from treated crop can be fed to livestock.
- Do not graze the treated crop or cut for hay; sufficient data is not available to support such use.

Soybeans: 20 days

RE-ENTRY INTERVAL

24 hours

STORAGE

Do not freeze.

QUICK TIPS:

ADAMA GLUFOSINATE 150 SL can be weak on some annual grasses. If these species are not adequately controlled with a residual herbicide, it may be advantageous to include a grass herbicide such as LEOPARD® or ARROW ALL IN® with the post-emergent glufosinate application.

ADAMA GLUFOSINATE 150 SL activity is maximized in warm, sunny weather.

ADAMA GLUFOSINATE 150 SL, as with all ADAMA products, is fully supported by a sales, service and agronomic teams across all Eastern Canadian provinces.

HERBICIDE
PRE-PLANT & POST-HARVEST · BROADLEAF

GROUP 2

INVOLVE® 50 WDG

ADAMA's pre-plant or post-harvest Group 2 herbicide for control of the toughest broadleaf weeds.
NOW REGISTERED on lowbush blueberries!

ACTIVE INGREDIENT

50% Tribenuron-methyl = WDG

PACKAGING

Case: 10 x 480 g bottles/case

APPLICATION RATES & ACRES TREATED

Row crops and dry beans
Rate: 6 g/ac
Acres Treated:
- 80 ac/bottle
- 800 ac/case

Lowbush blueberries only
Rate: 24 g/ac
Acres Treated:
- 18 ac/bottle
- 185 ac/case

WATER VOLUME

Ground:
- Row crops/dry beans: 22–44 L/ac (5–12 US gal/ac)
- Lowbush blueberries: 60–100 L/ac (15–26 US gal/ac)

Aerial: Do not apply by air.

RAINFASTNESS

4-6 hours

REGISTERED CROPS

- Alfalfa
- Alsike clover
- Blueberries (lowbush)
- Dry beans
- Faba beans
- Field peas
- Oats
- Red clover
- Soybeans
- Spring barley
- Timothy
- Wheat (spring, winter)

WEEDS CONTROLLED (ROW CROPS/DRY BEANS ONLY)

INVOLVE® 50 WDG plus 0.5 REL/ac glyphosate equivalent will control the following weeds:

Broadleaf Weeds:
- Canada fleabane
- Canada thistle[2]
- Common ragweed
- Cow cockle
- Dandelion
- Flixweed
- Hemp-nettle
- Kochia
- Lamb's quarters
- Lady's thumb
- Narrow-leaved hawk's beard
- Redroot pigweed
- Russian thistle
- Scentless chamomile[2]
- Stinkweed
- Volunteer canola[3]
- White cockle[2]
- Wild mustard
- Wild buckwheat

Grasses:
- Downy brome
- Foxtail (giant, green)
- Persian darnel
- Volunteer barley
- Volunteer wheat
- Wild oats

[1] Excluding Group 2- and Group 9-resistant fleabane
[2] Suppression only [3] Including glyphosate-tolerant varieties

⚠ Always read and follow pesticide label directions.

INVOLVE® 50 WDG

CROP STAGING (ROW CROPS/DRY BEANS ONLY)

Pre-plant, Post-harvest, Summerfallow

WEEDS CONTROLLED AND TIMING (LOWBUSH BLUEBERRIES)

INVOLVE® 50 WDG plus AGRAL® 90 @ 0.2 % v/v will control the following weeds in lowbush blueberries.

Weed	Timing	Year
Bracken fern Yellow loosestrife	Use as a spot treatment in mid-summer	Sprout
Speckled alder Wild rose	Use as a spot treatment in early fall	Sprout
Bunchberry	Post-harvest	Fruiting
	Spring*	Sprout

* Make only one application per crop cycle (2 or 3 years) in the sprout year.

HOW IT WORKS

INVOLVE® 50 WDG inhibits the production of the ALS enzyme, quickly causing plants to stop growing and become discoloured (red, yellow, purple) at the growing point and spreading to the entire plant within 1–3 weeks.

REGISTERED AND SUPPORTED TANK MIXES (ROW CROPS/DRY BEANS ONLY)†

- 2,4-D ESTER 700
- AIM® EC
- Authority® 480
- Dicamba products
- Glyphosate

† Refer to page 155 for PMRA tank-mixing directives.

SUPPORTED ADJUVANTS AND RATES

- Agral 90® @ 0.2–0.35% v/v
- Not all tank mixes require an adjuvant, see label for rates and details.

INVOLVE® 50 WDG

MIXING INSTRUCTIONS

1. Fill clean spray tank ½ full of clean water, and start agitation.
2. Add the required amount of INVOLVE® 50 WDG and agitate until product is completely dispersed.
3. Add the required amount of glyphosate.
4. Add the required amount of surfactant, then fill tank with remaining water with agitation on.
5. For repeat tank loads, empty the spray tank completely to avoid INVOLVE® 50 WDG from not dispersing or add to tank as a pre-slurry in 5–10 L of water.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

CROP ROTATIONS

- Alfalfa, bean crops (including dry beans, faba beans, field peas and soybeans), oats, red clover or alsike clover, timothy, spring barley, spring wheat and winter wheat: 24 hours after application
- Canola and lentils: 60 days after application

Post-harvest application in the fall may be summerfallowed or seeded in the spring to:

- Alfalfa, canola, field corn or bean crops (including dry beans, faba beans, field peas and soybeans), lentils, red clover or alsike clover, spring wheat, spring barley, oats and Timothy.

STORAGE

May be stored at any temperature

RE-ENTRY INTERVAL

12 hours

QUICK TIPS:

Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions. Activity of the herbicide mixture may be delayed by cold, dry conditions after application.

Injury to pulse crops may occur on coarse-textured soils, low in organic matter (less than 3%), or in fields with variable soils, gravely areas, sandy areas or eroded knolls. Avoid planting pulse crops in soils containing more than 50% sand.

HERBICIDE
IN-CROP · GRASS

GROUP 1

LEOPARD®

ADAMA's grass control product to control hard-to-kill grassy weeds in dry beans, soybeans and cucurbit vegetable crops.

ACTIVE INGREDIENT

Quizalofop-P-ethyl 100 g/L = EC

PACKAGING

Case: 2 x 7.8 L jugs
Drum: 93.6 L
Tote: 487.5 L

APPLICATION RATES & ACRES TREATED

Rate: 150–290 ml/ac (standard rate: 195 ml/ac)
Acres Treated:

- 30–50 ac/jug (standard rate: 40 ac/jug)
- 322–624 ac/jug (standard rate: 480 ac/jug)
- 1681–3250 ac/tote (standard rate: 2500 ac/tote)

WATER VOLUME

Ground: 40 L/ac (10 US gal/ac)
Aerial: 10 L/ac (2.5 US gal/ac)

RAINFASTNESS

Avoid application when heavy rain is forecast.

REGISTERED CROPS

- Alfalfa, seed
- Beans (dry & snap)
- Canola
- Chickpeas
- Cucurbit vegetables
- Lentils
- Lima, Adzuki & Mung beans (Ontario)
- Peas (field & processing)
- Rutabagas (Ontario & Quebec)
- Soybeans
- Sugarbeets

WEEDS CONTROLLED

Grass Species	Leaf Stage	Rate
Green foxtail, Volunteer cereals (wheat, barley, oats)	2 to early tillering	150 ml/ac
Wild oats	1–5	
Volunteer corn	2–6	
Barnyard grass, Fall panicum, Yellow foxtail, Proso millet, Witchgrass	2-early tillering	195 ml/ac
Wild oats	1–5 + 2 tillers	
Downy brome, Japanese brome	2–5	
Foxtail barley	2–4 + 3 tillers	
Quackgrass (suppression)	2–6	
Quackgrass (control)	2–6	290 ml/ac

LEOPARD®

HOW IT WORKS

LEOPARD® is a selective post-emergent herbicide for the control of annual and perennial grasses. LEOPARD® is a systemic herbicide which is rapidly absorbed and readily translocated for the treated foliage to the root systems and growing points of the plant. Treated plants show a reduction in growth and a loss of competitiveness. An early yellowing and browning of the younger plant tissues is followed by a progressive collapse of the remaining foliage. These symptoms will generally be observed in 1–3 weeks depending on the grass species treated and the environmental conditions. This product does not control sedges or broadleaf weeds.

CROP STAGING

- Most crops are tolerant at all stages, so target applications at the optimal weed stage.
- Always adhere to the pre-harvest interval for each crop.

REGISTERED AND SUPPORTED TANK MIXES†

- Basagran®
- DAVAI® 80 SL
- ADAMA Glufosinate 150 SL
- Glyphosate
- PHANTOM® 240 SL
- PYTHON®

† Refer to page 155 for PMRA tank-mixing directives.

MIXING INSTRUCTIONS

1. Thoroughly clean the sprayer by flushing the system with water containing detergent.
2. Fill clean spray tank ½ full with water. Start agitation.
3. If tank-mixing LEOPARD® with another pesticide, add tank-mix partner followed by the adjuvant.
4. Add the rest of the required water to the tank with agitation on. Mix well before applying to the crop.

On repeat tank loads, ensure that the amount of spray solution left in the tank from the previous load is less than 10% of volume about to be mixed.

Do not mix, load or clean spray equipment where there is a potential to contaminate wells or aquatic systems.

When mixing with glufosinate:
Glufosinate + LEOPARD® + surfactant

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

HERBICIDE

LEOPARD®

ADJUVANT RATES

LEOPARD® is not packaged with, but requires, an adjuvant such as:

- Merge®@ 0.5–1% v/v
- LI700®@ 0.25–0.5% v/v
- Liberate™ adjuvant @ 0.5% v/v
- Other non-ionic surfactants (NIS) or methylated seed oil (MSO) adjuvants

CROP ROTATIONS

No restrictions

PRE-HARVEST INTERVAL

- Beans (dry and snap), Cucurbits, Rutabagas: 30 days
- Sugarbeets: 60–80 days
- Canola: 64 days
- Peas, Small red beans: 65 days
- Soybeans: 80 days

RE-ENTRY INTERVAL

12 hours

GRAZING RESTRICTIONS

Do not cut treated crops for hay.

STORAGE

Do not freeze.

QUICK TIPS:

LEOPARD® is safe on the crop at all stages. Rates are dependent on weed stages.

Use the higher adjuvant rate when targeting quackgrass, or when conditions are not conducive to good growth.

HERBICIDE
IN-CROP · BROADLEAF

GROUP 4

MCPA ESTER 600

Provides reliable post-emergent control of broadleaf weeds and great tank-mix flexibility in wheat, barley, rye, oats, and pasture areas.

ACTIVE INGREDIENT

MCPA 2 EH Ester 600 g/L = EC

PACKAGING

Case: 2 × 10 L jugs

APPLICATION RATES & ACRES TREATED

Rate: 285–425 ml/ac
Acres Treated: 24–35 ac/jug

WATER VOLUME

Ground: 37–75 L/ac (10–20 US gal/ac)
Aerial: 11 L/ac (3 US gal/ac)*

* Please refer to label as aerial application is crop-specific.

RAINFASTNESS

Avoid applying when rain is forecast.

REGISTERED CROPS

Crop	Timing*	Rate
Oats (not underseeded with legumes)	From the 1-leaf expanded to the early flag-leaf stage	Up to 365 ml/ac
Spring wheat, Barley, Rye	From the 3-leaf expanded to the early flag-leaf stage. From milk stage to maturity	Up to 425 ml/ac
Winter wheat, Fall rye	In spring, from full tillering to the shot blade stage Do not apply during and after the flag-leaf stage. Do not apply to seedling winter cereals in the fall. GROUND APPLICATION ONLY.	

*Do not apply more than one treatment per year

MCPA ESTER 600

WEEDS CONTROLLED

Susceptible weeds[2]:

- Annual sunflower
- Burdock[4]
- Cocklebur
- Flixweed[1]
- Lamb's quarters
- Mustard (except Dog and Tansy)
- Plantain
- Prickly lettuce
- Ragweed
- Russian pigweed[1]
- Shepherd's purse[1]
- Stinkweed
- Vetch
- Wild radish

Harder-to-control weeds[3]:

- Annual sow thistle
- Biennial wormwood
- Canada thistle[1]
- Corn spurry[1]
- Curled dock
- Dandelion
- Dog mustard
- Field bindweed[1]
- Field Horsetail[1]
- Field peppergrass
- Goat's beard
- Hairy galinsoga
- Hedge bindweed[1]
- Hemp-nettle[4]
- Kochia
- Lady's thumb[1]
- Leafy spurge[1]
- Oak-leaved goosefoot
- Perennial sow thistle[1]
- Purslane
- Redroot pigweed
- Russian knapweed[1]
- Russian thistle
- Smartweed[1]
- Sweet clover[5]
- Tansy mustard
- Tartary buckwheat

[1] Use highest listed rate.

[2] Small seedlings (2- to 4-leaf), growing rapidly, good growing conditions: 235 ml/ac Large weeds, dry or cold weather, heavy infestations: 365 ml/ac; Susceptibility decreases with age.

[3] Small seedlings (2- to 4-leaf), growing rapidly, good growing conditions: 425 ml/ac Large weeds, dry or cold weather, heavy infestations: 610 ml/ac; Susceptibility decreases with age.

[4] Before 4-leaf stage

[5] Seedlings

HOW IT WORKS

Systemic post-emergence phenoxy herbicide that acts as a plant growth regulator to control broadleaf weeds by stimulating nucleic acid and protein synthesis, which impacts the cell division and respiration causing malformed leaves, stems and roots.

CROP STAGING

- Most crops are tolerant at all stages, so target applications at the optimal weed stage.
- Always adhere to the pre-harvest interval for each crop.

REGISTERED AND SUPPORTED TANK MIXES†

Herbicides:

- BADGE®
- Barricade® SG
- BISON® 400 L
- BROMOTRIL®

Fungicides:

- BUMPER® 432 EC

† Refer to page 155 for PMRA tank-mixing directives.

HERBICIDE

MCPA ESTER 600

MIXING INSTRUCTIONS

1. Fill sprayer tank ½ full of water.
2. Start sprayer tank agitation.
3. Add the required amount of ADAMA MCPA ESTER 600.
4. If necessary, add any required adjuvants or surfactants for tank-mix partners.
5. Complete filling tank with water with agitation on.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

CROP ROTATIONS

No restrictions

PRE-HARVEST INTERVAL

7 days

RE-ENTRY INTERVAL

12 hours

GRAZING RESTRICTIONS

7 days

STORAGE

May be stored at any temperature

QUICK TIPS:

If product is exposed to temperatures below -20°C, it should be warmed to at least 5°C and mixed thoroughly before using.

Always read and follow registered product label instructions. It is an offence under the Pest Control Products Act to use this product in a way that is inconsistent with the directions on the label.

HERBICIDE
PRE-PLANT & IN-CROP · BROAD-SPECTRUM

GROUP 2

PHANTOM® 240 SL

Flexible pre-plant, pre-plant incorporated, pre-emergent or post-emergent broadleaf and grassy weed control in soybeans, dry beans, peas and alfalfa, with residual control to eliminate early season weed competition.

ACTIVE INGREDIENT

Imazethapyr 240 g/L = SL

PACKAGING

Case: 2 x 3.3 L jugs

APPLICATION RATES & ACRES TREATED

Rate: 126–170 ml/ac
Acres Treated: 20–26 ac/jug

WATER VOLUME

Ground: 40 L/ac (10 US gal/ac)
Aerial: Do not apply by air.

RAINFASTNESS

3 hours

REGISTERED CROPS

Crop	Application timing			
	Pre-plant	Pre-plant incorporated	Pre-emergent	Post-emergent
Adzuki beans		•	•	
Alfalfa (grown for seed)		•	•	
Dry common beans (black, cranberry, Dutch brown, kidney, white, yellow eye)		Cranberry Kidney White	•	
Lima beans (Ontario only)			•	
Processing peas		•	•	
Snap beans		•	•	
Snow peas		•	•	
Soybeans	•	•	•	•

WEEDS CONTROLLED

Check label as weeds controlled vary by crop and application timing.

