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Weed Science

Latest Developments in Site-Specific Weed Management



2024 Indiana CCA Conference

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Dec. 18th 2024



2025 Recommendations



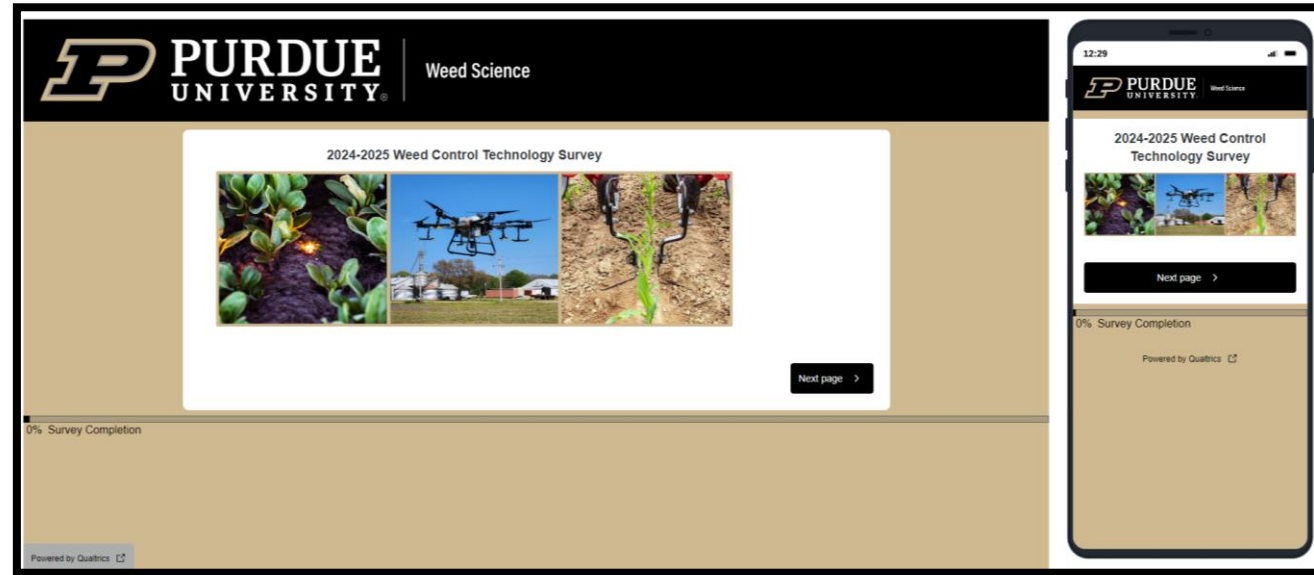
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Weed Control Technology Survey

