Valent USA Product Update

Bill Odle and John Bordlee

Products That Work, From People Who Care®

Rice – League, Belay, NipsIt INSIDE
Soybeans - Fierce

LEAGUE™ HERBICIDE

FIERCE™ HERBICIDE

BELAY® INSECTICIDE

NipsIt INSIDE® Insecticide

- A selective herbicide which provides <u>residual</u> and <u>contact</u> control of many tough weeds
- Imazosulfuron - herbicide class is sulfonylurea (ALS)
- Conventional or Clearfield rice, dry-seeded or water-seeded
- Targeting:

Broadleaf Weeds	• **Texasweed, Jointvetches** • **Hemp Sesbania** • **Pitted Morningglory**
Aquatic Weeds	• **Eclipta, Ducksalad,** • **Dayflower**
Sedges	• **Yellow Nutsedge, flatsedge,**

BELAY® INSECTICIDE

VALENT®

- Active ingredient = clothianidin (neonicotinoid)
- 4.5 fl oz/A
- Dry-seeded or water-seeded
- Rice water weevil control
- 1 application per year
- Pre or post-flood
- Up to 3rd tiller
- Longer application window than pyrethroids, more grower flexibility

NipsIt INSIDE® Insecticide

- Active Ingredient = clothianidin
  - Seed treatment for insect control
  - Class of chemistry: neonicotinoid
  - Insect Control: systemic and contact
  - Registrations: sorghum, canola, sugarbeet, soybean, cereals
  - EPA registration on rice: August 30, 2012
  - Rice insects controlled: rice water weevil, grape colaspis, chinch bug, aphids, thrips


FIERCE™
HERBICIDE

Background

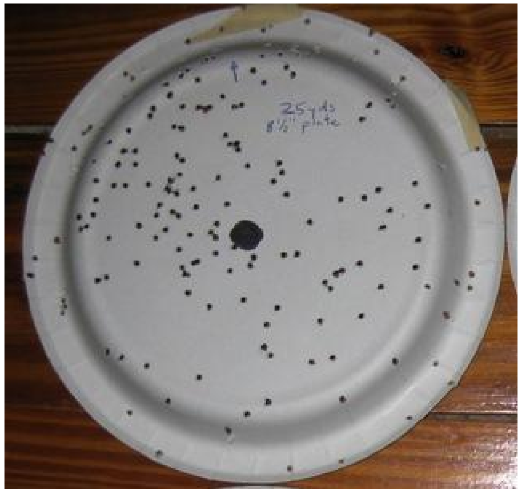
- Premix of flumioxazin and pyroxasulfone

- New herbicide discovered and patented by Kumiai Chemical Industry Co. Ltd. and Ihara Chemical Industry Co. Ltd.

- Registration schedule:
  - Field corn: March 2012
  - Soybean: February 2013 (any day now?)
  - Cotton: Fall 2013
  - Wheat: 2014
  - Peanuts: 2014

Two Modes of Action Working Together

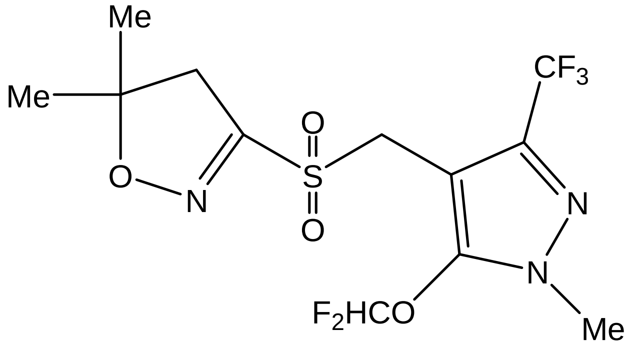
Single barrel



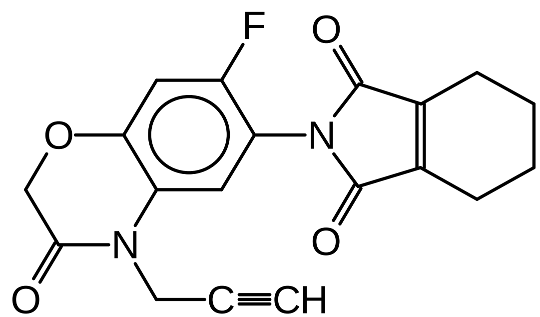
Double barrel

- *Fierce* = Flumioxazin + Pyroxasulfone (1.27:1)
- Pyroxasulfone
  - Mode of Action: VLCFA (very long chain fatty acid inhibition)
  - Class of chemistry: Isoxazoline
- Flumioxazin
  - Mode of Action: Cell membrane disruptions
  - Class of Chemistry: PPO

Pyroxasulfone



Flumioxazin



Pyroxasulfone – Mode of Action

Mode of Action	Site of Action	Chemical Family	Active Ingredient	Product Example
Shoot and Root Inhibitors	Lipid Synthesis Inhibitors 8	Thiocarbamate	EPTC butylate	Eradicane Sutan
	VLCFA Inhibitors 15	Chloroacetamide	acetochlor	Harness, Surpass
			metolachlor	Dual II Mag, others
			dimethenamid	Outlook
		Pyrazole	pyroxasulfone	Part of *Fierce*
		Oxyacetamide	flufenacet	Define

Fierce Rate Structure

		Rate (oz product/A)		
		Course	Medium/Fine	Fine
Fierce	**% AI**	**3**	**3.75**	**4.5**
Flumioxazin	**33.5**	2.00	2.50	3.00
Pyroxasulfone	**42.5**	1.50	1.87	2.25
	76.0	**Equivalent rates of Valor 51 WDG and KIH-485 85 WDG**		

Fierce Rotational Restrictions

Crop	Rotational Restriction for crops other than corn or soybeans (in months)
Wheat	18
Cotton	18
Peanuts	18
Rice	18
Alfalfa	18
Sugarbeet	18
All other Crops	18

*Working on lowering the rotational restriction on the above crops. Should be 9 month maximum for all crops.

Working on registration for cotton and wheat for 2013 season.

Anticipated Fierce Rotational Restrictions

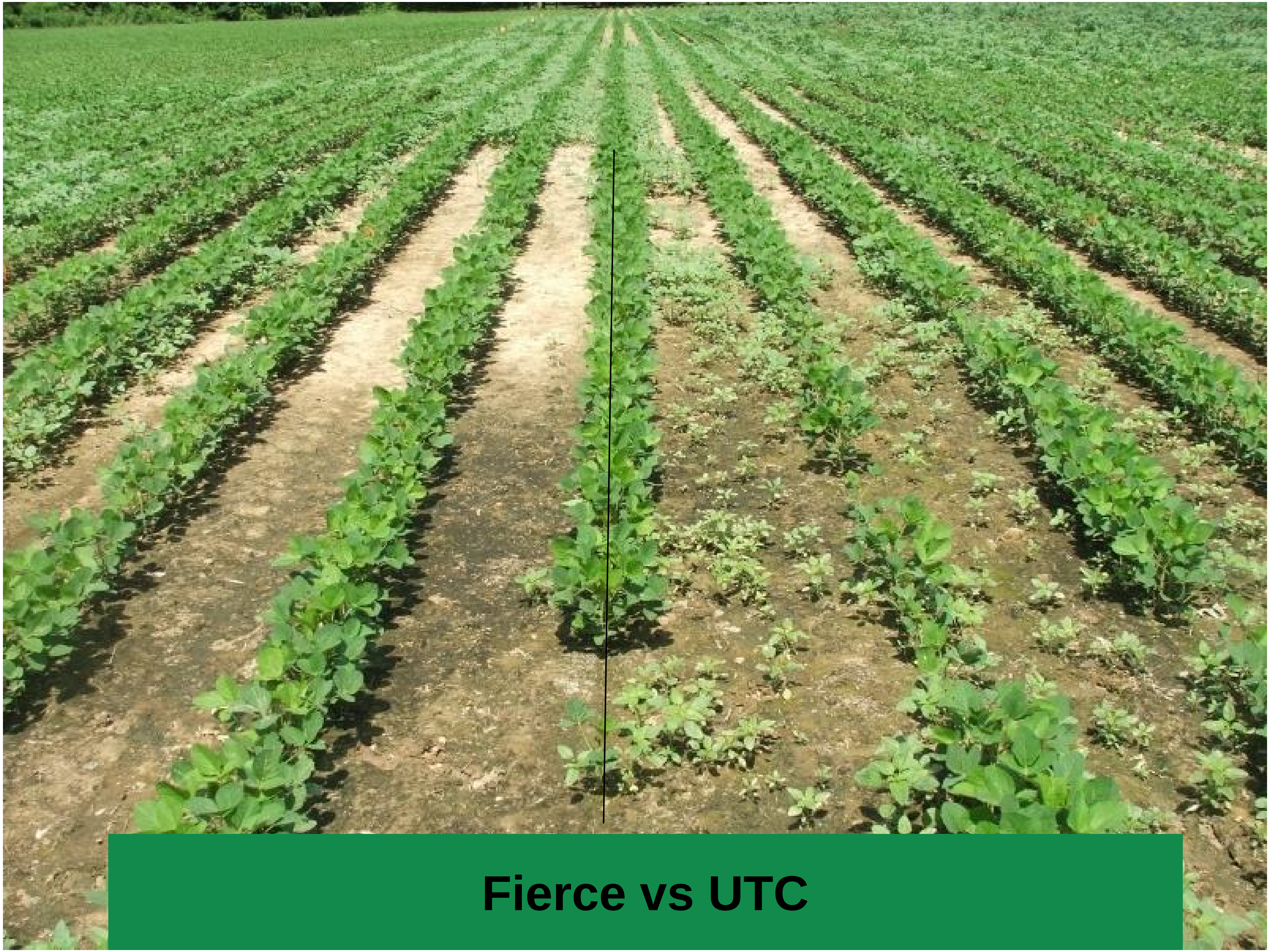
Crop	Rotational Restriction for crops other than corn or soybeans (in months)
Wheat	1
Cotton	4
Peanuts	4
Rice	12
Alfalfa	10
Sugarbeet	15
All other Crops	18