Broadleaf weeds (up to and including the 4-leaf stage):

- Cocklebur
- Eastern black nightshade[1]
- Lady's thumb
- Lamb's quarters
- Ragweed (common, giant)[1]
- Redroot pigweed[1]
- Smartweed
- Velvetleaf
- Wild buckwheat
- Wild mustard

[1] Excluding Group 2-resistant weeds

PHANTOM® 240 SL

WEEDS CONTROLLED (CONT'D)

Grasses:

- Barnyard grass
- Crabgrass
- Foxtail (green, yellow)
- Proso millet
- Witchgrass
- Yellow nutsedge[2]

[2] Suppression

HOW IT WORKS

PHANTOM® 240 SL is a selective herbicide that can be applied as an early pre-plant, pre-plant incorporated, pre-emergent or post-emergent treatment in various crops. The application method depends upon the crop, anticipated weed spectrum and the preference of the applicator. With early pre-plant and pre-emergent treatments, susceptible weeds emerge, are present as stunted plants and then die. When PHANTOM® 240 SL is applied post-emergence, absorption may occur through both the roots and foliage. Susceptible weeds stop growing and eventually die.

CROP STAGING

PHANTOM® 240 SL can be applied early pre-plant, pre-plant incorporated, pre-emergent or post-emergent depending on the crop.

REGISTERED AND SUPPORTED TANK MIXES†

Tank-mix option	Application timing			
	Early Pre-plant	Pre-plant incorporated	Pre-emergent	Post-emergent
Glyphosate	•			•[1]
Glyphosate + FirstRate®	•			
Trifluralin		•		
Edge®		•		
Lorox®/Linuron			•	
Basagran®				•
Basagran® Forte				•
ARROW® 240 EC, ARROW ALL IN®				•
LEOPARD®				•
SQUADRON®		•	•	•

[1] Glyphosate-tolerant soybeans only (i.e. varieties with the Roundup Ready®).

† Refer to page 155 for PMRA tank-mixing directives.

HERBICIDE

PHANTOM® 240 SL

MIXING INSTRUCTIONS

1. Fill sprayer tank ½ full of water.
2. Start sprayer tank agitation.
3. Add the required amount of PHANTOM® 240 SL.
4. If necessary, add any required adjuvants or surfactants for tank-mix partners.
5. Complete filling tank with water with agitation on.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

CROP ROTATIONS

These crops may be planted the season following a PHANTOM® 240 SL application:

- Adzuki beans
- Black beans
- Cranberry beans
- Dutch brown beans
- Field corn
- Clearfield® canola and corn
- Kidney beans
- Lima beans
- Processing peas
- Soybeans
- Spring barley
- Spring wheat
- White beans
- Winter wheat
- Yellow-eyed beans

PRE-HARVEST INTERVALS

- Snap beans: 40 days
- Processing peas: 50 days
- Snow peas: 60 days
- Lima beans: 90 days
- Dry beans[2], Soybeans: 100 days

[2] Kidney, adzuki, Dutch brown, black, yellow eye, white and cranberry beans.

RE-ENTRY INTERVAL

12 hours

GRAZING RESTRICTIONS

Do not graze treated crops or cut for hay.

STORAGE

Do not freeze.

QUICK TIPS:

PHANTOM® 240 SL requires moisture for activation. Soil-applied PHANTOM® 240 SL requires sufficient water within 7 days of application to moisten the soil to a depth of 2 inches for activation. If adequate moisture is not received within 7–10 days of application, perform a shallow inter-row cultivation 2–3" deep using a roller or S-tine cultivator to control escaped weeds until the field receives adequate moisture.

For early pre-plant applications (soybeans only), if more than 7–10 days elapse before the receipt of adequate precipitation to activate the herbicide and reduce the risk of weed escapes.

HERBICIDE
IN-CROP · BROAD-SPECTRUM

GROUPS 2 & 6

PYTHON®

Proven co-pack alternative,providing broad-spectrum weed control in soybeans and peas with two modes of action to combat weed resistance.

ACTIVE INGREDIENT

Imazamox 80 g/L and Bentazon 480 g/L = SL

PACKAGING

Case includes:
- PYTHON® A: 1 × 4 L jug
- PYTHON® B: 2 × 7.26 L jugs

APPLICATION RATES & ACRES TREATED

Rate:
- PYTHON® A: 100 ml/ac
- PYTHON® B: 363 ml/ac

NOTE: Requires UAN 28% @ 0.810 L/ac (NOT included in the co-pack)

Acres Treated: 40 acres/case

WATER VOLUME

Ground: Minimum 40 L/ac (10 US gal/ac)
Aerial: Do not apply by air.

RAINFASTNESS

6 hours

REGISTERED CROPS

- Dry Beans
- Field Peas
- Soybeans

WEEDS CONTROLLED (APPLICATION TIMING)

Unless otherwise noted below, apply to young and actively growing weeds.

Broadleaf weeds (cotyledon to 4-leaf):

- Cleavers*
- Cow cockle
- Flixweed
- Green smartweed
- Lamb's quarters[1]
- Redroot pigweed[1]
- Prostrate pigweed[1]
- Shepherd's purse
- Stinkweed
- Stork's bill
- Volunteer canola[2]
- Wild buckwheat*
- Wild mustard

*Suppression only

[1] PYTHON® A + PYTHON® B will provide more consistent control of prostrate pigweed, redroot pigweed and lamb's quarters including Group 2-resistant biotypes.

[2] Non imidazolinone-tolerant varieties

PYTHON®

Grassy weeds (1 to 4-leaf or early tillering):

- Barnyard grass
- Green foxtail[3]
- Japanese brome grass*
- Persian darnel
- Volunteer barley
- Yellow foxtail
- Volunteer canary seed
- Volunteer wheat
- Wild oats[3]

*Suppression only

[3] Including Group-1-resistant weeds. PYTHON® A will not control weed biotypes that are multiple-resistant to both Group 1 and Group 2 herbicides.

HOW IT WORKS

The PYTHON® co-pack combines two powerful actives.
PYTHON® A (imazamox) is systemic, readily absorbed through both leaf and root uptake.
PYTHON® B (bentazon) is a contact herbicide.
Good coverage and early application will give the best results.

CROP STAGING

- Dry beans: After 1st trifoliate leaf has fully expanded up to 2nd trifoliate leaf
- Soybeans: Cotyledon to the 4-leaf stage
- Peas: 3 to 6 above-ground nodes

REGISTERED AND SUPPORTED TANK MIXES†

- ARROW® 240 EC
- ARROW ALL IN®
- LEOPARD®
- Glyphosate

† Refer to page 155 for PMRA tank-mixing directives.

MIXING INSTRUCTIONS

1. Fill clean spray tank ½ full with water.
2. Start sprayer tank agitation.
3. Add the required amount of PYTHON® A.
4. Add the correct amount of PYTHON® B.
5. Add the required amount of UAN 28%.
6. Add required adjuvants or surfactants.
7. Complete filling tank with water with agitation on.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

PYTHON®

ADJUVANT RATES

- Agral® 90 @ 0.25% v/v
- Hasten® NT Ultra @ 0.5% v/v
- Merge® @ 0.5% v/v
- NORAC Methylated Seed Oil (MSO) @ 0.5% v/v

RE-ENTRY INTERVAL

12 hours

PRE-HARVEST INTERVALS

- Peas: 60 days
- Dry Beans: 75 days
- Soybeans: 85 days

GRAZING RESTRICTIONS

Do not graze treated crop. Peas may be fed to livestock 30 days after application.

CROP ROTATIONS

- Barley
- Canola
- Field corn
- Field peas
- Oats
- Soybeans
- Imidazolinone-tolerant sunflowers
- Wheat (spring)

RECROPPING RESTRICTIONS

There are several factors that affect the recropping following an imidazolinone application. If you are planning to use PYTHON®, DAVAI® 80 SL, DAVAI® A PLUS, or DAVAI® Q PLUS or, please consult the recropping restrictions and guidelines on page 88.

STORAGE

Do not freeze.

QUICK TIPS:

UAN 28% and an adjuvant are NOT included in the case, but are REQUIRED (a reduction in weed control can be observed without the addition of a nitrogen source).

Do not apply PYTHON® to any crops that have been subjected to stress from conditions—such as hail, flooding, hot/humid weather, drought, widely fluctuating temperature conditions, prolonged cold weather, or injury from prior herbicide applications—as crop injury may result.

HERBICIDE
IN-CROP · BROAD-SPECTRUM

NEW

GROUP 4

RUSH 24 ALL IN®

Controls a wide spectrum of broadleaf weeds, like cleavers, with excellent grassy weed herbicide compatibility for wheat and barley.

ACTIVE INGREDIENT

Fluroxypyr 90 g/L and
2,4-D ester 360 g/L as an EC

PACKAGING

Case: 2 x 8.9 L jugs
Drum: 106.8 L
Tote: 427.2 L

APPLICATION RATES & ACRES TREATED

Rate: 445 ml/ac
Acres Treated:

- 20 ac/jug
- 240 ac/drum
- 60 ac/tote

WATER VOLUME

Ground: 12–40 L/ac (3–10 US gal/ac)
Aerial: 12–20 L/ac (5–10 US gal/ac)

RAINFASTNESS

1 hour

REGISTERED CROPS

- Barley
- Wheat (spring)

WEEDS CONTROLLED

Control		Suppression
At labelled rate of 445 ml/ac		
• Buckwheat (1- to 6-leaf) • Bluebur • Burdock • Canola (volunteer) • Cleavers (1-8 whorls) • Clovers (sweet) • Cocklebur • Flixweed • Field horsetail[1] • Goat's-beard • Hemp-nettle (2- to 6-leaf) • Hoary cress[1] • Kochia[2] • Lamb's quarters	• Mustards (except green tansy, dog & grey tansy) • Plantain • Prickly lettuce • Ragweed • Round-leaved mallow (1- to 6-leaf) • Shepherd's purse • Stork's bill (1- to 8-leaf) • Stinkweed • Sunflower (annual) • Vetch • Wild buckwheat (1- to 6-leaf) • Wild radish • Volunteer flax (1-12 cm)	• Common chickweed[2] (up to 8 cm) • Redroot pigweed • Sow thistle (perennial)[1]

RUSH 24 ALL IN®

WEEDS CONTROLLED (CONT'D)

Control		Suppression
Additional weeds controlled/suppressed with addition of 81 ml/ac (2 oz/ac) of 2,4-D ESTER 700:		
· Blue lettuce[1] · Dandelion (spring rosettes) · Docks · Field bindweed[1] · Field peppergrass · Gumweed · Hairy galinsoga · Hedge bindweed	· Lady's thumb · Leafy spurge[1] · Mustard (dog, tansy) · Oak-leaved goosefoot · Redroot pigweed · Russian thistle · Smartweed · Tartary buckwheat	· Common chickweed[2] (up to 8 cm) · Canada thistle[1] · Sow thistle (perennial[1], annual)

[1] Top growth control only

[2] Including biotypes resistant to Group 2 herbicides that inhibit the ALS enzyme

HOW IT WORKS

Group 4 herbicides disrupt normal plant growth, resulting in twisting and cupping of leaves, epinasty and death of susceptible plants in 2–10 days.

CROP STAGING

4-leaf to just prior to flag leaf emergence.

REGISTERED AND SUPPORTED TANK MIXES†

Wheat only:

· Simplicity™ GoDRI™ [1]
· Traxos®

Wheat and barley:

· BISON® 400 L
· Puma® Advance

[1] Additional 2,4-D ester is not recommended when mixing RUSH 24 ALL IN® and Simplicity™.

† Refer to page 155 for PMRA tank-mixing directives.

MIXING INSTRUCTIONS

1. Fill sprayer tank ½ full of water.
2. Start sprayer tank agitation.
3. Add the required amount of RUSH 24 ALL IN®.
4. If necessary, add the required amount of additional 2,4-D ESTER 700 herbicide.
5. If necessary, add any required adjuvants of surfactants for tank-mix partners.
6. Complete filling tank with water with agitation on.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

RUSH 24 ALL IN®

CROP ROTATIONS

The following crops may be grown one (1) year after application:

- Barley
- Canola
- Forage grass
- Oats
- Field peas
- Rye
- Wheat

PRE-HARVEST INTERVALS

Barley, wheat (spring): 60 days

GRAZING RESTRICTIONS

- Do not permit lactating dairy animals to graze fields within seven (7) days after application.
- Do not harvest forage or cut hay within 30 days after application.
- Withdraw meat animals from treated fields at least three (3) days before slaughter.

RE-ENTRY INTERVAL

12 hours

STORAGE

Do not freeze.

QUICK TIPS:

RUSH 24 ALL IN® activity is influenced by weather conditions. Optimum activity requires active crop and weed growth.

The temperature range for optimum activity is 12°C to 24°C. Reduced activity will occur when temperatures are below 8°C or above 27°C.

Frost before application (3 days) or shortly after (3 days) may reduce weed control and crop tolerance. Weed control may be reduced during stress conditions, for example drought, heat or cold stress, or if weeds have initiated flowering, or if heavy infestations exist.

HERBICIDE
IN-CROP · BROADLEAF

GROUP 5

SQUADRON®

Broad-spectrum herbicide registered for grassy and broadleaf weed control in a wide range of crops, most notably soybeans and potatoes.
It can work alone or in combination with recommended tank mixes.

ACTIVE INGREDIENT

Metribuzin

PACKAGING

Case: 4 x 5 kg jugs

APPLICATION RATES & ACRES TREATED

Rate: Please refer to the label for application rates as these vary based on crop,soil type and application methods.

Acres Treated: 15–60 acres/jug

RAINFASTNESS

6 hours after foliar application

REGISTERED CROPS

- Asparagus (established)
- Fruit trees (newly planted and established)
- Highbush blueberries (newly planted)
- Potatoes
- Processing carrots
- Soybeans[1]
- Transplanted tomatoes (grown for processing)

[1] Do not use Squadron® on AC Brant, Apache, Baron, Emosa, Maple Amber, Maple Ridge, IA 1003 or S-240 varieties.

WEEDS CONTROLLED

Broadleaf weeds:

- Carpetweed[1]
- Cocklebur
- Common chickweed
- Common ragweed
- Corn spurry[2]
- Dandelion (seedling)
- Green smartweed
- Hemp-nettle[2]
- Jimsonweed[1]
- Lady's thumb
- Lamb's quarters
- Prickly mallow
- Prostrate pigweed
- Redroot pigweed
- Russian thistle
- Shepherd's purse
- Stinkweed[3]
- Velvetleaf
- Wild buckwheat[3]
- Wild mustard
- Wild potato vine
- Yellow woodsorrel[1]

Grassy weeds:

- Barnyard grass
- Cheat grass
- Crabgrass
- Fall panicum
- Giant foxtail
- Green foxtail
- Johnson grass (seedling)
- Witch grass
- Yellow foxtail

[1] Pre-emergence only
[2] Suppression with multiple post-emergent applications of 81 g/ac
[3] Post-emergent applications only

NOTE: When using SQUADRON® alone: Annual weeds less than 4 cm in height and residual control of annual weeds, use the higher rate for the control of grass weeds or when broadleaf weeds are dense. The rate of SQUADRON® depends on soil organic matter levels. See rates for SQUADRON® alone.

SQUADRON®

HOW IT WORKS

Metribuzin inhibits the photosynthesis of grassy and broadleaf weeds. Used pre-emergent, susceptible weeds and crop seedlings emerge through treated soil, but 2–5 days later the weeds show chlorosis and necrosis. Plants treated post-emergent show chlorosis and necrosis between leaf veins, followed by wilting and death.

SOIL TYPES AND RESTRICTIONS

The recommended use rates of SQUADRON® are dependent upon soil texture and the organic matter content of the soil being treated: coarse, medium and fine.

The following chart outlines the soil textures included in each of the soil texture groupings:

Coarse	Medium	Fine
Loamy sand, Sandy loam	Loam, Silt loam, Silt, Sandy clay loam, Sandy clay	Silty clay loam, Silty clay, Clay loam, Clay

- On variable soils with coarse sandy areas, some crop injury may occur on the sandy areas if the rate used is for the finer soil type.
- Sandy loam and silty clay loam soils are transitional soils and may be classified as medium-textured soils in some regions.
- Do not use this product on muck soils. If SQUADRON® is applied to muck soils, subsequent crops may be injured.
- Do not use on coarse soils with less than 2% organic matter.

PRE-HARVEST INTERVALS

- Asparagus: 14 days
- Potatoes, tomatoes: 60 days
- Newly planted blueberries: 2 years

RE-ENTRY INTERVAL

12 hours

GRAZING RESTRICTIONS

Grazing restrictions are crop-specific. Please refer to the label.

