

2017 BASF Quick Reference Guide

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Product SOA	Timing	Rate/Acre	Additives	Comments
Verdict Powered by Kixor [®] Herbicide 14 15	Preplant Burndown, Preemergence	<u>Rate by Soil Type</u> Coarse 10-12 fl oz Medium 13-15 fl oz Fine 16-18 fl oz	MSO @ 1 gal/100 gal (minimum 16 fl oz/A) plus AMS @ 8.5 to 17 lbs/100 gal or UAN @ 2.5 gal/100 gal	Additives must be added for control of emerged broadleaf weeds. Glyphosate tank-mix partner also recommended for grass and broadleaf burndown. Include at least 0.5 lb/A atrazine for kochia burndown. Labeled for Field corn, and Popcorn and Seed corn (see supp. label for seed corn rates).
Sharpen Powered by Kixor [®] Herbicide 14	Preplant Burndown, Preemergence	<u>Residual Rate by Soil Type</u> Coarse 2.0-2.5 fl oz Medium 2.5-3.0 fl oz Fine 3.0-3.5 fl oz	MSO @ 1 gal/100 gal (minimum 16 fl oz/A) plus AMS @ 8.5 to 17 lbs/100 gal or UAN @ to 2.5 gal/100 gal	Additives must be added for control of emerged broadleaf weeds. Glyphosate tank-mix partner also recommended for grass and broadleaf burndown. Include at least 0.5 lb/A atrazine for kochia burndown. Labeled for Field corn, Popcorn, and Seed corn (see supp. label for seed corn rates)
Zidua Herbicide 15	PPI, Preplant, Preemergence, early POST (up to V4 corn)	<u>Rate by Soil Type</u> Coarse 1.5-2.75 oz Medium 2.0-3.0 oz Fine 2.5-4.0 oz	None, unless required by a tank mix partner	Zidua does not control emerged weeds. Zidua may be applied up to 45 days before planting and im- pregnated and applied with dry fertilizer. Labeled for Field corn, Popcorn, Seed corn, and Sweet corn.
Armezon PRO Herbicide 15 27	Preemergence to V8	Soil <u>Texture</u> <3% OM Coarse 14-16 fl oz Medium 16-20 fl oz Fine 16-20 fl oz	- With Clarity add NIS @ 0.25% v/v, - With Atrazine: COC @ 1% v/v - Without tank mix: MSO @ 1% v/v plus AMS @ 17#/100 gal or UAN @ 2.5 gal/100 gal	Include a minimum of 0.5 lb/A atrazine or 8 fl oz Clarity when possible. Can be applied sequentially after Verdict. Do not exceed more than 24 oz Outlook equivalent per season. Labeled for Field corn, Popcorn, Seed corn, and Sweet corn.
Outlook Herbicide 15	PPI, Preplant, Preemergence, POST (up to 36" tall corn)	Soil <u>Texture</u> <3% OM Coarse 12-14 fl oz Medium 14-18 fl oz Fine 14-18 fl oz	None, unless required by a tank mix partner	Outlook does not control emerged weeds. Do NOT apply POST with Status herbicide. Do not exceed more than 24 fl oz Outlook per year for sequential applications. Labeled for Field corn, Popcorn, Seed corn, and Sweet corn.
Prowl H2O Herbicide 3	Preemergence or POST (up to 30" tall or V8 corn)	Soil <1.5% 1.5-3.0% <u>Texture</u> OM OM Coarse 2 pints 3 pints Medium 3 pints 3 pints Fine 3 pints 4 pints	None, unless required by a tank mix partner	Planting depth must be at least 1.5" when applying preemerge. Prowl H2O does not control emerged weeds. Labeled for Field corn, Popcorn, Seed corn, and Sweet corn.
Armezon Herbicide 27	POST (emergence to V8)	0.75 fl oz	MSO or COC @ 1 to 1.5 gal/100 gal plus AMS @ 8.5 to 17 lbs/100 gal or UAN @ 2.5% gal/100 gal	Include a minimum of 0.5 lb/A atrazine when possible. Do not apply atrazine to corn >12" tall. Refer to supplemental labeling for weed heights and rotational restrictions for use rates of 0.5 fl oz/A and 1.0 fl oz/A. Labeled for Field corn, Popcorn, Seed corn, and Sweet corn.
Clarity Herbicide 4	<u>Preplant</u> No-till only	16 fl oz - Med/fine soils ≥ 2.5% OM, others 8 fl oz	NIS @ 1 to 2 pints/100 gal plus AMS @ 2.5 lbs/A or UAN @ 2 to 4 qt/A	Preplant in No-Till apply up to 8 oz on coarse soils or med-fine soils <2.5% OM, and up to 16 oz on med-fine soils >2.5% OM. Early POST apply 16 oz (med/fine soils) or 8 oz (coarse soils) from spike to V5 or 8" tall corn. Labeled for Field corn, Popcorn and Seed corn.
	<u>Early POST</u> Spike to (V5)	Coarse 8 fl oz Med/Fine 16 fl oz		
	<u>Late POST</u> 8"-36" DROPS ONLY	8 fl oz		
Status Herbicide 4 19	POST (V2 – V10)	5.0 oz	MSO or COC @ 1 gal/100 gal or NIS @ 1 qt/100 gal plus AMS @ 5 to 17 lbs/100 gal	DO NOT spray < 4" (V2) tall corn. Use COC or MSO when weeds are stressed, or when glyphosate resistant weeds are present. DO NOT apply in tank mix with products containing dicamba, 2,4-D, clopyralid or EC chloroacetamides. Labeled for Field Corn, Popcorn and Seed Corn.

Insecticides

Fastac CS Insecticide 3	POST	1.3—2.9 fl oz: Cutworms 1.8—3.8 fl oz: Corn earworm, Western bean cutworm 2.7—3.8 fl oz: Corn borer (European, Southwestern), 3.2—3.8 fl oz: Armyworms	Refer to label for other insect pests. PHI 30 days for grain and 60 days for forage. Do not exceed 11.4 fl oz/A per year.
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Verdict	=	Outlook	+	Sharpen
10 fl oz		8.4 fl oz		2.0 fl oz
12 fl oz		10.1 fl oz		2.4 fl oz
13 fl oz		10.9 fl oz		2.6 fl oz
15 fl oz		12.6 fl oz		3.0 fl oz

Armezon PRO	=	Armezon	+	Outlook
14 fl oz		0.51 fl oz		12.3 fl oz
16 fl oz		0.59 fl oz		14.0 fl oz
18 fl oz		0.66 fl oz		15.8 fl oz
20 fl oz		0.73 fl oz		17.6 fl oz

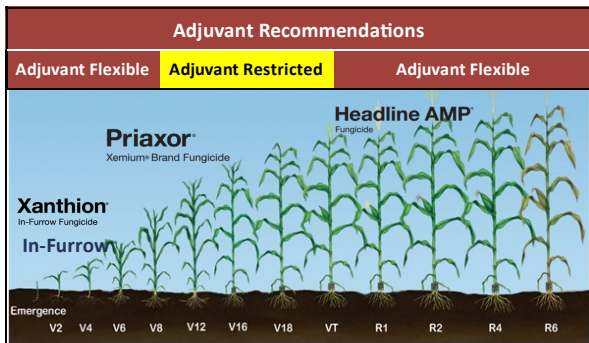
This Quick Reference Guide is not a substitute for any product label. Always read and follow label directions. Atrazine and Fastac are restricted use pesticides.

CORN

Fungicides

2017 BASF Guide

Product	SOA	Timing	Rate/Acre	Additives	Comments
Headline® Fungicide	11	In-furrow at planting	3.5 to 6.9 fl oz (30" rows)	EC formulation can be applied with pop-up fertilizer (10-34-0) with good agitation. Do NOT mix SC formulation with fertilizer.	For Plant Health and <i>Rhizoctonia</i> control. See label for use rates on other row widths. Use a minimum of 2.5 gal/A with water or liquid fertilizer as carrier.
	11				
Xanthion® In-Furrow Fungicide	11 44	In-furrow at planting	3.6 to 7.2 fl oz (all row widths)	Do NOT mix directly with fertilizer.	For Plant Health, <i>Fusarium</i> , and <i>Rhizoctonia</i> control. Co-package of two fungicides. Use rate per 1000 row feet will depend on row spacing. Use a minimum of 2.5 gal/A with water as carrier.
Priaxor™ Xemium® Brand Fungicide	7 11	Optimum Timing: Pre-tassel corn (V5 to V8)	4 fl oz	Before V8 and After VT: Ground: NIS @ 1 pint/100 gal Aerial: COC @ 1 pint/A or HSOC @ 0.5 pint/A <i>See comments for restrictions</i>	For disease control and Plant Health. Adjuvants may only be used between V8 and VT if they have been approved as safe by their manufacturer. Otherwise do not use adjuvants between V8 and VT.
Headline AMP® Fungicide	3 11	Optimum Timing: VT (full tassel) to R2 (blister stage)	10 fl oz		



Priaxor = Headline + Sercadis®		
4 fl oz	5.3 fl oz	2.3 fl oz
Headline AMP = Headline + Caramba		
10 fl oz	5.8 fl oz	6.1 fl oz
Xanthion = Headline + Integral		
3.6 fl oz	3 fl oz	0.6 fl oz

SOYBEANS

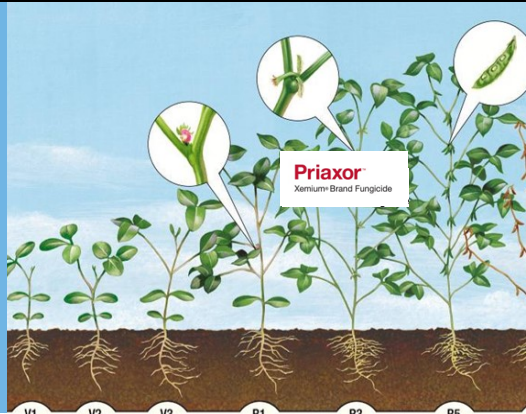
Fungicides & Insecticides

2017 BASF Guide

Product	SOA	Timing	Rate/Acre	Additives	Comments
Priaxor™ Xemium® Brand Fungicide	7 11	In-furrow at planting	2.0 to 7.0 fl oz (30" rows)	Do NOT mix with starter fertilizer.	For Plant Health and <i>Rhizoctonia</i> control. See label for use rate per 1000 row feet. Use a minimum of 2.5 gal/A water as carrier.
		R3 (Beginning Pod)	4 fl oz	Ground: NIS @ 1 pint/100 gal Aerial: COC @ 1 pint/A or HSOC @ 0.5 pint/A	For disease control and Plant Health. Diseases controlled: Alternaria leaf spot, anthracnose, Asian soybean rust, brown spot, Cercospora blight, Frogeye leaf spot, pod and stem blight.
Fastac CS Insecticide	3	POST	1.3—3.8 fl oz: Cutworms 2.8—3.8 fl oz: Armyworm (Southern, true, yellow-striped), Bean leaf beetle, Corn earworm, Soybean aphid, Webworms, Japanese beetle 3.2—3.8 fl oz: Armyworm (beet, fall), Loopers, Stink bugs, Thrips		21 day PHI. Do not graze or harvest treated soybean forage, stray, or hay for livestock feed. See label for additional pests.