*Soybean registration and crop rotation changes pending at EPA

Weeds Controlled by *Fierce*

Carpetweed	Henbit	Puncturevine	Venice Mallow
Chickweeds	Jimsonweed	Purple Deadnettle	Waterhemp
Coffee Senna	Kochia	Purslane, Common	Barnyardgrass
Common Ragweed	Lambsquarters	Radish, Wild	Bluegrass, Annual
Dandelion	Little Mallow	Redmaids	Cheat
Eclipta	Marestail	Russian Thistle	Crabgrass
Eveningprimrose	Nightshade	Shepherds-purse	Downy Brome
Florida Beggarweed	Morningglory	Smallflower Morningglory	Foxtails
Florida Pusley	Mustard, Wild	Spotted Spurge	Goosegrass
Golden Crownbeard	Palmer Amaranth	Spurred Anoda	Panicums
Hairy Indigo	Pigweeds	Tropic Croton	Red Rice
Hemp Sesbania	Prickly Sida	Velvetleaf	Ryegrass, Italiian

- Palmer amaranth control



Fierce vs UTC

Fierce at 3.75 oz


Fierce at 3.75 oz – Alexandria, LA

UTC

Fierce 3.75 oz

Untreated check – browntop millet, smellmelon, hophornbeam copperleaf
Alexandria, LA


Untreated check
Fierce


Untreated check
Fierce


FIERCE
02/08/2011

Fierce Technical Summary

- Low use rate
- Unique chemistry
- Dual action
- Resistance Management
- Palmer amaranth control
- Broad Spectrum (broadleaf, annual grass)
- Consistent


FIERCE™
HERBICIDE

Rice Product Update

Bill Odle and John Bordlee

Products That Work, From People Who Care®

NEW ***League*** **Herbicide**

- A selective herbicide which provides <u>residual</u> and <u>contact</u> control of many tough weeds
- Imazosulfuron - herbicide class is sulfonylurea (ALS)
- Conventional or Clearfield rice, dry-seeded or water-seeded
- Targeting:

Broadleaf Weeds	**Texasweed, Jointvetch** **Hemp Sesbania** **Pitted Morningglory**
Aquatic Weeds	**Eclipta, Ducksalad, Dayflower**
Sedges	**Yellow Nutsedge, Flatsedge**

- Preemergence 4.0 – 6.4 oz/A
- Postemergence 3.2 – 4.0 oz/A + approved surfactant
- Sequential Program – 3.2 oz pre followed by 3.2 oz post
- Dry-Seeded & Water-Seeded
- Conventional & Clearfield
- Ground & Air
- Herbicide Compatible - Bolero, Regiment, Command, Newpath, propanil, Facet, Prowl

Key Rice Weeds Controlled by League

- Dayflower
- Ducksalad
- Eclipta
- Hemp Sesbania
- Jointvetch (Indian, Northern)
- Pigweed [1]
- Pitted Morningglory
- Redstem (postemergence)
- Rice Flatsedge
- Ricefield Bulrush (preemergence)
- Texasweed
- Yellow Nutsedge

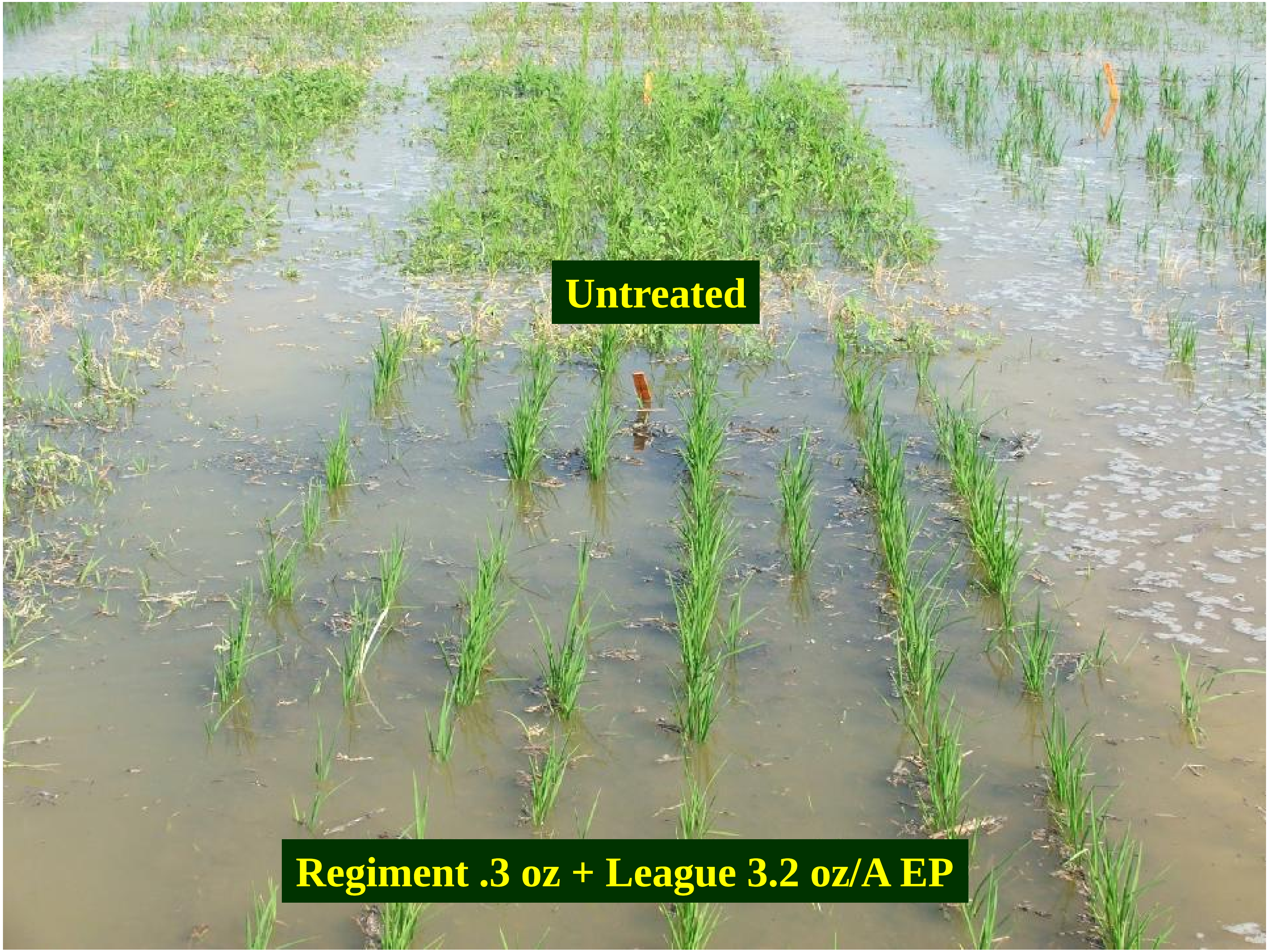
[1] Does not control ALS resistant species