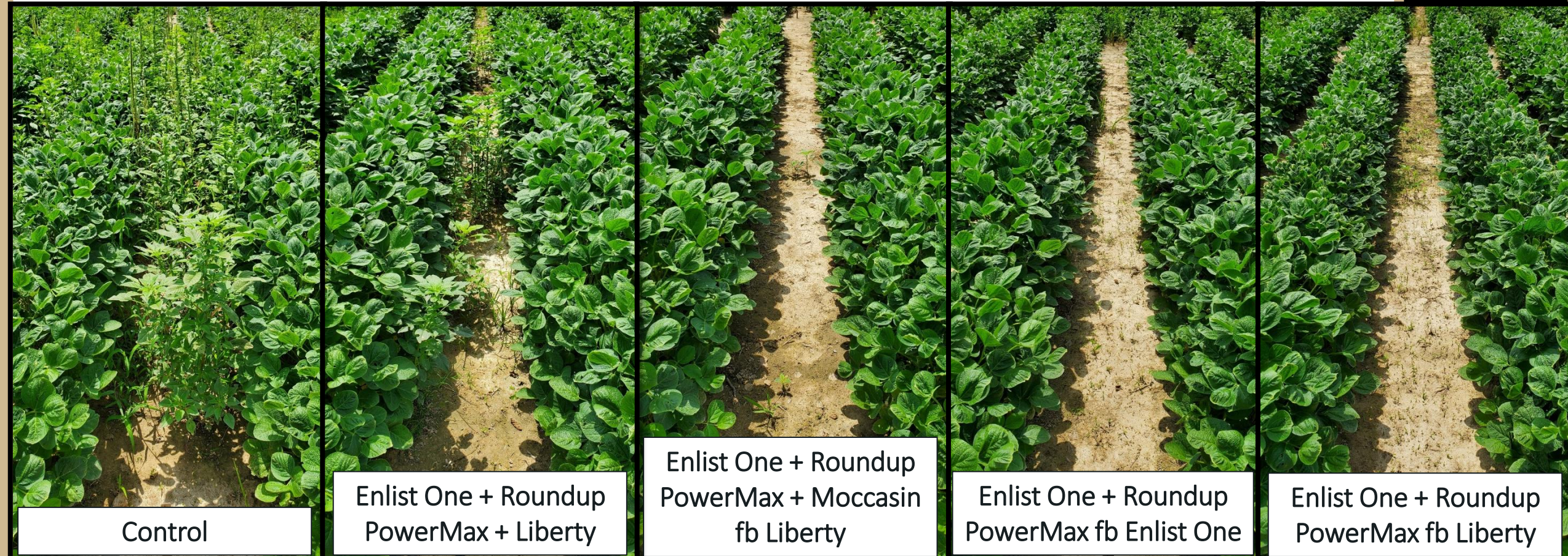


*Please scan me to take
the survey.*



https://purdue.ca1.qualtrics.com/jfe/form/SV_238szPXuouP0Olo

Enlist E3 Recs & Overlapping Residuals



Control

Enlist One + Roundup
PowerMax + Liberty

Enlist One + Roundup
PowerMax + Moccasin
fb Liberty

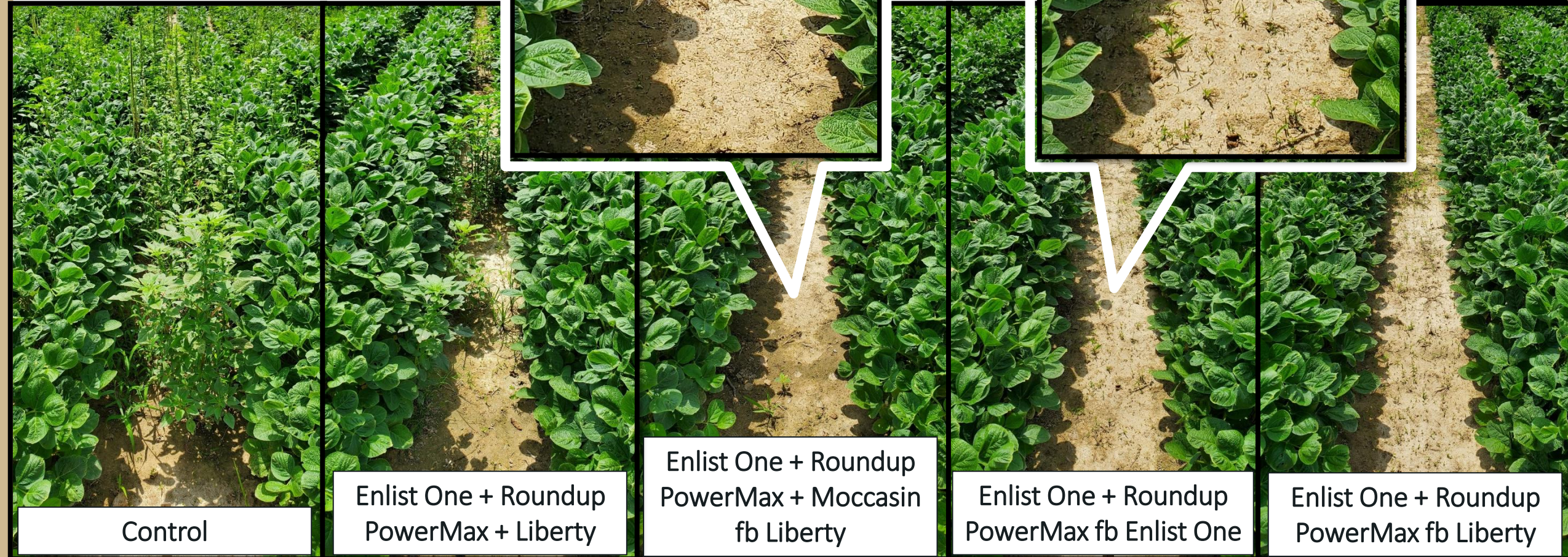
Enlist One + Roundup
PowerMax fb Enlist One

Enlist One + Roundup
PowerMax fb Liberty

Photos taken 21 days after final application

Enlist E3 Recs &

g Re



Control

Enlist One + Roundup
PowerMax + Liberty

Enlist One + Roundup
PowerMax + Moccasin
fb Liberty

Enlist One + Roundup
PowerMax fb Enlist One

Enlist One + Roundup
PowerMax fb Liberty

Photos taken 21 days after final application

Nozzle & Tank-Mix Impact

Photos taken 21 days
after final application



Dicamba Update

Rules for 2025

- No labels are approved for dicamba-resistant soybean at this time.
- Labels for corn (i.e., Status, Clarity, etc.) are unaffected at this point.
- New labels have been submitted for XtendiMax, Engenia, and Tavium with substantial changes.
- If the new proposed labels were approved by EPA:
 - XtendiMax would be allowed PRE only
 - Engenia and Tavium would have a V2 cutoff
 - Only 2 applications allowed per year (reduced from 4)
 - Maximum annual use rate reduced by 50%
 - June 12th cutoff date
- New labels were submitted as an R170 additional food use label which carries a mandatory review period of 17 months; ESA will also add additional time... latest estimates are ***a review period of 28 months total*** → it is unlikely labels will be available for 2025 or even 2026 (National Ag Law Center).