Optimum application timing is from R2 through R4

- R2 Full bloom:** One open flower at one of the upper two nodes
- R3 Beginning pod:** Pod 1/4" long at one of four uppermost nodes on main stem
- R4 Full pod:** Pod 3/4" long at one of four uppermost nodes on main stem



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SOYBEANS

Herbicides

2017 BASF Guide

Product	SOA	Timing	Rate/Acre	Additives	Comments																				
Zidua PRO Herbicide 2 14 15		Preplant Burndown, Preplant, Preemergence* (see comments)	6 fl oz	MSO @ 1 gal/100 gal (minimum 16 fl oz/A) plus AMS @ 8.5 to 17 lbs/100 gal or UAN @ 2.5 gal/100 gal	Additives must be added for control of emerged broadleaf weeds. Glyphosate tank-mix partner also recommended for grass and broadleaf burndown. *For coarse soils less than 2% OM, a 30-day pre-plant interval is required.																				
Optill PRO Powered by Kixor® Herbicide 2 14 15			2 oz/A OpTill + 10 fl oz/A Outlook (1 case = 40 acres)																						
Sharpen Powered by Kixor® Herbicide 14		Preplant Burndown, Preplant, Preemergence* (see comments)	1 to 2 fl oz (see preplant intervals in comments for coarse soils and rates > 1 fl oz)	MSO @ 1 gal/100 gal (minimum 16 fl oz/A) plus AMS @ 8.5 to 17 lbs/100 gal or UAN @ 2.5 gal/100 gal	*Preplant Intervals (days) <table border="1"> <thead> <tr> <th colspan="2">Rate (fl oz/A)</th> <th colspan="2">Soil Type</th> </tr> <tr> <th>Sharpen</th> <th>Verdict</th> <th>*Coarse ≤ 2% OM</th> <th>Other</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>5</td> <td>30</td> <td>0</td> </tr> <tr> <td>1.5</td> <td>7.5</td> <td>30</td> <td>14</td> </tr> <tr> <td>2</td> <td>10</td> <td>44</td> <td>30</td> </tr> </tbody> </table> Include Outlook or Zidua with Verdict for residual grass and pigweed control.	Rate (fl oz/A)		Soil Type		Sharpen	Verdict	*Coarse ≤ 2% OM	Other	1	5	30	0	1.5	7.5	30	14	2	10	44	30
Rate (fl oz/A)			Soil Type																						
Sharpen	Verdict	*Coarse ≤ 2% OM	Other																						
1	5	30	0																						
1.5	7.5	30	14																						
2	10	44	30																						
Verdict Powered by Kixor® Herbicide 14 15			5 to 10 fl oz/A (see preplant intervals in comments for coarse soils and rates > 5 fl oz)																						
Zidua Herbicide 15		Preplant, PPI, Preemerge, POST (1st to 3rd trifoliolate)	<table border="1"> <thead> <tr> <th></th> <th>Preplant/PRE (oz)</th> <th>EPOST (oz)</th> </tr> </thead> <tbody> <tr> <td>Coarse</td> <td>1.5-2.1</td> <td>1.0-2.1</td> </tr> <tr> <td>Med</td> <td>2.0-3.0</td> <td>1.5-3.0</td> </tr> <tr> <td>Fine</td> <td>2.5-3.5</td> <td>2.0-3.5</td> </tr> </tbody> </table>		Preplant/PRE (oz)	EPOST (oz)	Coarse	1.5-2.1	1.0-2.1	Med	2.0-3.0	1.5-3.0	Fine	2.5-3.5	2.0-3.5	None, unless required by a tank mix partner	DO NOT apply at cracking through unifoliolate stage. Maximum seasonal use rate on coarse soils is 2.1 oz and 3.5 oz for all other soils.								
	Preplant/PRE (oz)	EPOST (oz)																							
Coarse	1.5-2.1	1.0-2.1																							
Med	2.0-3.0	1.5-3.0																							
Fine	2.5-3.5	2.0-3.5																							
Extreme Herbicide 9 2		Preplant or POST Roundup Ready® only	3 pints	NIS @ 1 pint/100 gal plus AMS @ 17 lbs/100 gal	Out-performs glyphosate on velvetleaf, smartweed, black nightshade, morningglories, and wild buckwheat. Provides residual control of annual grasses and non-ALS resistant small seeded broadleaves																				
Outlook Herbicide 15		PPI, Preplant, Preemergence, POST (cracking to 5th trifoliolate)	<table border="1"> <thead> <tr> <th>Soil Texture</th> <th><3% OM</th> </tr> </thead> <tbody> <tr> <td>Coarse</td> <td>12-14 fl oz</td> </tr> <tr> <td>Medium</td> <td>14-18 fl oz</td> </tr> <tr> <td>Fine</td> <td>14-18 fl oz</td> </tr> </tbody> </table>	Soil Texture	<3% OM	Coarse	12-14 fl oz	Medium	14-18 fl oz	Fine	14-18 fl oz	None, unless required by a tank mix partner	Outlook does not control emerged weeds. Split applications may be required for extended control of glyphosate resistant pigweeds. Up to 24 fl oz Outlook may be applied per season if sequential applications are separated by at least 14 days.												
Soil Texture	<3% OM																								
Coarse	12-14 fl oz																								
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Prowl H2O Herbicide 3		PPI, Preplant, Preemergence (no more than 2 days after planting)	<table border="1"> <thead> <tr> <th>< 3% OM</th> <th>Preplant (pints)</th> <th>PRE (pints)</th> </tr> </thead> <tbody> <tr> <td>Coarse</td> <td>1.5</td> <td>1.5</td> </tr> <tr> <td>Med</td> <td>2.5</td> <td>2.0</td> </tr> <tr> <td>Fine</td> <td>3.0</td> <td>2.0</td> </tr> </tbody> </table>	< 3% OM	Preplant (pints)	PRE (pints)	Coarse	1.5	1.5	Med	2.5	2.0	Fine	3.0	2.0	None, unless required by a tank mix partner	Apply up to 15 days before planting in spring with no incorporation required. Apply preplant incorporated up to 60 days before planting. Preemerge applications must be made within 2 days of planting. Prowl H2O does not control emerged weeds.								
< 3% OM	Preplant (pints)	PRE (pints)																							
Coarse	1.5	1.5																							
Med	2.5	2.0																							
Fine	3.0	2.0																							
Raptor Herbicide 2		POST (emergence to just before bloom)	4 to 5 fl oz	COC or MSO @ 1 gal/100 gal plus AMS @ 12 to 15 lb/100 gal or UAN @ 1.25 to 2.5 gal/100 gal	Tank mix with diphenyl-ether (PPO) herbicide for waterhemp control or FirstRate® for ragweed control																				
Varisto Herbicide 2 6		Post emergence but before crop bloom	21–27 fl oz	1% v/v COC or 1% v/v MSO or 0.25% v/v NIS plus 2.5 lb/A AMS or 2 qt/A UAN	Lambsquarters, velvetleaf, cocklebur, sunflower, nightshade, foxtail, panicum.																				
Sharpen Powered by Kixor® Herbicide 14		Harvest Aid / Desiccation	2 fl oz	MSO @ 1 pint/A plus AMS @ 17 lb/100 gal	Apply when indeterminate soybeans have greater than 65% brown pods and greater than 70% leaf drop or when seed moisture is 30% or less. PHI = 3 days. Minimum 5 GPA carrier by air.																				

Seed Enhancements

Vault HP Biological Seed Treatment + Integral	Up to 125 days before planting	2 fl oz/cwt	Cool, clean, non-chlorinated water	Vault is a <i>Rhizobia</i> inoculant plus feeding stimulant. Integral is a biofungicide that suppresses <i>Fusarium</i> and <i>Rhizoctonia</i> .
Flo Rite 1706 Plantability Polymer	Added directly to treatment	1 fl oz/cwt	None	Flo Rite 1706 is a colored polymer to improve seed flow and reduce bridging.

Zidua PRO = Sharpen + Pursuit + Zidua

6 fl oz 1 fl oz 4 fl oz 2 oz

OpTill PRO = Sharpen + Pursuit + Outlook

1 case/40 A 1 fl oz 4 fl oz 10 fl oz

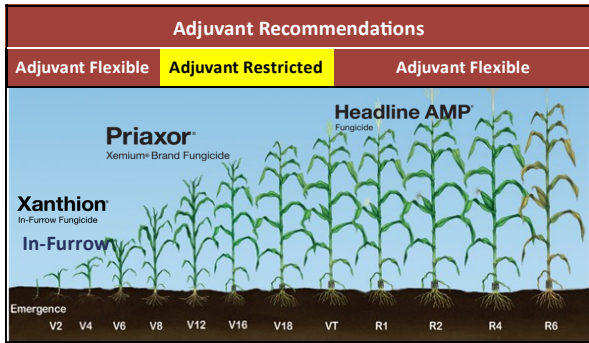
Extreme = glyphosate + Pursuit

(4# a.e.)

3 pint 24 fl oz 4 fl oz

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Product	SOA	Timing	Rate/Acre	Additives	Comments
Headline® Fungicide	11	In-furrow at planting	3.5 to 6.9 fl oz (30" rows)	EC formulation can be applied with pop-up fertilizer (10-34-0) with good agitation. Do NOT mix SC formulation with fertilizer.	For Plant Health and <i>Rhizoctonia</i> control. See label for use rates on other row widths. Use a minimum of 2.5 gal/A with water or liquid fertilizer as carrier.
	11				
Xanthion® In-Furrow Fungicide	11 44	In-furrow at planting	3.6 to 7.2 fl oz (all row widths)	Do NOT mix directly with fertilizer.	For Plant Health, <i>Fusarium</i> , and <i>Rhizoctonia</i> control. Co-package of two fungicides. Use rate per 1000 row feet will depend on row spacing. Use a minimum of 2.5 gal/A with water as carrier.
Priaxor™ Xemium® Brand Fungicide	7 11	Optimum Timing: Pre-tassel corn (V5 to V8)	4 fl oz	Before V8 and After VT: Ground: NIS @ 1 pint/100 gal Aerial: COC @ 1 pint/A or HSOC @ 0.5 pint/A <i>See comments for restrictions</i>	For disease control and Plant Health. Adjuvants may only be used between V8 and VT if they have been approved as safe by their manufacturer. Otherwise do not use adjuvants between V8 and VT.
Headline AMP® Fungicide	3 11	Optimum Timing: VT (full tassel) to R2 (blister stage)	10 fl oz		



Priaxor	=	Headline	+	Sercadis®
4 fl oz		5.3 fl oz		2.3 fl oz
Headline AMP	=	Headline	+	Caramba
10 fl oz		5.8 fl oz		6.1 fl oz
Xanthion	=	Headline	+	Integral
3.6 fl oz		3 fl oz		0.6 fl oz

Corn Program Examples <i>See labels for adjuvant recommendations</i>			
	Sequential Pre fb Post	Sequential Extended Residual	Early Post Planned V1-V2
In-furrow at planting	3.6 to 7.2 fl oz Xanthion		
Pre Plant Pre Emerge	10 fl oz Verdict with glyphosate + atrazine	10 fl oz Verdict with glyphosate + atrazine	
Post 1	5 oz Status (V2 to V8) OR 0.75 fl oz Armezon (Spike to V8) with glyphosate + atrazine	2.5 oz Zidua + 0.75 oz Armezon (Spike to V4) OR 16 to 18 fl oz Armezon PRO (Spike to V8, rate varies by soil type) with glyphosate + atrazine	16 to 20 fl oz Armezon PRO (Spike to V8, target V1-V2, rate varies by soil type) with glyphosate + atrazine
Consider	Priaxor 4 fl oz (V5 to V8)	Priaxor 4 fl oz (V5 to V8)	
Post 2	10 fl oz Headline AMP (VT-R1) Disease control, improved plant growth efficiency, increased stress tolerance		

SOYBEANS

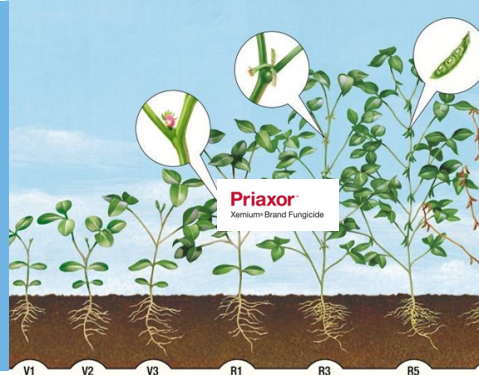
Fungicides & Insecticides

2017 BASF Guide

Product	SOA	Timing	Rate/Acre	Additives	Comments
Priaxor™ Xemium® Brand Fungicide		In-furrow at planting	2.0 to 7.0 fl oz (30" rows)	Do NOT mix with starter fertilizer.	For Plant Health and <i>Rhizoctonia</i> control. See label for use rate per 1000 row feet. Use a minimum of 2.5 gall/A water as carrier.
	7 11	R3 (Beginning Pod)	4 fl oz	Ground: NIS @ 1 pint/100 gal Aerial: COC @ 1 pint/A or HSOC @ 0.5 pint/A	For disease control and Plant Health. Diseases controlled: Alternaria leaf spot, anthracnose, Asian soybean rust, brown spot, Cercospora blight, Frogeye leaf spot, pod and stem blight.
Fastac CS Insecticide	3	POST	1.3—3.8 fl oz: Cutworms 2.8—3.8 fl oz: Armyworm (Southern, true, yellow-striped), Bean leaf beetle, Corn earworm, Soybean aphid, Webworms, Japanese beetle 3.2—3.8 fl oz: Armyworm (beet, fall), Loopers, Stink bugs, Thrips		21 day PHI. Do not graze or harvest treated soybean forage, stray, or hay for livestock feed. See label for additional pests.