CROP ROTATIONS

Rotational crops such as onions, celery, peppers, cole crops, lettuce, spinach, sugar beets, table beets, turnips, pumpkins, squash, cucumbers, melons, tobacco and non-triazine-tolerant canola (rapeseed) are sensitive to SQUADRON® and may be injured if planted in soil treated during the year of application or the following crop year.

Fall planted or cover crops such as wheat, oats and rye may be injured when planted within the same season.

SQUADRON®

STORAGE

To prevent contamination, store this product away from food or feed.

MIXING INSTRUCTIONS

1. Fill the spray tank or nurse tank ¼ full with water.
2. Start recirculation and agitation system and continue throughout mixing and application.
3. Add recommended amount of SQUADRON® and agitate until product is completely dispersed.
4. If tank mixing with wettable powders or other dry flowable products refer to these product labels for specific mixing instructions.
5. Fill spray tank with water to the desired level with agitation on.
6. If tank mixing with emulsifiable concentrates or soluble products, add these products near end of filling the spray tank.
7. Continue agitation during transport and application until the spray tank is empty.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

REGISTERED AND SUPPORTED TANK MIXES AND APPLICATION TIMING†

Crop	Application Method	Products
Soybeans	Pre-plant incorporated	SQUADRON® plus Treflan™ E.C., Dual II Magnum®, Frontier® or Axiom® DF
	Pre-emergence following pre-plant incorporated (PPI) application of other herbicides	Treflan™ E.C. followed by SQUADRON®; Dual II Magnum® followed by SQUADRON®
	Pre-plant surface or burn-off application	SQUADRON® alone or with PHANTOM® 240 SL (Pursuit®), glyphosate, Axiom® DF, Lorox® DF, Dual II Magnum®
	Pre-emergence	SQUADRON® alone or with PHANTOM® 240 SL (Pursuit®), glyphosate, Axiom® DF, Lorox® DF, Dual II Magnum®, Frontier®, Linuron 50%, Linuron 480, Broadstrike™ Dual

SQUADRON®

REGISTERED AND SUPPORTED TANK MIXES AND APPLICATION TIMING (CONT'D)

Crop	Application Method	Products
Potatoes	Pre-emergence	SQUADRON® alone or with Dual II Magnum®, Linuron 50%, Linuron 480 g/L
	Early post-emergence	SQUADRON® alone or with Venture® L
	Pre-emergence or early post-emergence or pre-plant incorporated	SQUADRON® plus Dual II Magnum® or Eptam® 8-E
	Split application (pre- and post-emergence)	SQUADRON® alone
Transplanted Tomatoes (grown for processing only)	Pre-plant incorporated	SQUADRON® plus Treflan™ E.C., Dual II Magnum®
	Post-emergence	SQUADRON® alone
Asparagus (established)	Pre-emergence	SQUADRON® alone
Processing carrots	Post-emergence	SQUADRON® alone
Highbush blueberries (newly planted)	Pre-emergence to weeds	SQUADRON® alone

† Refer to page 155 for PMRA tank-mixing directives.

QUICK TIPS:

Spray equipment must be thoroughly cleaned to remove remaining traces of Squadron herbicide that might injure other crops. A heavy-duty detergent at the rate of 250 ml/100 L of water is recommended to aid in the cleanout.

RECROPPING RESTRICTIONS WITH IMIDAZOLINONE PRODUCTS

There are several factors that affect the re-cropping following an imidazolinone application. These include (in order of importance):

1. **Product:** Imazethapyr, for example, is more persistent than imazamox.
2. **Soil moisture:** Requires more than 125 mm (5″) of rain between herbicide application and August 31 in the year of application.
3. **Organic matter:** Soil with less than 3% organic matter are more susceptible to carryover crop injury the year after application.
4. **Rate:** Depending on the crop and rates, soil residues can be an issue.
5. **Soil pH:** Product persists longer in a pH < 5.5–6.

Depending on the following crop the level of sensitivity will vary. Please contact your local ADAMA Area Business Manager for more details.

“ADAMA is retailer-focused and farmer-inspired. We are listening to our customers and working to improve existing products and bring new products to market to support their needs.

Dennis Roth
Area Business Manager,
Ontario

INSECTICIDES

PEST CONTROL

For new products that were not registered prior to the printing of this guide, please scan the QR code above to learn more details throughout the season.here to discover more details.

INSECTICIDES

INSECTICIDE

GROUPS 4 & 15

CORMORAN®

Multiple modes of action for codling moth control in apples and Colorado potato beetle control in potatoes as well as a wide range of other insects in specialty crops

ACTIVE INGREDIENT

Novaluron 100 g/L and Acetamiprid 80 g/L = EC

PACKAGING

Case: 2 x 10.08 L jugs

APPLICATION RATES & ACRES TREATED

Rate: 180–840 ml/ac
Acres Treated: 12–56 ac/jug

WATER VOLUME

Ground: 80–400 L/ac (20–105 US gal/ac)
Aerial: Do not apply by air.

RAINFASTNESS

Avoid application when heavy rain is forecast.

REGISTERED CROPS

- Alfalfa (grown for seed)
- Apples
- Brassica leafy greens (Crop sub-group 4-13B)
- Bushberries (Crop sub-group 13-07B)
- Head and stem brassica vegetable crops (Crop group 5-13)
- Peppers (bell and non-bell)
- Potatoes
- Strawberries
- Stone fruits (Crop group 12-09)
- Sweet corn

KEY INSECTS CONTROLLED

- Alfalfa looper
- Alfalfa plant bug
- Aphids
- Apple maggot
- Armyworm
- Blueberry flea beetle
- Blueberry gall midge (Cranberry tip worm)
- Blueberry maggot fly
- Blueberry spanworm
- Cabbage looper
- Cherry fruit fly (suppression)
- Cherry fruitworm
- Codling moth
- Colorado potato beetle
- Cranberry fruitworm
- Diamondback moth
- Dogwood borer
- European apple sawfly
- European corn borer
- Green fruitworm
- Gypsy moth
- Imported cabbageworm
- Japanese beetle
- Leafhopper
- Leafroller
- Lesser appleworm
- Lygus bug
- Mullein bug
- Oriental fruit moth
- Plum curculio
- Spotted wing drosophila
- Strawberry clipper weevil
- Strawberry rootworm
- Swede midge
- Tarnished plant bug
- Tentiform leafminer
- Thrips

CORMORAN®

HOW IT WORKS:

CORMORAN® kills insect eggs by contact and larvae by ingestion. Containing two modes of action, CORMORAN® provides both rapid knockdown and residual control of insect pests.

CROP STAGING AND RATES

Crop	Insects Controlled	Rate	Application Instructions
Alfalfa (grown for seed)	Alfalfa plant bug, Lygus bug	300–360 ml/ac	Applications per season: 2 Apply prior to bloom up to when 50% of seed pods are ripe. Do not exceed more than 720 ml/ac per season. Do not apply more than once in 7 days. Use higher rate for heavier infestations.
FRUITS			
Apples	Leafhopper, Tentiform leafminer	280 ml/ac	Do not apply more than 2800 ml/ac per season. Apply in minimum finished spray volume of 400 L/ac by ground. Repeat applications if needed to maintain control but do not make applications < 12 days apart.
	Aphids	280–420 ml/ac	
	Gypsy moth, Japanese beetle, Mullein bug	340–500 ml/ac	
	Green fruitworm	420 ml/ac	
	Apple maggot, Codling moth, European apple sawfly, Oriental fruit moth, Plum curculio	420–500 ml/ac	
	Lesser appleworm, Tarnished plant bug	500 ml/ac	
	Dogwood borer	600 ml/ac	

CORMORAN®

Crop	Insects Controlled	Rate	Application Instructions
FRUITS (CONT'D)			
Stone fruit (Crop group 12-09) American plum, Apricot, Beach plum, Black cherry, Canada plum, Cherry plum, Chicksaw plum, Chinese jujube, Damson plum, Japanese apricot, Japanese plum, Klamath plum, Nanking cherry, Nectarine, Peach, Plum, Prune plum, Plumcot, Sloe, Sweet cherry, Tart cherry and cultivars, varieties and/or hybrids of these commodities	Oriental fruit moth (Ontario only)	580–840 ml/ac	Applications per season: 4 Apply in minimum finished spray volume of 405 L/ac. Use the high rate under heavy pest pressure. Do not apply during bloom. Minimum re-application interval of 10 days.
	Cherry fruit fly (suppression, cherry only), Plum curculio (under high pressure, suppression only)	840 ml/ac	
Strawberries	Aphids, Leafhopper	200–300 ml/ac	Applications per season: 3 Do not apply more than once every 10–14 days. Apply in a min. application volume of 80 L/ac by ground. Do not apply during bloom.
	Strawberry clipper weevil, Tarnished plant bug	360 ml/ac	

CROP STAGING AND RATES (CONT'D)

Crop	Insects Controlled	Rate	Application Instructions
Bushberries (Crop sub-group 13-07B): Aronia berry, Blueberry (lowbush, highbush), Chilean guava, Cranberry (highbush), Currant (black, buffalo, red), Elderberry, European barberry, Gooseberry, Honeysuckle (edible), Huckleberry, Jostaberry, Juneberry (Saskatoon berry), Lingonberry, Native currant, Salal, Sea buckthorn and cultivars, varieties and/or hybrids of these commodities	Aphids, Blueberry gall midge (cranberry tipworm)	200 ml/ac	Applications per season: 3 Apply in a finished spray volume of 80 L/ac by ground. Do not apply more than once every 10–14 days.
	Japanese beetle	280 ml/ac	
	Blueberry maggot fly	300–560 ml/ac	
	Blueberry flea beetle, Blueberry spanworm, Strawberry rootworm, Cherry fruitworm, Cranberry fruitworm, Spotted wing drosophila, Thrips	560 ml/ac	
VEGETABLES			
Brassica (cole) leafy vegetables (Crop group 5-13): Broccoli, Chinese broccoli, Broccoli raab (rapini), Brussels sprouts, Cabbage, Chinese cabbage (bok choy or napa), Cauliflower, Cavalo broccoli, Collards, Kale, Kohlrabi, Mizuna, Mustard spinach, Rape greens and cultivars, varieties and/or hybrids of these commodities	Alfalfa looper, Armyworm, Cabbage looper, Diamondback moth, Imported cabbageworm	180–300 ml/ac	Applications per season: · Low rate: 2 · High rate: 1 Do not apply more than 680 ml/ac per season. Apply in a minimum finished spray volume of 81 L/ac by ground.
	Aphids	260–300 ml/ac	
	Lygus bug, Swede midge	200 ml/ac	

CORMORAN®

Crop	Insects Controlled	Rate	Application Instructions
VEGETABLES (CONT'D)			
Leafy vegetables–Brassica leafy greens (Crop sub-group 4-13B): Arugula, Broccoli raab, Chinese broccoli, Abyssinian cabbage, Seakale cabbage, Bok choy (Chinese cabbage), Collards, Garden cress, Upland cress, Hanover salad, Kale, Maca, Mizuna, Mustard greens, Radish leaves, Rape greens, Wild rocket, Shepherd's purse, Turnip greens, Watercress, as well as cultivars, varieties and hybrids of these commodities	Aphids	260–300 ml/ac	Applications per season: 3 Do not apply more than once every 7–10 days. Apply in a minimum finished spray volume of 80 L/ac by ground.
Corn (sweet)	Aphids	200–280 ml/ac	Applications per season: 2 Do not apply more than once every 21 days. Apply in a minimum 80 L/ac spray volume by ground. Use the higher rate for heavier infestations.

CORMORAN®

CROP STAGING AND RATES (CONT'D)

Crop	Insects Controlled	Rate	Application Instructions
VEGETABLES (CONT'D)			
Peppers (bell and non-bell)	Colorado potato beetle	180–280 ml/ac	Do not make applications less than 7 days apart. Do not apply more than 1050 ml/ac per season. Apply in at least 80 L/ac by ground. For CPB, do not apply more than twice to a single generation and do not apply to successive generations.
	Aphids	200 ml/ac	
	European corn borer	260–300 ml/ac	
	Armyworm, Cabbage looper	180–300 ml/ac	
Potatoes	Colorado potato beetle	180–280 ml/ac	Do not apply more than once every 10–14 days. For Colorado potato beetle, do not apply more than twice to a single generation and do not apply to successive generations. Apply in minimum finished spray volume of 80 L/ac by ground.
	Armyworm, Cabbage looper	180–300 ml/ac	
	Leafhopper	200–300 ml/ac	
	Aphids, European corn borer	260–300 ml/ac	

MIXING INSTRUCTIONS

1. Fill sprayer tank ½ full of water.
2. Start sprayer tank agitation.
3. Add the required amount of CORMORAN®.
4. If necessary, add any required adjuvants or surfactants for tank-mix partners.
5. Complete filling tank with water.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

CORMORAN®

CROP ROTATIONS

No restrictions

PRE-HARVEST INTERVALS

- Strawberries: 1 day
- Brassica leafy vegetables (Crop group 5-13 and subgroup 4-13B), Peppers, Potatoes, Stone fruits (Crop group 12-09): 7 days
- Bushberries (Crop sub-group 13-07B): 8 days
- Sweet corn: 10 days
- Alfalfa (grown for seed), Apples: 14 days

RE-ENTRY INTERVALS

Crop	Re-entry activities	Restricted entry interval
Alfalfa (grown for seed)	All activities	12 hours
Apples	Fruit thinning	7 days
	All other activities	12 hours
Bushberries (Crop sub-group 13-07B)	All activities	12 hours
Stone Fruit	Fruit thinning	6 days
	All other activities	12 hours
Strawberries	All activities	12 hours
Brassica (cole) leafy vegetables (Crop Group 5-13)	Hand weeding, scouting, tying and training	2 days
	All other activities	12 hours
Leafy vegetables– Brassica leafy greens (Crop sub-group 4-13B)	All activities	12 hours
Peppers (bell and non-bell)		
Potatoes		
Sweet Corn		

STORAGE

- Store in original, tightly closed container.
- Do not ship or store near food, feed, seed and fertilizers.
- Store in cool, dry, locked, well-ventilated area without floor drain.
- Keep away from fire or open flame, or other sources of heat.

QUICK TIPS:

Consider early applications (before petal fall) of CORMORAN® to allow beneficial insects to build up later in the season. To minimize the possibility of transient effects on honeybee brood development, do not use CORMORAN® on blooming crops when bees are actively foraging. If orchards have been historically infested with mites or aphids, be sure to scout regularly and use miticides to control their populations.

INSECTICIDE

GROUP 3

SILENCER® 120 EC

SILENCER® 120 EC controls a wide range of insects in field, tree fruit and horticulture crops.

ACTIVE INGREDIENT

Lambda-cyhalothrin 120 g/L = EC

PACKAGING

Case: 4 x 3.785 L jugs

APPLICATION RATES & ACRES TREATED:

Rate: 17–94 ml/ac (standard rate for most pests: 34 ml/ac)
Acres Treated: 40–220 ac/jug (110 ac/jug at standard rate)

WATER VOLUME

Ground: 40–80 L/ac (10–20 US gal/ac)
Aerial: 4–16 L/ac (1–4 US gal/ac)

RAINFASTNESS

1 hour

REGISTERED CROPS

- Apples
- Brassica crops (broccoli, Brussels sprouts,cauliflower)
- Carrots
- Cereals (wheat, barley, oats)
- Cherries
- Choke cherry
- Corn (field, sweet)
- Peaches and Nectarines
- Pears
- Plums
- Potatoes
- Shelterbelts
- Soybeans
- Strawberries
- Sweet potatoes
- Tobacco
- Tomatoes

SILENCER® 120 EC is registered for use on more than 30 crops; refer to the label for more information.

APPLICATION TIMING AND CROP STAGING

The need and timing of an application should be based on the presence of pests at vulnerable developmental stages and significant populations, as determined by local monitoring.

Consult the label for specific crop and insect timing.