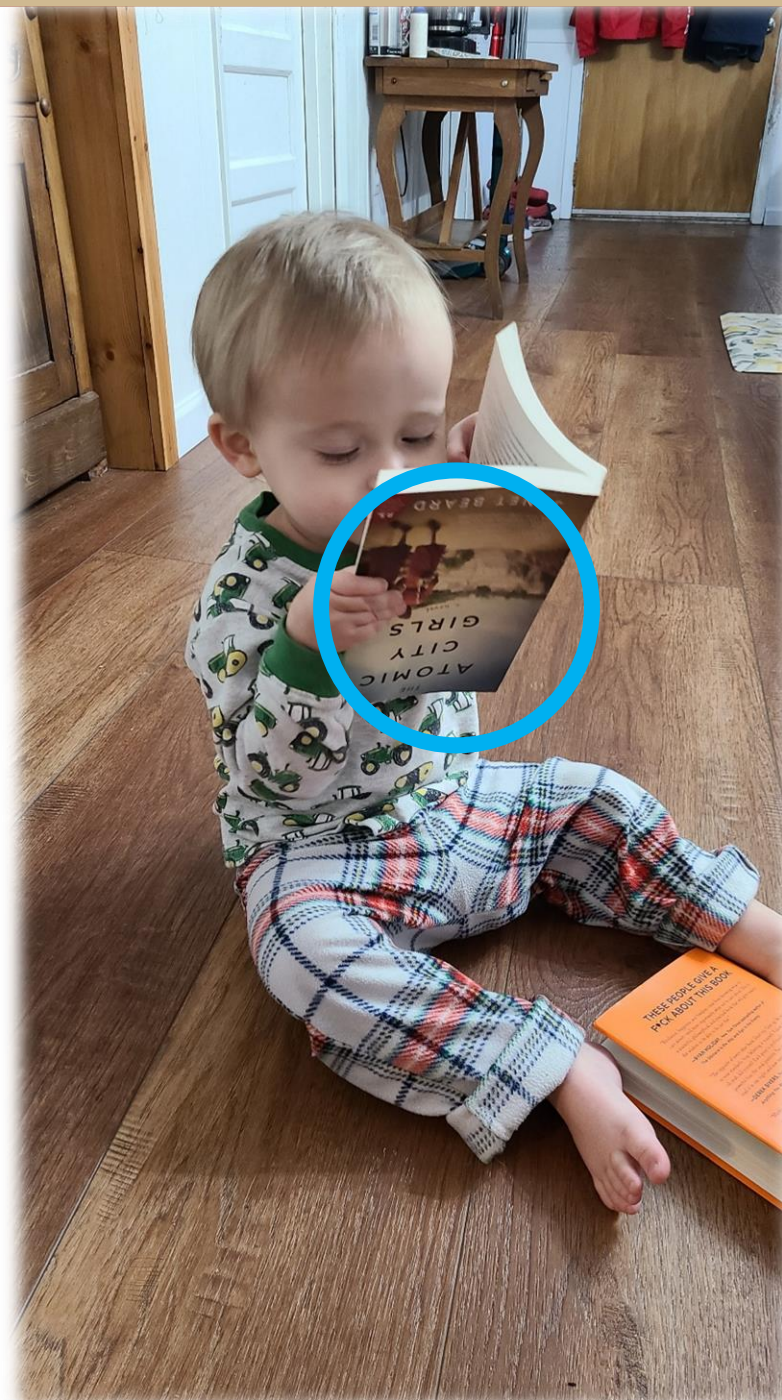
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Other Herbicide Advice

Read the Herbicide Label!

Correctly...





