

# GRAIN SORGHUM WEED CONTROL: START CLEAN, STAY CLEAN

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## Some key weed species



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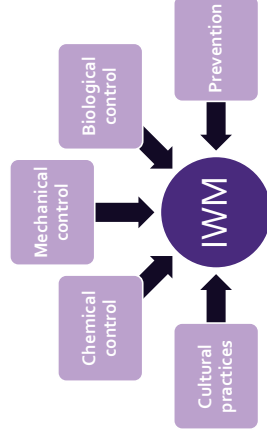
To what extent have limited herbicide options let you to  
avoid growing grain sorghum?

A lot  
Somewhat/ occasionally  
Not at all

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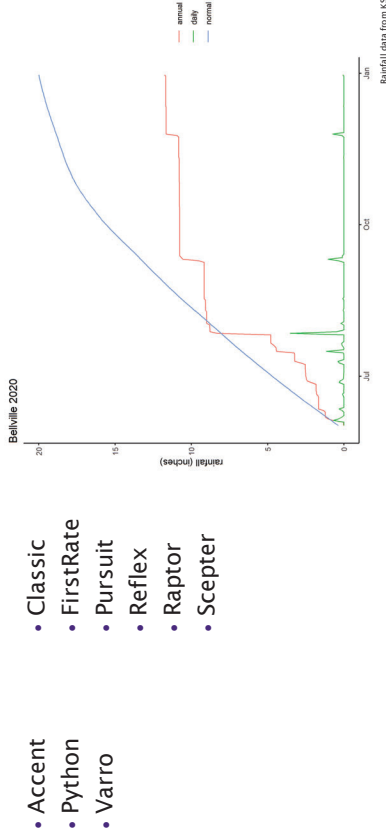
## Back to the basics

- Use integrated practices
- Make timely applications



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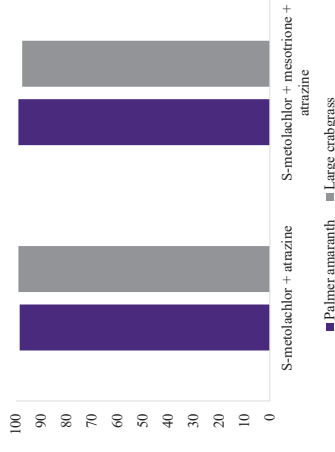
# Potential carryover



- Accent
- Python
- Varro
- Classic
- FirstRate
- Pursuit
- Reflex
- Raptor
- Scepter

# Start clean

- Burndown or tillage
- Atrazine
- Group 15
- Group 27 + atrazine



# Start clean

Herbicide	SOA group	Activation
Atrazine	Aatrex 4L	5 NA
Acetochlor	Harness	15 1/4-3/4"
S-metolachlor	Dual II Magnum	15 1/2-1"
Dimethenamid-p	Outlook	15 NA
Mesotrione	Callisto	27 1/4"

# Stay clean

Active ingredient	Trade name	Sorghum Timing	Palmer timing	Comments
2,4-D	several	5-15"	"small"	
Atrazine	several	<12"	1.5"	later application with drop nozzles, injury > 6" in western KS
Bromoxynil	several	3 lf - boot	2"	
Dicamba	several	V3 - 12"	3"	
Fluroxypyr	Starane Ultra, others	3 lf - 7 lf	NA	later application with drop nozzles
Quinclorac	Facet, others	12"	NA	
Fluroxypyr + bromoxynil	Starane NXT, others	V4 - V7/8	NA	later application with drop nozzles
Pyrasulfotole + bromoxynil	Huskie	3 lf - 30"	4"	
Acetochlor	Warrant	11"	NA	safened seed
Dimethenamid -P	Outlook	12"	NA	safened seed
S-Metolachlor	Several	75 d PHI	NA	safened seed

## What herbicides are you planning for your grain sorghum acres in 2021?

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## Herbicide-resistant grain sorghum

- **Inzen**
  - Corteva
  - Zest herbicide (nicosulfuron)
  - POST
  - Some varieties available in 2021?
- **iGrowth**
  - ADVANTA/UPL
  - Imiflex herbicide (imazamox)
  - PRE or POST
  - Launch in 2021
- **Double Team**
  - Sorghum Partners/ADAMA
  - First Act
  - Pilot launch in 2021
  - Waiting for herbicide registration, Canadian export approval