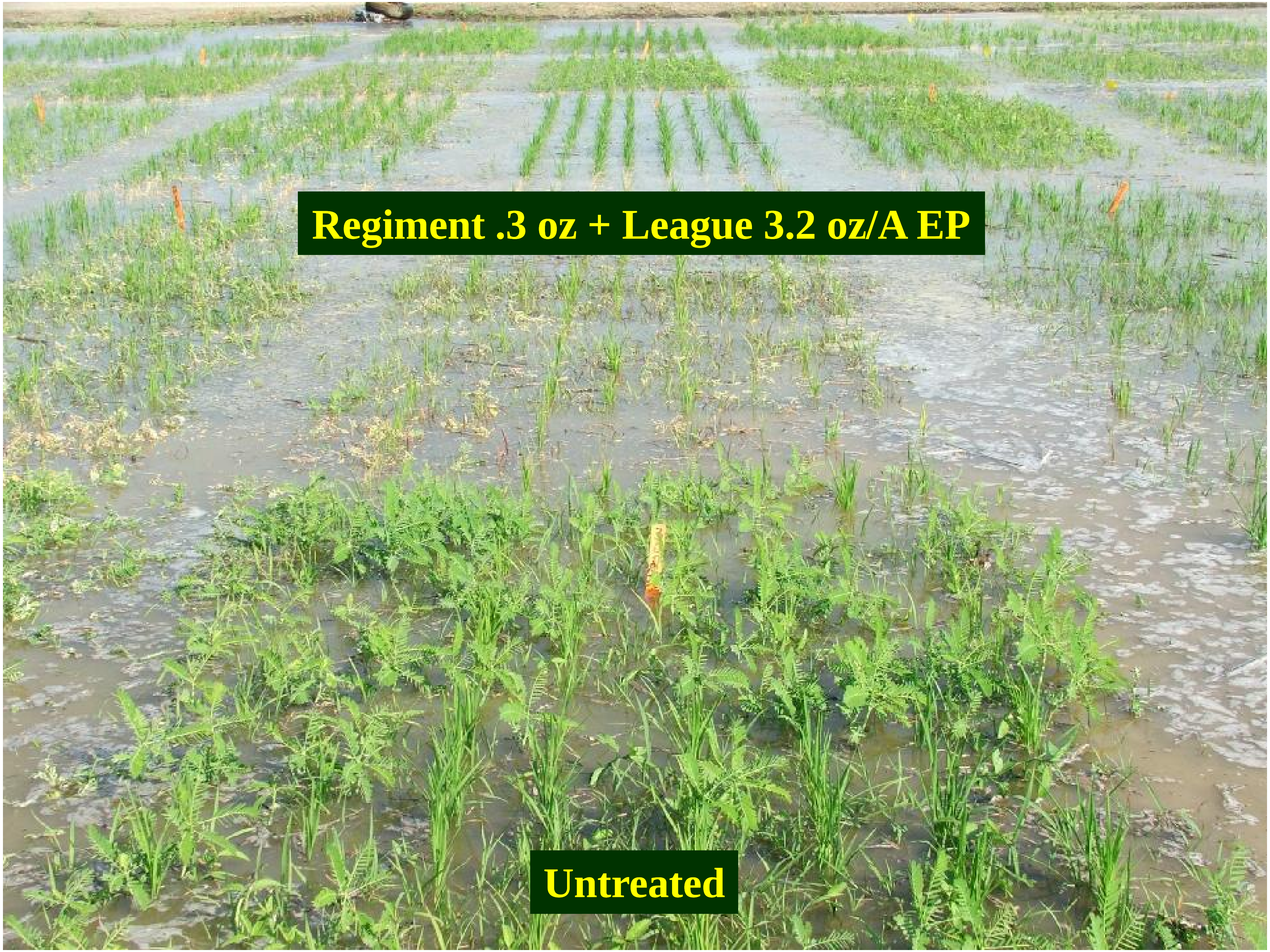
Untreated Check

League 5.0 oz/A + Command


Command
League 5 oz/A + Command
UTC
League 5.0/A oz


Untreated


Untreated
Regiment .3 oz + League 3.2 oz/A EP


Regiment .3 oz + League 3.2 oz/A EP
Untreated


Regiment .3 oz + League 3.2 oz/A EP
Stunted TX weed below water


League 4.0 oz/A post – yellow nutsedge


Texasweed seedlings, controlled after field watered
League 4.0 oz/A early-post

Untreated check – heavy hemp sesbania, yellow nutsedge and barnyardgrass; light Texasweed, jointvetch, gatorweed

Split treatment (3.2 oz + Command pre fb 3.2 oz + Regiment 0.3 oz E.P.
only weeds present were a few gatorweeds and late-emerging barnyargrass


Check
Check
League split treatment

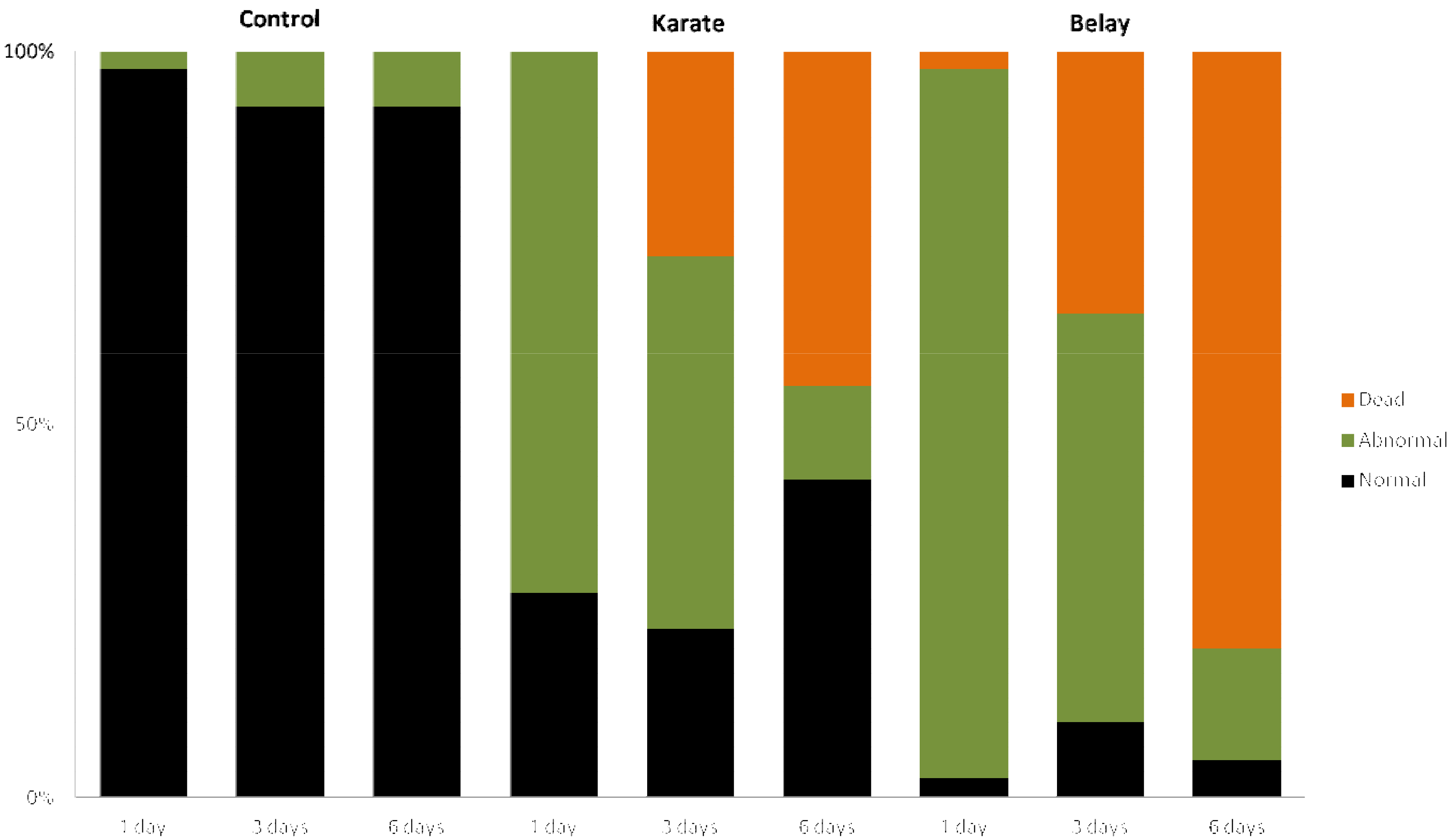

Untreated
League split treatment
water-seeded rice

BELAY® INSECTICIDE

VALENT®

- Clothianidin – neonic
- 4.5 fl oz/A
- Rice water weevil control
- Systemic and contact activity
- Pre or post flood
- Dry-seeded or water-seeded
- Up to 3rd tiller
- Excellent pyrethroid alternative
  - Longer application window (7 days pre-flood - 10 days post)
  - Resistance management – different AI/MOA

Why Belay?



Srinivas K. Lanka and Michael Stout, LSU AgCenter

RWW control in dry-seeded rice

Dr. Mo Way, Beaumont, TX, 2011

Treatment	Rate (fl oz/A)	Timing [a]	RWW/5 cores Jun 21	RWW/5 cores Jul 1	Yield (lb/A)
Untreated	---	---	94 a	34 a	6091 c
Karate Z + NIS[b]	0.03 lb ai/A + 0.15% v/v	BF	21 b	28 a	6887 b
Belay 2.13SC + NIS	3.5 + 0.15 % v/v	BF	5 cd	7 cd	7247 ab
Belay 2.13SC + NIS	4.5 + 0.15 % v/v	BF	2 d	4 d	7372 ab