HOW IT WORKS

Fast-acting stomach and contact insecticide

INSECTICIDE

SILENCER® 120 EC

KEY INSECTS CONTROLLED

- Apple aphid
- Apple brown bug
- Apple leaf midge
- Armyworm
- Bean aphid
- Bean leaf beetle
- Bertha armyworm
- Black vine weevil (adults)
- Bud (clipper) weevil
- Cabbage looper
- Cabbage seedpod weevil (adults)
- Carrot rust fly
- Carrot weevil
- Cherry maggot
- Codling moth
- Colorado potato beetle
- Corn borer
- Corn earworm
- Crucifer flea beetle
- Cutworms
- Darksided cutworm
- Diamondback moth larvae
- European asparagus aphids
- European corn borer
- Fall armyworm
- Fruit tree leafroller
- Grasshoppers
- Green peach aphid
- Imported cabbageworm
- Lygus bug
- Meadow spittle bug
- Mealy plum aphid
- Oblique-banded leafroller
- Onion thrips
- Oriental fruit moth
- Pale apple leafroller
- Pea aphid
- Pea leaf weevil
- Pear psylla (nymphs, adults)
- Plum curculio
- Potato flea beetle
- Potato leafhopper
- Prairie tent caterpillar
- Soybean aphid
- Spotted tentiform leafminer
- Swede midge
- Tarnished plant bug
- Tuber flea beetle
- Ugly nest caterpillar
- Western bean cutworm
- White apple leafhopper
- Winter moth
- Woolly apple aphid

REGISTERED AND SUPPORTED TANK MIXES†

Herbicides:

- BISON® 400 L
- SQUADRON®

Fungicides:

- Allegro®
- BUMPER® 432 EC
- SORATEL®
- TOPNOTCH™

† Refer to page 155 for PMRA tank-mixing directives.

MIXING INSTRUCTIONS

Confirm compatibility in advance by premixing small proportional quantities of water with SILENCER® 120 EC and the tank-mix partner.

1. Fill sprayer tank ½ full of water.
2. Start sprayer tank agitation.
3. Add the required amount of SILENCER® 120 EC.
4. If necessary, add any required adjuvants or surfactants for tank-mix partners.
5. Complete filling tank with water withv agitation on.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

SILENCER® 120 EC

CROP ROTATIONS

No restrictions the year following treatment

RE-ENTRY INTERVALS

Corn (sweet/field)
- Hand harvesting/hand detasseling: 3 days
- All other activities: 12 hours

All other crops
- All activities: 12 hours

PRE-HARVEST INTERVALS*

- Corn (field): 21 days
- Legumes (soybeans, beans, field peas): 21 days
- Oilseeds: 7 days
- Potatoes: 7 days
- Timothy: 14 days
- Wheat, Barley, Oats: 28 days

*See label for full list of pre-harvest intervals for all registered crops.

GRAZING RESTRICTIONS

DO NOT cut treated fields for silage/forage.
DO NOT graze treated fields.
DO NOT feed treated crops to livestock.

For grasses/non-grasses grown for seed production only:
DO NOT feed seed screenings and aftermath to livestock.

STORAGE

Do not freeze.

QUICK TIPS:

Apply below temperatures of 25°C. Apply in the evening or early morning when temperatures are cool to get the best control. Wait 24 hours before re-entry.

INSECTICIDE

GROUP 3

ZIVATA®

A choice in insect control giving you the same trusted results in a more sustainable and advanced formulation

Low VOC
FORMULATION TECHNOLOGY

ACTIVE INGREDIENT

Lambda-cyhalothrin 120 g/L = EC

PACKAGING

Case: 2 x 4.08 L jugs

APPLICATION RATES & ACRES TREATED

Rate: 17–94 ml/ac (standard rate for most pests: 34 ml/ac)
Area Treated: 45–240 ac/jug (120 ac/jug at standard rate)

WATER VOLUME

Ground: 40–80 L/ac (10–20 US gal/ac)
Aerial: 4–16 L/ac (1–4 US gal/ac)

RAINFASTNESS

1 hour

REGISTERED CROPS

- Apples
- Carrots
- Cereals (wheat, barley, oats)
- Cherries
- Choke cherry
- Corn (field, sweet)
- Brassica crops (broccoli, Brussels sprouts,cauliflower)
- Nectarines
- Peaches
- Pears
- Plums
- Potatoes
- Shelterbelts
- Soybeans
- Strawberries
- Sweet potatoes
- Tomatoes

ZIVATA® is registered for use on more than 30 crops; refer to the label for more information.

HOW IT WORKS

ZIVATA® is a synthetic pyrethroid insecticide formulated with an improved, plant-based solvent that offers fast-acting stomach and contact effects against a broad spectrum of insect pests. This renewably sourced formulation has low volatile organic properties and improves the user experience with a reduced drift potential and product volatility.

APPLICATION RATES

The need and timing of an application should be based on the presence of pests at vulnerable developmental stages and significant populations, as determined by local monitoring. Consult the label for specific crop and insect timing.

INSECTICIDE

ZIVATA®

KEY BENEFITS

- Advanced formulation using sustainable, plant-based materials
- Low Volatile Organic Compound (VOC) with low odour formulation
- Improved user experience and flexibility of use around odour-sensitive areas
- Trusted and proven active ingredient
- Broad range of crops, pests and use patterns

KEY INSECTS CONTROLLED

- Apple aphid
- Apple brown bug
- Apple leaf midge
- Armyworm
- Bean aphid
- Bean leaf beetle
- Bertha armyworm
- Black vine weevil (adults)
- Bud (clipper) weevil
- Cabbage looper
- Cabbage seedpod weevil (adults)
- Carrot rust fly
- Carrot weevil
- Cherry maggot
- Codling moth
- Colorado potato beetle
- Corn borer
- Corn earworm
- Crucifer flea beetle
- Cutworms
- Darksided cutworm
- Diamondback moth larvae
- European asparagus aphids
- European corn borer
- Fall armyworm
- Fruit tree leafroller
- Grasshoppers
- Green peach aphid
- Imported cabbageworm
- Lygus bug
- Meadow spittle bug
- Mealy plum aphid
- Oblique-banded leafroller
- Onion thrips
- Oriental fruit moth
- Pale apple leafroller
- Pea aphid
- Pea leaf weevil
- Pear psylla (nymphs, adults)
- Plum curculio
- Potato flea beetle
- Potato leafhopper
- Prairie tent caterpillar
- Soybean aphid
- Spotted tentiform leafminer
- Swede midge
- Tarnished plant bug
- Tuber flea beetle
- Ugly nest caterpillar
- Western bean cutworm
- White apple leafhopper
- Winter moth
- Woolly apple aphid

REGISTERED AND SUPPORTED TANK MIXES†

Herbicides:

- SQUADRON®
- BISON® 400 L

Fungicides:

- Allegro®
- BUMPER® 432 EC
- SORATEL®
- TOPNOTCH™

† Refer to page 155 for PMRA tank-mixing directives.

ZIVATA®

MIXING INSTRUCTIONS

Confirm compatibility in advance by premixing small proportional quantities of water with ZIVATA® and the tank-mix partner.

1. Fill sprayer tank ½ full of water.
2. Start sprayer tank agitation.
3. Add the required amount of ZIVATA®.
4. If necessary, add any required adjuvants or surfactants for tank-mix partners.
5. Complete filling tank with water with agitation on.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

PRE-HARVEST INTERVALS*

Oilseeds, Potatoes: 7 days
Timothy: 14 days
Corn (field), Legumes (beans, chickpeas, field peas, soybeans): 21 days
Wheat, Barley, Oats: 28 days

*See label for full list of pre-harvest intervals for all registered crops.

RE-ENTRY INTERVALS

Corn (sweet/field)

- Hand harvesting/hand detasseling: 3 days
- All other activities: 12 hours

All other crops/all activities: 12 hours

GRAZING RESTRICTIONS

DO NOT cut treated fields for silage/forage. DO NOT graze treated fields. DO NOT feed treated crops to livestock. For grasses/non-grasses grown for seed production only: DO NOT feed seed screenings and aftermath to livestock.

CROP ROTATIONS

No restrictions the year following the treatment

STORAGE

Do not freeze.

QUICK TIPS:

Control of some insect species with pyrethroid insecticides decreases as temperature rises (above 25° C). For best results, apply ZIVATA® during the early morning before temperatures rise, and during the evening, past the heat of the day. Use sufficient water for thorough coverage.

“Where we see complacency in the market, we see opportunity. We are actively doing research, conducting trials and looking for new ways to innovate. In the end, we just want to give farmers more options.

Gavin Lunn
Key Account Manager

FUNGICIDES

DISEASE CONTROL

For new products that were not registered prior to the printing of this guide, please scan the QR code above to learn more details throughout the season.here to discover more details.
here to discover more details.

FUNGICIDES

FUNGICIDE

GROUP 3

BUMPER® 432 EC

Broad-spectrum systemic fungicide that protects against yield and quality losses due to leaf disease including mummy berry in blueberries

Low VOC
FORMULATION TECHNOLOGY

ACTIVE INGREDIENT

Propiconazole 432 g/L = EC

PACKAGING

Case: 2 x 4.8 L jugs

APPLICATION RATES & ACRES TREATED

Rate: 60–180 ml/ac
Acres Treated: 27–80 ac/jug

WATER VOLUME

Ground: min 80 L/ac (20 US gal/ac)
Aerial: 16–20 L/ac (4–5 US gal/ac)

RAINFASTNESS

1 hour

REGISTERED CROPS

- Apricots
- Asparagus
- Barley
- Blueberries (lowbush, highbush)
- Canola
- Cherries (sweet, sour)
- Corn
- Cranberries
- Caneberries
- Dry edible beans
- Nectarines
- Oats
- Peaches
- Plums
- Saskatoon berries
- Soybeans
- Wheat (spring, winter)

KEY DISEASES CONTROLLED

- Black knot (suppression)
- Blackleg
- Brown rot
- Cherry Leaf spot
- Cottonball
- Mummy berry
- Net and spot blotches
- Powdery mildew
- Rusts
- Rutabagas
- Septoria spots and blotches
- Scalds
- Tan spots
- Yellow rust

HOW IT WORKS

Broad-spectrum, systemic activity with excellent leaf surface protection and translocation within the plant for additional disease prevention.

BUMPER® 432 EC

APPLICATION TIMING AND CROP STAGING

Crop	Diseases	Timing
½ rate at 60 ml/ac		
Barley	Net blotch	Early: Growth stage 12–23, as early as the 2-leaf stage
Wheat	*Septoria* leaf spot, Tan spot	
Full rate at 120 ml/ac		
Barley	Leaf and stem rust, Septoria leaf spot, Net blotch, Powdery mildew, Scald, Spot blotch	Early: Growth stage 29–37, at the first sign of disease, usually at the beginning of stem elongation Later: Growth stage 49–55, before head is half emerged
Oats	Crown rust, Septoria leaf blotch	
Wheat	Glume blotch, Leaf and stem rust, Powdery mildew, Septoria leaf spot, Stripe rust, Tan spot	
Canola	Blackleg	Rosette stage, between 2nd true leaf and bolting
Corn	Eye spot, Grey leaf spot, Helminthosporium leaf spot, Northern corn leaf blight, Rusts, Southern corn leaf blight	When disease first appears
Soybeans (for seed)	Frogeye leaf spot, Aerial web blight	When disease first appears. Under severe disease pressure, make a 2nd application 14 days after the first.
Dry edible beans	Rust	At the first detection of disease and a 2nd application 14–21 days later

FRUIT AND SPECIALTY CROP USES

NOTE: See label for full list of fruit and specialty crops and diseases.

Crop	Diseases
Asparagus	Rust
Cranberries	Cottonball
Blueberries (highbush, lowbush)	Mummy berry
Kentucky bluegrass (grown for seed)	Powdery mildew
Peaches, Nectarines, Plums, Apricots	Brown rot blossom blight, Fruit brown rot
Plums, Sour cherries	Black knot (suppression only)
Rutabagas	Powdery mildew

BUMPER® 432 EC

FRUIT AND SPECIALTY CROP USES (CONT'D)

Crop	Diseases
Saskatoon berries	Entomosporium leaf and berry spot, Saskatoon juniper rust
Sweet and sour cherries	Brown rot blossom blight, Fruit brown rot, Cherry leaf spot
Western red cedar	Keithia foliar blight

REGISTERED AND SUPPORTED TANK MIXES†

Herbicides:

- 2,4-D ESTER 700
- BADGE®
- BROMOTRIL®
- MCPA ESTER 600

Insecticides:

- SILENCER® 120 EC
- ZIVATA®

† Refer to page 155 for PMRA tank-mixing directives.

MIXING INSTRUCTIONS

1. Fill spray tank ½ full with water and gently agitate.
2. Add the required amount of BUMPER® 432 EC and agitate thoroughly.
3. Continue filling the tank with water until the tank is ⅘ full and, if applicable, add the required amount of tank-mix partner.
4. Complete filling the spray tank with water, maintaining agitation during mixing and spraying operations.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

PRE-HARVEST INTERVALS

NOTE: See label for PHIs for all registered crops.

- Corn: 14 days
- Beans: 28 days
- Cereal crops (wheat, barley, oats): 45 days
- Soybeans: 50 days
- Canola: 60 days

GRAZING RESTRICTIONS

Do not graze livestock within three (3) days of spraying.

RE-ENTRY INTERVALS

NOTE: Any activities or crops not listed have an REI of 12 hours.

Highbush blueberries:

- Hand pruning: 5 days

Corn:

- Hand harvesting/hand detasseling: 1 day

CROP ROTATIONS

No restrictions

STORAGE

May be stored at any temperature

QUICK TIPS:

BUMPER® 432 EC should be applied as a preventative disease control measure. Established diseases are more difficult to control and may have already reduced crop vigour.

NEW

FUNGICIDE

GROUP M04

CAPTAN 480 SC

CAPTAN 480—now available in a new liquid formulation—makes it easier to use to control a wide variety of diseases in fruit, vegetable and ornamental crops.

ACTIVE INGREDIENT

Captan 482 g/L

PACKAGING

Case: 2 x 10 L jugs

APPLICATION RATES & ACRES TREATED

Rate: Varies by crop, refer to table below.
Acres Treated: Varies

WATER VOLUME

Ground: 400 L/ac (105 US gal/ac)*
Aerial: 20 L/ac (5 US gal/ac)
*unless otherwise noted in the charts on page 115-117

RAINFASTNESS

Avoid application when heavy rain is forecast.

REGISTERED CROPS

This is only a partial list of crops registered for use with CAPTAN 480 SC. For the full list, please refer to the CAPTAN 480 SC label.

- Apples
- Apricots
- Blackberries
- Blueberries (highbush, lowbush)
- Cherries
- Cucumbers (field grown)
- Ginseng
- Grapes
- Loganberries
- Nectarines
- Peaches
- Pears[1]
- Plums
- Potatoes
- Prunes
- Raspberries
- Rhubarb
- Strawberries (field grown)
- Tomatoes (field grown–foliar applications)
- Turf (golf course, sod farms only)
- Outdoor ornamentals (cut and non-cut flowers)
- Greenhouse ornamentals (non-cut flower: foliar applications to aster, camellia, carnation, chrysanthemum, dahlia, lilac, rose and tulip)
- Soil and greenhouse bench treatment (soil treatment: seedlings or transplants of roses and other flowers, shrubs, trees, lawn seedbeds, beans, celery, crucifers, eggplants, peas, tomatoes, peppers)

[1] Do NOT use on D'Anjou pears.

FUNGICIDE

CAPTAN 480 SC

KEY DISEASES CONTROLLED AND APPLICATION RATES

NOTE: Water volume (ground application) is 400 L/ac unless otherwise noted.

Crop	Diseases	Application Rate
FRUIT CROPS		
Apples	Bitter rot, black rot, Brook's spot, bull's-eye rot, fly speck, scab, sooty blotch	**Rate:** 2 L/ac (0.97 kg a.i./ac) Apply at a minimum of a 7-day interval. Maximum Applications per year: High-density orchards: 10 Low-density orchards: 2 When hand thinning is performed, make one (1) application before hand thinning fruit and 1 application after hand thinning fruit.
Pears (do not use on D'anjou pears)	Scab, sooty blotch	
Apricots	Brown rot	**Rate:** 2.69 L/ac (1.3 kg a.i./ac) Maximum applications per year: 1
Cherries (sour, sweet)	Brown rot, leaf spot	
Nectarines, Peaches	Brown rot, scab	
Plums, Prunes	Black knot, brown rot	
Grapes	Dead arm (current season's infections)	**Rate:** 1.33 L/ac (0.65 kg a.i./ha) Apply when new shoots are 1-5 cm long and again when 10–15 cm long. Maximum applications per year: 2
	Black rot, downy mildew	**Rate:** 1.33–2.0 L/ac (0.65–0.97 kg a.i./ha) Maximum applications per year: 1
Blueberries	Fruit rot, mummy berry	**Rate:** 1.5 L/ac (0.73 kg a.i./ha) Apply at a minimum of a 7-day interval. Maximum applications per year: 6 DO NOT apply by air.
Blackberries	Fruit rot	
Loganberries	Cane spot, fruit rot, leaf spot, spur blight	**Rate:** 1.0–1.5 L (0.49–0.73 kg a.i) Apply at a minimum of a 7-day interval. Maximum applications per year: 6 DO NOT apply by air.
Raspberries	Fruit rot, spur blight	**Rate:** 1.68 L (0.81 kg a.i.) Apply at a minimum of a 7-day interval. Maximum applications per year: 6 DO NOT apply by air.

