

ROLLING WITH THE PUNCHES Weed Management in 2022

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Dicamba

- Status update issued 12/15/21
- Stakeholders suggested additional restrictions as well as cancellation
 - Potentially state-specific
- Changes not likely to be fully implemented in 2022
 - 24(a) likely to be approved
 - 24(c) not likely to be approved
- ESA is playing a role here...
 - "EPA is reviewing whether over-the-top dicamba can be used in a manner that does not pose unreasonable risks to non-target crops and other plants, or to listed species and their designated critical habitats"

EPA Mulls Dicamba Changes

EPA Weighs Changes to Dicamba Use, But Offers No Timeline for a Decision
12/7/2021 1:30 PM CST



By Emily Unglesbee, DTN Staff Reporter
Connect with Emily:
@Emily_Unglesbee



MN Seeks Dicamba Cutoffs

Minnesota Seeks More Restrictive Dicamba Rules for 2022
12/9/2021 1:30 PM CST



By Emily Unglesbee, DTN Staff Reporter
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Enlist

- 7-year labels approved January 11, 2022
- Additional application requirements

ESA counties in KS

- Chautauqua
- Cherokee
- Cowley
- Elk
- Greenwood
- Labette
- Montgomery
- Neosho
- Wilson
- Woodson

Enlist Herbicide Heartburn

County Restrictions for Enlist Herbicides Cause Problems for Farmers, Corteva

1/14/2022 12:50 PM CST



By Emily Unglesbee, DTN Staff Reporter
Connect with Emily:
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HERBICIDE SHORTAGES THAT SURFACED IN 2021 MAY NOT BE RESOLVED IN 2022

By Gil Gullickson
11/3/2021

MANAGING WEEDS WITHOUT KEY HERBICIDES

November 30, 2021 By Julie Herker Filed Under: Crops, Missouri, News



News Markets Weather Opinion Topics Events Video

CROP PRODUCTION

Will Fertilizer and Herbicide Prices Fall Before Spring? Why Experts Say It's Highly Unlikely

Which herbicide(s) are you most concerned about being available during 2022? You can respond up to 6 times.

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Start with the basics



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Weed Management 101

- Start clean
- Apply full rates
- Apply in ideal conditions
- Apply to small, actively growing weeds

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When poll is active, respond at polllev.com/sarahlancast648
Text **SARHLANCAST648** to **37607** once to join

What portion of your herbicides have you (or your clients) purchased?

- None
- A little bit - less than 25% of needed
- A fair amount - 25 to 50% of needed
 - A good bit - 50 to 75%
 - Most - 75 to 90%
 - Nearly all - more than 90%

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Take delivery ASAP



- Be realistic about what you will need
- Make sure you have adequate storage
- Take precautions to prevent spills
 - “Cool dry place”
 - Ideal temperature is between 40 and 90 °F

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Herbicide storage temperatures

Condition	Selected herbicides
Above 32 F	Authority Assist, Beyond, Flexstar, Gramoxone 2.0, Poast Plus, Pursuit, Raptor, Reflex, Ultra Blazer
Above 14 F	Balance Flexx, Huskie, Huskie Complete, Huskie FX, Starane NXT*
Above 10 F	Flexstar GT, Starane Ultra*
Above -10 F	Callisto GT, Halex GT, Lumax
Above -20 F	Callisto, Callisto Xtra
Above -30 F	Dual formulations
Below freezing but thaw	Liberty*, Flexstar
Below freezing but thaw and recirculate before use	2,4-D amine and ester, Aatrex 4L, Prowl H2O, Impact, Impact Z, Widematch
No restrictions	Dry formulations, Aim, Armezon PRO, Assure II, Authority Edge, Authority Elite, Authority MTZ, Authority Supreme, Bicep formulations, Capreno, Engenia, Enlist One, Fusilade DX, Gramoxone 3.0, Harness formulations, Impact Core, Laudis, Lexar EZ, Outlook, Resource, Roundup PowerMax formulations, Roundup Ultra, SelectMax, Spartan 4F, Valor, Verdict, XtendiMax

*Warm and agitate before using

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Recirculating over-wintered herbicides