[a] BF = before flood

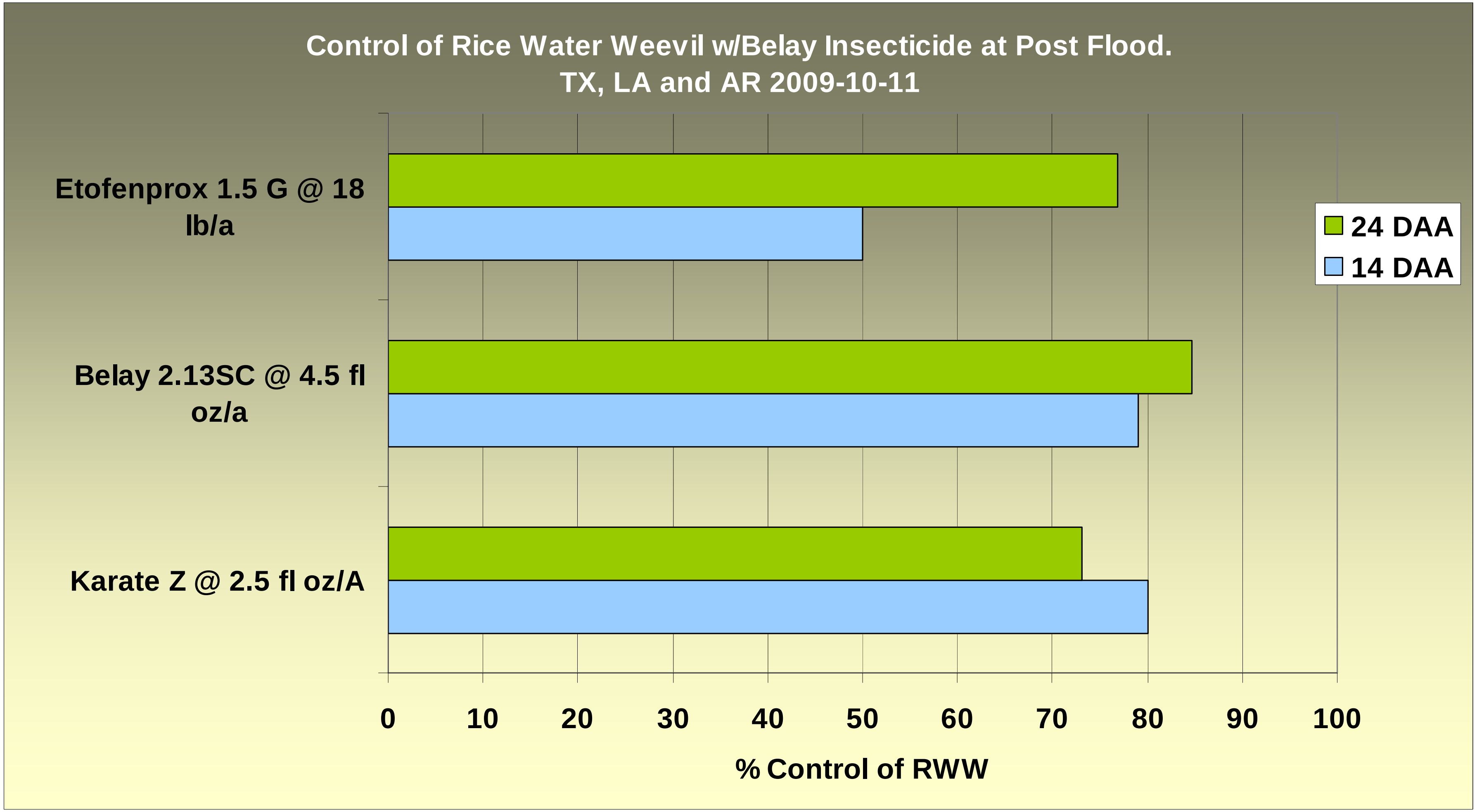
[b] NIS = non-ionic surfactant (Induce)

Belay control of RWW, dry-seeded

Dr. Mike Stout, Crowley, LA 2011

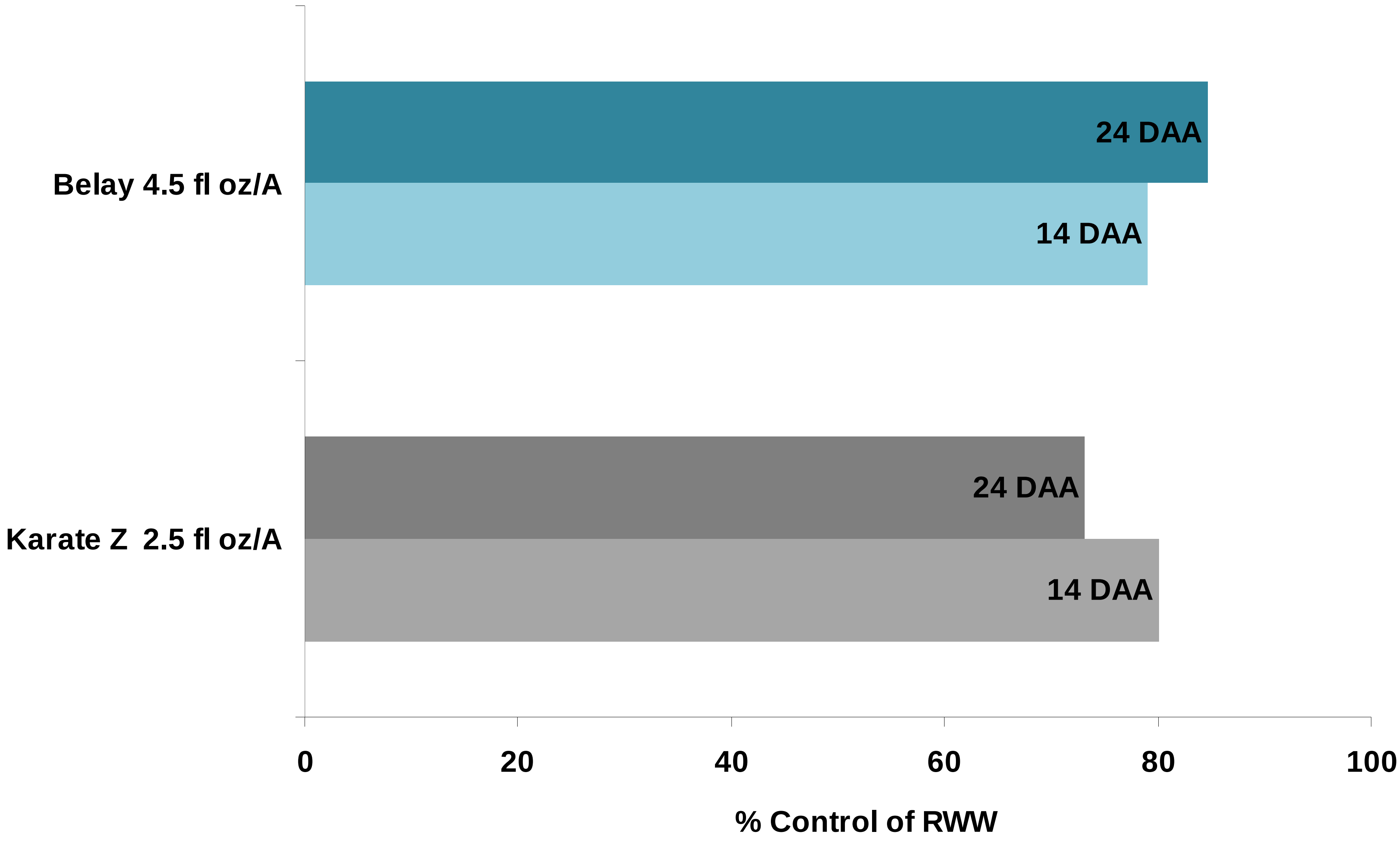
Densities of rice water weevil larvae			
Treatment	Larvae per core sample		
	14 DAF	20 DAF	28 DAF
UTC	0.3	8.4	27.3
Belay 4.5 oz/A Pre-flood	0.5	6.1	10.4
Karate 0.03 lb ai/A Pre-flood	0.6	3.7	25.7
Cruiser ST 7.0 oz/cwt	0.0	3.3	17.1

