

Table 1-6. Corn herbicide half-lives and their potential to injure fall-established cover crops.

This table does not directly address preharvest establishment of cover crops such as interseeding or aerial seeding, which may be more restrictive.

| Trade Name | Common Name | Normal Rate/Acre | Half-life (days) ¹ | Fall-established Cover Crops | | Other |
|--|--|---------------------|-------------------------------|---|---|--|
| | | | | OK to plant | Concern for | |
| 2,4-D 4S | 2,4-D | 1–2 pt | 7 | All grasses | Wait 30 days before planting sensitive broadleaves | Amine formulations more water soluble and can leach into seed zone |
| Accent 75DF/ Steadfast75DF | nicosulfuron/ nicosulfuron+ rimsulfuron | 0.66 oz/ 0.75 oz | 21 | Fall cereal grains, ryegrass | Small-seeded legumes, mustards, sorghum ² | More persistent in high pH soils (> 7) |
| Armezon/Impact 2.8SC | topramezone | 0.75 fl oz | 14 | Wheat, barley, oats, and rye are allowed after 3 months; ryegrass should also be OK | Although many broadleaves are restricted, Impact does not have much soil activity | We have not seen this herbicide carry over in the Mid-Atlantic region |
| Atrazine 4L | atrazine | 1–2 qt | 15–90 | Sorghum species | Cereals, ryegrass, legumes, and mustards | More persistent in high pH soils (> 7); rates < 1 lb/acre can allow more flexibility; half-life in the Mid-Atlantic probably closer to 30 |
| Balance Pro 4L/ Balance Flexx 2L (Prequel also contains isoxaflutole) | isoxaflutole | 3 fl oz 6 fl oz | 50–120 | Fall cereals grains | Ryegrass, legumes, and mustards | 15 inches of cumulative precipitation required from application to planting rotation crops except soybean, barely, wheat, sorghum, and sunflower |
| Callisto 4L (includes Acuron, Acuron Flexi, Halex GT, Harness Max, Instigate, Lexar, Lumax, Resicore, Revulin, Solstice, Zemax, etc.) | mesotrione | 3–6 fl oz | 10–50 | All grasses | Small-seeded legumes, mustards | Sequential applications (PRE fb POST) increase the potential for injury |
| Capreno 3.45SC | tembotrione + thiencazabzone | 3 fl oz | 15 | Wheat, triticale, rye | Small-seeded legumes, mustards, sorghum | 15 inches of cumulative precipitation required from application to planting rotation crops except wheat |
| Clarity/Banvel 4S (DiFlexx, Distinct, Engenia, Status, XtendiMax/FeXapan) | dicamba | 16–24 fl oz | 5–14 | All | Only at high rates or less than 120 days after application | Anything can be planted after 120 days with 24 fl oz/acre or less |
| Corvus 2.63SC | isoxaflutole + thiencazabzone | 5.6 fl oz | 50–120 | Wheat, triticale, rye | Small-seeded legumes, mustards, sorghum | 15 to 30 inches of cumulative precipitation from application to planting for sensitive crops |
| Dual II Mag 7.62E/ Cinch | metolachlor | 1.67 pt | 15–50 | Cereal grains, legumes | Annual ryegrass or other small-seeded grasses | Higher rates and later applications more of a potential problem |
| Glyphosate 4L | glyphosate | 0.75–1.25 lb ae | 47 ³ | All | None | Glyphosate does not have soil activity at normal use rates |
| Gramoxone 2S | paraquat | 2 pt | 1,000 ³ | All | None | Paraquat does not have soil activity at normal use rates |
| Harmony 50WDG | thifensulfuron | 1/8 oz | 12 | No restrictions for wheat, barley, and oats | None with 45-day waiting interval | Harmony Extra also contains tribenuron |

(continued)