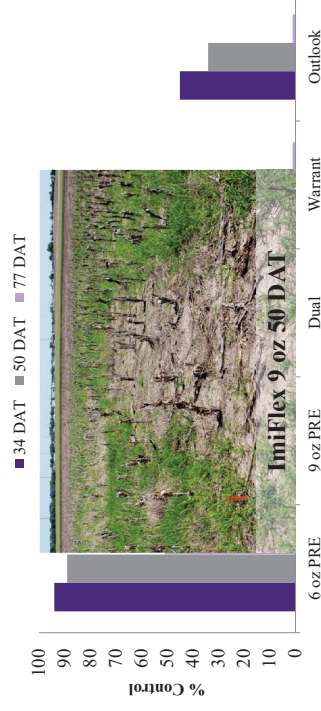


## 2020 Trials

- Fallow fields
- PRE:
  - Imazamox (Imiflex) vs Group 15 herbicides
- POST:
  - Imazamox (Imiflex), nicosulfuron (Zest) and quizalofop
  - 2 rates
  - 2 growth stages



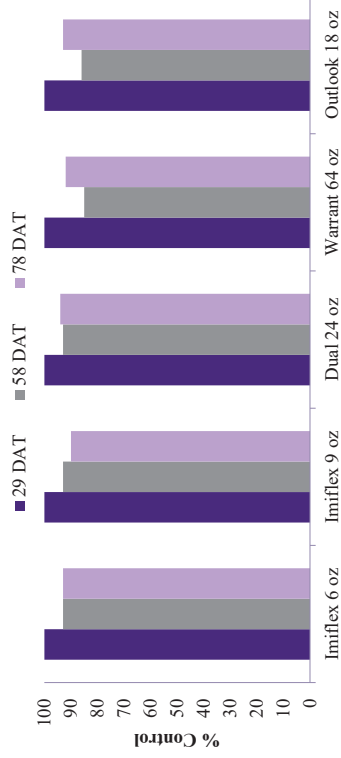
## Green foxtail control PRE - Hays



Vipin Kumar, Brent Bean

# USPP Large crabgrass control PRE - Garden City

UNITED SORGHUM CHECKOFF PROGRAM



Pat Geier, Randall Currie, Brent Bean

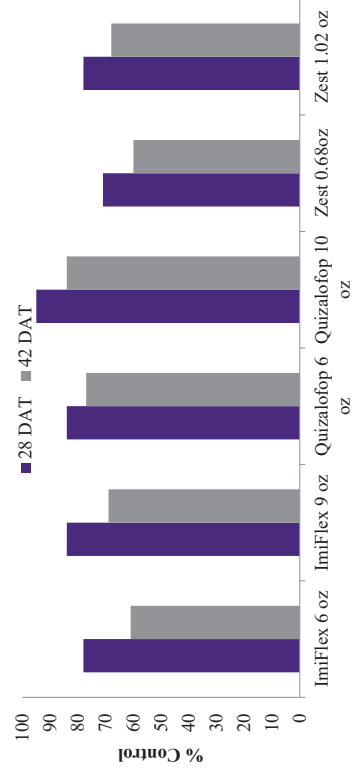
# Garden City -28 DAT



Pat Geier, Randall Currie, Brent Bean

# USPP Green foxtail control EPOST - Hays

UNITED SORGHUM CHECKOFF PROGRAM



Vipin Kumar, Brent Bean

# Hays -28 DAT

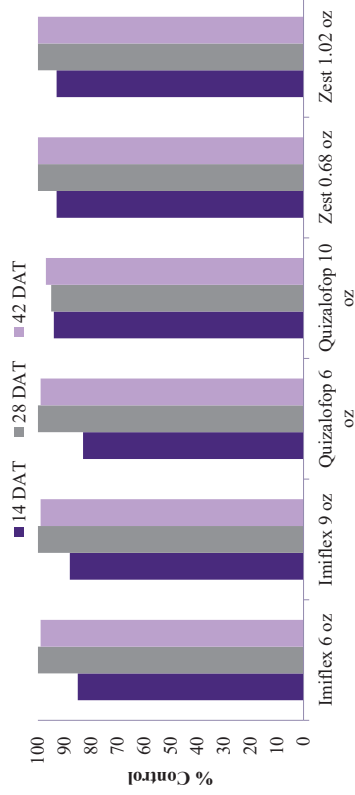


Vipin Kumar, Brent Bean



# Large crabgrass control

## EPOST - Garden City

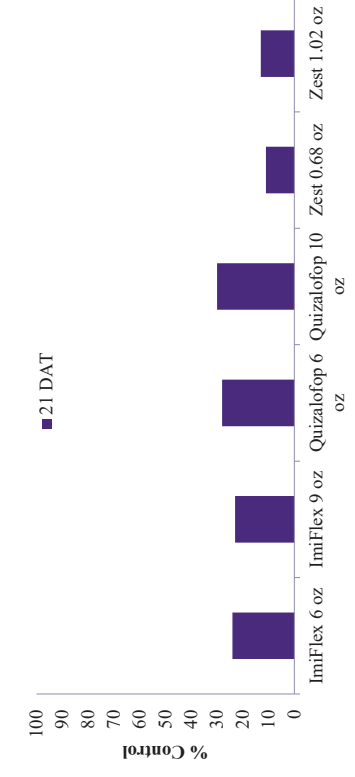


Pat Geier, Randall Currie, Brent Bean



# Green foxtail control

## LPOST - Hays

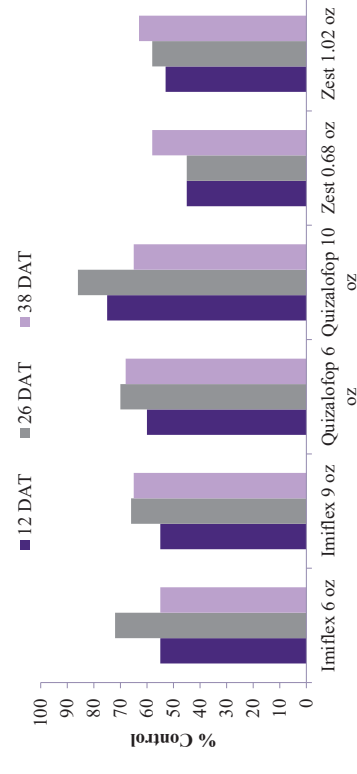


Vipin Kumar, Brent Bean



# Large crabgrass control

## LPOST - Garden City



Pat Geier, Randall Currie, Brent Bean

# Rotational Restrictions

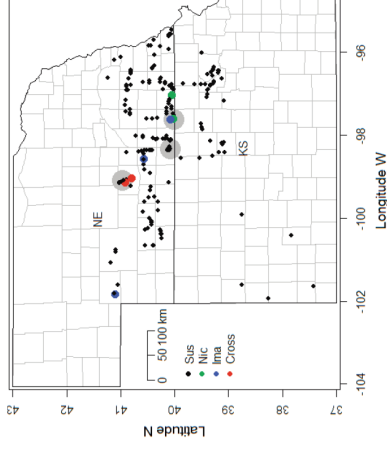
Product	Corn (Field)	Soybeans	Wheat (winter)	Cotton	Canola	Sorghum	Sunflower
Zest	--	15 d	4 mos	10 mos	10-18 mos	18 mos	10-18 mos
IMIFLEX	8.5 mos*	--	3 mos*	9 mos	18-26 mos*	18 mos	9 mos*
Quizalofop **	120 d	--	120 d	--	--	120 d	--

\*Except Clearfield varieties  