- Air sparge to mix product and incorporate settled solids
- Use an air wand to blow air into the bottom of the tank
 - A smaller orifice will provide more directed airflow to lift solids
 - Within a couple seconds, you should begin to see and hear air bubbling
 - Air sparge for at least 5 minutes
 - Move the air wand around the bottom of the tank to lift settled solids
- Provide adequate venting
 - Mini-bulk tanks are not pressure rated
- Do not use high pressure
 - A steady flow of about 10-20 psi is sufficient
- Product surface should look homogeneous with no layers
- Following air sparging, complete recirculation of the tank contents

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Be flexible

- Consider looking for premixes that contain the active ingredient

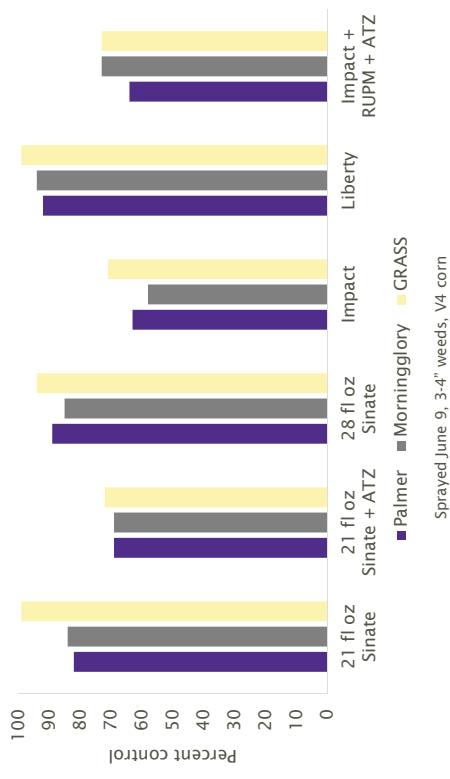
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Alternate formulations: Corn

- Glyphosate
- Sequence – with S-metolachlor
- Acuron GT – with S-metolachlor, mesotrione, bicyclopyrone
- Callisto GT – with mesotrione
- Expert – with S-metolachlor and atrazine
- Halex GT – with mesotrione and S-metolachlor
- Glufosinate
- Sinate – with topramezone

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Weed control 4 WAT Sinate



Alternate formulations: Soybean

- Glyphosate:
- Enlist Duo – with 2,4-D
- Sequence – with S-metolachlor
- Thunder Master – with imazethapyr
- Flexstar GT – with fomesafen
- Glufosinate
- Intermoc – with S-metolachlor

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Be flexible

- Consider looking for premixes that contain the active ingredient
- Consider alternative active ingredients

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Alternate products: Burndown

- Paraquat (Gramoxone, others)
 - 2 to 4 pt/A
 - N fertilizer + NIS or atrazine/metribuzin + COC

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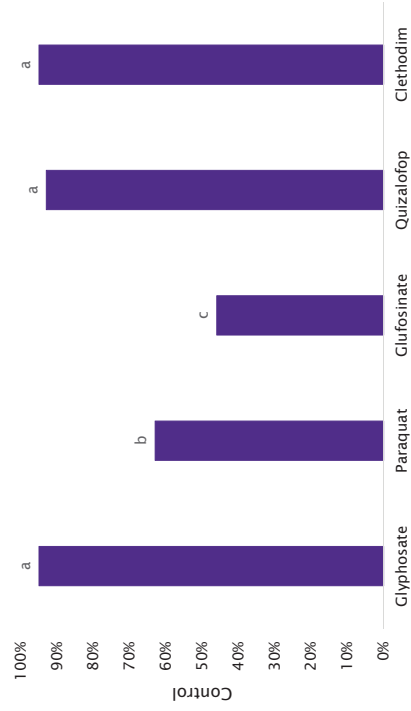
Paraquat

- Registration review interim decision announced 8/2021
- Limited aerial applications
- Required residential buffers
- Required enclosed cabs or respirators for groundboom applications.
- Increasing the Restricted Entry Interval (REI) for several crops
- Restricted use to certified pesticide applicators only
- **Specialized training for certified applicators**
- Closed-system packaging
- “EPA has not found a clear link between paraquat exposure from labeled uses and adverse health outcomes such as Parkinson’s disease and cancer.”
- ESA review pending

Link for paraquat training:
<https://npsec.us/paraquat>

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Volunteer Clearfield-wheat control 2WAT