| Trade Name | Common Name | Normal Rate/Acre | Half-life (days) ¹ | Fall-established Cover Crops | | Other |
|--|----------------|--------------------------------|-------------------------------|--|--|--|
| | | | | OK to plant | Concern for | |
| Harness 7E (Degree, Surpass, Warrant) | acetochlor | 2 pt | 10–20 | Most crops should be fine | Food or feed residues rather than crop injury may be a concern | Nonfood/feed winter cover crops are allowed after corn harvest |
| Laudis 3.5SC (DiFlexx Duo) | tembotrione | 3 fl oz | 14 | Cereal grains after 4 months | Unknown; small-seeded legumes, mustards could be a problem | Other crops may be seeded after a successful field bioassay |
| Liberty 2.34L | glufosinate | 22–36 fl oz | 7 ³ | All | Food or feed residues rather than crop injury may be a concern | Glufosinate does not have soil activity at normal use rates |
| Metribuzin 75DF (Sencor) | metribuzin | 0.33 lb ai | 14–60 | Cereal grains and ryegrass | Slight risk for small-seeded legumes and mustards | Nonfood/feed winter cover crops allowed |
| Outlook 6E (Armezon Pro) | dimethenamid-P | 16 fl oz | 20 | Most crops should be fine | Food or feed residues rather than crop injury may be a concern | Nonfood/feed winter cover crops should be OK after corn harvest |
| Peak 57WG (and Spirit) | prosulfuron | 1 oz | 9–152 | Cereal grains and sorghum are labeled, other grasses | Small-seeded legumes, mustards | More persistent in high pH soils (> 7) |
| Permit/Sandea 75DF | halosulfuron | ² / ₃ oz | 9–27 | Cereal grains and sorghum after 2 mo. and other grasses | Small-seeded legumes, mustards | Halosulfuron also an ingredient in Yukon |
| Prowl H2O 3.8CS | pendimethalin | 3 pt | 44 | Cereal grains | Small-seeded legumes and annual ryegrass | We have not seen this herbicide carry over in the Mid-Atlantic; nonfood/feed winter cover crops should be OK |
| Python 80WDG (Hornet and SureStart) | flumetsulam | 1 oz | 14–120 | Cereal grains | Small-seeded legumes, mustards, and annual ryegrass | Cover crops and forage grasses are restricted for 9 months |
| Resolve 25DF (Resolve Q) | rimsulfuron | 2 oz | 2–4 | Based on the short half-life, most fall cover crops should be OK in the Mid-Atlantic | None | More persistent in drought conditions |
| Sharpen 2.85SC (Verdict) | saflufenacil | 3 fl oz | 7–35 | All | None | This product has been reported more persistent in western Canada |
| Simazine 4L (Princep) | simazine | 1–2 qt | 60 | Sorghum species | Cereals, ryegrass, legumes, and mustards | Soil pH > 7 |
| Stinger 3S (Hornet, Resicore, SureStart) | clopyralid | 5 oz | 40 | All grasses | Small-seeded legumes | |
| Zidua (Anthem) | pyroxasulfone | 2.5 oz | 20 | Most crops should be fine | Food or feed residues rather than crop injury may be a concern | Nonfood/feed winter cover crops should be OK after corn harvest |

¹ The herbicide half-life is defined as the time it takes for 50 percent of the herbicide active ingredient to dissipate. See the “Managing Herbicides” section for additional information. Herbicide half-life estimates are derived for the *WSSA Herbicide Handbook* and other scientific literature.

² Common small-seeded legumes include alfalfa, clovers, and hairy vetch.

³ This herbicide does not have soil residual activity at normal application rates.

Table 1-7. Soybean herbicide half-lives and their potential to injure fall-established cover crops.

This table does not directly address preharvest establishment of cover crops such as interseeding or aerial seeding, which may be more restrictive.