CAPTAN 480 SC

KEY DISEASES CONTROLLED AND APPLICATION RATES (CONT'D)

NOTE: Water volume (ground application) is 400 L/ac unless otherwise noted.

Crop	Diseases	Application Rate
FRUIT CROPS (CONT'D)		
Strawberries	Gray mould rot, leaf spot	**Rate:** 2.35 L (1.13 kg a.i.) Apply at a minimum of a 7-day interval. Maximum applications per year: 6 DO NOT use on greenhouse strawberries.
Rhubarb (in forcing sheds)	Grey mould	**Rate:** 0.85–1.34 L (0.4–0.65 kg a.i.) Maximum spray volume: 60 L/ac Apply at a minimum of a 7-day interval. Maximum applications per year: 6 DO NOT apply by air.
VEGETABLE CROPS		
Cucumbers	Anthracnose, scab	**Rate:** 1.5–2.83 L/ac (0.73–1.38 kg a.i./ha) Apply at a minimum of a 7-day interval. Maximum applications per year: 3 DO NOT use on greenhouse cucumber.
Potatoes	Early blight, late blight	**Rate:** 1.68–2.52 L/ac (0.81–1.21 kg a.i./ha) Apply at a minimum of a 7-day interval. Maximum applications per year: 3
Tomatoes	Anthracnose, Septoria leaf spot	Rate: 1.85–2.83 L/ac (0.89–1.38 kg a.i./ha) Apply at a minimum of a 7-day interval. Maximum applications per year: 3 DO NOT use on greenhouse tomato.
Ginseng	Grey mould, pythium root rot and damping-off, phytophthora root rot, Rhizoctonia root rot, Cylindrocarpon root rot (suppression only)	Rate: 1.68 L/ac (0.81 kg a.i./ha) in 378–757 L of water per acre Apply at a minimum of a 7-day interval. Maximum applications per year: 8 DO NOT apply by air.

CAPTAN 480 SC

KEY DISEASES CONTROLLED AND APPLICATION RATES (CONT'D)

NOTE: Water volume (ground application) is 400 L/ac unless otherwise noted.

Crop	Diseases	Application Rate
GREENHOUSE AND TURF		
Soil and greenhouse bench treatment	Damping-off and fungus root rot diseases of seedlings or transplants of roses, lawn seedbeds, and vegetables	Rate: 2.5 L (1.2 kg a.i.) per 1,000 L of water and apply at rates of 50–85 L per 100 square metres. Work into the upper 7.5–10 cm of soil before planting. Maximum applications per year: 1 DO NOT apply by air
Turf (golf courses and sod farms only)	Brown patch, Damping-off, leaf spot, melting-out, root rot	Rate: 100 mL (48.2 g a.i.) in 20 L of water per 100 square metres. Maximum applications per year: 1 DO NOT apply to home lawns, parks, schools, sport fields and other recreation areas. DO NOT apply by air.
OUTDOOR ORNAMENTALS		
Carnation	Leaf spot	**Rate:** 0.85–1.01 L (0.4–0.49 kg a.i.) Maximum applications per yeas: 6 Do not apply by air. DO NOT use on greenhouse cut flowers.
Chrysanthemum	Botrytis flower blight, Septoria leaf spot	
Rose	Black spot	
Camellia	Petal blight	**Rate:** 0.85 L (0.4 kg a.i.) Re-apply on 7- to 10-day intervals if disease pressure continues, or if environmental conditions are conducive to disease development. Maximum applications per year: 6 DO NOT use on greenhouse cut flowers. DO NOT apply by air.
Aster, dahlia, lilac, rose, tulip	Botrytis flower blight	
Begonia (tuberous), daffodil, dahlia, gladiolus, iris (bulbous), narcissus, tulip	Damping-off, bulb rots	**Rate:** 2.52–6.38 L (1.21–3.08 kg a.i.) DO NOT use on greenhouse cut flowers. DO NOT apply by air.

FUNGICIDE

CAPTAN 480 SC

TANK MIXES†

Nova™ and other myclobutanil products

When tank mixes are permitted, consult the labels of the tank-mix partners and observe the largest (most restrictive) spray buffer zone of the products involved in the tank mix and apply using the coarsest spray (ASAE) category indicated on the labels for those tank-mix partners.

† Refer to page 155 for PMRA tank-mixing directives.

MIXING INSTRUCTIONS*

1. Before using, mix contents of the container thoroughly to ensure the product is suspended.
2. Fill the spray tank to at least ½ capacity with clean water and begin agitation.
3. Pour recommended amount of CAPTAN 480 SC into the spray tank.
4. Before adding any optional tank-mix partners, add more water and add the partner according to product labels.
5. Add balance of water.
6. Maintain agitation during filling and spraying operations. Do not allow mixture to stand.

* Use a screen not finer than 50 mesh in entire system.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

PRE-HARVEST INTERVALS

- Apricots, Blueberries, Cherries, Cucumbers, Loganberries, Nectarines, Peaches, Potatoes, Plums, Prunes, Rhubarb, Strawberries, Tomatoes: 2 days
- Apples, Grapes, Pears: 7 days
- Ginseng: 20 days

CROP ROTATION AND GRAZING RESTRICTIONS

No restrictions

STORAGE

Store this product away from food or feed.

LOOKING FOR CAPTAN 80 WSP?

Scan this QR code for information!

QUICK TIPS:

Alkaline materials such as spray lime, lime-sulfur and Bordeaux mixture will reduce the fungicidal activity of CAPTAN 480 SC. Do not apply CAPTAN 480 SC in combination with or immediately before or closely following oil sprays. Combinations with solvent formulation of organic phosphates should not be used.

CAPTAN 480 SC

RE-ENTRY INTERVALS

NOTE: If the re-entry interval (REI) for hand harvesting and the pre-harvest interval (PHI) are different, follow the longer of the two intervals.See label for the full list of crops and associated PHIs.

Crop	Activity	REI[1] and/ or PHI
VEGETABLE CROPS		
Cucumber (field grown)	Hand-set/hand-line irrigation-related activities involving foliage contact	10 days
	Harvesting	8 days
	Training, tying	3 days
	All other activities	12 hours
Ginseng	Harvesting	20 days
	Hand-set/hand-line irrigation-related activities involving foliage contact	7 days
	All other activities	12 hours
Potatoes	Harvesting	8 days
	Hand-set/hand-line irrigation-related activities involving foliage contact	7 days
	Rogueing	6 days
	All other activities	12 hours
Tomatoes (field grown, foliar applications)	Hand-set/hand-line irrigation-related activities involving foliage contact	10 days
	Harvesting	8 days
	Training, tying	7 days
	All other activities	12 hours
FRUIT CROPS		
Stone fruit trees (cherry, peach, plum, prune, apricot, nectarine)	Hand thinning	29 days
	Hand harvesting	15 days
	Mechanically-assisted harvesting	8 days
	All other activities	1 day

[1] REIs longer than 12 hours apply to hand labour tasks.

CAPTAN 480 SC

RE-ENTRY INTERVALS (CONT'D)

Crop	Activity	REI[1] and/ or PHI[2]
FRUIT CROPS (CONT'D)		
Grapes	Turning, girdling	78 days
	Hand harvesting, training (full foliage), tying (full foliage), leaf pulling by hand	55 days
	Mechanically-assisted harvesting	8 days
	All other activities	12 hours
Apple and Pear trees (High-density) NOTE: maximum canopy width per tree is 2 m (1 m to reach center or trunk from the row alley).	Mechanically-assisted harvesting	8 days
	Hand pruning, training	6 days
	All other activities	2 days
Apple and Pear trees (Non-high-density)	Hand thinning	24 days
	Hand harvesting	19 days
	Mechanically-assisted harvesting	8 days
	Hand pruning, training	4 days
	All other activities	2 days
BERRIES		
Raspberries	Harvesting	8 days
	Hand-set/hand-line irrigation-related activities involving foliage contact	7 days
	Training, tying	7 days
	All other activities	12 hours
Strawberries (field grown)	Hand-set/hand-line irrigation-related activities involving foliage contact	9 days
	Harvesting	8 days
	All other activities	12 hours

CAPTAN 480 SC

RE-ENTRY INTERVALS (CONT'D)

Crop	Activity	REI[1] and/or PHI[2]
FRUIT CROPS (CONT'D)		
BERRIES (CONT'D)		
Highbush blueberries, blackberries, loganberries	Harvesting	8 days
	Hand-set/hand-line irrigation-related activities involving foliage contact	6 days
	Training, tying (full foliage)	5 days
	All other activities	12 hours
Lowbush blueberries	Harvesting	8 days
	Hand-set/hand-line irrigation-related activities involving foliage contact	6 days
	All other activities	3 days
GREENHOUSE AND OUTDOOR ORNAMENTAL CROPS		
Greenhouse ornamentals[2] (non-cut flower): foliar applications to aster, camellia, car-nation, chrysanthemum, dahlia, lilac, rose and tulip	All activities	12 hours
Soil and greenhouse bench treatment (soil treatment): seedlings or transplants of roses and other flowers, shrubs, trees, lawn seedbeds, beans, celery, crucifers, egg-plants, peas, tomatoes, pepper		
Outdoor Ornamentals: Foliar (cut flower)	Harvesting, disbudding, hand pruning (full foliage)	7 days
	All other activities	1 day
Outdoor Ornamentals: Foliar (non-cut flower)	Harvesting, disbudding, hand pruning (full foliage)	4 days
	All other activities	12 hours
TURF		
Sod farms	All activities	12 hours
Golf courses	All activities	Until sprays have dried

[1] REIs longer than 12 hours apply to hand labour tasks.

[2] Only applies to non-cut flowers, as there is a label statement that will prohibit the use on cut flowers.

FUNGICIDE

GROUPS 3 & 11

CUSTODIA®

A multi-mode-of-action fungicide offering preventative and curative protection of the flag leaf against major leaf diseases

ACTIVE INGREDIENT

Tebuconazole 200 g/L and Azoxystrobin 120 g/L = SC

PACKAGING

Case: 2 x 10.08 L jugs

APPLICATION RATES & ACRES TREATED

- **Rate:** 190–250 ml/ac
- **Acres Treated:** 40–53 ac/jug

WATER VOLUME

- **Ground:** 40 L/ac (10 US gal/ac)
- **Aerial:** 20 L/ac (5 US gal/ac)

RAINFASTNESS

Avoid applying when heavy rainfall is in the forecast.

REGISTERED CROPS

- Barley
- Oats
- Soybeans
- Wheat (spring, winter)

KEY DISEASES CONTROLLED

- Leaf rust
- Stem rust
- Stripe rust
- *Septoria* leaf blotch
- Tan spot
- Net blotch
- Spot blotch

HOW IT WORKS

CUSTODIA® is a broad-spectrum, preventative fungicide with systemic and curative properties recommended for the control of many important plant diseases. CUSTODIA® may be applied as a foliar spray in spray programs or in tank mixes with other crop protection products. All applications must be made according to the use directions that follow.

⚠ Always read and follow pesticide label directions.

CUSTODIA®

CROP STAGING

Crop	Rate	Diseases	Application Timing
Wheat (spring, winter)	190–250 ml/ac	Leaf rust, Stem rust, Stripe rust, Septoria leaf blotch, Tan spot	Apply CUSTODIA® at the very early stages of disease development. Use of the higher rate should be considered when weather conditions are conducive to heavy disease development or when heavy disease pressure is present.
Barley		Net blotch, Spot blotch, Leaf rust, Stem rust, Stripe rust, Septoria leaf blotch, Tan spot	
Soybeans		Asian soybean rust, Frog-eye leaf spot	
Oats	190 ml/ac	Crown rust, Stem rust, Septoria leaf blotch	Apply CUSTODIA® at the very early stages of disease development.

REGISTERED AND SUPPORTED TANK MIXES†

Manipulator™

† Refer to page 155 for PMRA tank-mixing directives.

MIXING INSTRUCTIONS*

1. Fill sprayer tank ½ full of water.
2. Start sprayer tank agitation.
3. Add the required amount of CUSTODIA®.
4. If applicable, add any required adjuvants or surfactants for tank-mix partners.
5. Complete filling tank with water.

* Use a 50-mesh(or coarser) filter screen.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

CROP ROTATIONS

No restrictions

PRE-HARVEST INTERVALS

- Forage, hay: 6 days
- Soybeans: 20 days
- Mature grains: 36 days

RE-ENTRY INTERVAL

12 hours

CUSTODIA®

GRAZING RESTRICTIONS

Do not allow livestock to graze or feed green forage to livestock prior to 6 days after treatment. Straw cut after harvest may be fed or used for bedding.

STORAGE

Do not freeze.

QUICK TIPS:

CUSTODIA® should be applied at flag leaf for optimal leaf disease control. Pathogens coverage is key; do not use less than recommended water volumes.

For fusarium control, we would recommend an application of SORATEL® fungicide at full head emergence after CUSTODIA® at flag leaf.

For resistance management, CUSTODIA® contains Group 3 and 11 fungicides. When possible, rotate the use of CUSTODIA® or other Group 3 and 11 fungicides with different groups that control the same pathogens.

FUNGICIDE

GROUP M4

FOLPAN® 80 WDG

A water-dispersible granular fungicide that delivers exceptional protection against the most common and economically damaging diseases in grapes and other fruit, vegetable and ornamental crops

ACTIVE INGREDIENT

80% Folpet = WDG

PACKAGING

Case: 2 x 5 kg packs

APPLICATION RATES & ACRES TREATED

Rate: 0.5–2 kg/ac
Acres Treated: 2.5–10 ac/pack

WATER VOLUME

Ground: 400–1200 L/ac (100-317 US gal/ac)

Aerial: Do not apply by air.

RAINFASTNESS

N/A

REGISTERED CROPS

- Apples
- Azalea
- Carnation
- Chrysanthemum
- Crabapples
- Field cucumbers
- Field tomatoes
- Grapes
- Iris
- Marigold
- Melons
- Poinsettia (greenhouse)
- Pumpkins
- Snapdragon
- Squash
- Strawberries
- Zinnia

KEY DISEASES CONTROLLED

- Alternaria leaf spot
- Anthracnose
- Black rot
- Brooks spot
- Dead arm
- Didymellina leaf spot
- Downy mildew
- Fly speck
- Fruit rot
- Grey mould
- Leaf spot
- Phythium root rot
- Powdery mildew
- Scab
- *Septoria* leaf spot
- Sooty blotch
- Stem rot

HOW IT WORKS

Multi-site-contact mode of action with protective ability. Use in a regularly scheduled maintenance program.

FOLPAN® 80 WDG

APPLICATION TIMING AND CROP STAGING

Crop	Diseases	Timing
Apples, Crabapples	Alternaria leaf spot, Black rot, Brooks spot, Fly speck, Scab, Sooty blotch	Apply in a regular protective schedule from green tip up until harvest. Do not apply more than 6 applications per season. See label for additional precautions.
Cranberries	Fruit rot	Apply when 5% of blossoms are open. Repeat 10–14 days later when 50–75% of blossoms are open.
Grapes	Dead arm	Apply when new shoots are 1–2 inches long and repeat when growth is 4–6 inches long.
	Black rot, Downy mildew	Apply just before bloom, just after bloom and in first cover spray. For downy mildew, an additional application 2–3 weeks later may be needed.
	Powdery mildew	Apply in a tank mix with Kumulus® DF at first sign of mildew and repeat after 10 days.
Field cucumbers, Melons, Pumpkins, Squash	Anthracnose, Downy mildew	Apply when first true leaves appear. Repeat at 7-day intervals until crop is harvested.
Field tomatoes	Anthracnose	Apply during first bloom and repeat at 7-day intervals until harvest.
Strawberries	Grey mould, Fruit rot, Leaf spot	Apply before first infection and repeat at 7-day intervals to protect crop until harvest.
Azalea, Carnation, Chrysanthemum, Iris, Marigold, Poinsettia, Snapdragon, Zinnia	Blight, Phythium root rot, Stem rot, Alternaria leaf spot, *Septoria* leaf spot, Didymellina leaf spot, Anthracnose (depending on ornamental)	Generally, apply when ornamental emerges and repeat at regular intervals. Consult label for timing on specific disease and ornamental.