Belay as a post-flood application for RWW



RWW Post-flood

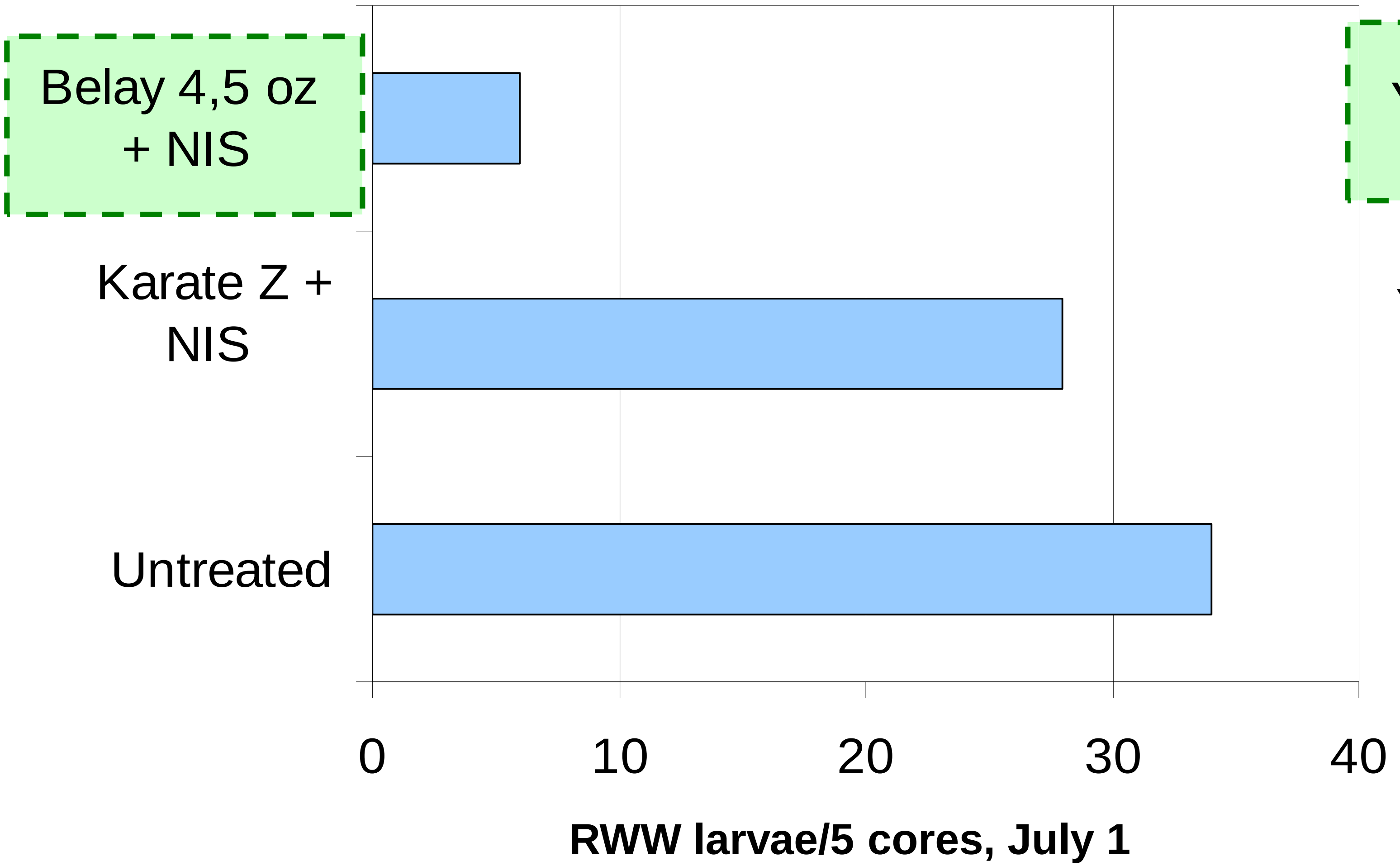
Dr. Mo Way, Beaumont, TX 2009



Belay for the control of RWW

Foliar program, delayed post-flood timing 10 days

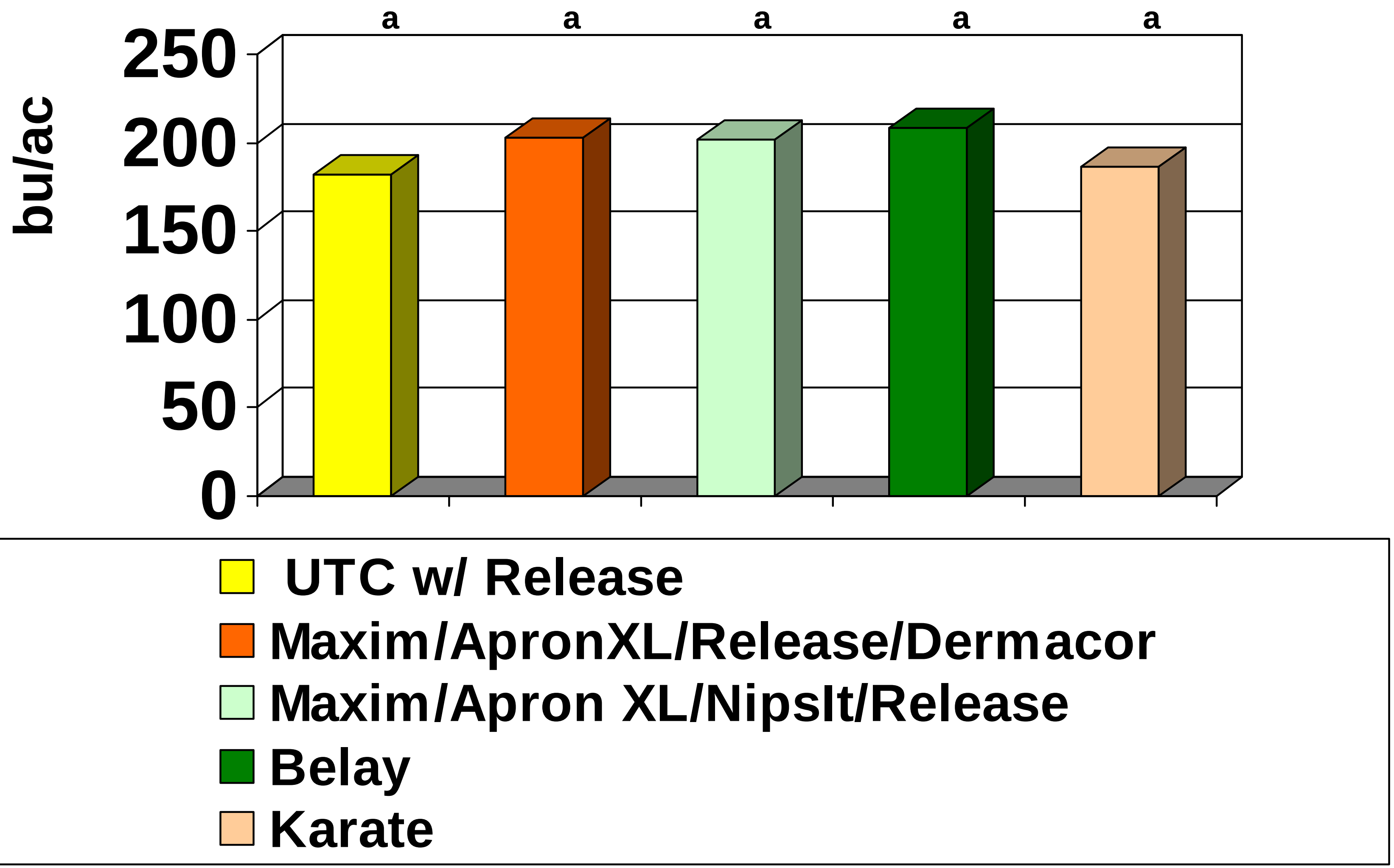
Dr. Mo Way, Beaumont, TX,2011



Yield Increase
1,097 lbs/A

Yield Increase
796 lbs/A

Belay Insecticide yields compared to STs (2010)



Summary across 8 locations (MS-3, AR, MO, TX-2, LA)

Belay control of RWW, water-seeded

Dr. Mike Stout, Crowley, LA 2009

Densities of rice water weevil larvae			
Treatment	Larvae per core sample		
	May 21	May 28	June 4
UTC	2.6	13.0	10.1
Belay 5 oz/A Post-flood	1.2	1.8	4.1
Dinotefuran G 150 gm ai/A Post-flood	2.8	2.6	5.4
Dinotefuran G 150 gm ai/A Split	0.3	2.4	5.1

Belay control of RWW, water-seeded

Dr. Mike Stout, Crowley, LA 2011

Densities of rice water weevil larvae			
Treatment	Larvae per core sample		
	I coring (21 DPF***)	II coring (28 DPF)	III coring (35 DPF)
UTC	3.8 ± 1.0 a	10.8 ± 2.9 a	8.9 ± 2.0
Karate 5 DAF	2.3 ± 0.7 a	3.5 ± 0.7 b	5.6 ± 1.0
Belay 4.5 fl oz/A 5 DAF	1.4 ± 0.7 a	2.5 ± 1.4 b	5.3 ± 1.4
Belay 4.5 fl oz/A 12 DAF	0.8 ± 0.3 b	1.8 ± 0.9 b	2.8 ± 0.7

NipsIt INSIDE® Insecticide

VALENT®

- Clothianidin (lowest neonic water solubility)
- Registered for use in soybeans, sorghum, canola, sugar beets, cereals
- Rice registration approved August, 2012
- Dry-seeded only
- 1 application rate regardless of seeding rate
  - Low use rate with excellent efficacy = good ROI
- Proven control of rice water weevil, grape colaspis and chinch bug
  - 2011 and 2012 EUP in Arkansas, Louisiana, Mississippi and Texas
  - Near 60,000 acres treated over 2 years

Rice EUP 2011 & 2012

- Varieties
  - 24 total varieties
  - 9 conventional bred varieties
  - 6 Clearfield varieties
  - 9 total hybrids
    - 7 Clearfield hybrids