Optimum application timing is from R2 through R4

- R2 Full bloom:** One open flower at one of the upper two nodes
- R3 Beginning pod:** Pod 1/4" long at one of four uppermost nodes on main stem
- R4 Full pod:** Pod 3/4" long at one of four uppermost nodes on main stem



Priaxor	=	Headline	+	Sercadis®
4 fl oz		5.3 fl oz		2.3 fl oz

Soybean Program Examples

See labels for adjuvant recommendations

	No-Till Medium Soil	No-Till Sandy Soil	Conventional Till Medium Soil
Fall Burndown	12 fl oz Clarity OR 2 oz Distinct with glyphosate +/- metribuzin	—	—
Early Spring Burndown (>45 days before planting)	—	10 fl oz Verdict with glyphosate + 2,4-D	—
Seed Treatment	2 fl oz/cwt Vault HP + Integral		
Preemerge	5 oz Verdict + 2.5 oz Zidua OR 5 oz Verdict + 8 fl oz Outlook with glyphosate	Residual PPO with glyphosate	OpTill PRO @ 1 case/40 acres with glyphosate
Postemerge With Residual (V2 to V3)	12 fl oz Outlook Up to 5 trifoliates	2 oz Zidua 1 to 3 trifoliates	12 fl oz Outlook Up to 5 trifoliates
Beginning Pod (R3)	4 fl oz Priaxor + 3.8 fl oz Fastac Disease control, improved plant growth efficiency, increased stress tolerance		

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Corn Program Examples

See labels for adjuvant recommendations

	Sequential Pre fb Post	Sequential Extended Residual	Early Post Planned V1-V2
In-furrow at planting	3.6 to 7.2 fl oz Xanthion		
Pre Plant Pre Emerge	10 fl oz Verdict with glyphosate + atrazine	10 fl oz Verdict with glyphosate + atrazine	
Post 1	5 oz Status (V2 to V8) OR 0.75 fl oz Armezon (Spike to V8) with glyphosate + atrazine	2.5 oz Zidua + 0.75 oz Armezon (Spike to V4) OR 16 to 18 fl oz Armezon PRO (Spike to V8, rate varies by soil type) with glyphosate + atrazine	16 to 20 fl oz Armezon PRO (Spike to V8, target V1-V2, rate varies by soil type) with glyphosate + atrazine
Consider	Priaxor 4 fl oz (V5 to V8)	Priaxor 4 fl oz (V5 to V8)	
Post 2	10 fl oz Headline AMP (VT-R1) Disease control, improved plant growth efficiency, increased stress tolerance		



Soybean Program Examples

See labels for adjuvant recommendations

	No-Till Medium Soil	No-Till Sandy Soil	Conventional Till Medium Soil
Fall Burndown	12 fl oz Clarity OR 2 oz Distinct with glyphosate +/- metribuzin	—	—
Early Spring Burndown (>45 days before planting)	—	10 fl oz Verdict with glyphosate + 2,4-D	—
Seed Treatment	2 fl oz/cwt Vault HP + Integral		
Preemerge	5 oz Verdict + 2.5 oz Zidua OR 5 oz Verdict + 8 fl oz Outlook with glyphosate	Residual PPO with glyphosate	OpTill PRO @ 1 case/40 acres with glyphosate
Postemerge With Residual (V2 to V3)	12 fl oz Outlook Up to 5 trifoliates	2 oz Zidua 1 to 3 trifoliates	12 fl oz Outlook Up to 5 trifoliates
Beginning Pod (R3)	4 fl oz Priaxor + 3.8 fl oz Fastac Disease control, improved plant growth efficiency, increased stress tolerance		

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Fastac is a restricted use pesticide.**



Product	SOA	Timing	Rate/Acre	Additives	Comments			
Beyond Clearfield [®] Production System Herbicide 	2	<u>Clearfield (1-gene)</u> Tiller initiation up to jointing <u>Clearfield Plus</u> 2 leaf (NIS only) Tiller initiation up to 2nd node	4 fl oz Fall applied <i>followed by</i> 4 fl oz Spring applied ---OR--- 5 to 6 fl oz Spring applied	Adjuvant by Wheat Growth Stage		Apply in fall or spring to actively growing weeds, and when broadleaf weeds are ≤ 3" and grass weeds are ≤ 4-5 leaves. DO NOT apply during periods of extreme cold. Highs should be >40° F and lows >25° F for 2 days before and after application. For best feral rye suppression, apply prior to tillering of feral rye. DO NOT apply more than 50% total carrier volume as N fertilizer. Do NOT use MSO with tank-mixes that prohibit oil adjuvants.		
				Variety	2 Leaf		Tiller Initiation	1st Node
				Clearfield	-		NIS @ 0.25% v/v + UAN	-
				Clearfield Plus	NIS @ 0.25% v/v + UAN		MSO @ 1% v/v + UAN or NIS @ 1% v/v + UAN Only NIS with tank-mixes that prohibit oils	
				Always include UAN @ 20% - 50% v/v or 3 - 5 gal/A				
Sharpen Powered by Kixor [®] Herbicide	14	Preplant burndown, Preplant, Preemergence	1 to 4 fl oz	MSO @ 1 gal/100 gal (minimum 16 fl oz/A) plus AMS @ 8.5 to 17 lbs/100 gal or UAN @ 2.5 gal/100 gal		Additives must be added for control of emerged broadleaf weeds. Glyphosate tank-mix partner also recommended for grass and broadleaf burndown.		
Prowl H2O Herbicide	3	POST—1-leaf stage to flag leaf emergence	Soil Type pints Coarse 1.5 Medium 1.5-2.5 Fine 2.0-3.0	None, unless required by a tank mix partner		Applications of Prowl H2O will not control emerged weeds. Prowl H2O can be tank-mixed with labeled wheat herbicides to control emerged weeds. See label for mixing instructions with liquid fertilizers. Use screens no finer than 50 mesh.		
 Zidua Herbicide	15	Delayed PRE* (see comments)	Soil Type oz Coarse 0.7-1.0 Medium 1.0-1.25 Fine 1.0-1.25	None, unless required by a tank mix partner		*Delayed PRE timing – 80% of germinated wheat seeds have a shoot at least ½ inch long until wheat spiking. Do not apply preplant or PRE. Does not control emerged weeds. Do not apply more than 2.5 oz/A per cropping season.		
		POST Spike to 4 tillers	1 to 2 oz					
Clarity Herbicide	4	POST (spike to joint stage)	2 to 4 fl oz	NIS @ 0.25% v/v plus AMS @ 2.5 lbs/A or UAN @ 2 to 4 qts/A		Always include a labeled tank-mix partner.		
Facet L Herbicide	4 26	Preplant	22 fl oz	MSO at 2 pt/A plus AMS @ 2.5 lb/A or UAN @ 4 qt/A		To manage field bindweed prior to planting wheat. Include glyphosate to burndown existing weeds. Plant wheat seed at least 1" deep.		

Fungicides

Priaxor [™] Xemium [®] Brand Fungicide	7 11	Fall (3 leaf); Spring greenup prior to jointing (Feekes 4-5); No later than the beginning of flowering (Feekes 10.5.1)	2 to 4 fl oz	NIS @ 1 pint/100 gal May use MSO with Beyond on Clearfield Plus		Early season disease control and Plant Health (Feekes 4-5); Apply Priaxor @ 2 to 4 fl oz/A. Can be tank-mixed with labeled herbicides. Special mixing instructions exist when UAN exceeds 30% v/v of carrier.
Nexicor [™] Fungicide	3 7 11	Spring greenup prior to jointing (Feekes 4-5);	3.5 to 7 fl oz	NIS @ 1 pint/100 gal May use MSO with Beyond on Clearfield Plus		Early season Plant Health and control of Tan spot and Septoria. Suppression of rust until heading.
		Full flag leaf emergence to the beginning of flowering (Feekes 10.5.1)	7 to 13 fl oz	NIS @ 1 pint/100 gal		For Plant Health and control of key foliar diseases through grain fill.
Twinline [™] Fungicide	3 11	Full flag leaf emergence to the beginning of flowering (Feekes 10.5.1)	7 to 9 fl oz	NIS at the lowest labeled rate may be added to improve spray coverage. DO NOT use adjuvants that contain MSO or COC or crop oil with emulsifier properties		For optimum flag leaf disease protection and Plant Health (Feekes 8-9), apply TwinLine @ 7-9 fl oz/A prior to disease development.
Caramba [®] Fungicide		Prior to disease development and at least 30 days prior to harvest	10 to 17 fl oz			For optimum <i>Fusarium</i> head scab suppression, apply 13.5 fl oz/A at the beginning of flowering (Feekes 10.5.1).

Insecticides

Fastac CS Insecticide	3	Post	1.3—3.8 fl oz: Cutworms (including army cutworm) 1.8—3.8 fl oz: Armyworms (Southern, true, yellow-striped) 3.2—3.9 fl oz: Aphids, Greenbugs, Grasshoppers	Do not make applications less than 14 days apart. 14 day PHI for grain, forage, and hay. See label for additional pests controlled.	
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Seed Enhancements

Product	SOA	Crop	Rate	Comments
Stamina F3 Cereals Fungicide Seed Treatment	3 4 11	Wheat, barley, triticale, rye, oats	4.6 fl oz/100 lb seed	Premix of pyraclastrobrin, triticonazole, and metalaxyl. Controls loose smut, common bunt, dry seed decay, <i>Pythium</i> damping off, seedling blights, and <i>Rhizoctonia</i> root rot

ALFALFA Herbicides 2017 BASF Guide

Product	SOA	Timing	Rate/Acre	Additives	Comments
Prowl H2O Herbicide	3	Seedling alfalfa at least 2-trifoliates Established alfalfa prior to 6" of regrowth	Seedling 2 pints Established 2 to 8 pints	None, unless required by a tank mix partner	Does not control emerged weeds. PHI = 28 days for ≤ 4.2 pints and 50 days for > 4.2 pints. Use screens no finer than 50 mesh.
Sharpen Powered by Kixor® Herbicide	14	Established alfalfa 90 days before 1st cutting (KS, CO, WY, NE) 75 days before 1st cutting (OK, NM, TX)	2 fl oz	MSO @ 1 gal/100 gal (minimum 16 fl oz/A) plus AMS @ 8.5 to 17 lbs/100 gal or UAN @ 2.5 gal/100 gal	Apply only to dormant alfalfa. Controls ALS resistant flixweed. Can be applied by ground or air. Do not chemigate. PHI - 28 days
Raptor Herbicide	2	POST to seedling (at least 2-trifoliolate) or established alfalfa (< 3" regrowth) when weeds are 1 to 3" tall	5 to 6 fl oz	NIS @ 1 qt/100 gal or COC or MSO @ 1.25 gal/100 gal plus AMS @ 12 to 15 lb/100 gal	MSO is recommended for best control. May cause temporary yellowing or stunting, especially in cool conditions. Do not apply with OP insecticides. Does not control Palmer amaranth. 60 day timing interval if Raptor fb pursuit or Pursuit fb Raptor. PHI - 0 days
Pursuit Herbicide	2	POST to seedling (at least 2-trifoliolate) or established alfalfa (< 3" regrowth) when weeds are 1 to 3" tall	4 to 6 fl oz	COC or MSO at 1.25 gal/100 gal plus AMS at 12 to 15 lb/100 gal	MSO is recommended for best control. May cause temporary yellowing or stunting, especially in cool conditions. Do not apply with OP insecticides. Does not control Palmer amaranth. 60 day timing interval if Pursuit fb Raptor or Raptor fb Pursuit. PHI - 30 days
Extreme Herbicide Roundup Ready® Varieties Only	9 2	POST to seedling (at least 2-trifoliolate) or established alfalfa (< 3" regrowth)	3 to 4.4 pints	NIS @ 1 pint/100 gal plus AMS @ 17 lb/100 gal	Roundup Ready alfalfa only. Do not apply more than 4.4 pints per year or 3 pints in the last year of alfalfa stand. PHI - 30 days.