Blackshaw et al. 2006

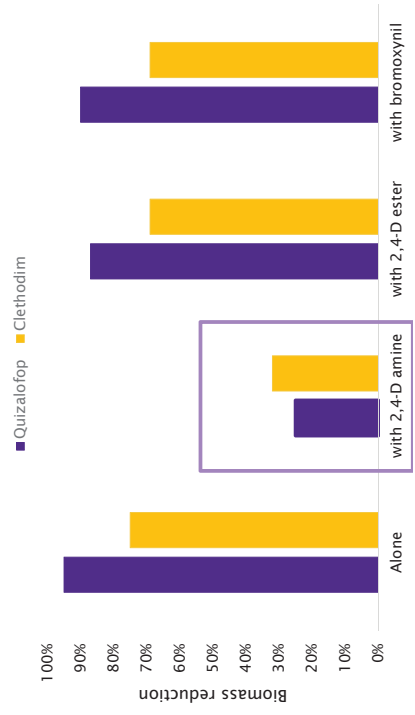
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Alternate products: Burndown

- Paraquat (Gramoxone, others)
 - 2 to 4 pt/A
 - N fertilizer + NIS or atrazine/metribuzin + COC
- Sharpen
 - 1 to 3.5 fl oz/A
 - Based on soil texture
 - MSO plus AMS
 - Not with carbamate or OP insecticides
 - Verdict
- Reviton
 - 1-2 fl oz/A
 - MSO
- Group 4 plus Group 1

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Volunteer wheat control



Blackshaw et al. 2006

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Alternate products: Grass control in corn

- Nicosulfuron (Accent, Revulin Q, Steadfast, etc)
- Rimsulfuron (Resolve, Basis, Basis Blend, Realm Q, Steadfast)
- Topramezone (Impact, Armezon, Armezon PRO)
- Tembotrione (Laudis)

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Alternate products: Broadleaf control in soybean

- Group 4
 - Dicamba
 - 2,4-D
- Group 14
 - Acifluorfen (Blazer)
 - Fomesafen (Flexstar)
 - Rotation restrictions – corn, sorghum, wheat
 - Additional restrictions west of Hwy 281
 - Lactofen (Cobra)

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Be flexible

- Consider looking for premixes that contain the active ingredient
- Consider alternative active ingredients
- Increase residual herbicide use

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Residual herbicides

- Multiple, effective herbicides that provide extended control

	Solubility (mg/L)	Sorption (mL/g)	Half-life (d)	Crops	Pigweeds
Acetochlor	282	156	12	Cn Sg Sy	G
S-metolachlor	480	200	23	Cn Sg Sy	G
Dimethenamid	1499	227	16	Cn Sg Sy	G
Pyroxasulfone	3.5	223	22	Cn Sy	E
Isoxaflutole	6.2 L	145	1.3	Cn	E
Mesotrione	1500	122	5	Cn Sg	E
Flumioxazin	0.8	889	18	Cn Sy	E
Sulfentrazone	780	43	547	Sy	E
Metribuzin	10,700	48	19	Sy	G

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Residual herbicides

- Multiple, effective herbicides that will provide extended weed control
- Consider layered residuals

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What portion of your POST applications include a residual herbicide?

None

A few - Less than 25%

Some about 50%

Most - More than 75%

Nearly all - more than 90%

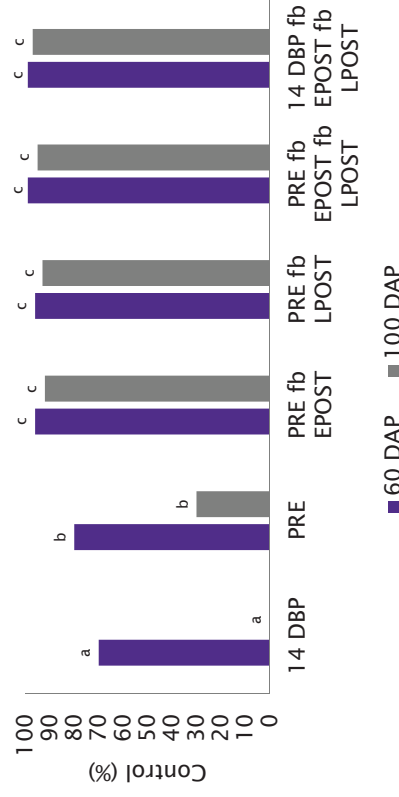
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Weed control 60 DAP Warrant (2.5 qts/A)