FOLPAN® 80 WDG

REGISTERED AND SUPPORTED TANK MIXES†

Kumulus® DF

† Refer to page 155 for PMRA tank-mixing directives.

MIXING INSTRUCTIONS

1. Fill spray tank nearly full.
2. Start sprayer agitation.
3. Pour recommended amount of FOLPAN® 80 WDG on surface of water. Fungicide can be premixed in a bucket ½ filled with water. Mix can be poured through screen into nearly filled spray tank.
4. Finish filling tank.
5. Keep agitator running during filling and spraying.

NOTES:

Fungicide can be premixed in a bucket ½ filled with water. Mix can be poured through screen into nearly-filled spray tank.

If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

CROP ROTATIONS

No restrictions

STORAGE

May be stored at any temperature

GRAZING RESTRICTIONS

No restrictions

RE-ENTRY & PRE-HARVEST INTERVALS (REI/PHI)

NOTE: Any activity not specifically listed has a REI/PHI of 12 hours.

Crop	Activity	REI &/ or PHI
FRUIT CROPS		
Apples, Crabapples	Harvesting (hand, mechanical)	1 day
	Hand thinning	3 days
Grapes	Hand turning and girdling (table/raisin grapes only)	35 days
	Hand harvesting, training/tying, leaf pulling by hand	3 days
	Mechanical harvesting	1 day
Melons	Hand-set/hand-line irrigation-related activities involving foliar contact	22 days
	Harvesting (hand, mechanical), training, tying, turning	11 days

FOLPAN® 80 WDG

RE-ENTRY & PRE-HARVEST INTERVALS (REI/PHI) (CONT'D)

NOTE: Any activity not specifically listed has a REI/PHI of 12 hours.

Crop	Activity	REI &/ or PHI
FRUIT CROPS (CONT'D)		
Strawberries	Hand harvesting	11 days
	Mechanical harvesting	1 day
Cranberries	Harvesting (hand, mechanical)	30 days
	Scouting	4 days
VEGETABLE CROPS		
Cucumber, Squash	Hand-set/hand-line irrigation-related activities involving foliar contact	22 days
	Harvesting (hand, mechanical), training, tying, turning	11 days
Tomatoes (for processing)	Mechanical harvesting	1 day
	Scouting	2 days
	Hand-set/hand-line irrigation-related activities involving foliar contact	22 days
Tomatoes (not for processing)	Hand harvesting, training, tying	16 days
	Mechanical harvesting, scouting	1 days
	Hand-set/hand-line irrigation-related activities involving foliar contact	22 days
ORNAMENTALS GROWN FOR CUT FLOWER PRODUCTION		
Carnation, Chrysanthemum, Iris, Snapdragon, Zinnia	Hand harvesting, hand pruning, disbudding (Greenhouse)	48 days
	Hand harvesting, hand pruning, disbudding (Outdoor)	16 days
	Hand-set/hand-line irrigation-related activities involving foliar contact	8 days
ORNAMENTALS NOT GROWN FOR CUT FLOWER PRODUCTION		
Snapdragon, Carnation, Chrysanthemum, Iris, Marigold, Zinnia	Hand-set/hand-line irrigation-related activities involving foliar contact (Greenhouse and Outdoor)	13 days
Poinsettia	All activities	12 hours

NEW

FUNGICIDE

GROUPS 3 & 11

MAXENTIS®

Provides protection against white mould in soybeans and rust in lowbush blueberries. Features two distinct elite modes of action (Groups 3 & 11) for resistance management and long lasting systemic activity.

ACTIVE INGREDIENTS

Azoxystrobin 120 g/L and
Prothioconazole 90 g/L as an EC

PACKAGING

Case: 2 x 8.45 L jugs
Drum: 118.1 L

APPLICATION RATES & ACRES TREATED

Rate: 253–422 ml/ac
Acres Treated:
- 40–66 ac/case
- 280–467 ac/drum

WATER VOLUME

Ground: 80 L/ac (20 US gal/ac)
Aerial: 20 L/ac (5 US gal/ac)

RAINFASTNESS

Avoid applying when rain is forecast.

REGISTERED CROPS*

- Lowbush blueberries (Eastern Canada)
- Soybeans

KEY DISEASES CONTROLLED*

- Leaf rust (suppression)
- White mould (Sclerotinia)

*See label for the complete list of registered crops as well diseases controlled and rates for each crop.

HOW IT WORKS

Two powerful active ingredients, combined for the first time in Canada, that provide protective and curative action on a wide range of diseases, across multiple crops.

APPLICATION TIMING AND CROP STAGING

Crop	Diseases	Rate	Timing
Lowbush Blueberries	Rust (suppression)	253 ml/ac	Apply at the first sign of disease in the sprout year. After initial application, one additional application may be made 1–14 days afterwards if conditions remain favourable for continued or increased disease development. Maximum applications per year: 2

MAXENTIS®

APPLICATION TIMING AND CROP STAGING (CONT'D)

Crop	Diseases	Rate	Timing
Soybeans	White mould (Sclerotinia)	422 ml/ac	Apply as a preventive foliar spray at the beginning of flowering or at first sign of disease. After the initial application, one additional application may be made 10–14 days afterwards if conditions remain favourable for continued or increased disease development. Apply the higher rate when conditions favour disease development, or when growing less disease resistant varieties. Maximum applications per year: 2

MIXING INSTRUCTIONS

1. Fill sprayer tank ¾ full of water.
2. Start sprayer tank agitation.
3. Add the required amount of MAXENTIS®.
4. If applicable, add any required adjuvants or surfactants for tank-mix partners.
5. Complete filling tank with water.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

REGISTERED AND SUPPORTED TANK MIXES†

None registered

† Refer to page 156 for PMRA tank-mixing directives.

CROP ROTATIONS

No restrictions

GRAZING RESTRICTIONS

Forage, hay: 30 days
Grazing or green feed: 6 days

STORAGE

Do not freeze.

PRE-HARVEST INTERVALS

- Soybeans: 20 days
- Lowbush blueberries: 30 days

*See label for the complete list of pre-harvest intervals for each registered crop.

RE-ENTRY INTERVAL

24 hours

KEY BENEFITS

- Unique combination of prothioconazole and azoxystrobin
- Enhanced EC formulation–with bulk packaging capabilities
- Multi-mode activity for resistance management (Groups 3 & 11)
- Broad-spectrum disease control with protective and curative action
- Whole plant protection: translaminar and systemic movement
- Wide window of application

QUICK TIPS:

Environmental conditions are a major driver of disease pressure and severity. Under high disease pressure conditions a rate of MAXENTIS® at the upper end of the rate range is recommended.

FUNGICIDE

GROUP 3

ORIUS® 430 SC

Your tool of choice—ORIUS® 430 SC offers long-lasting, broad-spectrum protection against the most dangerous cereal leaf and head diseases in wheat, barley and oats, and the flexibility of a wider application window.

ACTIVE INGREDIENT

Tebuconazole 430 g/L = SC

PACKAGING

Case: 2 x 9.44 L jugs

APPLICATION RATE & ACRES TREATED

Rate: 89–118 ml/ac
Acres Treated: 80–100 ac/jug

WATER VOLUME

Ground: 40 L/ac (10 US gal/ac)
Aerial: 20 L/ac (5 US gal/ac)

RAINFASTNESS:

Avoid applying when heavy rainfall is in the forecast.

REGISTERED CROPS

- Barley
- Oats
- Wheat (spring, winter)

KEY DISEASES CONTROLLED

- Fusarium head blight (suppression)
- *Septoria* glume blotch
- Rusts (leaf, stem, stripe)
- *Septoria* leaf blotch
- Tan spot
- Powdery mildew
- Net blotch
- Spot blotch
- Scald

HOW IT WORKS

ORIUS® 430 SC foliar fungicide can be applied as a post-emergent treatment in wheat (spring, winter), barley and oats for the suppression of fusarium head blight and control of foliar diseases.

CROP STAGING

Crop	Diseases	Application Timing	Rate
Wheat (spring, winter)	Fusarium head blight (suppression), *Septoria* glume blotch (control)	For optimum suppression of fusarium head blight and control of *Septoria* glume blotch, apply ORIUS® 430 SC foliar fungicide within the time period from when at least 75% of the wheat heads on the main stem are fully emerged to when 50% of the heads on the main stem are in flower. Spray coverage is essential: Ensure thorough coverage of all wheat heads.	118 ml/ac

ORIUS® 430 SC

CROP STAGING (CONT'D)

Crop	Diseases	Application Timing	Rate
Wheat (spring, winter)	Rusts (leaf, stem, stripe), Septoria leaf blotch, Tan spot	Apply ORIUS® 430 SC foliar fungicide to leaf foliage at the first sign or very early stage of disease, especially if weather conditions are conducive to disease development, up to the end of the flowering stage. Consider using the higher rate when weather conditions are conducive to heavy disease development.	89–118 ml/ac
	Powdery mildew		118 ml/ac
Barley	Net blotch, Spot blotch, Scald, Rusts (leaf, stem and stripe), Septoria leaf blotch, Powdery mildew	Apply ORIUS® 430 SC foliar fungicide at the very early stages of disease development. Consider using the higher rate when weather conditions are conducive to heavy disease development.	89–118 ml/ac
Oats	Stem rust, Crown rust	Apply ORIUS® 430 SC foliar fungicide at the very early stages of disease development.	89 ml/ac

QUICK TIPS:

ORIUS® 430 SC should only be applied when the risk of fusarium head blight infection is high. Consult your local extension authority regarding the need for ORIUS® 430 SC. Head blight is extremely difficult to control. Fusarium head blight outbreaks occur when the weather is warm and wet at the flowering to soft dough stages.

Timing of application is critical: For optimum suppression of fusarium head blight and control of *Septoria* glume blotch, apply ORIUS® 430 SC Foliar fungicide within the time period from when at least 75% of the wheat heads on the main stem are fully emerged to when 50% of the heads on the main stem are in flower.

Spray coverage is essential: Ensure thorough coverage of all wheat heads.

ORIUS® 430 SC

REGISTERED AND SUPPORTED TANK MIXES†

ORIUS® 430 SC foliar fungicide is recommended to be used with a registered non-ionic surfactant, such as Agral® 90 or Ag-Surf ®.

† Refer to page 155 for PMRA tank-mixing directives.

MIXING INSTRUCTIONS*

1. Fill the spray tank ¾ full with water.
2. Add the required amount of ORIUS® 430 SC foliar fungicide into the sprayer.
3. Agitate until the fungicide is thoroughly mixed.
4. Continue agitation and add the required amount of the tank-mix partner.
5. Continue agitation while adding the required amount of recommended registered non-ionic surfactant at 0.125% v/v.
6. Complete filling the tank to the desired level with water.
7. Upon completion of spraying, thoroughly flush tank, boom, hoses, and in-line and nozzle screens with clean water to avoid possible injury to other crops.
8. Repeat sprayer cleanout process using an appropriate spray system cleaner.

* Use a 50-mesh(or coarser) filter screen.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

SURFACTANT RATE

Non-ionic surfactant (NIS) @ 0.125% v/v

PRE-HARVEST INTERVALS

Wheat, barley, oats: 36 days

RE-ENTRY INTERVAL

12 hours

GRAZING RESTRICTIONS

Do not allow livestock to graze or feed green forage to livestock prior to 6 days after treatment. Straw cut after harvest may be fed or used for bedding.

CROP ROTATIONS

No restrictions

STORAGE

Do not freeze.

FUNGICIDE

GROUP 3

SORADUO™

Advanced disease protection powered by Asorbital® Formulation Technology. SORADUO™ provides proven fusarium protection in wheat and barley.

ACTIVE INGREDIENT

Prothioconazole 250 g/L = EC, and
Tebuconazole 430 g/L = SC

PACKAGING

Case includes:

- 1 × 9.71 L jug of SORADUO™ A (Prothioconazole)
- 1 × 5.65 L jug of SORADUO™ B (Tebuconazole)

POWERED BY Asorbital® FORMULATION TECHNOLOGY

APPLICATION RATE & ACRES TREATED

Rate:

- 162 ml/ac SORADUO™ A
- 94 ml/ac SORADUO™ B

Acres treated: 60 ac/case

WATER VOLUME

Ground: 40–80 L/ac (10–20 US gal/ac)
Aerial: 20 L/ac (5 US gal/ac)

RAINFASTNESS

Avoid application if heavy rainfall is in the forecast.

REGISTERED CROPS AND APPLICATION TIMING

Crop	Disease	Timing
Barley	For suppression of Fusarium head blight (*fusarium spp.*)	70–100% head emergence to 3 days after full head emergence
Wheat (spring, winter)		75% head emergence to 50% main stem flower

Applications per year: Maximum of one (1)

REGISTERED AND SUPPORTED TANK MIXES†

Optional: Non-ionic surfactant (NIS) at 0.125% v/v

† Refer to page 155 for PMRA tank-mixing directives.

MIXING INSTRUCTIONS

1. Fill sprayer tank ½ full of water.
2. Start sprayer tank agitation.
3. Add the required amount of SORADUO™ B.
4. Add required amount of SORADUO™ A.
5. If applicable, add any required adjuvants or surfactants for tank-mix partners.
6. Complete filling tank with water with agitation on.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

⚠ Always read and follow pesticide label directions.

FUNGICIDE

SORADUO™

KEY BENEFITS

- Proven fusarium protection in wheat and barley
- Absorbital® Formulation Technology helps to deliver uniform coverage for consistent protection
- Simple choice without the complication of grower programming
- Application flexibility
- Performance over a wide range of conditions

HOW IT WORKS

SORADUO™ is a combination two triazole fungicides including one that features features Asorbital® Formulation Technology for broad-spectrum system activity plus long-lasting foliar protection.

CROP ROTATIONS

No restrictions

GRAZING RESTRICTIONS

6 days

PRE-HARVEST INTERVAL

36 days

STORAGE

Do not freeze

RE-ENTRY INTERVAL

24 hours

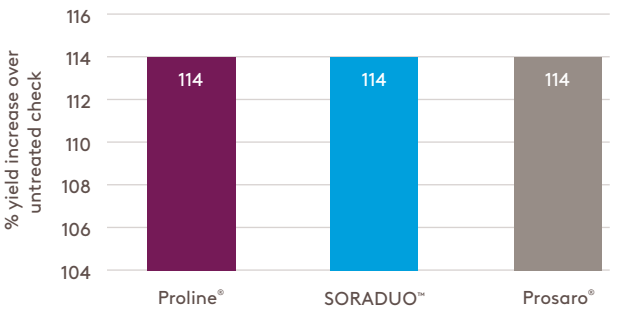
Fusarium Control in Cereals—Yields

Summary of 35 trials from 2019–2021

Crops (# of trials): spring wheat (14), barley (10), durum wheat (7), winter wheat (4)

Rates applied (a.i./acre):

- Proline®: 138 ml/ac
- SORADUO™:
  - Prothioconazole: 162 ml/ac
  - Tebuconazole: 94 ml/ac
- Prosaro®: 324 ml/ac



QUICK TIPS:

Fusarium head blight outbreaks in wheat and barley occur when the weather is warm and wet at head emergence and flowering. Timing of application is critical when providing protection against fusarium head blight.

FUNGICIDE

GROUP 3

SORATEL®

Advanced disease protection powered by Asorbital® Formulation Technology. Offering a flexible application window, SORATEL® fungicide is proven to protect a wide variety of crops from disease, including fusarium head blight in wheat and Gibberella ear rot in corn.