Fungicides

Headline Fungicide	11	4" to 8" tall alfalfa	6 fl oz (9 fl oz for heavy disease)	Ground: NIS @ 1 pint/100 gal Aerial: COC @ 1 pint/A or HSCOC @ 0.5 pint/A	For Plant Health and disease control. Controls spring and summer black stem, rust, leaf spot, and powdery mildew. PHI - 14 days. Do not make more than 3 applications per season.
Priaxor Xenium® Brand Fungicide	7 11		4 fl oz		

Insecticides

Fastac CS Insecticide	3	Post	3.8 fl oz: Alfalfa weevil, cutworms, aphids, alfalfa caterpillar, alfalfa looper, webworm, potato leafhopper, green cloverworm, armyworm, grasshopper, Lygus, stink bugs	Maximum of 3.8 fl oz per cutting and 11.4 fl oz per season. PHI = 3 days. Do not use cypermethrin or zeta-cypermethrin in the same crop season.
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FALLOW / POST HARVEST Herbicides 2017 BASF Guide

Product	SOA	Timing	Rate/Acre	Additives	Comments
Distinct Herbicide	4 19	Fall burndown / Fallow / Post harvest to actively growing weeds	2 to 6 oz	COC or MSO @ 1 to 2 pints/A plus AMS @ 5 to 17 lbs/100 gal OR UAN @ 1.25% v/v	Include 8-12 fl oz Clarity for added kochia control. See crop rotation information for rainfall and waiting intervals required before planting certain crops.
Sharpen Powered by Kixor® Herbicide	14	Fall burndown / Fallow / Post harvest to actively growing weeds	1.5 to 2 fl oz	MSO at 1 pint/A plus AMS @ 8.5 to 17 lbs/100 gal OR UAN @ 2.5% v/v	Additives MUST be included (MSO + AMS / UAN). Glyphosate tank mix partner also recommended for optimum burndown.
Prowl H2O Herbicide	3	Fallow / Prior to weed germination	2 to 3 pints	None, unless required by a tank mix partner	Prowl H2O does not control emerged weeds. Do not apply after July 1 if corn or sorghum will be planted the following spring. Wheat may be planted 4 months after application. Use screens no finer than 50 mesh.
Clarity Herbicide	4	Fall burndown / Fallow / Post harvest to actively growing weeds	12 to 16 fl oz	COC or MSO @ 1 to 2 pt/A plus AMS @ 5 to 17 lb/100 gal or UAN @ 1.25% v/v	Use 16 fl oz of Clarity for added residual kochia control. Do not plant wheat for 44 days following a fallow application of Clarity.
Extreme Herbicide	9 2	Fall burndown prior to soybeans	2.25 to 3 pints	NIS @ 1 pint/100 gal plus AMS @ 17 lbs/100 gal	May be tankmixed with Clarity, 2,4-D, Distinct, and/or additional glyphosate. 18 month rotation restriction to sorghum and sunflowers. Do not apply additional Pursuit containing products in the same crop year.
Zidua Herbicide	15	See label for rotational crop intervals	1 to 4 oz	None, unless required by a tank mix partner	Separate sequential applications by at least 30 days. Do not exceed the maximum cumulative amount of 5.0 oz per season.

GRAIN SORGHUM

Herbicides

2017 BASF Guide

Product	SOA	Timing	Rate/Acre	Additives	Comments
Sharpen Powered by Kixor® Herbicide	14	Preplant or PRE	1 to 2 fl oz	MSO @ 1 gal/100 gal (min 1 pint/A) plus AMS @ 8.5 to 17 lbs/100 gal OR UAN @ 2.5% v/v	Additives MUST be included (MSO + AMS / UAN). Glyphosate tank mix partner also recommended for optimum burndown performance. Include at least 0.5 lb/A atrazine for kochia burndown
Verdict Powered by Kixor® Herbicide	14 15	Preplant or PRE	10 fl oz	MSO @ 1 gal/100 gal (min 1 pint/A) plus AMS @ 8.5 to 17 lbs/100 gal OR UAN @ 2.5% v/v	<u>Additional Outlook required with Verdict on grain sorghum.</u> Do not exceed the maximum amount of Outlook per soil type. Include glyphosate for optimum burndown. Include at least 0.5 lb/A atrazine for kochia burndown. For use on chloroacetamide safened seed only.
Outlook Herbicide	15	Preplant, PPI, PRE, POST up to 12" sorghum	Soil Texture <3% OM Coarse 12-14 fl oz Medium 14-18 fl oz Fine 14-18 fl oz	None unless required by tankmix partner.	For use on chloroacetamide safened seed only. Sequential applications of Outlook can be made if applications are separated by 14 or more days. Do not exceed 21 fl oz/A Outlook equivalent per crop season.
Facet L Herbicide	4 26	PRE or POST up to 12" sorghum	22 fl oz (PRE) 22 – 32 fl oz (POST)	MSO* at 1 to 2 pts/A plus UAN at 2 to 4 qts/A or AMS at 2.5 lbs/A	*Substitute NIS for MSO for certain tank mixtures. See label for details. For best annual grass control, add 0.5-1.0 lbs/A atrazine. Weeds should be treated when 2" or less.
Clarity Herbicide	4	>15 days preplant, POST (spike to 8" tall)	8 fl oz	NIS at 0.25% v/v plus AMS at 2.5 lbs/A	For POST applications, apply when the sorghum is in the 3-5 leaf stage and when weeds are less than 3" tall. Do NOT apply later than 25 days after planting.

Fungicides

Priaxor Xemium® Brand Fungicide	7 11	Boot to 50% head emergence	4 fl oz	NIS @ 1 pint/100 gal	For disease control and Plant Health. 21 day PHI.
Nexicor Fungicide	3 7 11	Boot to 50% head emergence	7 to 13 fl oz	NIS @ 1 pint/100 gal	For disease control and Plant Health. 21 day PHI.

Insecticides

Fastac CS Insecticide	3	Post	3.8 fl oz: Corn earworm (headworm), Armyworms (Southern, true, yellow-striped, fall), Corn borer (European, south-western), Stink bug, Cutworms, Sorghum midge, Chinch bugs, Aphids, False chinch bugs	Do not make applications less than 10 days apart. Maximum of 11.4 fl oz per season. 14 day PHI for grain and stover. See label for additional pests controlled.
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SUNFLOWERS

Herbicides

2017 BASF Guide

Product	SOA	Timing	Rate/Acre	Additives	Comments
Beyond Clearfield® Production System Herbicide	2	2-8 leaf stage sunflower Clearfield and Clearfield Plus hybrids only	Clearfield 4 fl oz Clearfield Plus 4 to 6 fl oz	Clearfield NIS @ 0.25% v/v + UAN @ 2.5% v/v or AMS @ 12-15 lbs/100 gal Clearfield Plus MSO or COC @ 1% v/v UAN or AMS still required Use NIS if tank-mix partner prohibits the use of oil adjuvants	Do not use MSO or COC on Clearfield hybrids. Do not tank-mix with organophosphate insecticides. For best weed control, apply in a sequential program after Prowl H2O.
Prowl H2O Herbicide	3	PPI, Preplant, Preemerge (up to 2 days after planting)	Soil Texture <3% OM Coarse 2.0 pints Medium 2.5 pints Fine 3.0 pints	None unless required by tank mix partner	Plant sunflowers 1½ to 2" deep and completely cover with soil. Does not control emerged weeds. Use screens no finer than 50 mesh.
Sharpen Powered by Kixor® Herbicide	14	Desiccation (after plant maturity, seed moisture <36%)	2 fl oz	MSO at 1 pint/A plus AMS @ 8.5 to 17 lb/100 gal	Can be applied on oilseed or confections. Do not apply after multiple minor frosts or a significant single frost. Do not use on sunflowers grown for seed production. 7 day PHI. Minimum 5 GPA carrier by air.


Fungicides

Priaxor Xemium® Brand Fungicide	7 11	In-furrow at planting	3.5 to 7.0 fl oz (30" rows)	Do NOT mix with starter fertilizer.	For Plant Health and <i>Rhizoctonia</i> control. See label for use rate per 1000 row feet. Use a minimum of 2.5 gall/A water as carrier.
		R2 to R4 (prior to disease)	4 fl oz	NIS @ 0.25% v/v	Control of Alternaria, Cercospora, powdery mildew, rust and Septoria. 21 day PHI.

WINTER CANOLA

Herbicides

2017 BASF Guide

Product SOA	Timing	Rate/Acre	Additives	Comments
Beyond Clearfield [®] Production System Herbicide  2	Postemerge (emergence until first bloom) Clearfield varieties only	4 fl oz	NIS @ 0.25% v/v plus UAN @ 2.5% v/v or AMS @ 12—15 lbs/100 gall	For use on Clearfield varieties only. Do not apply more than 4 fl oz Beyond per season. Does not control ALS resistant weeds.
Poast Herbicide 1	Postemerge (emergence to 60 day PHI)	1 to 2 pints/A Rate based on geography and target weed	COC @ 2 pints/A plus UAN @ 2—4 quarts/A or AMS @ 2.5 lbs/A	Controls annual ryegrass and volunteer cereals. Always include COC + Nitrogen for cereal control. May be applied by air.


Fungicides

Priaxor [™] Xemium [®] Brand Fungicide 7 11	2—4 leaf	4 fl oz	Ground: NIS @ 1 pint/100 gal Aerial: COC @ 1 pint/A or HSOC @ 0.5 pint/A	Control of Blackleg and Plant Health. Do not make more than 2 applications per season.
	20% - 50% Bloom			Suppression of white mold/Sclerotinia and Plant Health. PHI = 21 days.
Endura [®] Fungicide 7	20% - 50% Bloom	5 to 6 oz	NIS @ 1 quart/100 gall	Suppression of white mold/Sclerotinia. Use higher rate for extended protection. Do not make more than 2 applications per season.

COTTON

Herbicides

2017 BASF Guide

Product SOA	Timing	Rate/Acre	Additives	Key Pests/Comments
Prowl H2O [®] Herbicide 3	Preplant Surface, PPI, PRE (no more than 2 days after planting) POST = 4-8 leaf	Preplant/PRE = 1-3 pints (soil texture dependent) POST = 1-2 pints (soil texture dependent)	Do NOT apply POST with any adjuvant or fertilizer	Do NOT apply POST to cotton that is under stress. PHI = 60 days. Do not exceed 4.2 pts Prowl H2O per year.
4				
 Zidua [®] Herbicide 15	Post-Direct (5-leaf to first bloom)	<u>Soil Type</u> Coarse DO NOT USE Medium 0.75-1.5 oz Fine 1.5-2.1 oz	None unless required by tank mix partner	Use a hooded sprayer. Avoid contacting cotton leaves with Zidua spray solution. Maximum cumulative amount of 4.2 oz per season.
Outlook [®] Herbicide 15	Postemerge (1 leaf to 2 weeks after first bloom)	12 to 16 fl oz	None unless required by tank mix partner. Mixing with other EC products may enhance crop response.	Does not control emerged weeds. Do not apply more than 21 fl oz/A.
Sharpen [®] Powered by Kixor [®] Herbicide 14	Harvest Aid / Defoliation After physiological maturity (at least 60% - 70% open bolls)	1 fl oz	MSO @ 1 pint/A plus AMS @ 17 lbs/100 gall	Can be tankmixed with a boll opener. Use ≥5 GPA by air and ≥10 GPA by ground. PHI = 5 days. Do not apply more than 2 fl oz Sharpen per season for defoliation uses.