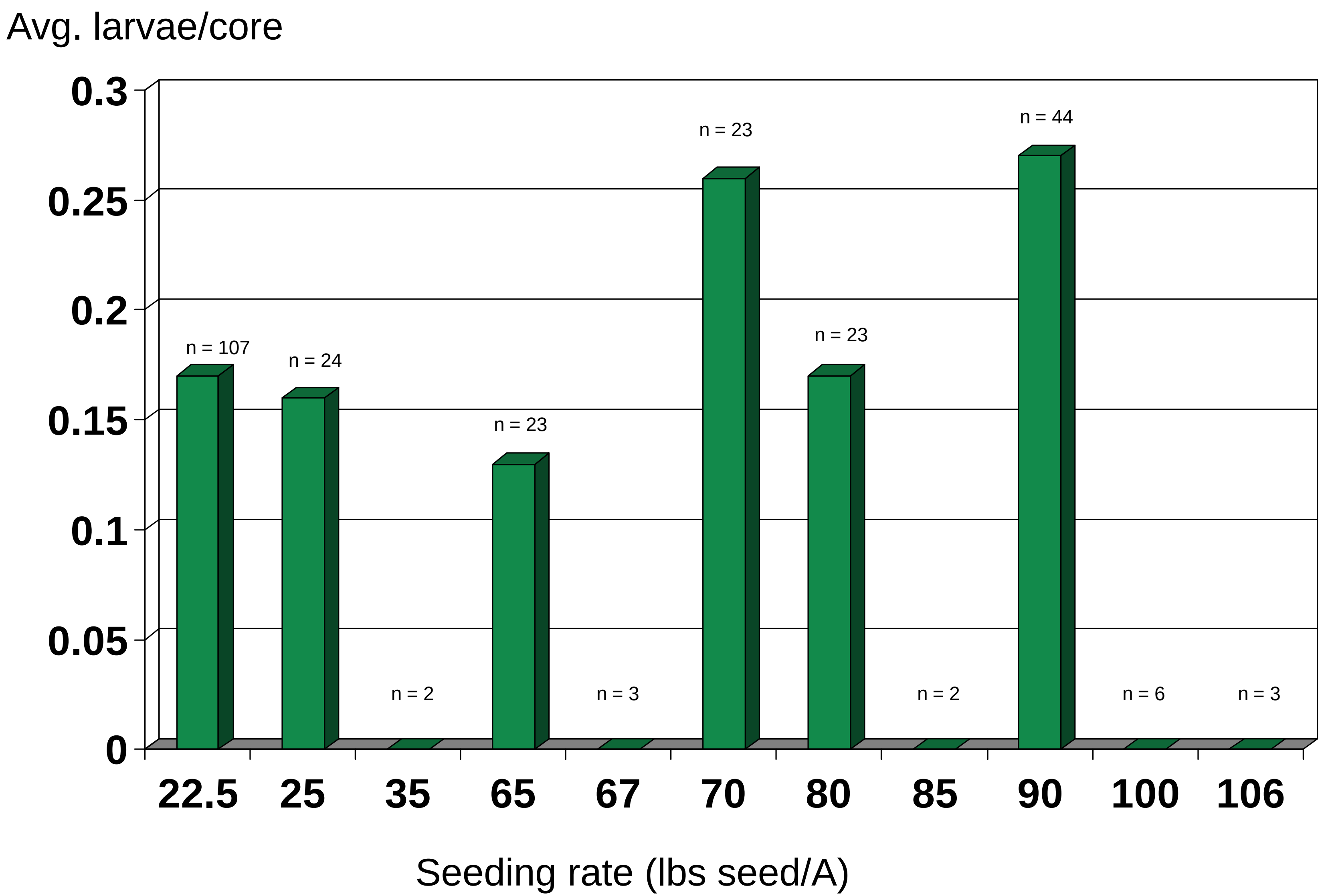
- Seeding Rates
  - Ranged from 22 – 106 lbs/Ac

Rice EUP Results

2011 & 2012 Overall average

0.26 larvae / core

2012 Results by seeding Rate



NipsIt INSIDE Improves Yield

Treatment	Lake Hogue Poinsett Co.	Price Bros. Prairie Co.	Hunter Woodruff Co.	3 Location Mean (Bu/A)
Untreated	141.3 bcd	224.9 ab	159.4 bc	175 c
Dermacor 2.2 fl oz/cwt	128.6 d	228.0 ab	176.0 c	176 c
Cruiser 3.3 fl oz/cwt	152.0 a-d	227.1 ab	167.8 ab	182 abc
NipsIt INSIDE 1.92 fl oz/cwt	176.3 a	218.8 b	167.5 ab	188 ab

Dr. Gus Lorenz, et al., University of Arkansas – 2009 (3 locations)

NipsIt INSIDE RWW Control & Yield

Treatment	RWW/5 cores June 15	RWW/5 cores June 26	Yield (lb/A)
Untreated	77.5 a	41.3 a	6,321
Dermacor 2.5 fl oz/cwt	2.5 c	0.3 c	6,903
Cruiser 3.6 fl oz/cwt	11.0 b	13.8 b	6,614
NipsIt INSIDE 1.92 fl oz/cwt	1.5 c	6.0 bc	7,140 N.S.

Dr. Mo Way, Texas A&M University, 2012

NipsIt INSIDE RWW Control

Treatment	RWW/core 22 Days PF	RWW/core 29 Days PF
Untreated	10.4 a	7.3 a
Dermacor 2.5 fl oz/cwt	0.6 c	2.0 b
Cruiser 3.6 fl oz/cwt	7.0 ab	2.5 b
NipsIt INSIDE 1.92 fl oz/cwt	4.8 b	2.8 b

Dr. Mike Stout, LSU, 2012

NipsIt INSIDE – Chinch Bug Protection

Treatment	Rate[a] (gai/100 KG seed)	% Mortality[b]
Untreated	-	10 b
NipsIt INSIDE	25	87 a
NipsIt INSIDE	100	95 a
NipsIt INSIDE	150	90 a

[a] Commercial rate of NipsIt INSIDE is 75 gai/100 KG seed (= 1.92 fl oz/cwt seed).
[b] % mortality based on 5 chinch bugs / cage after 48 hours exposure and all missing insects considered dead.
Means in a column followed by the same letter are not significantly different (P = 0.05, ANOVA and LSD.
Dr. Mo Way et al, TAMU, Beaumont, TX. 2008 Greenhouse Study

Rice Product Update

Bill Odle and John Bordlee

Products That Work, From People Who Care®

- Preemergence 4.0 – 6.4 oz/A
- Postemergence 3.2 – 4.0 oz/A + approved surfactant
- Sequential Program – 3.2 oz pre followed by 3.2 oz post
- Dry-Seeded & Water-Seeded
- Conventional & Clearfield
- Ground & Air
- Herbicide Compatible - Bolero, Regiment, Command, Newpath, propanil, Facet, Prowl

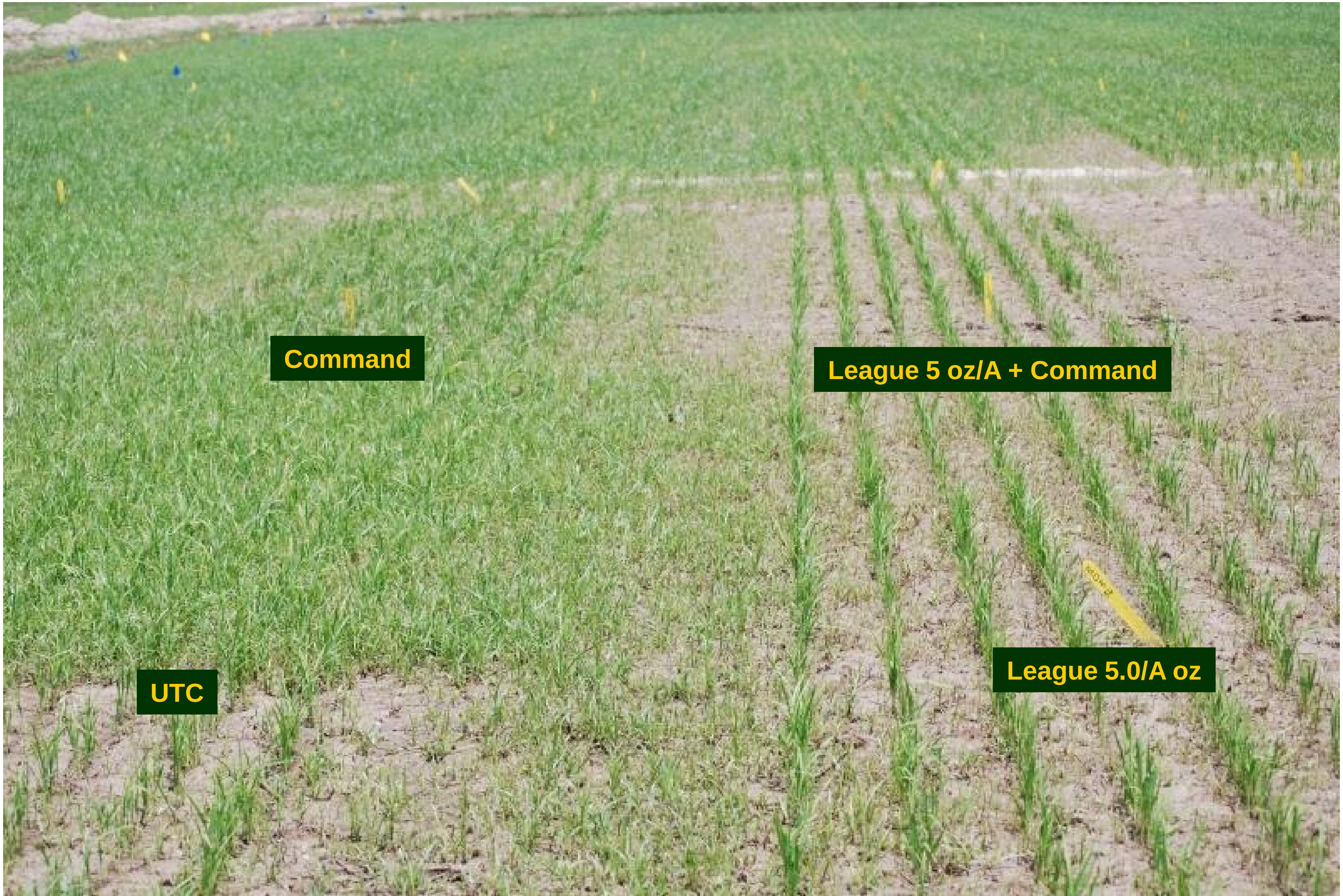
Key Rice Weeds Controlled by League

- Dayflower
- Ducksalad
- Eclipta
- Hemp Sesbania
- Jointvetch (Indian, Northern)
- Pigweed [1]
- Pitted Morningglory
- Redstem (postemergence)
- Rice Flatsedge
- Ricefield Bulrush (preemergence)
- Texasweed
- Yellow Nutsedge