ACTIVE INGREDIENT

Prothioconazole 250 g/L = EC

PACKAGING

Case: 2 x 9.6 L jugs

APPLICATION RATE & ACRES TREATED

Rate: 160–320 ml/ac (standard rate: 240 ml/ac)
Acres treated: 30–60 ac/jug (standard rate: 40 ac/jug)

WATER VOLUME

Ground: Minimum 40 L/ac (10 US gal/ac)
Aerial: Minimum 20 L/ac (5 US gal/ac)

RAINFASTNESS

Avoid application if heavy rainfall is in the forecast.

REGISTERED CROPS

- Barley
- Low-growing berries except strawberries (Crop sub-group 13-07H)
- Borage
- Brassica carinata
- Bushberries (Crop sub-group 13B)
- Canola
- Chickpeas
- Crambe
- Corn
- Field peas
- Flax (linseed)
- Lentils
- Oats
- Oriental mustard
- Peanuts
- Rapeseed
- Safflower
- Soybeans
- Sugarbeets
- Sunflower
- Wheat (spring, winter)
- Plus other small grains

HOW IT WORKS

SORATEL® is a triazolinthione, broad-spectrum systemic fungicide with Asorbital® Formulation Technology. This technology, unique to ADAMA, includes a built-in adjuvant which enhances leaf penetration and increases effectiveness.

SORATEL®

KEY DISEASES CONTROLLED

Crop	Diseases	Rate	Timing
Cereals			
Barley	Fusarium head blight[1]	240–320 ml/ac	70–100% head emergence
	Net blotch, scald, spot blotch	160–240 ml/ac	First sign of disease
Oats	Crown rust	240 ml/ac	First sign of disease
Wheat (spring, winter)	Fusarium head blight[1], glume blotch	240–320 ml/ac	75% head emergence–50% main stem flower
	Leaf rust, speckled leaf blotch, tan spot	240 ml/ac	First sign of disease
Oilseeds			
Canola	Sclerotinia stem rot	240–280 ml/ac	20–50% bloom
Soybeans			
Soybeans	Asian soybean rust Frog-eye leaf spot	160 ml/ac	First sign of disease
Corn			
Corn (field, sweet and popcorn, including seed production)	Eyespot, Gibberella ear rot1, grey leaf spot, Northern corn leaf blight, rust	240 ml/ac	First sign of disease Apply from the development stage of corn between full silk emergence (BBCH 63) to early silk browning (BBCH 67)

For a complete list of registered crops, diseases, and application rates, consult the label.

[1] Suppression [2] Blueberries only

SORATEL®

Crop	Diseases	Rate	Timing
Berries			
Bushberries (Crop sub-group 13B): Aronia berry, blueberry (highbush, lowbush), chilean guava, cranberry (highbush), currant (black, buffalo, native, red),elderberry, European barberry, gooseberry, honeysuckle (edible), huckleberry, jostaberry, Juneberry (Saskatoon berry), lingonberry, salal, sea buckthorn; cultivars, varieties, and/or hybrids of these.	Septoria leaf spot[1]	240 ml/ac (600 ml/ha)	First sign of disease
	Leaf rust[1] Valdensinia Leaf Spot[2]	300 ml/ac (760 ml/ha)	
	Mummy Berry[2]	240–320 ml/ac (600–800 ml/ha)	1st application: at early bloom for fruit rot 2nd application: 5-10 days later after first application
Low-growing berries except strawberries (Crop sub-group 13-07H): Bearberry, bilberry, bluberry (lowbush), cloudberry, cranberry, lingonberry, muntries, partridgeberry, cultivars, varieties, and/or hybrids of these.	Fruit rot	280 ml/ac (700 ml/ha)	

For a complete list of registered crops, diseases, and application rates, consult the label.

[1]Suppression [2]Blueberries only

CROP ROTATIONS

Treated areas may be replanted with any crop specified on the label as soon as practical after the last application. For crops not listed on the label, do not plant back within 30 days of last application.

FUNGICIDE

SORATEL®

PRE-HARVEST AND RE-ENTRY INTERVALS

- Bushberries:
  - Harvesting: 7 days
  - Hand-line irrigation: 3 days
- Corn (field, popcorn): 14 days
- Corn (sweet/seed):
  - Mechanical harvesting: 14 days
  - Hand harvesting/detasseling: 20 days
- Soybeans: 20 days
- Barley, Oats, Wheat (spring, winter): 30 days
- Borage, *Brassica carinata*, Canola, Crambe, Flax, Oriental mustard, Rapeseed: 36 days
- Low-growing berries (except strawberries): 45 days

All other activities not listed (all crops): 24 hours

GRAZING RESTRICTIONS

Do not graze livestock within 30 days of spraying.

STORAGE

Do not freeze.

REGISTERED AND SUPPORTED TANK MIXES†

- Coragen®
- Decis®
- SILENCER® 120 EC
- ZIVATA®

† Refer to page 155 for PMRA tank-mixing directives.

MIXING INSTRUCTIONS

1. Fill sprayer tank ½ full of water.
2. Start sprayer tank agitation.
3. Add the required amount of SORATEL®.
4. If applicable, add any required adjuvants or surfactants for tank-mix partners.
5. Complete filling tank with water with agitation on.

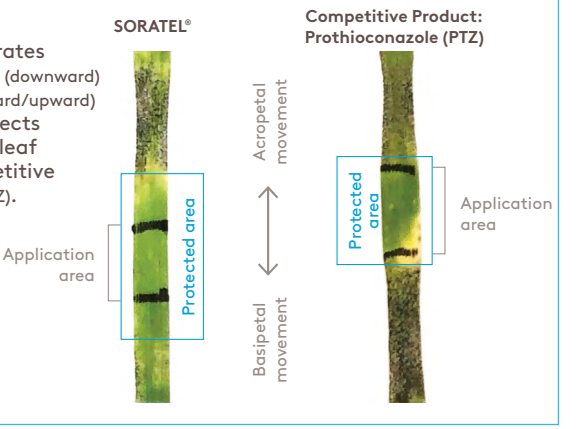
NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

KEY BENEFITS

- Technologically advanced formulation developed by and unique to ADAMA
- 5% higher efficacy vs. competitive products shown in Canadian trials
- Improved leaf penetration into the plant, improved efficacy
- Preventative, curative and eradicative control of multiple diseases in multiple crops
- Wide window of application
- No need for additional surfactants

SORATEL®

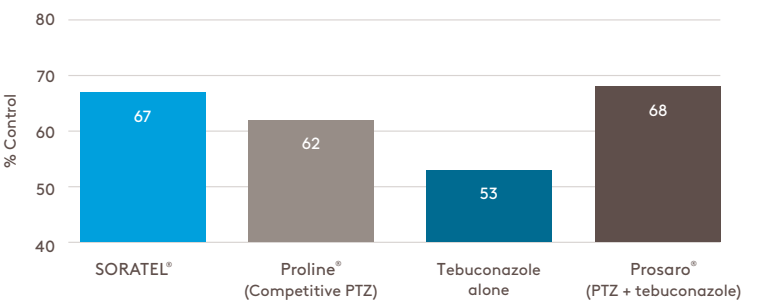
SORATEL® demonstrates enhanced basipetal (downward) and acropetal (outward/upward) migration, and protects a larger area of the leaf compared to competitive prothioconazole (PTZ).



Fusarium head blight control in cereals

Summary of 35 small-plot, replicated trials
Conducted by independent researchers across Canada (2018–2020)

SORATEL® alone shows superior results to Proline® and similar results to the combo product Prosaro®, demonstrating the benefits of Asorbital® Formulation Technology.



ABOUT ASORBITAL® FORMULATION TECHNOLOGY

Asorbital® Formulation Technology was developed by and is unique to ADAMA worldwide. Products with this enhanced technology offer reduced run-off and photodegradation, improved rainfastness, increased amount of active in the plant and more thorough protection of the foliage.

SORATEL® was the first of many ADAMA products to come that will include Asorbital® Formulation Technology and be available to Eastern Canada growers in the future.

FUNGICIDE

GROUPS 3 & 11

TOPNOTCH™

Broad-spectrum disease control in multiple crops including cereals, field peas, edible beans and soybeans

ACTIVE INGREDIENT

Azoxystrobin 143 g/L and
Propiconazole 124 g/L = SC

PACKAGING

Case: 2 x 8.6 L jugs

APPLICATION RATE & ACRES TREATED

Rate: 210–620 ml/ac
Acres Treated: 14–40 ac/jug

WATER VOLUME

Ground: 40 L/ac (10 US gal/ac)
Aerial: 20 L/ac (5 US gal/ac)

RAINFASTNESS

Avoid applying when heavy rainfall is in the forecast.

REGISTERED AND SUPPORTED CROPS

- Barley
- Edible beans
- Field peas
- Lentils
- Oats
- Rye
- Soybeans
- Triticale
- Wheat

KEY DISEASES CONTROLLED

- Anthracnose
- Ascochyta blight
- Barley leaf rust
- Mycosphaerella blight
- Net and spot blotches
- Powdery mildew
- Scald
- *Septoria* spot
- Stripe rust
- Tan spot
- Wheat leaf rust
- White mould[1]

[1] Suppression only.

HOW IT WORKS

Used as both a curative and preventative fungicide, TOPNOTCH™ has broad-spectrum, systemic and contact activity.

TOPNOTCH™

APPLICATION TIMING AND CROP STAGING

Crop	Diseases	Application Timing	Rate
Barley	Barley net blotch Barley scald *Septoria* leaf spot Stripe rust Barley leaf rust Tan spot	Apply once between stem elongation and half-head emergence (Growth stage 29–55).	210 ml/ac
Beans, Field peas, Lentils, Soybeans	*Mycosphaerella* blight Anthracnose	Make the first application at the first sign of disease. Apply the high rate only under conditions of high disease pressures. A second application 14 days later may be needed if conditions persist. Good spray coverage and canopy penetration are important for best results.	310–620 ml/ac
	Powdery mildew White mould (suppression only)		310 ml/ac
Oats	Barley net blotch Crown rust *Septoria* leaf spot	Apply once between stem elongation and half-head emergence (Growth stage 29–55).	210 ml/ac
Rye	*Septoria* leaf spot Barley scald Tan spot		
Triticale	*Septoria* leaf spot Tan spot		
Wheat	*Septoria* leaf spot Tan spot Stripe rust Wheat leaf rust		

FUNGICIDE

TOPNOTCH™

REGISTERED AND SUPPORTED TANK MIXES†

- ARROW ALL IN®
- Coragen®
- Decis®
- Glufosinate
- Poast Ultra®
- LEOPARD®
- SILENCER® 120 EC
- Voliam Xpress®
- ZIVATA®

† Refer to page 155 for PMRA tank-mixing directives.

MIXING INSTRUCTIONS

1. Fill spray tank ½ to ⅔ full with water.
2. With agitator running, add required amount of TOPNOTCH™ and continue agitating while adding remainder of the water.
3. Begin application after TOPNOTCH™ is completely dispersed into the mix water, and maintain agitation during spraying operation.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

CROP ROTATIONS

Do not plant any other crop intended for food, grazing or any component of animal feed or bedding within 105 days of application.

PRE-HARVEST INTERVALS

Field peas, Beans, Lentils, Soybeans: 30 days
Cereals: 45 days

RE-ENTRY INTERVAL

12 hours

GRAZING RESTRICTIONS

Do no graze pea vines.
30 days for all other crops.

STORAGE

Do not freeze.

QUICK TIPS:

Good spray coverage and canopy penetration are important to achieve the best results.

NEW

FUNGICIDE

GROUP 29

VANTANA™

A protective, broad-spectrum fungicide used in a variety of fruit and vegetable crops.
This Group 29 fungicide is a very important resistance management tool with activity on the hardest-to-control fungal diseases.

ACTIVE INGREDIENT

Fluazinam 500 g/L = SC

PACKAGING

Case: 2 x 10 L jugs

APPLICATION RATE & ACRES TREATED

Rate: 162–906 ml/ac
Acres Treated: 27–80 ac/jug

WATER VOLUME

Ground: Varies with the crop.
Refer to the label for more details.
Aerial: Minimum of 18.2 L/ac

RAINFASTNESS

Avoid application when heavy rainfall is forecast.

REGISTERED AND SUPPORTED CROPS

- Apples
- Blueberries (highbush, lowbush)
- Bulb onion
- Currant
- Dry-shelled beans
- Elderberry
- Edible-podded legume vegetables (except pea)
- Ginseng
- Gooseberry
- Huckleberry
- Head and Stem Brassica (Crop sub-group 5A)
- Leafy Brassica Greens (Crop sub-group 5B)
- Potatoes
- Soybeans

For a full list of registered crops, please refer to the label.

HOW IT WORKS

VANTANA™ works by inhibiting fungal adenosine triphosphate (ATP) production in the mitochondria (impairing energy production).

Active on a wide range of diseases, VANTANA™ is a protective fungicide that inhibits the germination of fungal spores.

CROP ROTATIONS

Areas treated with VANTANA™ may be replanted with potatoes and dry shelled beans as soon as practical after the last application.
Other root crops and leafy vegetables can be planted 30 days after the last application.
All other crops can be planted 70 days after the last application.

GRAZING RESTRICTIONS

Do not feed treated foliage to livestock

STORAGE

Do not freeze.

VANTANA™

APPLICATION TIMING AND KEY DISEASES CONTROLLED BY CROP

Crop	Diseases	Rate	Timing
FRUITS			
Apples	Cedar apple rust	304–405 ml/ac (750–1,000 ml/ha)	Foliage appliction as a preventative measure before disease occurs
	Black rot*, Brooks spot*, Quince rust*	405 ml/ac (1,000 ml/ha)	Before disease occurs, and on a 7-day schedule thereafter
Blueberries (lowbush)	Valdensinia leaf spot	162–324 ml/ac (400–800 ml/ha)	At early bloom or at first symptoms in fruiting fields and at an equivalent time in sprout fields
Blueberries (highbush, lowbush)	Mummyberry*, Phomopsis fruit rots* Fruit anthracnose*	907 ml/ac (2,240 ml/ha)	At bud break and on a 7- to 10-day interval thereafter until petal fall
Currant, Elderberry, Gooseberry, Huckleberry	Fruit anthracnose*		
VEGETABLES AND DRY BEANS			
Bulb onion	Purple blotch Botrytis leaf blight	469 ml/ac (1 16 ml/ha) (584 g)	When conditions are favourable for disease development or when first disease symptoms appear
Dry-shelled beans	White mould	243–405 ml/ac (600–1,000 m//ha)	10 to 30% bloom
	Anthracnose		If needed, a second application may be applied 7–10 days later (for white mould) or 10-14 days later (for anthracnose).
Edible-podded legume vegetables (except pea)	White mould		At first bloom to 10% bloom

* suppression

APPLICATION TIMING AND KEY DISEASES CONTROLLED BY CROP (CONT'D)

Crop	Diseases	Rate	Timing
VEGETABLES AND DRY BEANS (CONT'D)			
Potatoes	Late blight	162 ml/ac (400 ml/ha)	When plants are 15-20 cm tall or when conditions are favourable for disease development
	White mould	162–242 ml/ac (400–600 ml/ha)	At full bloom
Soybeans	White mould	356–473 ml/ac (880–1,170 ml/ha)	At the R1 (early bloom) to R2 (full bloom) stage of development If needed, 10 to 14 days later at early pod formation (R3)
	White mould (suppression)	178 ml/ac (440 ml/ha)	
Leafy Brassica Greens (Crop sub-group 5B)	Clubroot	1.17 L in 202 L per acre (2.9 L in 500 L of water/ha)	Pre-transplant
Head and Stem Brassica (Crop sub-group 5A), Leafy Brassica Greens (Crop sub-group 5B)		Mix 50 ml with water to make a 100 L solution.	At transplant Apply 100 mL of solution per plant immediately after transplanting.
Ginseng	Rhizoctonia root rot	486 ml/ac (1,200 ml/ha)	At seed and continued on a 14-day interval
	Alternaria blight Botrytis blight		When disease first appears or when conditions are favourable for disease development Repeat applications on a 7- to 14-day interval.

* suppression

VANTANA™

MIXING INSTRUCTIONS

1. Fill sprayer tank ½ full of water.
2. Start sprayer tank agitation.
3. Add the required amount of VANTANA™.
4. If applicable, add any required adjuvants or surfactants for tank-mix partners.
5. Complete filling tank with water.