| Trade Name | Common Name | Normal Rate/Acre | Half-life (days) ¹ | Fall-established Cover Crops | | Other |
|--|----------------|------------------|-------------------------------|---|--|--|
| | | | | OK to plant | Concern for | |
| 2,4-D 4S | 2,4-D | 1–2 pt | 7 | All grasses | Wait 30 days before planting sensitive broadleaves | Amine formulations more water soluble and can leach into seed zone |
| Assure II/ Targa 0.88E | quizalofop | 8 oz | 60 | Most broadleaves | All grasses if less than 120 days or at high rates | Plant anything after 120 days |
| Authority 75DF (Authority First, BroadAxe, Sonic, Spartan) | sulfentrazone | 4 oz | 32–302 | Cereals and ryegrass | Small-seeded legumes, mustards, sorghum ² | Labeled on tobacco, sunflowers, transplanted tomato |
| Classic 25DF (Authority XL, Canopy, Envive, Fierce, Fierce XLT, Synchrony, Trivence, Valor XLT, etc.) | chlorimuron | 0.5–2 oz | 40 | Cereals and ryegrass | Small-seeded legumes, mustards, sorghum | More persistent in high-pH soils (> 7) and with higher soil applied rates |
| Dual II Magnum 7.62E/Cinch | metolachlor | 1.67 pt | 15–50 | Cereal grains, legumes | Annual ryegrass or other small-seeded grasses | Higher rates and later applications more of a potential problem |
| FirstRate 84WDG (Authority First, Sonic) | cloransulam | 0.3 to 0.6 oz | 8–33 | Wheat, triticale, rye | Small-seeded legumes, mustards, sorghum | The restriction for transplanted tobacco is 10 months for 0.3 oz/acre; sugarbeet and sunflower have a 30-month restriction |
| Glyphosate 4L | glyphosate | 0.75–1.25 lb ae | 47 ³ | All | None | Glyphosate does not have soil activity at normal use rates |
| Gramoxone 2S | paraquat | 2 pt | 1,000 ³ | All | None | Paraquat does not have soil activity at normal use rates |
| Harmony 50WDG | thifensulfuron | 1/8 oz | 12 | No restrictions for wheat, barley, and oats | None with 45-day waiting interval | Harmony Extra also contains tribenuron |
| Liberty 2.34L | glufosinate | 22–36 fl oz | 7 ³ | All | Food or feed residues rather than crop injury may be a concern | Glufosinate does not have soil activity at normal use rates |
| Metribuzin 75DF (Sencor) | metribuzin | 0.33 lb ai | 14–60 | Cereal grains and ryegrass | Slight risk for small-seeded legumes and mustards | Nonfood/feed winter cover crops allowed |
| Outlook 6E (Verdict) | dimethenamid-P | 16 fl oz | 20 | Most crops should be fine | Food or feed residues rather than crop injury may be a concern | Nonfood/feed winter cover crops should be OK after corn harvest |
| Prowl H2O 3.8CS | pendimethalin | 3 pt | 44 | Cereal grains | Small-seeded legumes and annual ryegrass | We have not seen this herbicide carry over in the Mid-Atlantic; nonfood/feed winter cover crops should be OK |
| Pursuit 2S (Authority Assist, Optill, Zidua Pro) | imazethapyr | 4 fl oz | 60–90 | Wheat, triticale, rye, alfalfa, clover | Oats, sorghum, mustards | Any crop can be planted 40 months after Pursuit application |

(continued)

| Trade Name | Common Name | Normal Rate/Acre | Half-life (days) ¹ | Fall-established Cover Crops | | Other |
|---|---------------|------------------|-------------------------------|---|--|--|
| | | | | OK to plant | Concern for | |
| Python 80WDG | flumetsulam | 1 oz | 14–120 | Cereal grains | Small-seeded legumes, mustards, and annual ryegrass | Cover crops and forage grasses are restricted for 9 months |
| Raptor 1E | imazamox | 5 fl oz | 20–30 | Wheat, triticale, rye, alfalfa, clovers | Slight risk for mustards | Most cash crops allowed 9 months following application |
| Reflex 2E/ Flexstar 1.88E (Warrant Ultra) | fomesafen | 1.5 pt | 100 | Cereal grains | Small-seeded legumes, mustards, sorghum | Since fomesafen is often applied postemergence, soil activity can surprise users |
| Scepter 1.5AS | imazaquin | 0.66 pt | 60–90 | Cereal grains | Small-seeded legumes, mustards | Carryover much more of a risk with drought |
| Select 2E | clethodim | 10 oz | 3 | All broadleaves | None assuming at least 30 days | Plant anything after 30 days |
| Sharpen 2.85SC (Optill, Verdict, Zidua Pro) | saflufenacil | 3 fl oz | 7–35 | All | None | This product has been reported more persistent in western Canada |
| Valor 51WDG (Afforia, Envive, Fierce, Surveil, Trivence, Valor XLT, etc.) | flumioxazin | 2.5 oz | 12–20 | All grasses | Small-seeded legumes and mustards | Based on the half-life, all nonfood/feed winter cover crops should be OK |
| Warrant | acetochlor | 2 pt | 10–20 | Most crops should be fine | Food or feed residues rather than crop injury may be a concern | Nonfood/feed winter cover crops are allowed after corn harvest |
| Zidua (Fierce, Anthem, etc.) | pyroxasulfone | 2.5 oz | 20 | Most crops should be fine | Food or feed residues rather than crop injury may be a concern | Nonfood/feed winter cover crops should be OK after corn harvest |

¹ The herbicide half-life is defined as the time it takes for 50 percent of the herbicide active ingredient to dissipate. See the “Managing Herbicides” section for additional information. Herbicide half-life estimates are derived for the *WSSA Herbicide Handbook* and other scientific literature.

² Common small-seeded legumes include alfalfa, clovers, and hairy vetch.

³ This herbicide does not have soil residual activity at normal application rates.