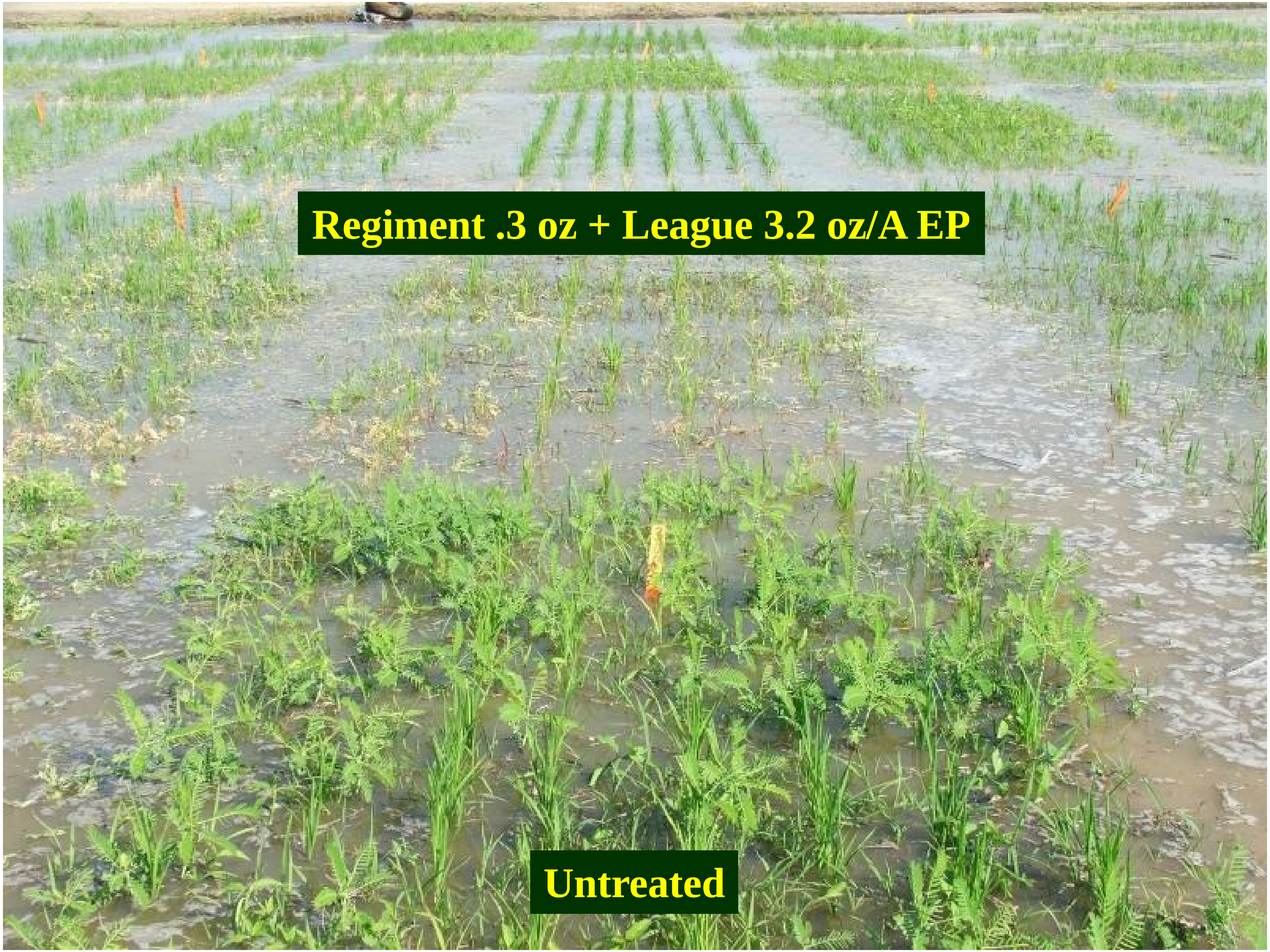
[1] Does not control ALS resistant species

Untreated Check

League 5.0 oz/A + Command


Command
League 5 oz/A + Command
UTC
League 5.0/A oz


Untreated

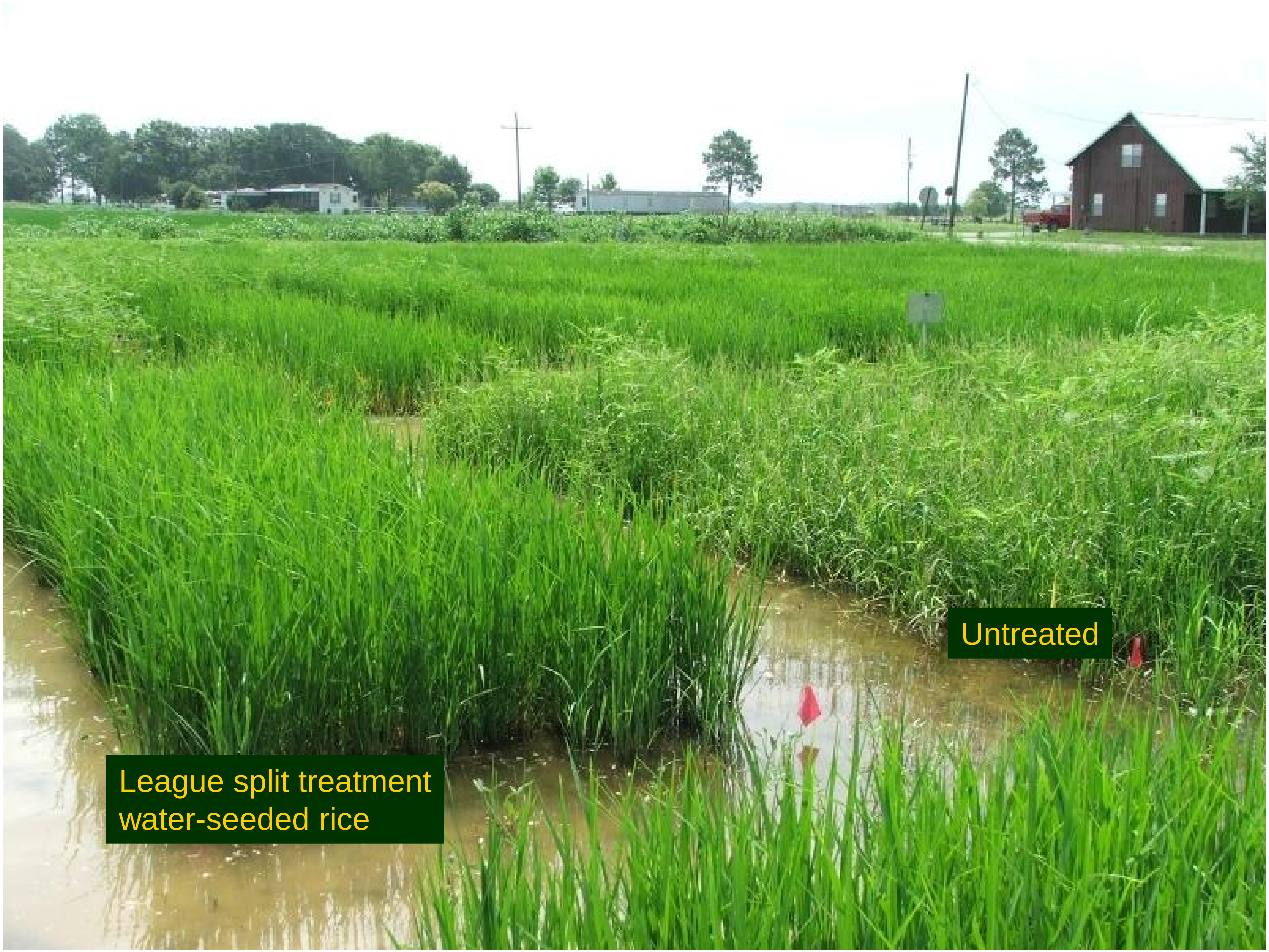

Regiment .3 oz + League 3.2 oz/A EP
Untreated


Regiment .3 oz + League 3.2 oz/A EP
Stunted TX weed below water


League 4.0 oz/A post – yellow nutsedge


Texasweed seedlings, controlled after field watered
League 4.0 oz/A early-post


Check
Check
League split treatment


Untreated
League split treatment
water-seeded rice

BELAY® INSECTICIDE

- Clothianidin – neonic
- 4.5 fl oz/A
- Rice water weevil control
- Systemic and contact activity
- Pre or post flood
- Dry-seeded or water-seeded
- Up to 3rd tiller
- Excellent pyrethroid alternative
  - Longer application window (7 days pre-flood - 10 days post)
  - Resistance management – different AI/MOA