NOTE: If tank-mixing, please reference the label of the partner for specific mixing order or follow W.A.M.L.E.G.S or W.A.L.E.S. for proper mixing protocol (detailed on page 154 of this guide).

REGISTERED AND SUPPORTED TANK MIXES

None registered

CROP ROTATIONS

Areas treated with VANTANA™ may be replanted with potatoes and dry shelled beans as soon as practical after the last application. Other root crops and leafy vegetables can be planted 30 days after the last application. All other crops can be planted 70 days after the last application.

PRE-HARVEST INTERVALS

Soybeans: DO NOT apply after growth stage R3.
Bulb onion: 7 days
Edible-podded legume vegetables (except peas), Potatoes: 14 days
Apples: 28 days
Blueberries (highbush, lowbush), Currant, Dry-shelled beans, Elderberry, Ginseng, Gooseberry, Huckleberry, Leafy Brassica Greens (Crop sub-group 5B): 30 days
Head and Stem Brassica (Crop sub-group 5A): 65 days

RE-ENTRY INTERVALS

Bulb onion: 3 days

All other crops: 24 hours

QUICK TIPS:

For optimal efficacy VANTANA™ requires good coverage, best achieved with higher water volumes. Actual water volumes will vary with the crop, please refer to the label for more specific details.

ADDITIONAL RESOURCES

ADDITIONAL RESOURCES

Active Ounces per Acre	Formulation (ml per acre)					Acres Treated per 10 L jug				
	300	400	500	600	700	300	400	500	600	700
1	94	70	57	47	41	107	142	177	212	247
2	187	140	113	94	81	53	71	88	106	124
3	281	211	170	142	121	36	47	59	71	82
4	374	281	227	189	162	27	36	44	53	62
5	468	351	283	236	202	21	28	35	42	49
6	562	421	340	283	243	18	24	29	35	41
7	655	491	397	331	283	15	20	25	30	35
8	749	562	453	378	324	13	18	22	27	31
9	842	632	510	425	364	12	16	20	24	28
10	936	702	567	472	405	11	14	18	21	25

Recommended rates have been rounded to whole numbers.

AERIAL APPLICATION CHART

ADAMA PRODUCT NAME	AERIAL APPLICATION	WATER VOLUME
HERBICIDES		
2,4-D ESTER 700	Yes	12 L/ac
ARMORY® 240	Yes	90–200 L/ac
ARROW ALL IN®	No	—
BADGE®	Yes (wheat, barley and oats only)	8–20 L/ac
BISON® 400 L	Yes (cereal crops only)	12–18 L/ac
BROMOTRIL®	Yes (wheat and barley only)	8–16 L /ac
DAVAI® 80 SL	No	—
DAVAI® A PLUS	No	—
DAVAI® Q PLUS	No	—
EMPHASIS®	No	—
ESTEEM ALL IN®	Yes	12–20 L/ac
FORCEFIGHTER ALL IN™	No	—
ADAMA GLUFOSINATE 150 SL	Yes	23 L/ac
INVOLVE® 50 WDG	No	—
LEOPARD®	Yes	10 L/ac
MCPA ESTER 600	Yes	12 L/ac
PHANTOM® 240 SL	No	—
PYTHON®	No	—
RUSH 24 ALL IN®	No	—
SQUADRON®	No	—
INSECTICIDES		
CORMORAN®	No	—
SILENCER® 120 EC	Yes	4–16 L/ac
ZIVATA®	Yes	4–16 L/ac
FUNGICIDES		
BUMPER® 432 EC	Yes	16–20 L/ac
CAPTAN 480 SC	Yes (with restrictions)	See label
CUSTODIA®	Yes	20 L/ac
FOLPAN® 80 WG	No	—
MAXENTIS®	Yes	20 L/ac
ORIUS® 430 SC	Yes	20 L/ac
SORADUO™	Yes	10 L/ac
SORATEL®	Yes	20 L/ac
TOPNOTCH™	Yes	20 L/ac
VANTANA™	Yes	Min. of 18.2 L/ac

GENERAL CLEANING PRACTICES FOR SPRAYER EQUIPMENT

1. **CLEAN SPRAYER:** Once tank is empty, clean sprayer in an area that will not allow the contamination of water bodies, sources, crops or other areas that are not accessible to others, pets and livestock.
2. **RINSE 1**:
   a) Rinse equipment, removing any product adhering to the inside of the tank. Fill tank to 10% full of water and herbicide recommended rinse solution (see below). Agitate for 15 minutes.
   b) Flush RINSE 1 through the booms, hoses and nozzles then drain.
   c) Once done flushing, disassemble all strainers, filters, nozzles, screens, diaphragms and boom ends where residue can get tied up. Clean separately with an ammonia solution of 100 mL/10 L water. Inspect thoroughly and reassemble.
3. **RINSE 2:** Fill tank to 10% full of water and add the RINSE 2 solution if needed (see below) while agitating. Charge up the booms and continue to agitate for 15 minutes before flushing out again.
4. **ADDITIONAL RINSES:** Complete additional rinses, as requested from the table below, by filling, agitating and flushing the system with the recommended solution each time.
5. **FINAL RINSE:** Fill tank to 10% full of clean water and flush through the booms and hoses. Remove end caps/open ball valves and flush water through to ensure no spray solution is trapped. Drain any remaining water.

HERBICIDE	HERBICIDE NUMBER OF RINSES			
	1	2	3	4
2,4-D ESTER 700	W	D or 1%A	W	
ARMORY® 240	W	1%S	W	
ARROW ALL IN®	W	D	W	
BADGE®	W	D or 1%A	W	
BISON® 400 L	W	D or 1%A	W	
BROMOTRIL®	D	W		
DAVAI® 80 SL	W			
DAVAI® A PLUS	W	D	W	
DAVAI® Q PLUS	W	1%A	1%A	W
EMPHASIS®	D	W	3%A	W
ESTEEM ALL IN®	W	D or 1% A	W	
FORCEFIGHTER ALL IN™	W	D or 1% A	W	
ADAMA GLUFOSINATE 150 SL	D	W		
INVOLVE® 50 WDG	W	1%A	W	W
LEOPARD®	W	1%A	1%A	W
MCPA ESTER 600	W	D or 1%A	W	
PHANTOM® 240 SL	W			
PYTHON®	D	W	W	
RUSH 24 ALL IN®	W	D or 1%A	W	
SQUADRON®	D	D	D	W

IMPORTANT NOTES

If a tank-mix partner is used, always check tank-mix partner label for any additional clean up procedures.

Be cautious with dry granular products, like florasulum, which can severely harm a sensitive broadleaf crop if not properly cleaned out.

WARNING: Never mix chlorine (bleach) and ammonia as a reaction-producing toxic gas can occur.

	SOLUTION
A	Ammonia Solution (min. 3% ammonia–Finish or Flush)
D	Detergent Solution
S	Non-Ionic Surfactant
W	Water

TANK-MIXING GUIDELINES

W.A.M.L.E.G.S. METHOD

W — WETTABLE powders, dispersible granules, soluble granules (WG, DF, SG, WP, SP)

INVOLVE® 50 WDG	CAPTAN 80 WSP
SQUADRON®	FOLPAN® 80 WG

A — AGITATE tank mix thoroughly

M — MICRO-ENCAPSULATED suspensions (ME)

L — LIQUID flowables and suspensions (SC, SL, SN, LI, SU, SE)

ARMORY® 240	CUSTODIA®
BISON® 400 L	CAPTAN 480 SC
DAVAI® 80 SL (DAVAI® A PLUS & DAVAI® Q PLUS)	ORIUS® 430 SC
ADAMA GLUFOSINATE 150 SL	SORADUO™ B (SORADUO™)
PHANTOM® 240 SL	TOPNOTCH™
PYTHON®	VANTANA™

E — EMULSIFIABLE concentrate formulations (EC)

2,4-D ESTER 700	MCPA ESTER 600
ADAMA QUIZALOFOP (DAVAI® Q PLUS)	RUSH 24 ALL IN®
ARROW ALL IN® (DAVAI® A PLUS)	CORMORAN®
BADGE®	SILENCER® 120 EC
BROMOTRIL®	ZIVATA®
EMPHASIS®	BUMPER® 432 EC
ESTEEM ALL IN®	MAXENTIS®
FORCEFIGHTER ALL IN™	SORADUO™ A (SORADUO™)
LEOPARD®	SORATEL®

Fill spray tank nearly full with water.

G — GLYPHOSATE formulations

S — SURFACTANTS

ADAMA

HERBICIDE
INSECTICIDE
FUNGICIDE

Some herbicide labels list a specific mixing sequence. In absence of specific directions, a recommended sequence for adding pesticide formulations to a tank partially filled with water is the **W.A.M.L.E.G.S. method**. Each ingredient must be uniformly mixed before adding the next component. For example, a soluble powder must be completely dissolved before adding the next component. Adjuvants are added in the same sequence as pesticides: ammonium sulfate is a soluble powder, oil adjuvants are emulsifiable concentrates and most surfactants are solutions. Within each group, usually add the pesticide before the adjuvant. For example, add a soluble-powder pesticide before ammonium sulfate.

Know the benefits and risks of tank-mixing before you make an application. In some cases, compatibility of two or more chemicals is based on the order in which they are added to the tank mix.

Tank-mixing can lead to a variety of mishaps if not done correctly. Being aware of the benefits and risks while following the proper guidelines is critical to ensuring the success of any tank mix procedure and application.

This information is presented in good faith for your reference. Always read and follow product label directions before tank-mixing.

PMRA TANK-MIXING DIRECTIVES

This directive from the Pest Management Regulatory Agency (PMRA) applies to ALL products included in this product guide.

PMRA DIRECTIVES

1. Products may be tank mixed with (a fertilizer, a supplement, or with) registered pest control products, whose labels also allow tank mixing, provided the entirety of both labels — including Directions For Use, Precautions, Restrictions, Environmental Precautions, and Spray Buffer Zones — are followed for each product.
2. In cases where these requirements differ between the tank-mix partner labels, the most restrictive label must be followed.
3. Do not tank mix products containing the same active ingredient, unless specifically listed on the product label.
4. In some cases, tank mixing pest control products can result in reduced pesticide efficacy or increased host crop injury.

ADAMA CONTACT INFORMATION

The user should contact ADAMA Agricultural Solutions Canada Ltd. at 1-855-264-6262 for information before applying any tank mix that is not specifically recommended on the product label.

For more information about the PMRA, scan the QR code below.

Metric Unit	Imperial Multiply by	Imperial Unit	Metric Multiply by	Metric Unit
LINEAR centimetre (cm)	x 0.39	inch	x 2.54	**LINEAR** centimetre (cm)
AREA				**AREA**
square metre (m^2)	x 1.2	square yard	x 0.84	square metre (m^2)
hectare (ha)	x 2.5	acres	x 0.4	hectare (ha)
VOLUME				**VOLUME**
litre (L)	x 0.22	Imperial gallon	x 4.55	litre (L)
litre (L)	x 0.27	U.S. gallon	x 3.79	litre (L)
PRESSURE				**PRESSURE**
kilopascals (kPa)	x 0.14	psi	x 6.9	kilopascals (kPa)
WEIGHT				**WEIGHT**
gram (g)	x 0.04	oz	x 28.35	gram (g)
kilogram (kg)	x 2.2	lb	x 0.45	kilogram (kg)
AGRICULTURAL				**AGRICULTURAL**
litres per hectare (L/ha)	x 0.09	Imperial gallons per acre	x 11.23	litres per hectare (L/ha)
litres per hectare (L/ha)	x 0.11	U.S. gallons per acre	x 9.35	litres per hectare (L/ha)
litres per hectare (L/ha)	x 0.36	quarts per acre	x 2.81	litres per hectare (L/ha)
litres per hectare (L/ha)	x 0.71	pints per acre	x 1.41	litres per hectare (L/ha)
millilitres per hectare (ml/ha)	x 0.015	Imperial fl. oz per acre	x 70.17	millilitres per hectare (ml/ha)
millilitres per hectare (ml/ha)	x 0.014	U.S. fl. oz per acre	x 73.05	millilitres per hectare (ml/ha)
kilograms per hectare (kg/ha)	x 0.89	lb per acre	x 1.12	kilograms per hectare (kg/ha)
grams per hectare (g/ha)	x 0.014	oz per acre	x 70	grams per hectare (g/ha)

EXAMPLE: To convert centimetres to inches, multiply by 0.39; conversely, to convert inches to centimetres, multiply by 2.54.

PICK A SIDE.

You could put your yield at risk...
Or you can protect it with

MAXENTIS®

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WHY CHOOSE MAXENTIS® FUNGICIDE?

- Unique combination of Prothioconazole and Azoxystrobin
- Enhanced EC formulation with bulk packaging options
- Multi-mode actvity for resistance management (Groups 3 & 11)
- Broad-spectrum disease control with protective and curative action
- Translaminar and systemic movement for whole plant protection
- Wide window of application and flexible rates

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FORMULATION TECHNOLOGY

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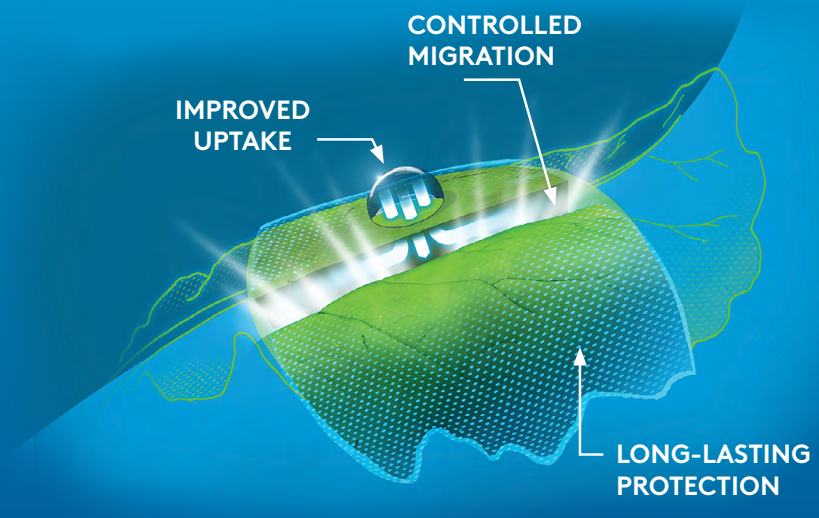
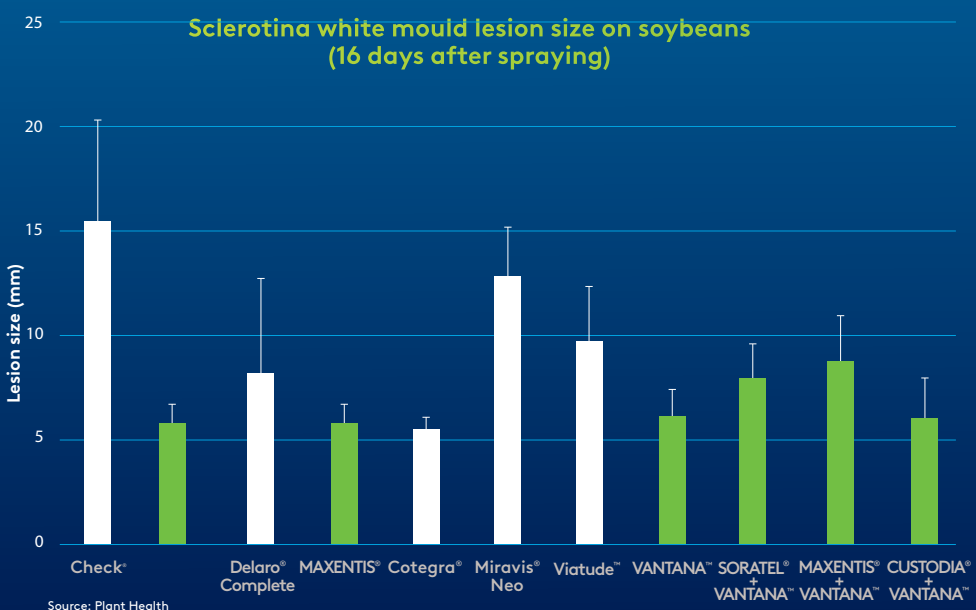
ASORBITAL® Formulation Technology allows for fast and efficient absorption into the plant, superior systemic movement within the plant protecting more surface area and longer-lasting protection than competitors.



Protection you can see.



Source: Plant Health

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