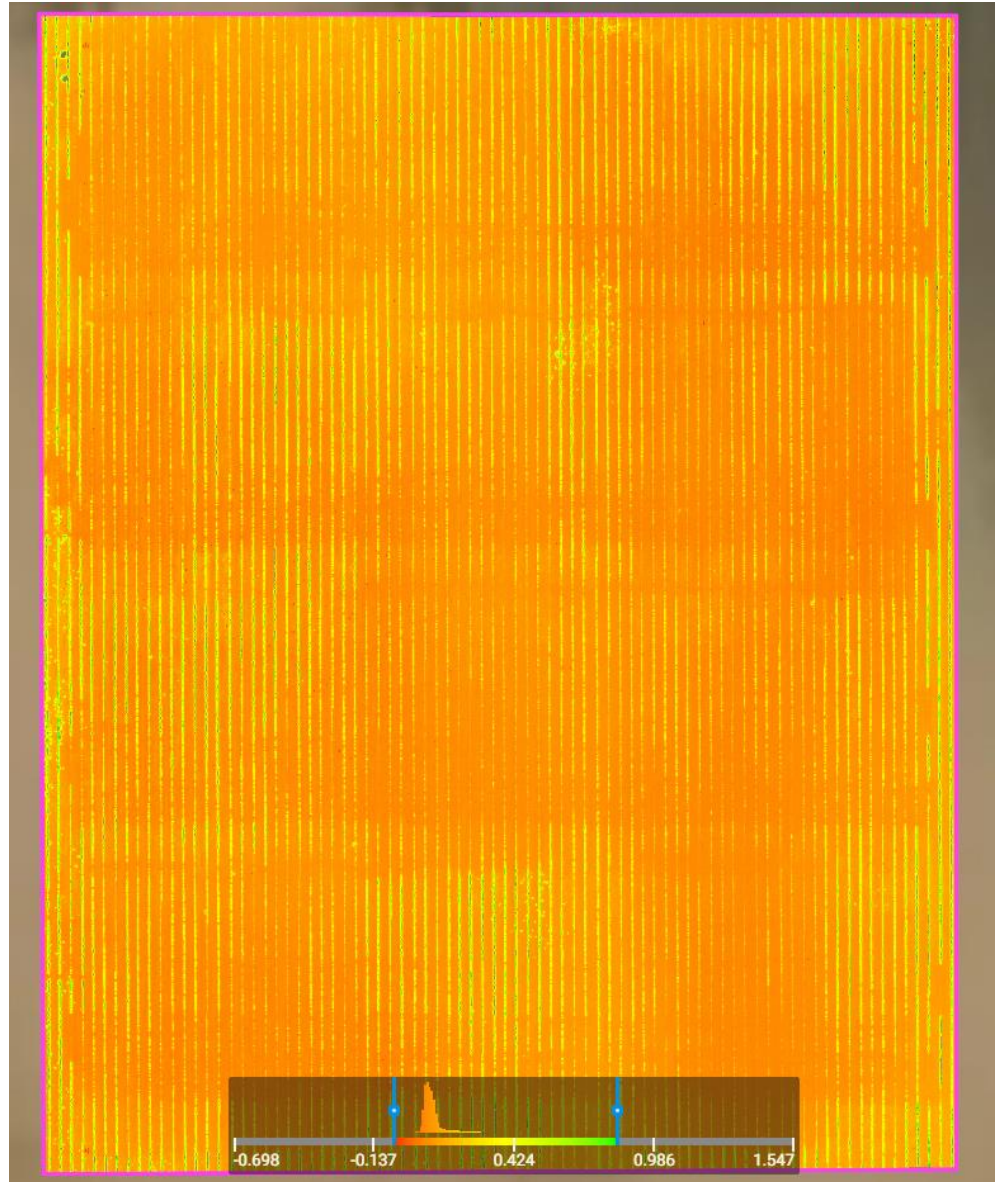
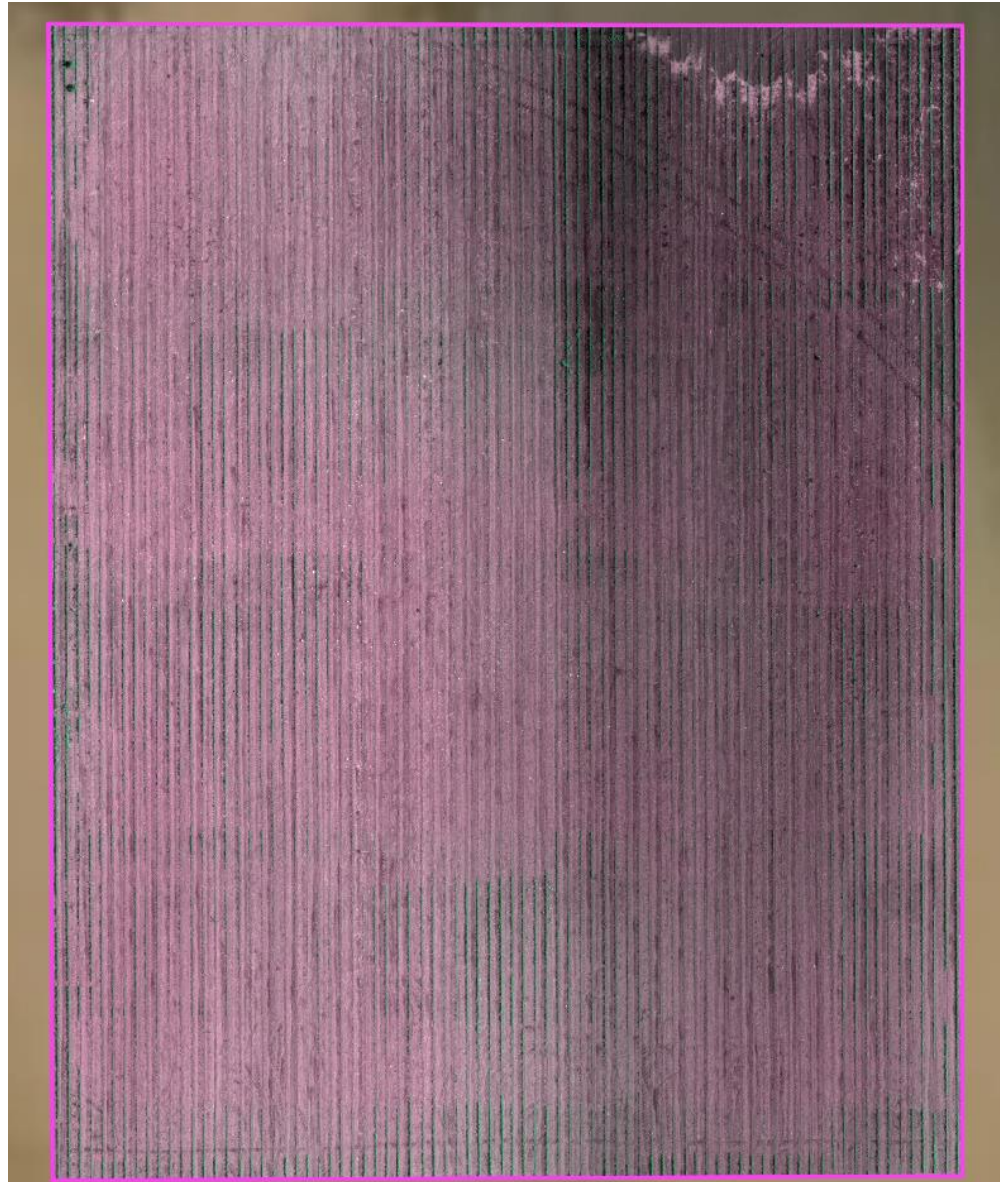
IMAGERY & DRONES