\*\*Based on Assure II label

## Stewardship

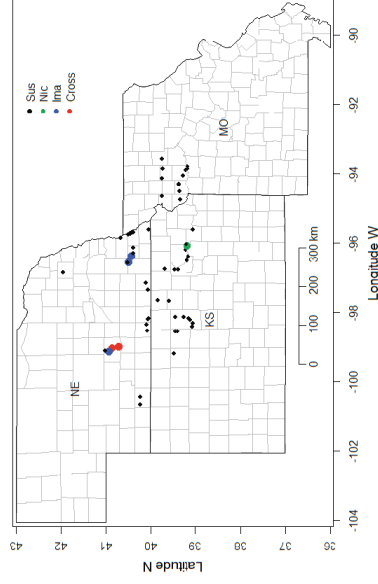
- Manage to slow the development of herbicide resistant weeds
  - One (IMIFLEX) or two (Zest) applications per year
  - Do not plant sorghum in the same field two consecutive years
  - Do not plant where ALS-resistant shattercane or johnsongrass occur
- Avoid outcrossing to shattercane and johnsongrass
  - Control escapes and grass along field edges
    - Ensure shattercane and johnsongrass are not flowering same time as sorghum

## ALS-resistance in shattercane



Werle et al., 2016

## ALS-resistance in johnsongrass



Werle et al., 2016

Which herbicide-resistant grain sorghum trait are you most interested in?

- Inzen
- Imiflex
- Double Team
- None of them

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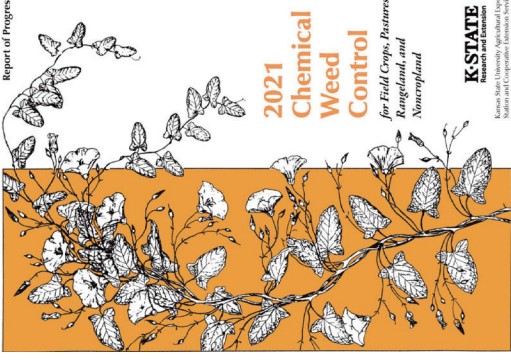


## Atrazine registration review

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- Interim decision released Sept 2020
- Two more assessments
  - Endangered species assessment (deadline 9/28/21)
  - Endocrine disruptor screening
- Changes most likely to affect Kansas farmers
  - 15 MPH weed speed restriction
  - 5-foot buffer from edge of streams/rivers and endangered species habitat
  - Medium-sized droplets or larger

Report of Progress 1162



### 2021 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



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