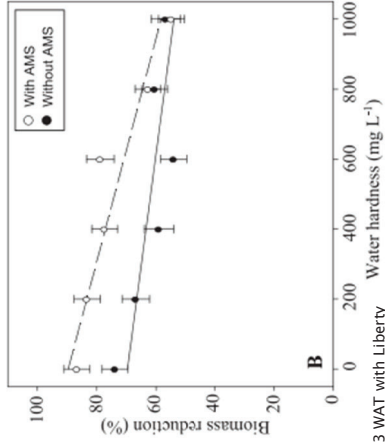


Jha et al. 2015

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Ensure efficacy

- Use the right adjuvants
- Especially if water quality is a concern



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Palmer amaranth biomass 3 WAT with Liberty
Devkota and Johnson 2016

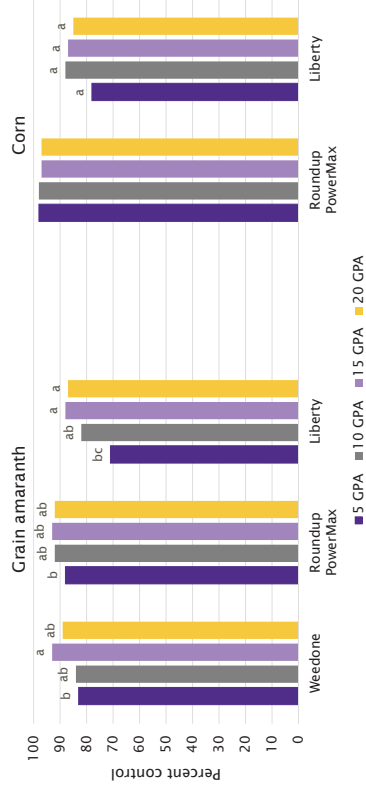
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What spray volume do you use for POST herbicide applications? Up to 3 responses

Ensure efficacy

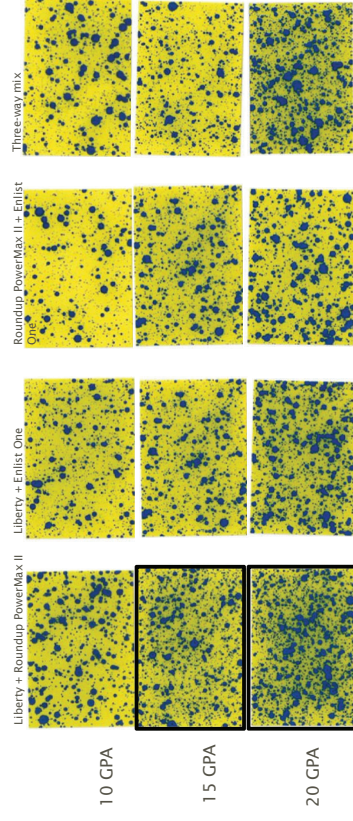
- Consider increasing spray volume



Creech et al. 2015
Means within species and herbicide followed by the same letter are similar ($P \leq 0.05$)

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Tank-mix partners affect coverage



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Be a good agronomist

- Crop rotation
- Fertility
- Planting date
- Plant population
- Row spacing



Soybeans planted at 15" and 30" row spacing
6 weeks after planting
Photos by Chad Lammers

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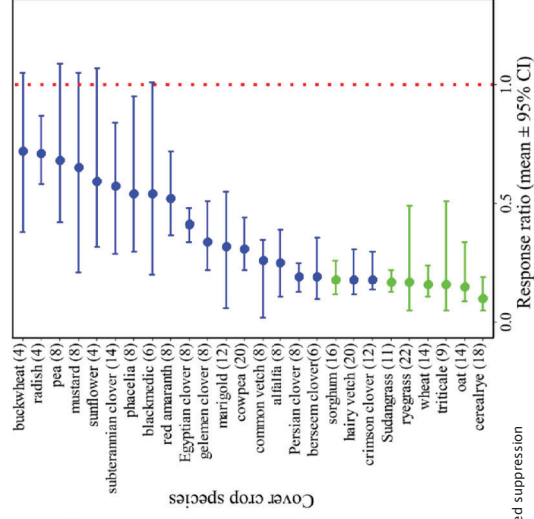
Consider non-chemical alternatives