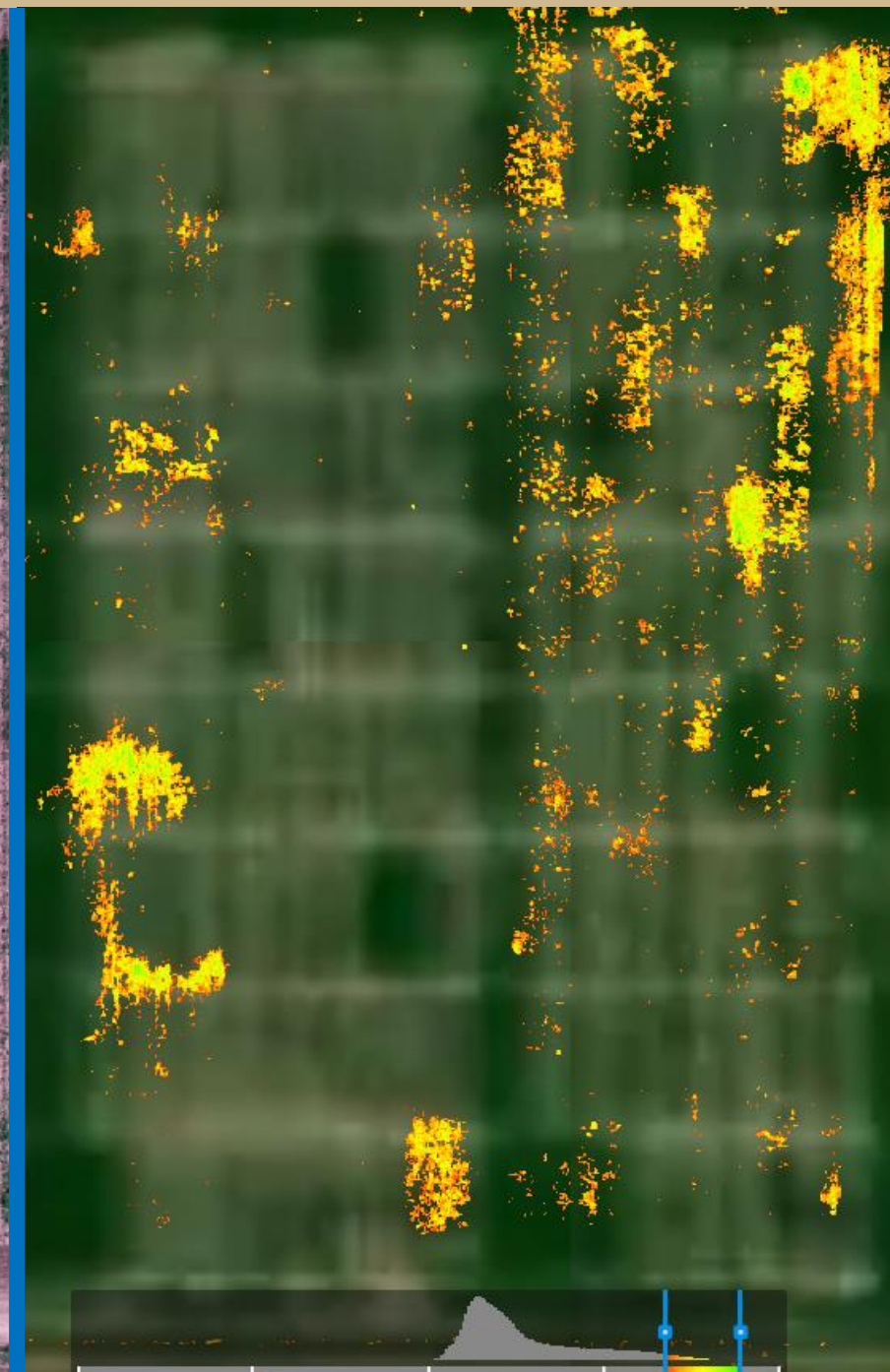
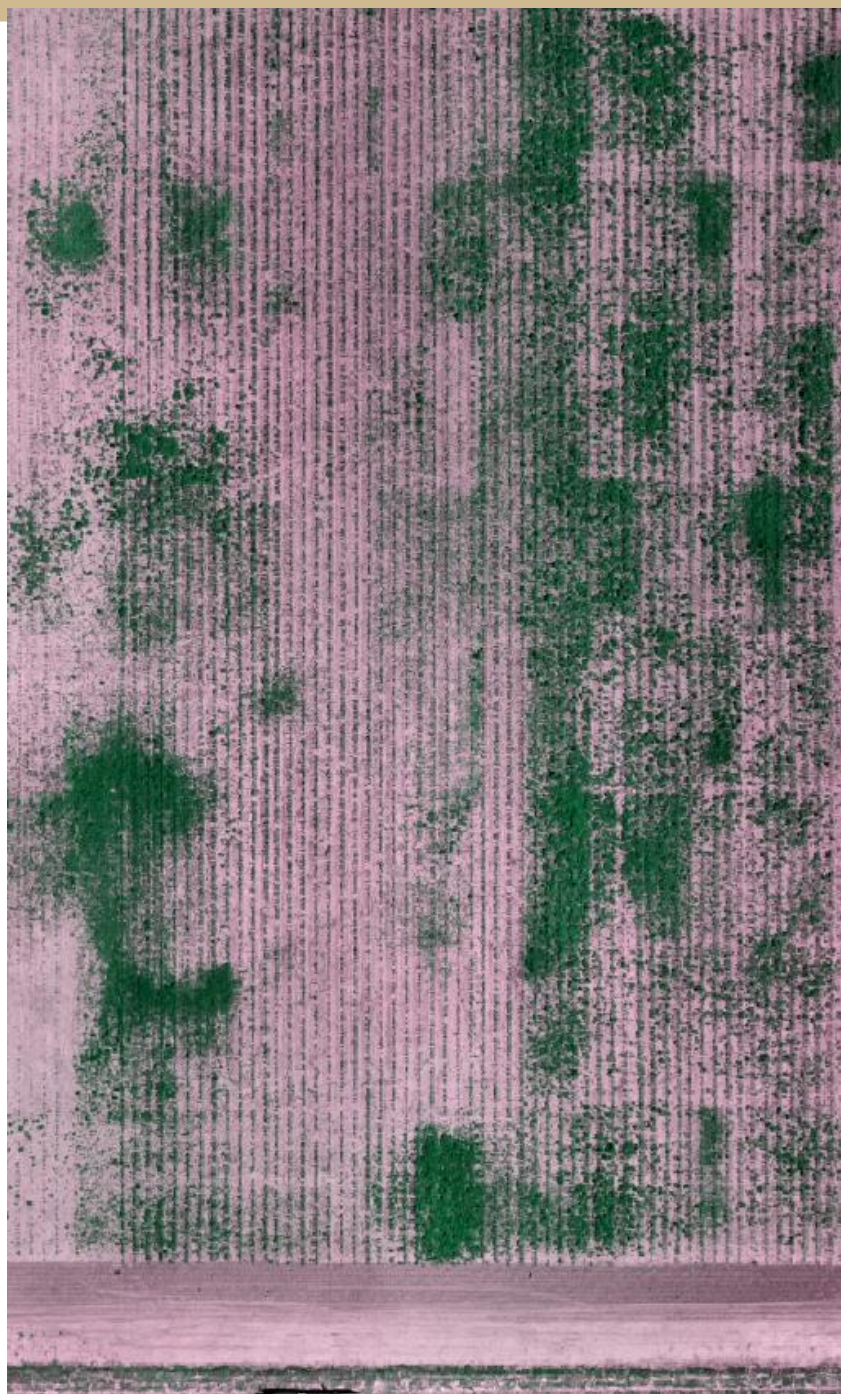
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Remote Sensing (Pix4D, Soybean)