Fungicides

Priaxor [™] Xemium [®] Brand Fungicide 7 11	1st week of bloom	4 fl oz	NIS @ 0.25% v/v	Rust, Alternaria leaf spot and boll rot, Ascochyta blight and boll rot, Phoma blight, Diplodia boll rot PLANT HEALTH – increase plant growth efficiency and nitrogen utilization, improved stress tolerance
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Insecticides

Fastac CS Insecticide 3	Post	1.3—1.9 fl oz: Cutworms, Thrips 2.6—3.6 fl oz: Bollworms, Fleahoppers, Stink bugs, Armyworms (fall, yellow-stripped) 2.8—3.8 fl oz: Lygus, Aphids, Beet armyworm	Maximum of 11.4 fl oz per season. PHI = 14 days. Do not use cypermethrin or zeta-cypermethrin in the same crop season. See label for additional pests controlled.
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DRY BEANS

Herbicides

2017 BASF Guide

Product	SOA	Timing	Rate/Acre	Additives	Comments
Outlook® Herbicide	15	PREPLANT, PPI, PRE POST (1st to 3rd trifoli- ate)	By soil type Coarse 14 fl oz Med-Fine 18 fl oz	None unless required by a tankmix partner	Foxtails, panicum, crabgrass, barnyardgrass, yellow nutsedge, pigweed species, nightshade, waterhemp. Does not control emerged weeds.
Poast® Herbicide	1	POST	16 – 32 fl oz	2 pt/A COC or 1.5 pt/A MSO UAN may be added to increase control	Barnyardgrass, foxtails, wild proso millet, annual ryegrass, sandbur, shattercane, volunteer cereals*. * Use 2pt/A for control of volunteer cereals.
Prowl H2O® Herbicide	3	PPI, PRE (up to 4 day after planting, follow with 0.5 inch sprinkler irrigation)	2.0 pints	None unless required by a tankmix partner	Barnyardgrass, crabgrass, sandbur, foxtails, Broad- leaf activity on pigweed, waterhemp, lambsquarters, and velvetleaf. Does not control emerged weeds. Use screens no finer than 50 mesh.
Pursuit® Herbicide	2	PPI, PRE, POST (after 1 st fully expanded trifoliolate and prior to flowering) Target 1-3 inch weeds	3 fl oz Always add Basagran 5L at 1.6 pints	1% v/v COC or 1% v/v MSO or 0.25% v/v NIS plus 2.5 lb/A AMS or 2 qt/A UAN	Cocklebur, nightshade, sunflower, ragweed, smart- weed, mustards, lambsquarters. Always substitute 0.25% v/v NIS for COC or MSO in cool wet growing conditions.
Raptor® Herbicide	2	POST (after 1 st fully expanded trifoliolate and prior to flowering) Target 1-3 inch weeds	4 fl oz Always add Basagran 5L at 1.2 - 1.6 pints	1% v/v COC or 1% v/v MSO or 0.25% v/v NIS plus 2.5 lb/A AMS or 2 qt/A UAN	Lambsquarters, velvetleaf, cocklebur, sunflower, nightshade, foxtail, panicum. Always substitute 0.25% v/v NIS for COC or MSO in cool wet growing conditions.
Varisto® Herbicide	2 6	POST (after 1 st fully expanded trifoliolate and prior to flowering) Target 1-3 inch weeds	21 fl oz Add 8 fl oz Basagran 5L for heavy weed pressure	1% v/v COC or 1% v/v MSO or 0.25% v/v NIS plus 2.5 lb/A AMS or 2 qt/A UAN	Lambsquarters, velvetleaf, cocklebur, sunflower, nightshade, foxtail, panicum. Always substitute NIS for COC or MSO in cold wet growing conditions.
Basagran 5L® Herbicide	6	POST (after 1 st fully expanded trifoliolate and prior to flowering)	1.2 to 1.6 pints	1% v/v COC or 1% v/v MSO or 0.25% v/v NIS plus 2.5 lb/A AMS or 2 qt/A UAN	Always substitute 0.25% v/v NIS for COC or MSO in cool wet growing conditions.
Sharpen® Powered by Kixor® Herbicide	14	Desiccation/Harvest Aid Only	2.0 fl oz	MSO @ 1 pt/A plus AMS @ 8.5 to 17 lb/100 gal or UAN @ 1qt/A	Use for Harvest Aid/Desiccation only. Use a minimum spray volume of 15 gal/A for ground and 5 gal/A for aerial application. Do not use on beans grown for seed. PHI - 2 days

Insecticides

Fastac CS® Insecticide	3	Postemergence	3.8 fl oz	None, unless required by a tankmix partner	PHI 21 days. Do not apply < 5 days apart. Fastac is labeled in many other crops and controls numerous pests. Consult label for additional information.
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Fungicides

Headline® Fungicide	11	In-furrow at planting	6 fl oz	EC formulation can be applied with pop-up fertilizer with good agitation. Do NOT mix SC	For Plant Health and <i>Rhizoctonia</i> control. See label for use rate per 1000 row feet. Use a minimum of 2.5 gall/A with water or liquid fertilizer as carrier.
Priaxor™ Xemium® Brand Fungicide	7 11	Apply at beginning of flowering and before disease development	4 to 8 fl oz	Ground: NIS @ 1 pint/100 gal Aerial: COC @ 1 pint/A or HSOC @ 0.5 pint/A	Controls Anthracnose, Ascochyta blight, Mycosphaerella blight, Powdery mildew, Rust. Do make more than 2 consecutive applications of Priaxor or apply more than 16 fl oz per season.
Endura® Fungicide	7		8 to 11 oz		Controls white mold, Botrytis gray mold, Ascochyta blight

Seed Enhancement

Product	Crop	Rate	Comments
Obvius® Fungicide Seed Treatment	Dried shelled peas and beans	4.6 fl oz/cwt	Premix of pyraclostrobin, Xemium, and metalaxyl. Controls <i>Fusari- um</i> , <i>Pythium</i> , <i>Rhizoctonia</i> , and <i>Aschochyta</i> seedling blights. On- farm and commercial seed treating.
Systiva® XS Xemium® Brand Fungicide	Dried shelled peas and beans	0.24 to 0.47 fl oz/cwt	Seed and seedling disease (damping-off) caused by <i>Rhizoctonia solani</i> and <i>Fusarium solani</i> . Suppression of seed and seedling disease caused by <i>Fusarium</i> spp. Suppression of seedborne infec- tion of lentils by <i>Ascochyta lentis</i> and <i>Ascochyta rabiei</i>
Flo Rite® Plantability Polymer	Dry shelled peas and beans	1 oz/cwt	Flo Rite 1706 preserves value of seed treatments by keeping treat- ments on the seed where they belong

Dry Bean Program Examples

See labels for adjuvant recommendations

	Program 1	Program 2
In-Furrow at planting	Headline EC 4 fl oz/A	Headline EC 4 fl oz/A
Pre Plant Pre Emerge	Outlook 14 fl oz or Prowl H2O 2 pt	Outlook 14 fl oz + Prowl H2O 2 pt/A
Post 1	4 oz Raptor + 1.6 pints Basagran 5L	4 oz Raptor + 1.6 pints Basagran 5L + Outlook 7 fl oz
	OR	
	Varisto @ 21 fl oz + Basagran 5L @ 8 fl oz	
Post 2	Priaxor 4 fl oz Disease control, improved plant growth efficiency, increased stress tolerance	Priaxor 4 fl oz Disease control, improved plant growth efficiency, increased stress tolerance
Consider	Fastac 3.8 fl oz For feeding insects	Fastac 3.8 fl oz For feeding insects

SUGARBEETS		Herbicides		2017 BASF Guide	
Product	SOA	Timing	Rate/Acre	Additives	Comments
Outlook® Herbicide	15	2 to 12 leaf stage	14 fl oz (2 to 12 leaf) OR 12 fl oz at 2 - 6 leaf fb 12 fl oz two wks later	None required	Foxtails, panicum, crabgrass, seedling Johnsongrass, barnyardgrass, yellow nutsedge, pigweed species, nightshade, waterhemp. Does not control emerged weeds.
Poast® Herbicide	1	2 to 8 inch weeds	24 - 32 fl oz	2 pt/A COC or 1.5 pt/A MSO UAN may be added to increase control	Barnyardgrass, foxtails, wild proso millet, annual rye, field sandbur, shattercane, volunteer cereals*. * Use 2pt/A for control of volunteer cereals.
Fungicides					
Headline® Fungicide		Infurrow at planting	0.3 fl oz per 1000 row feet	None required	Suppression of soilborne Rhizoctonia. Direct spray into the furrow before seed is covered.
Priaxor™ Xemium® Brand Fungicide	7 11	POST Prior to disease	6 - 8 fl oz (8 fl oz for <i>Rhizoc</i>)	None required	Cercospora leaf spot, powdery mildew, suppression of Rhizoctonia. PLANT HEALTH – Increase plant growth efficiency, improve stress tolerance, control disease.
Caramba® Fungicide	3	POST Prior to disease	9 – 14 fl oz	None required	Powdery mildew. May be applied in a tankmix with Headline.
Insecticides					
Fastac CS Insecticide	3	Apply at economic threshold	3.8 fl oz (pest dependent)	None required	Cutworm species, Flea Beetle, Grasshopper. Minimum application interval - 4 days. PHI - 50 days

This Quick Reference Guide is not a substitute for any product label. Always read and follow label directions.



POTATOES

Fungicides

2017 BASF Guide

Product	SOA	Timing	Rate/Acre	Additives	Comments
Priaxor™ Xemium® Brand Fungicide		In-furrow	Rate per 1000 row ft 0.48 fl oz for ≤ 34" rows 0.60 fl oz for ≥ 36" rows	Minimum of 5 GPA carrier. Do not mix with fertilizer.	For <i>Rhizoctonia</i> . Apply a 4-8 inch band over the seed piece prior to being covered by soil.
	7 11	POST	4 – 8 fl oz	0.25% v/v NIS may be added	Control of black dot, brown spot, early blight, powdery mildew and suppression of Botrytis gray mold, late blight and white mold. Begin applications prior to disease development.
Endura® Fungicide	7	POST	3.5 – 10 oz	0.25% v/v NIS may be added	Control of white mold, early blight and suppression of gray mold (<i>Botrytis cinerea</i>). For white mold and gray mold, begin applications within 7 days after row closure at 5.5-10 oz/A starting prior to the onset of disease. For early blight, apply 3.5-5.5 oz starting prior to onset of disease.
Cabrio® Plus Fungicide	M3 11	POST	2 – 2.9 lb	0.25% v/v NIS may be added	Control of black dot, early blight, late blight, powdery mildew and suppression of white mold. Rate varies by disease target. Excellent resistance management fungicide. Coverage of foliage is critical. Use > 20 GPA by ground and > 5 GPA by air. Chemigate at less than 0.3 inch water.
Serifel™ Biofungicide	44	POST	4 — 8 oz	None required.	Biofungicide. Aides in control of early blight. Maintain constant agitation. Use nozzle and in-line screens no finer than 50 mesh. PHI = 0 days.
Zampro® Fungicide	45 40	POST	11 – 14 fl oz	0.25% v/v NIS	Control of late blight. Apply preventatively by ground, air or chemigation. May be applied after vine kill. Coverage of foliage is critical. Use > 20 GPA by ground and > 5 GPA by air.
Forum® Fungicide	40	POST	4 – 6 fl oz	0.25% v/v NIS	Control of late blight. Apply preventatively by ground, air or chemigation. May be applied after vine kill. Coverage of foliage is critical. Use > 20 GPA by ground and > 5 GPA by air.

Herbicides

Outlook® Herbicide	15	PRE	By soil type Coarse 14 – 18 fl oz Med-Fine 18 – 21 fl oz	None unless required by a tankmix partner	Does not control germinated weeds. Must be incorporated mechanically or with irrigation/rainfall (0.33-0.5 in.) for maximum weed control.
Prowl H2O® Herbicide	3	PRE Early POST (up to 6")	By soil type Coarse 1.5 pint Medium 2.0 pint Fine 3.0 pint	None unless required by a tankmix partner	Do not apply prior to planting crop. Apply before weed emergence and before potatoes are 6 inches tall. Rate depends on soil texture and % O.M. Use screens no finer than 50 mesh.
Poast® Herbicide	1	2 to 8 inch weeds	24 to 32 fl oz	2 pt/A COC or 1.5 pt/A MSO UAN may be added to increase control	Barnyardgrass, foxtails, wild proso millet, annual rye, field sandbur, shattercane, volunteer cereals*. * Use 32 fl oz/A for control of volunteer cereals.