- Strategic tillage
- Cover crops
- Electrocuting, flaming



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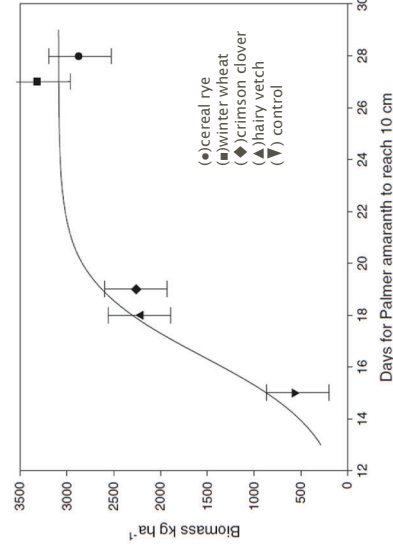
Weed suppression by cover crops 0-4 WAT



Lower response ratio indicates greater weed suppression
Osipian et al., 2019

Cover crop biomass slows Palmer amaranth growth

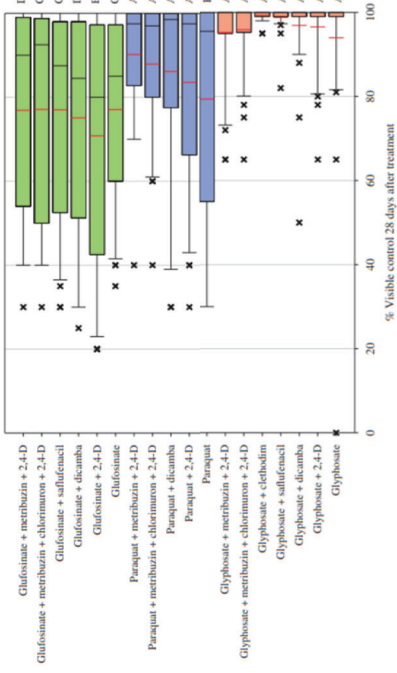
Cover crops associated with 3-13 day delay in Palmer amaranth reaching 4 inches



Wiggins et al., 2017

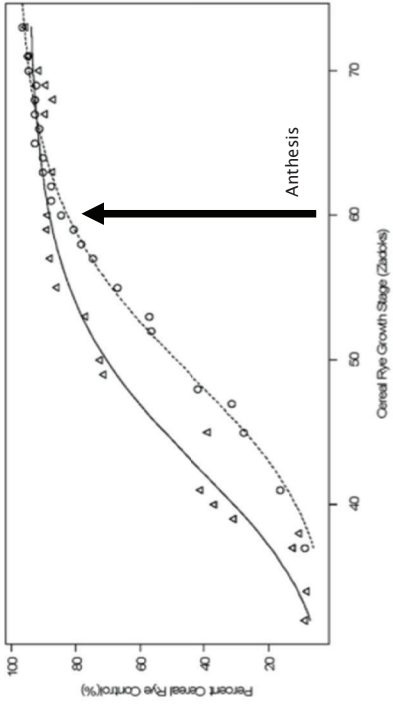
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Cereal rye termination



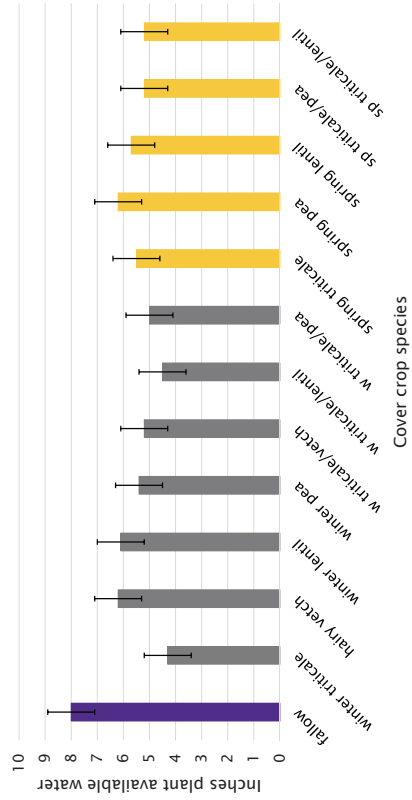
8 site-years in MO, IN, AR, WI, MS
Whalen et al., 2019

What about roller-crimpers?



Mirsky et al., 2009

Plant available water following cover crops, Garden City KS



Holman et al., 2018

Report of Progress 1169

2022 Chemical Weed Control
for Field Crops, Pastures, Rangeland, and Noncropland

K-STATE
Research and Extension
Kansas State University Agricultural Experiment Station and Cooperative Extension Service



<https://waragainstweeds.libsyn.com>



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