Remote Sensing (Pix4D, Weeds)



DIY Prescription Spray Maps



DIY Prescription Spray Maps



The screenshot displays the Pix4Fields software interface for creating prescription maps. The main window shows an aerial view of a field with a grid overlay. The interface includes a sidebar with the following elements:

- MAGIC TOOL**: A sequence of five numbered steps (1-5) with step 3 highlighted.
- Show annotations**: A toggle switch that is currently turned on.
- Mark cells**: Two radio button options: **Wanted** (selected) and **Not wanted**.
- Wanted x 10**: A radio button option with the instruction "Mark at least 3 cells you want".
- Not wanted x 12**: A radio button option with the instruction "Mark at least 3 cells you don't want".
- Keys**: Two keyboard shortcuts: **SHIFT** (to switch between wanted and not wanted) and **SPACE** (to hide the grid and selection).
- Clean up**: A blue button at the bottom of the sidebar.

The field image shows several rows of crops. A large section of the field is outlined in cyan, indicating a selected area. Several individual cells are marked with yellow circles (representing "Not wanted") and blue circles (representing "Wanted"). A scale bar in the bottom right corner indicates 11 feet.

DIY Prescription Spray Maps



Pix4Fields Targeted Application Demo Export

MAGIC TOOL

1 2 3 4 5

Mark some grid cells you want and some you don't want selected - the tool will complete the selection for you

Show annotations

Mark cells

Wanted Not wanted

x 10
Mark at least 3 cells you want

x 12
Mark at least 3 cells you don't want

Keys

Switch between wanted and not wanted

Hide grid and selection

Clean up

215 ft

DIY Prescription Spray Maps

Targeted Application Demo [Export]

LAYERS Import

- Index
- Magic
- Operation
- Boundaries
- 722024FRAN_Aug1722295
- 722024FR...55745231

OPERATION

722024FRAN3MRGB70ft_or

Operation	Boundaries
Prescription rates	
1. 1.19 gal/ac 2 2.39	
1.26 Fill all empty cells	

Cell size: 2.000 ft
Total area: 2.45 ac
Total amount: 2.39 gal
Mean rate: 0.97 gal/ac
Applied area: 1.19 ac
Mean rate (applied area): 2.00 gal/ac

Keys

- SHIFT: Switch between empty and non-empty rate
- SPACE: Hide overlays
- CTRL: Mouse click & drag moves map
- CTRL + Z: Undo last tool action

22 ft

Clear all

0% 100%

Spray Drones





NEW TOOLS



& RESEARCH

Machine Learning / AI

“Machine learning is broadly defined as the capability of a machine to imitate intelligent human behavior. Artificial intelligence systems are used to perform complex tasks in a way that is similar to how humans solve problems.”

- Sara Brown, MIT



If we look at a weed species 1 time, near impossible for us to take that information and correctly ID the weed species 100% of the time in the future.



If we look at a weed species 100 to 1,000 to 10,000 times, it becomes second-nature to ID the weed species regardless of the situation.



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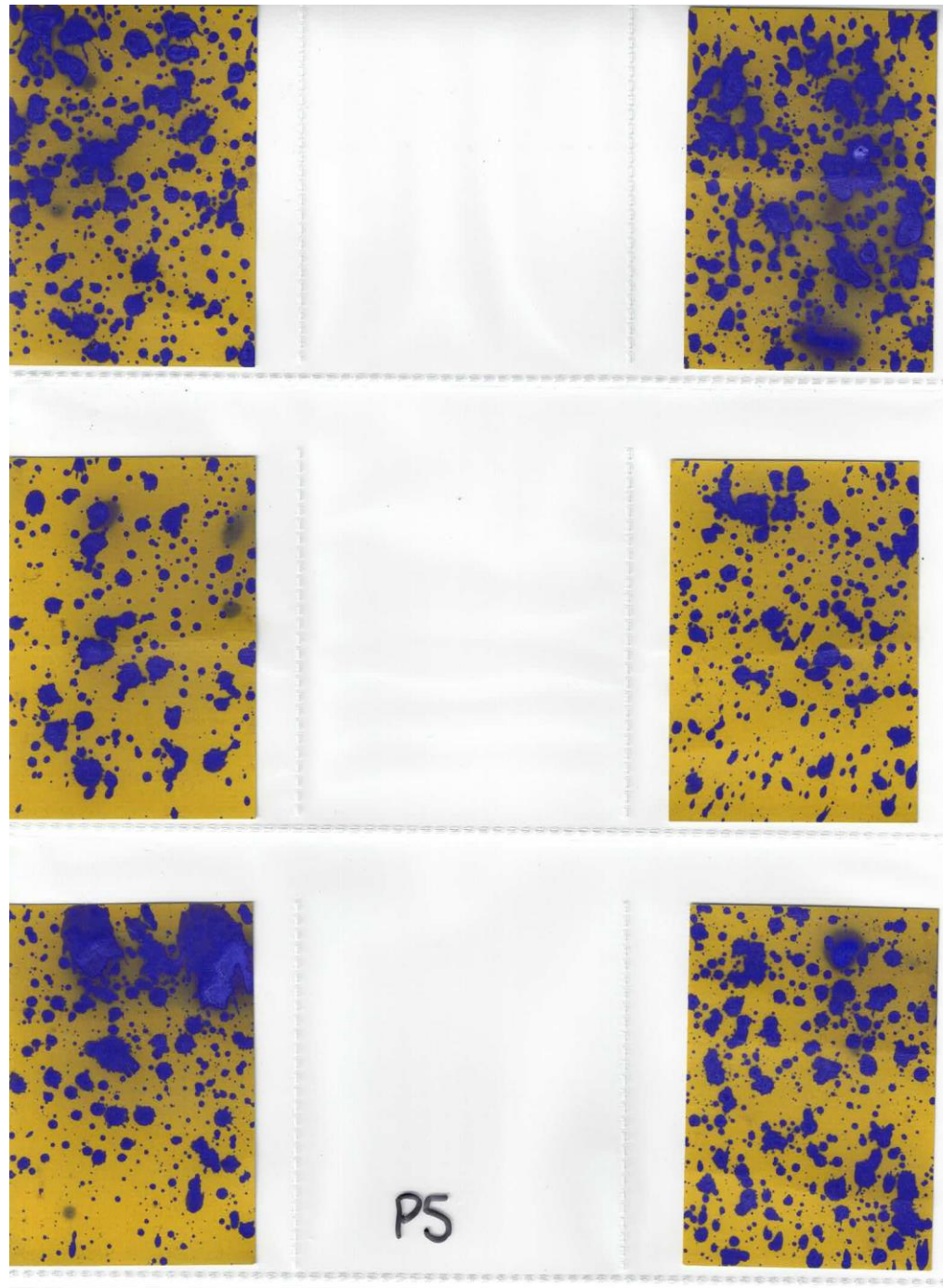
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SSWM Tech - Solinftec