Insecticides

Fastac® CS Insecticide	3	Apply as required by scouting	1.3 – 3.8 fl oz (pest dependent)	None, unless required by a tank mix partner	Cutworm species, Colorado potato beetle, grasshopper, potato leafhopper, aphid spp., armyworm (beet, yellow-striped), flea beetle and others. Minimum application interval - 4 days. PHI 1 day
Regent 4 SC Insecticide	2B	Infurrow	0.184 – 0.22 fl oz per 1000 row feet Do not exceed 3.2 oz/A	None	Controls wireworms. Do Not use T-banding over the top of a closed furrow.

DRY FIELD PEAS

Herbicides

2017 BASF Guide

Product	SOA	Timing	Rate/Acre	Additives	Comments
Optill Powered by Kixor® Herbicide	2 14	Pre Plant Pre Plant incorporated Pre Emergence Up to 3 days after planting	1.5 oz	MSO @ 1 pt/A plus AMS @ 8.5 to 17 lb/100 gal or UAN @ 1qt/A	MUST include MSO + AMS / UAN. Add glyphosate for optimum burndown. 12.5 gal/acre minimum carrier. Do not use Raptor or Pursuit as POST treatments.
Pursuit Herbicide	2	Pre Plant incorporated Pre Emergence Up to 3 days following planting Post (height at least 3")	3 fl oz	NIS @ 0.25% v/v plus AMS @ 12-15 lbs/100 gal or UAN @ 1.25% v/v	Nightshade, pennycress, tansymustard, field pepperweed, london rocket, shepherd's purse, redroot pigweed
Sharpen Powered by Kixor® Herbicide	14	Pre Plant Pre Plant incorporated Pre Emergence - (Prior to cracking stage)	1 to 2 fl oz	MSO @ 1 pt/A plus AMS @ 8.5 to 17 lb/100 gal or UAN @ 1qt/A	For dry on dry field pea including Austrian winter pea. MUST include MSO + AMS / UAN. Add glyphosate for optimum burndown.
Raptor Herbicide	2	POST After 3 pairs of leaves (4 nodes) are present and prior to flowering	4 fl oz Always add Basagran 5L at 1.2 - 1.6 pints/A	NIS @ 0.25% v/v plus AMS @ 2.5 lba/A or UAN @ 2 qts/A	AMS or UAN is required for optimum burndown. Do not apply when pea foliage is wet. Nightshade, pennycress, tansymustard, field pepperweed, shepherd's purse, common lambsquarter, redroot pigweed.
Varisto Herbicide	2 6	POST After 3 pairs of leaves (4 nodes) are present and prior to flowering	16 to 21 fl oz Always add Basagran 5L at 0.8 pints/A	NIS @ 0.25% v/v plus AMS @ 2.5 lba/A or UAN @ 2 qts/A	AMS or UAN is required for optimum burndown. Do not apply when pea foliage is wet. Nightshade, pennycress, tansymustard, field pepperweed, shepherd's purse, common lambsquarter, redroot pigweed.
Basagran 5L Herbicide	6	POST After 3 pairs of leaves (4 nodes) are present and prior to flowering	1.6 pints	NIS @ 0.25% v/v plus AMS @ 2.5 lba/A or UAN @ 2 qts/A	For use on field, garden, English, and southern peas.
Poast Herbicide	1	2 to 8 inch weeds	1 to 2.5 pints	2 pt/A COC or 1.5 pt/A MSO UAN may be added to increase control	Barnyardgrass, foxtails, wild proso millet, annual rye, field sandbur, shattercane, volunteer cereals*. * Use 2pt/A for control of volunteer cereals.
Prowl H20 Herbicide	3	Pre Plant, Pre Plant incorporated	Rate by Soil Type Coarse 1.5 pints Medium 2.0 pints	None unless required by tank mix partner	May be applied up to 60 days prior to planting up to immediately before planting. DO NOT apply to peas forage, pea hay or peas straw grown for livestock feed

Fungicides

Priaxor Xemium® Brand Fungicide	7 11	Prior to disease development (14 day intervals if condi- tions are favorable)	4 fl oz	NIS @ 0.25% v/v	Ascochyta blight, powdery mildew, rust, anthracnose, alternaria leaf & pod spot PLANT HEALTH – Increase plant growth efficiency, improve stress tolerance, control disease.
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Insecticides

Fastac CS Insecticide	3	Apply at economic threshold	3.8 oz/A	None required	Army worm, Bean leaf beetle, Blister beetle, Colorado Potato beetle, Flea beetle, Leaf hopper spp. SEE LABEL for a complete list of species controlled. PHI - 1 day
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Seed Enhancement

Product	Timing	Rate	Comments	
Obvius Fungicide Seed Treatment	7 11 4	On-farm or commercial seed treatment	4.6 fl oz/cwt	Premix of pyraclostrobin, Xemium, and metalaxyl. Controls <i>Fusarium</i> , <i>Pythium</i> , <i>Rhizoctonia</i> , and <i>Aschochyta</i> seedling blights. On-farm and commercial seed treating.
Nodulator Inoculant	Liquid	<i>Rhizobia</i> liquid formulation for on-farm planter box or bulk seed treatment	2.5 fl oz per 60 lbs of seed	OMRI Listed. Package size is 4 x 1.2 gal.
Nodulator Inoculant	Peat	<i>Rhizobia</i> sterile peat formulation for on-farm planter box seed treatment		Self sticking peat provides uniform seed coverage. No additional sticking agent required. Package size is 5 x 2.65 lb.
Flo Rite Plantability Polymer 1706		Add directly into the fungicide/ insecticide treatment	1 oz/cwt	Flo Rite 1706 is a colored polymer to reduce dust off of active ingredients, improve seed flow and reduce bridging.

ONIONS

Fungicides

BASF 2017 Guide

Product	SOA	Timing	Rate/Acre	Additives	Comments
Cabrio® EG Fungicide	11	POST	8 - 12 oz	0.25% v/v NIS may be added	Control of powdery mildew, Alternaria purple blotch and leaf blight, rust, downy mildew and suppression of Botrytis leaf blight. Apply as the first fungicide application for plant health and disease control.
Pristine® Fungicide	7 11	POST	10.5 – 18.5 oz	0.25% v/v NIS may be added	Control of Botrytis leaf blight and neck rot, Alternaria purple blotch and leaf blight, Stemphylium leaf blight and stalk rot. Suppression of downy mildew. Rate depends on disease target. Apply as the second fungicide application for plant health and disease control. Apply as the last fungicide application for improved storability and disease control.
Endura® Fungicide	7	POST	6.8 oz	0.25% v/v NIS may be added	Control of Botrytis leaf blight and Alternaria purple blotch.
Merivon® Xemium® Brand Fungicide	7 11	POST	4 – 11 fl oz	0.25% v/v NIS may be added	Control of powdery mildew, purple blotch and leaf blight, Stemphylium leaf blight and stalk rot. For control of Botrytis leaf blight, Botrytis neck rot and suppression of downy mildew, use a minimum of 8 fl oz.
Zampro® Fungicide	45 40	POST	14 fl oz	0.25% v/v NIS	Control of downy mildew. Begin applications prior to onset of disease. Use > 20 GPA by ground and > 5 GPA by air.
Forum® Fungicide	40	POST	6 fl oz	0.25% v/v NIS	Control of downy mildew. Begin applications prior to onset of disease. Use > 20 GPA by ground and > 5 GPA by air

Herbicides

Outlook® Herbicide	15	POST (2 leaf stage or later, PHI = 30 days)	12 fl oz	None	Does not control germinated weeds. Must be incorporated mechanically or with irrigation/rainfall for maximum weed control. May be applied in split applications not to exceed 21 fl oz per year. Also labeled for green bunching onions.
Prowl H2O® Herbicide	3	PPI	1.5 pt	None unless required by a tankmix partner	CO only. Transplants only. Shallow incorporate (<2" deep) into preformed beds prior to transplanting.
		Delayed PRE			CO only. Seeded only. Plant 1 inch deep. Apply prior to emergence when 75% of onion radicals have developed. Follow with max 0.25" irrigation. Follow with an early POST application at 2 nd to 9 th true-leaf stage.
		Loop stage			CO, KS, NE only. Seeded only. Follow with an early POST application at 2 nd to 9 th true-leaf stage.
		Early POST			All states. Transplants and seeded. 2 nd to 9 th true-leaf stage.
Poast® Herbicide	1	POST	1.5 pt	COC at 2 pints/A OR MSO at 1.5 pints/A plus AMS at 2.5 lb/A	Apply to actively growing weeds. Do not apply to grasses or crops under stress due to lack of moisture. Rainfast in 1 hour. Apply to most grasses when 4-8 inches tall. Refer to label for specific weed recommendations and other restrictions.

CUCURBITS

BASF 2017 Guide

Cucumber, pumpkin, watermelon, muskmelon, cantaloupe, honeydew melon, squash
Herbicides

Product	SOA	Timing	Rate/Acre	Additives	Comments
Poast® Herbicide	1	POST	1.5 pt	COC or MSO at 1% v/v	PHI: Cantaloupe 3 days, all other cucurbit crops 14 days. Apply to actively growing weeds. Rainfast in 1 hour. Apply to most grasses when 4-8 inches tall.

Fungicides

Cabrio® EG Fungicide	11	POST	8 – 16 oz	Adjuvant interactions may occur. Refer to latest Cabrio label or local BASF representative.	PHI: 0 days. Begin applications prior to disease development. Rate depends on target disease. Use the higher rate when disease pressure is high. Refer to label for tank mix restrictions.
Endura® Fungicide	7	POST	6.5 oz	0.25% v/v NIS may be added	PHI: 0 days. Control of Alternaria blight, gummy stem blight and suppression of powdery mildew. Begin applications prior to disease development.
Pristine® Fungicide	7 11	POST	12.5 – 18.5 oz	Adjuvant interactions may occur. Refer to latest Pristine label or local BASF representative.	PHI: 0 days. Control of downy mildew, Alternaria blight, Cercospora leaf spot, gummy stem blight and powdery mildew. Use 18.5 oz/A for control of anthracnose. Begin apps. prior to disease development. Refer to label for tank mix restrictions.
Merivon® Xemium® Brand Fungicide	7 11	POST	4 – 5.5 fl oz	Mix with water only	PHI: 0 days. Control of Alternaria leaf blight and powdery mildew. For control of Anthracnose, Cercospora leaf spot, gummy stem blight, microdochium blight, target leaf spot and suppression of downy mildew, use 5.5 fl oz.
Zampro® Fungicide	45 40	POST	14 fl oz	0.25% v/v NIS	PHI: 0 days. Begin applications prior to downy mildew or Phytophthora blight or crown rot development. May be applied as a planting drench treatment for control of soil born Phytophthora blight.
Forum® Fungicide	40	POST	6 fl oz	0.25% v/v NIS	PHI: After spray is dry. Control of Downy mildew, Phytophthora blight/Crown rot. May be applied with another fungicide that has a different mode of action (non-Group 40). Begin appl. when plants are 4-6" high or prior to onset of disease. Min. application interval of 5 days.
Serifel® Biofungicide	44	POST	4–8 oz	None required	Biofungicide. Aides in control of Anthracnose, Alternaria leaf spot, Downey Mildew, Gummy stem blight, Powdery mildew. Maintain constant agitation. Use nozzle and in-line screens no finer than 50 mesh. PHI = 0 days.

Insecticides

Fastac® CS Insecticide	3	POST	2.8 to 3.8 oz/A (pest dependent)	None, unless required by a tank mix partner	Cutworm species, cabbage looper, leafhopper species, aphid species, leafminer, stinkbug and others.
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NITROGEN MANAGEMENT

BASF 2017 GUIDE

Product	Fertilizer	Rate	Comments
Limus Nitrogen Management	Urea	3 qt per ton of urea	Use on any crop for any application when ammonia loss to volatilization from urea is a concern. Two urease enzyme blockers (NPPT and NBPT). Orange colored formulation for dry urea.
Limus for UAN Nitrogen Management	UAN	1.5 qt per ton of UAN	Use on any crop for any application when ammonia loss to volatilization from UAN is a concern. Two urease enzyme blockers (NPPT and NBPT). Colorless formulation for liquid UAN.

Range and Pasture

Herbicides

BASF 2017 Guide

Product	Crop	Timing	Rate/Acre	Additives	Comments
Distinct Herbicide 4 19	Established perennial warm and cool season grass	Postemerge	2 to 4 oz	COC or MSO @ 1 to 2 pints/A plus AMS @ 5 to 17 lbs/100 gal OR UAN @ 1.25% v/v	Do not apply Distinct to small grains grown for pasture or to newly seeded grass. May be used alone or in combination with other pasture labeled herbicides. 0 day PHI for grazing.
Sharpen Powered by Kixor [®] Herbicide 14	Established perennial warm and cool season grass	Dormant	1 to 2 fl oz	MSO at 1 pint/A plus AMS @ 8.5 to 17 lbs/100 gal OR UAN @ 2.5% v/v,	For Control of leafy spurge tam mix with 4-6 oz/a of Plateau herbicide. Do not exceed 1 oz/a per season on Bermudagrass. 0 day PHI for harvest or grazing.
		In-Season		MSO at 1 pint/A Do NOT add nitrogen fertilizer	Do not apply in season postemergence to Bahiagrass, buffalograss and switchgrass. 0 day PHI for harvest or grazing.
Prowl H2O Herbicide 3	Established perennial warm and cool season grasses and mixed alfalfa stands	Fall, winter, spring, in-season between cuttings	2.2 to 8.4 pints	None unless required by tank-mix partner	Do not apply more than 8.4 pints per year. 0 day PHI for harvest or grazing for grass forage. 14 day PHI for harvest and grazing for mixed alfalfa stands.
Clarity Herbicide 4	Established perennial warm and cool season grass	Postemerge	12 to 16 fl oz	COC @ 1 to 2 pt/A plus AMS @ 5 to 17 lb/100 gal or UAN @ 1.25% v/v	Postemergence applications may be made after seedling grasses exceed the 3 leaf stage. 0 day PHI for grazing animals other than lactating dairy animals, 7 day PHI for lactating dairy animals for rates up to 16 fl oz.
Facet L Herbicide 4 26	Established perennial warm and cool season grass	Postemerge	22 to 32 fl oz	COC or MSO @ 1 to 2 pints/A plus AMS @ 8.5 to 17 lbs/100 gal OR UAN @ 1.25% v/v	See label for list of cool and warm season pasture grass list. FAcet L may be tank mixed with other herbicides labeled for use in pasture and rangeland unless prohibited. 0 day PHI for grazing, 7 day PHI for hay.

This Quick Reference Guide is not a substitute for any product label. Always read and follow label directions.

HRAC Herbicide Sites of Action (SOA)

Group	Description	BASF Products
1	ACCase Inhibitor	Poast
2	ALS Inhibitor	Beyond, Raptor, Pursuit, component in Extreme, Optill, Optill PRO
3	Microtubule Inhibitors	Prowl H2O
4	Synthetic Auxins	Clarity, component in Distinct and Status
6	Photosystem II Inhibitors (different binding site than 5 and 7)	Basagran 5L
9	EPSP Synthase Inhibitor	Component in Extreme
14	PPO Inhibitors	Sharpen, and component in Optill, Optill PRO, and Verdict
15	Very Long Chain Fatty Acid Inhibitors	Outlook, Zidua, and component in Armezon Pro, Optill Pro and Verdict
19	Auxin Transport	Component in Status
26	Lipid Synthesis Inhibitor	Component in Facet L and Paramount
27	HPPD Inhibitors	Armezon and component in Armezon Pro

FRAC Fungicide Sites of Action (SOA)

Code	Description	BASF Products
3	Sterol synthesis Inhibitor (DMI / triazole)	Caramba, component in Headline AMP, Twinline fungicides, and Stamina F3 Cereals Seed Treatment
4	Nucleic acid synthesis inhibitor	Component in Obvius and Stamina F3 Cereals seed treatments
7	Respiration Inhibitor (SDHI / carboxamide)	Endura and component in Priaxor (Xemium) and Obvius Seed Treatment
11	Respiration Inhibitor (QoI, strobilurin)	Headline SC, Headline EC, component in Headline AMP, Twinline, Priaxor, Pristine, Merivon, Cabrio, Obvius, and Stamina
M3	Multi-Site (dithiocarbamates)	Component in Cabrio Plus
44	Lipid synthesis inhibitor (microbial / <i>Bacillus</i> sp)	Serifel, component in Vault HP and Xanthion

2017 BASF Guide — Product Specifications

Product	Rainfast	Pre-harvest Interval (PHI)	REI	Minimum Storage Temp	Grazing Restriction	Bulk Product Density	Spray Droplet Size
Armezon	1 hr	45-day	12 hrs	25° F	Do not graze for at least 45 days after application	9.43 lbs/gal	Medium to Coarse
Armezon PRO	1 hr	45-day	12 hrs	None	Do not graze for at least 45 days after application	9.38 lbs/gal	Medium to Coarse
Basagran 5L	4 hrs	30-day dry beans, peas	48 hrs	32° F	Soybean grazing, forage, or hay = 30 days Sorghum grazing = 12 days	10.26 lbs/gal	Medium to Coarse
Beyond	1 hr	0-day	4 hrs	32° F	No grazing or feeding restrictions on labeled crops	8.75 lbs/gal	Medium to Coarse
Caramba	When dry	30-day cereals 14-day sugar beets	12 hrs	36° F	No grazing or feeding restrictions on labeled crops	8.72 lbs/gal	Fine to Medium
Clarity	4 hrs	7 day wheat See label for other crops	24 hrs	32° F	Cereal and sorghum pasture = 7 days for lactating dairy 0 days for all other grazing animals See label for other crops	10.26 lbs/gal	Coarse to Ultra Coarse
Distinct	4 hrs	32 day for forage 72d for grain or stover	24 hrs	None	0 day for range and pasture	38.08 lbs/ft ³	Coarse to Ultra Coarse
Endura	When dry	21 day soybean	12 hrs	None	Do not feed peanut hay to livestock	29.34—37.46 lbs/ft ³	Fine to Medium
Extreme	1 hr	85-day soybean 30-day Roundup Ready alfalfa	48 hrs	None	Do not graze treated soybean forage, hay or straw to livestock. Do not feed, graze, or harvest Roundup Ready alfalfa for 30 days.	9.14 lbs/gal	Medium
Facet L	6 hrs	12" tall sorghum	12 hrs	None	0 days for range and pasture	9.44 lbs/gal	Coarse to Ultra Coarse
Fastac CS	1 hr	3-day alfalfa, sweet corn 14-day wheat, sorghum 21-day soybean 30-day corn	12 hrs	32° F	Crop dependent—See label	7.59 lbs/gal	Fine to Medium
Headline EC	When dry	7-day corn (all types) 21-day soybean	12 hrs	None	No grazing or feeding restrictions on labeled crops	8.80 lbs/gal	Fine to Medium
Headline SC	When dry	7-day corn (all types) 21-day soybean 14-day alfalfa Wheat – Feekes 10.5.1	12 hrs	32° F	No grazing or feeding restrictions on labeled crops	8.85 lbs/gal	Fine to Medium
Headline AMP	When dry	20-day grain & stover 7-day forage/silage	12 hrs	None	No grazing or feeding restrictions on labeled crops	8.85 lbs/gal	Fine to Medium

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Product	Rainfast	Pre-harvest Interval (PHI)	REI	Minimum Storage Temp	Grazing Restriction	Bulk Product Density	Spray Droplet Size
	-	-	-		-		-
Nexicor	When dry	21-day for sorghum. Wheat - no later than beginning of flowering. Barley/Oats/Rye - no later than 50% head emergence	12 hrs	32° F	Wheat - 7 days, Sorghum - 30 days		Fine to Medium
OpTIII	1 hr	85-day soybean	12 hrs	None	Soybeans – Do not graze	31 lbs/ft ³	Medium to Coarse
OpTIII PRO	1 hr	85-day soybean	12 hrs	None	Soybeans – Do not graze	31 lbs/ft ³ + 9.41 lbs/gal	Medium to Coarse
Outlook	-	40-day corn	12 hrs	None	Corn – 40 days, Sorghum – 80 days, Soybean – Do not graze	9.41 lbs/gal	Medium to Ultra Coarse
Poast	1 hr	See label.	12 hrs	32° F	Alfalfa—no restrictions; Soybean—do not graze, only dry hay may be fed	7.77 lbs/gal	Medium
Priaxor	When dry	21-day corn grain 7-day corn silage 7 day sweet corn 21 day soybean	12 hrs	32° F	Soybeans —14 days for forage, 21 days for hay; Wheat, Rye, Triticale — 14 days for hay and forage; Corn — 7 days for forage	9.68 lbs/gal	Fine to Medium
Prowl H2O	-	See label	24 hrs	None	Grass pasture—0 day, Mixed grass and alfalfa—14 days	9.81 lbs/gal	Medium to Ultra Coarse
Pursuit	1 hr	30-day alfalfa 85-day soybean	4 hrs	32° F	Alfalfa – 30 days; Soybeans – do not graze	9.20 lbs/gal	Medium to Coarse
Raptor	1 hr	0-day	4 hrs	32° F	No restrictions	8.75 lbs/gal	Medium to Coarse
Sharpen	1 hr	See label.	12 hrs	None	Crop dependent – See label	9.57 lbs/gal	Medium to Coarse
Status	4 hrs	32-day corn forage, 72-day corn grain	24 hrs	None	No livestock feeding restrictions on labeled crops	44.76 lbs/ft ³	Coarse to Ultra Coarse
TwinLine	When dry	Apply no later than beginning of flowering.	12 hrs	32° F	No livestock feeding restrictions on labeled crops	9.01 lbs/gal	Fine to Medium
Varisto	4 hrs	30 days (dry beans & Peas)	48 hrs	32° F	36 days	9.95 lbs/gal	Medium to Coarse
Verdict	1 hr	Corn forage and silage 80-day	12 hrs	None	Corn – 80 days; Sorghum – 70 days; Soybeans – Do not graze	9.10 lbs/gal	Medium to Coarse
Xanthion	-	-	-	32° F	-	9.72 lbs/gal 8.80 lbs/gal	-
Zidua	-	37-day sweet corn 7-day field corn	12 hrs	None	Corn—7 days	99.88 lbs/ft ³	Medium to Ultra Coarse
Zidua PRO	1 hr	85-day soybean grain			Do not graze or feed treated soybean forage, hay, or straw		Medium to Coarse