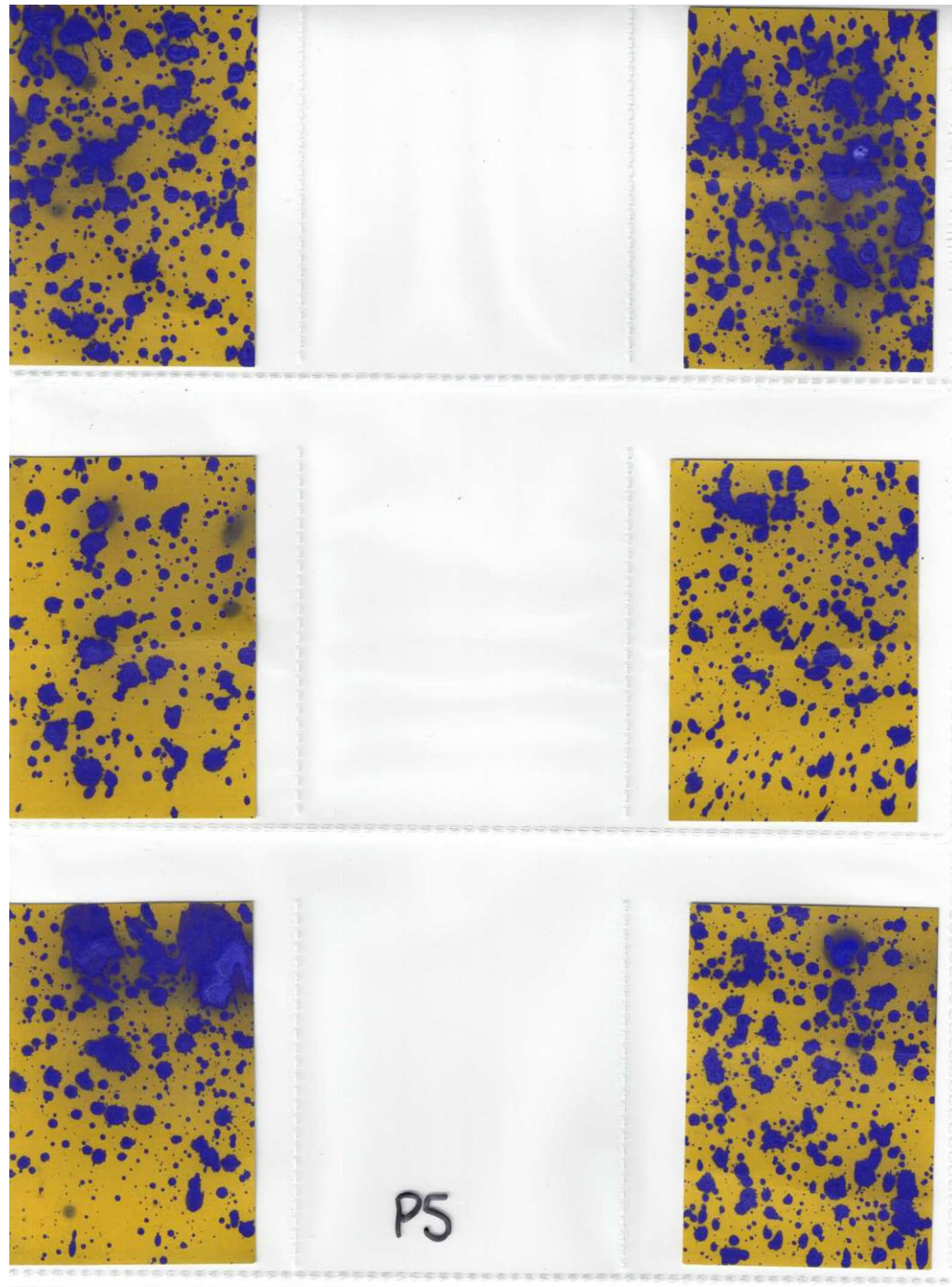


Spray Date – 6.11.2024





2 WAA – 6.26.2024





Spray Date – 6.11.2024

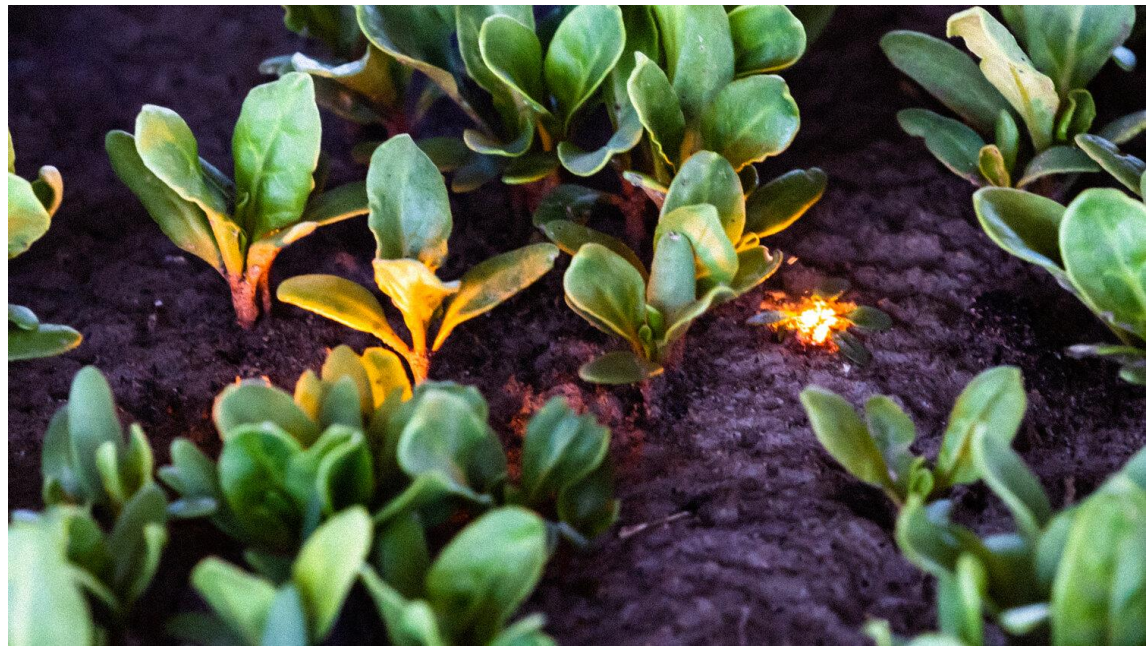




2 WAA – 6.26.2024



LaserWeeder



Precision Tillage Tools

Horsch Transformer



<https://www.horsch.com/us/products/hybrid-farming/cultivation/transformer-vf>

Australian Tillage Weed Chipper