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Product	Rotational Restrictions (See label for details)		
Armezon™ Herbicide	<u>Use Rate of 0.75 fl oz:</u> Corn (all types) = Anytime Wheat, Barley, Oats, Rye = 3 months Alfalfa, cotton, potato, sorghum, soybean, sunflower, dry bean (KS only) = 9 months All other crops = 18 months	<u>Use Rate of 0.5 fl oz:</u> Dry bean, snap bean = 9 months (CO, NE west of Hwy 83) All other crops = use 0.75 fl oz rotational restrictions	<u>Use Rate of 1.0 fl oz:</u> Corn (all types) = Anytime Wheat, Barley, Oats, Rye = 3 months Alfalfa, cotton, potato, sorghum, soybean, sunflower = 9 months All other crops = 18 months
Armezon® PRO Herbicide	<u>Use Rate up to 28 fl oz:</u> Corn (all types) = Anytime Cereals, alfalfa, cotton, grain sorghum, potato, soybean, sunflower = 9 months See label for additional crops	<u>Use Rate <16 fl oz:</u> Dry beans, peas, snap bean = 9 months Sugarbeet = 18 months for CO, WY, NE west of Hwy 83; 9 months for KS	<u>Use Rate 16 to 20 fl oz:</u> Dry beans, peas, and snap bean = 9 months Sugarbeet = 18 months for CO, WY, NE west of Hwy 83; 9 months for KS
Beyond® Clearfield® Production System Herbicide	Field Corn = 8.5 months Wheat (non CL), Rye = 3 months Soybean, Dry beans = Anytime	Alfalfa = 3 months Cotton, Oat = 9 months Potato = 18 months Canola (non CL) = 18-26 months (region dependent)	Sorghum, Sunflower (non CL) = 9 months CL Corn, CL Sunflower, CL Wheat, CL Canola = Anytime
Basagran® 5L Herbicide	No rotational restrictions to any crop		
Caramba® Fungicide	Wheat, Barley, Oats, Rye, Triticale, Sugar beets, Dry beans, Sorghum, Sunflower = Anytime	Leafy brassica & leafy vegetables = 30 days	120 days for all other crops
Clarity® Herbicide	<u>Use Rate of 24 fl oz or less:</u> Barley, Oats, Wheat = 22 days per 8 fl oz All other crops = 120 days	<u>Use Rate of 24 to 64 fl oz:</u> Barley, Oats, Wheat = 45 days per 16 fl oz All other crops = 180 days	See label for specific preplant use directions for corn, sorghum, soybeans, and cotton
Distinct® Herbicide	Field Corn = 7 days for 2 – 6 oz Cereals, Grain sorghum, Alfalfa = minimum 30 days AFTER 1" rainfall for 4 oz or less	Soybeans, Cotton = minimum 30 days AFTER 1" rainfall for 2 – 4 oz. Do NOT make preplant applications of Distinct in geographic areas with less than 25" annual rainfall.	All other crops = 120 days
Cabrio® EG Fungicide	Alfalfa, barley, carrots, corn, cotton, cucurbits, dry beans, oats, onions, sunflower, sorghum, soybean, sugarbeets, potatoes, wheat = anytime	Crops not listed on the Pristine, Cabrio EG or Headline labels = 14 days	
Cabrio® Plus Fungicide	Alfalfa, barley, carrots, corn, cotton, cucurbits, dry beans, oats, onions, sunflower, sorghum, soybean, sugarbeets, potatoes, wheat = anytime	Crops not listed on the Pristine, Cabrio EG, Cabrio Plus or Headline labels = 14 days	
Extreme® Herbicide	Field Corn = 8.5 months CL Corn = Anytime Wheat (CL & non CL) = 4 months Soybean = 0 months	Alfalfa = 4 months Cotton, Oats, Sorghum, Sunflower (CL and non CL) = 18 months	Dry beans = 4 months CL Canola = 12 months Rye = 4 months Potatoes = 26 months
Facet® L Herbicide	Spring wheat, winter wheat, grain sorghum = Anytime	Alfalfa, carrots, dry beans, sugarbeets = 24 months with bioassay	All other crops = 10 months
Fastac® EC Insecticide	See Crop Specific Label		
Headline® Fungicide	All crops listed on Headline, Pristine, and Cabrio labels = Anytime	All other crops = 14 days	
Headline AMP® Fungicide	Corn, Barley, Canola, Cotton, Oats, Peanuts, Rye, Soybeans, Sugar beets, Triticale, Wheat, Dry beans, Sorghum, Sunflower = Anytime	Leafy vegetables and Brassica leafy vegetables = 30 days	All other crops = 120 days
Nexicor™ Fungicide	Barley, Beans (dry and succulent), Canola, Corn, Oat, Peanut, Rye, Sorghum, sugar beet, triticale, wheat = Anytime.	Rice = 14 days following last application	All other crops 365 days after last application
Optill® Powered by Kixor® Herbicide	Field Corn = 8.5 months CL Corn = 0 months Soybeans = 0 -1 months (see label for more details)	Wheat, Rye = 4 months CL Wheat = 3 months Cotton, Sorghum, Sunflower, Oats = 18 months	CL Canola, CL Sunflower = 9.5 months Potatoes = 26 months Alfalfa = 4 months
Optill® PRO Powered by Kixor® Herbicide	Field Corn = 8.5 months CL Corn = 0 months Soybeans = 0 -1 months (see label for more details)	Wheat, Rye = 4 months CL Wheat = 4 months Cotton, Sorghum, Sunflower, Oats = 18 months	CL Canola, CL Sunflower = 9.5 months Potatoes = 26 months Alfalfa = 9 months
Outlook® Herbicide	Corn, Dry bean, Grain sorghum, Soybean = Anytime	Fall seeded cereals = 4 months	Sunflower, Cotton, Potatoes, Sugar beet, Alfalfa = next spring following the application

Product	Rotational Restrictions (See label for details)		
Poast Herbicide	Soybeans, sunflowers, canola, alfalfa, dry beans, dry peas, potatoes, sugarbeet, and other registered crops = Anytime All other crops = 30 days		
Priaxor Xemium® Brand Fungicide	All labeled crops can be replanted immediately following the last application.	Rice = 14 days following last application	All other crops 365 days after last application
Pristine Fungicide	Alfalfa, barley, carrots, corn, cotton, cucurbits, dry beans, oats, onions, sunflower, sorghum, soybean, sugarbeets, potatoes, wheat = anytime	Crops not listed on the Pristine, Cabrio EG, Endura or Headline labels = 14 days	
Prowl H2O Herbicide	Rates ≤ 4.0 pt/acre = Anytime for crops labeled for Preplant Incorporated, including Soybeans and Sunflowers; all other crops (except Wheat & Barley) = next year following application	Rates > 4.0 pt/acre = only crops labeled for Preplant Incorporated may be planted the following year; all other crops = 24 months	Wheat, Barley (rates ≤ 3.2 pt/a) = 4 months in KS, CO, WY, NE Wheat, Barley (rates > 3.2 but ≤ 4.0 pt/a) = 4 months IF >12" rainfall/irrigation is received; otherwise see label.
Pursuit Herbicide	Field Corn = 8.5 months CL Corn = Anytime Wheat (CL & non CL) = 4 months Soybean = 0 months	Alfalfa = 4 months Cotton, Oats, Sorghum, Sunflower (CL and non CL) = 18 months	Dry beans = 4 months CL Canola = next season Rye = 4 months Potatoes = 26 months
Raptor Herbicide	Field Corn = 8.5 months CL Corn = Anytime Wheat (non CL), Rye = 3 months Soybean, Dry beans = Anytime	Alfalfa = 3 months Cotton, Oat = 9 months Potato = 18 months Canola (non CL) = 18-26 months (region dependent)	Grain sorghum, Sunflower (non CL) = 9 months CL Sunflower, CL Wheat, CL Canola = Anytime
Sharpen Powered by Kixor ® Herbicide	Corn = 0 months Sorghum = 0 months (1-4 oz) 1 months (5-6 oz) Soybean = 0 to 3 months (1-3 oz) (see label for details) 4 months (4 oz) 6 months (5-6 oz) Small grains = 0 months (1-4 oz), 4 months (5-6 oz) Dry pea, chickpea = 0 months (1-2 oz), 2 months (3 oz), 4 months (4 oz), 6 months (5-6 oz) Cotton = 1.5 months (1 oz), 3 months (2 oz), 4 months (3 oz), 6 months (4-5 oz) Sugar beet, sunflower, other crops = 4 months (1 oz), 5 months (2 oz), 6 months (3 oz), 7 months (4 oz), 8 months (5 oz), 9 months (6 oz)		
Status Herbicide	Soybeans, Cereals, Grain sorghum, Alfalfa = 30 days AFTER 1" rainfall In case of crop failure, Corn can be replanted 7 days after application.		
Twinline Fungicide	Wheat, Barley, Oats, Rye, Triticale, Canola, Corn, Soybeans, Sugar beets, Peanuts, Dry beans, Sorghum, Sunflower = Anytime	Leafy vegetables and Brassica leafy vegetables = 30 days	All other crops = 120 days
Varisto Herbicide	Field Corn = 8.5 months CL Corn = Anytime Wheat (non CL), Rye = 3 months Soybean, Dry beans = Anytime	Alfalfa = 3 months Cotton, Oat = 9 months Potato = 18 months Canola (non CL) = 18-26 months (region dependent)	Grain sorghum, Sunflower (non CL) = 9 months CL Sunflower, CL Wheat, CL Canola = 1 month
Verdict Powered by Kixor ® Herbicide	Field Corn, Popcorn, and Grain sorghum may be planted after crop failure	Soybeans (rates ≥ 10 fl oz) = 1-4 months (rate dependent, see label for details)	Fall seeded cereals = 4 months No rotational restrictions for the spring following the previous year's application
 Zidua Herbicide	Corn = Anytime Soybeans = 0 months (≤3 oz), 4 months (4 oz) Potato, sunflower, peanut = 4 months Alfalfa = 10 months Dry beans = 11 months Sugar beet = 12 months (1-2 oz) 15 months (3-4 oz)	Canola = 12 months (1-2 oz), 15 months (3 oz), 18 months (4 oz) Cotton = 0 months (1 oz), 2 months (2 oz), 4 months (3-4 oz) Grain sorghum = 6 months (1-2 oz), 10 months (3 oz), 12 months (4 oz) Wheat = 0 months (1 oz), 1 month (2 oz), 4 months (3 oz), 6 months (4 oz) Dry peas = 4 months (1 oz), 6 months (2-3 oz), 8 months (4 oz) Small grains other than wheat = 11 months (1-3 oz), 18 months (4 oz) Other crops = 18 months	
 Zidua PRO Herbicide	Field corn = 8.5 months CL Corn = 0 months Soybeans = 0 to 1 month (coarse soils) Wheat (CL & non-CL) = 4 months CL sunflower = 9.5 months	Alfalfa = 10 months Field pea, lentil = 6 months Edible beans (dry, succulent), millet, rye, barley = 11 months	Cotton, oats, popcorn, sorghum, sunflower, sweet corn = 18 months Potatoes = 26 months
Zampro Fungicide	See Crop Specific Label		

Always read and follow label directions. Fastac is a restricted use pesticide.

Armezon, Armezon PRO, Basagran, Beyond, Cabrio, Caramba, Clarity, Clearfield, Distinct, Endura, Extreme, Flo Rite, Facet, Fastac, Forum, Headline, Headline AMP, Nodulator, Obvius, OpTill, Outlook, Poast, Priaxor, Pristine, Prowl H2O, Pursuit, Raptor, Regent, Rhizo-Stick, Serifel, Sharpen, Stamina, Status, Twinline, Varisto, Vault, Verdict and Zidua are registered trademarks of BASF. Roundup Ready is a registered trademark of Monsanto Technology LLC.

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This Quick Reference Guide is not a substitute for any product label. Always read and follow label directions.

Mixing Order

Fill tank 1/2 full with water and begin to agitate

Add compatibility or defoaming agents if known issues exist

Pesticides in this order:

1. Products in PVC bags (not very common).
2. Wettable Powders and Dry Flowables (WP, DF) **Distinct[®], Authority[®] XL, Classic[®], FirstRate[®]**.
3. Water Dispersible Granular (WDG) **Status[®], Optill[®], Optill PRO (Dry portion), Zidua[®], Endura[®], Sonic[®], Valor[®] XLT, Envive[®]**.
4. Add Ammonium Sulfate
5. Agitate
6. Water Dispersible Products (SC, F, ME) **Priaxor[®], Armezon[®], Sharpen[®], Prowl H₂O[®], Headline AMP[®], atrazine.**
7. Water Soluble Products (L, SL) **Extreme[®], Pursuit[®], Clarity[®], Basagran 5L[®] Glyphosate.**
8. Emulsifiable Concentrates (EC) **Outlook[®], Optill PRO (liquid portion), Verdict[®], Fastac[™], Caramba[®], Armezon PRO[®], Twinline[®], Poast[®], Prowl[®] 3.3 EC, Cobra[®], Select Max[®].**
9. Agitate

Best Practices for Mixing

1. Fill tank 1/2 to 3/4 full with 28% or 32%
2. Begin agitation and maintain throughout mixing
3. Add any needed nitrogen stabilizer products
4. Add any needed compatibility agents
5. Pre-slurry each herbicide in water at a 2:1 water to herbicide ratio
6. Add herbicide slurry to spray tank and allow time for agitation in the following order
 - a. Suspension Concentrate formulations (**Sharpen[®]**, atrazine)
 - b. Water soluble products (glyphosate, 2,4-D)
 - c. Emulsifiable Concentrates (**Verdict[®], Outlook[®]**)
7. **DO NOT** pour slurry on top of tank mixture
8. Use an inductor if possible, it is best to induce one chemical at a time in the correct order. **DO NOT** put them all in the inductor at the same time
9. Finish filling the tank with 28% or 32% to desired fill level
10. Continue agitation throughout transport and application



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