<https://www.ahri.uwa.edu.au/ho-e-hoe-hoe-and-away-weeds-go/>

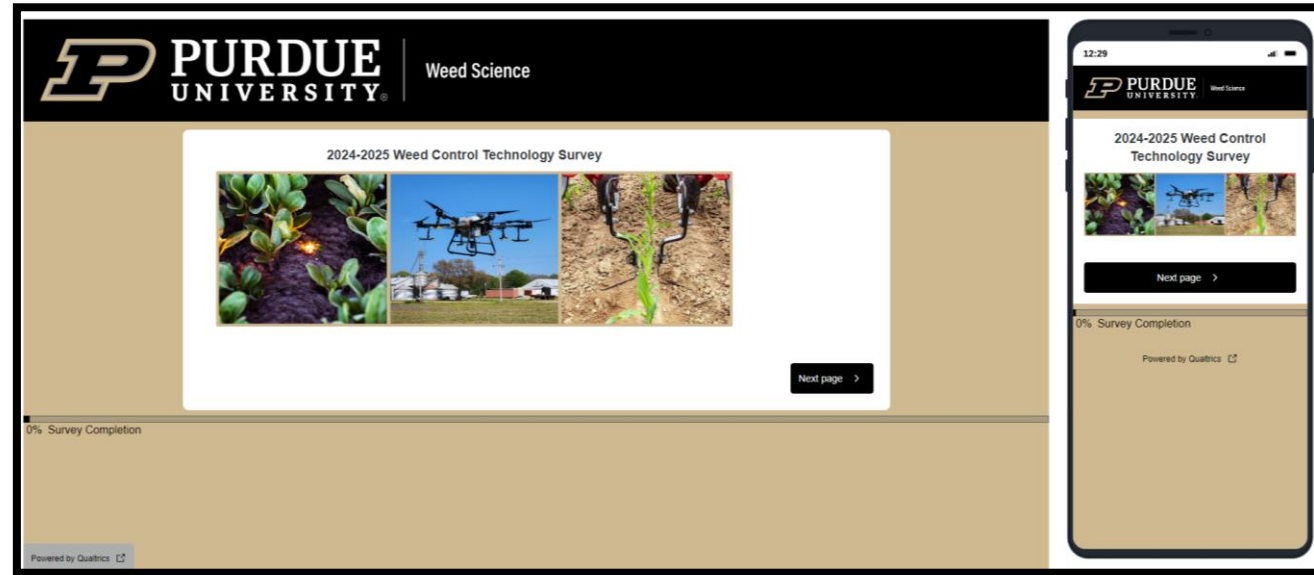
SSWM Tillage Technology



Weed Control Technology Survey



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Purdue Weed Science Team





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Thank you! Questions?



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