RWW control in dry-seeded rice

Dr. Mo Way, Beaumont, TX, 2011

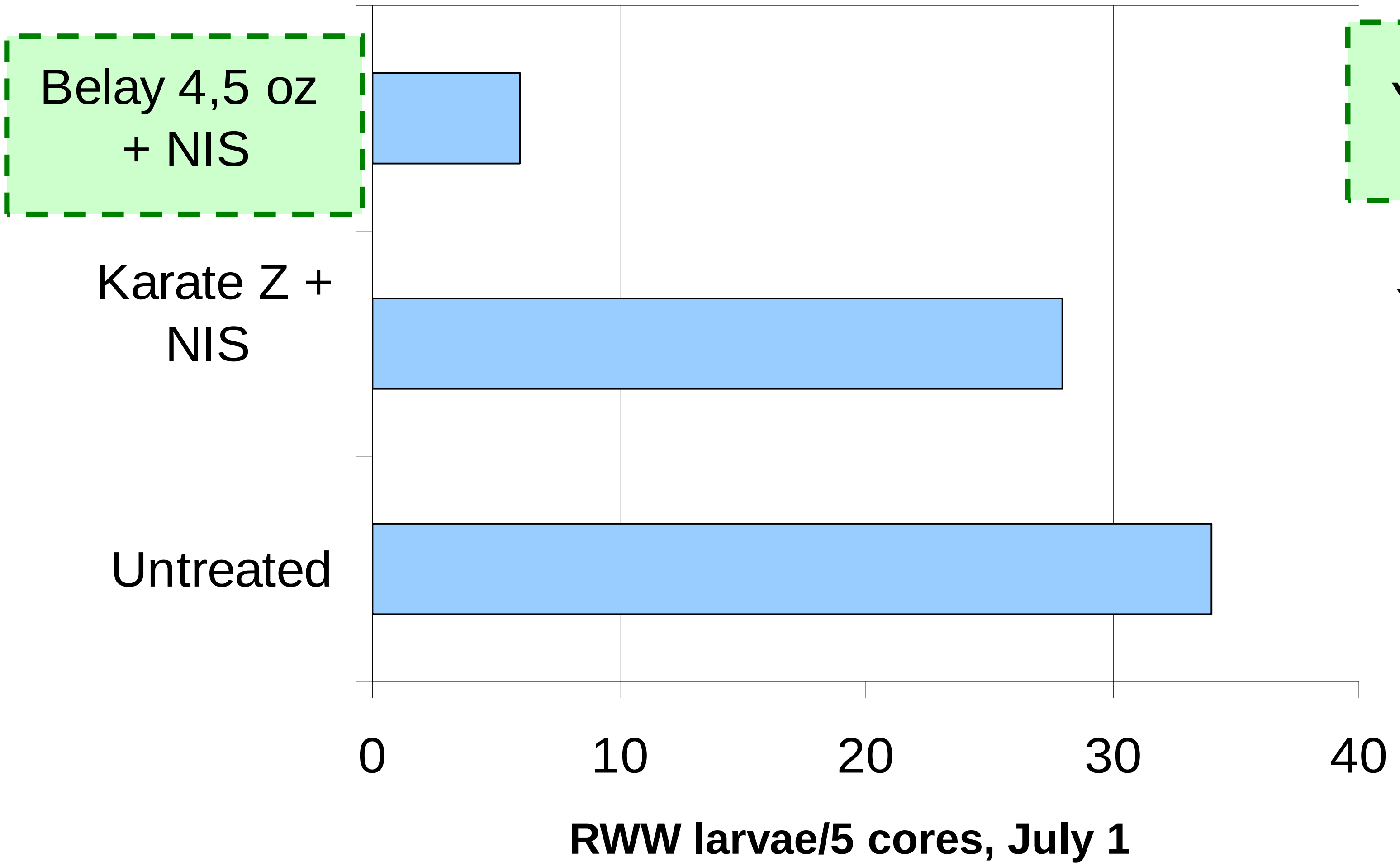
Treatment	Rate (fl oz/A)	Timing [a]	RWW/5 cores Jun 21	RWW/5 cores Jul 1	Yield (lb/A)
Untreated	---	---	94 a	34 a	6091 c
Karate Z + NIS[b]	0.03 lb ai/A + 0.15% v/v	BF	21 b	28 a	6887 b
Belay 2.13SC + NIS	3.5 + 0.15 % v/v	BF	5 cd	7 cd	7247 ab
Belay 2.13SC + NIS	4.5 + 0.15 % v/v	BF	2 d	4 d	7372 ab

[a] BF = before flood
[b] NIS = non-ionic surfactant (Induce)

Belay for the control of RWW

Foliar program, delayed post-flood timing 10 days

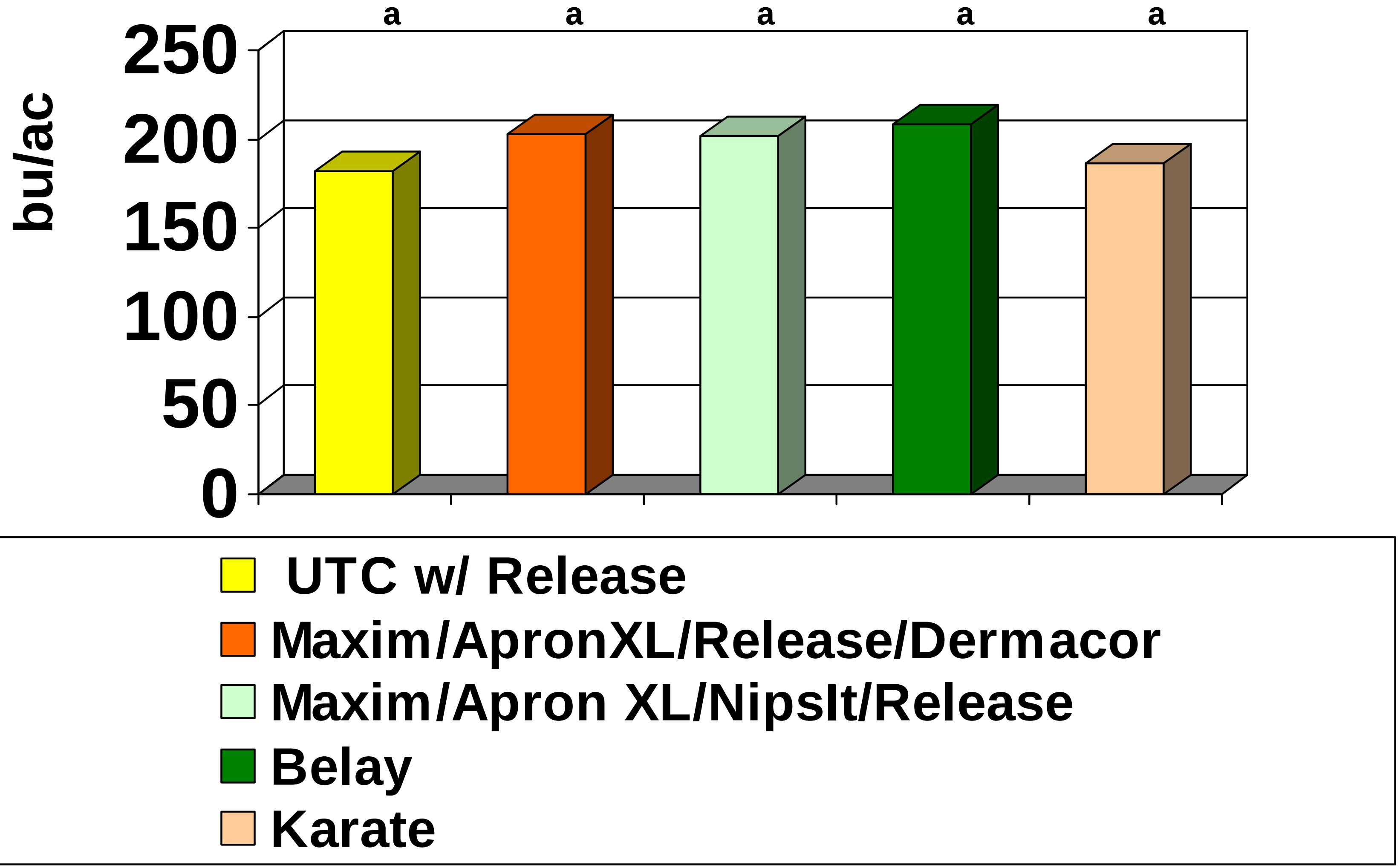
Dr. Mo Way, Beaumont, TX,2011



Yield Increase 1,097 lbs/A

Yield Increase 796 lbs/A

Belay Insecticide yields compared to STs (2010)



Summary across 8 locations (MS-3, AR, MO, TX-2, LA)

NipsIt INSIDE® Insecticide

VALENT®

- Clothianidin (lowest neonic water solubility)
- Registered for use in soybeans, sorghum, canola, sugar beets, cereals
- Rice registration approved August, 2012
- Dry-seeded only
- 1 application rate regardless of seeding rate
  - Low use rate with excellent efficacy = good ROI
- Proven control of rice water weevil, grape colaspis and chinch bug
  - 2011 and 2012 EUP in Arkansas, Louisiana, Mississippi and Texas
  - Near 60,000 acres treated over 2 years

General Stats

- Varieties
  - 24 total varieties
  - 9 conventional bred varieties
  - 6 Clearfield varieties
  - 9 total hybrids
    - 7 Clearfield hybrids

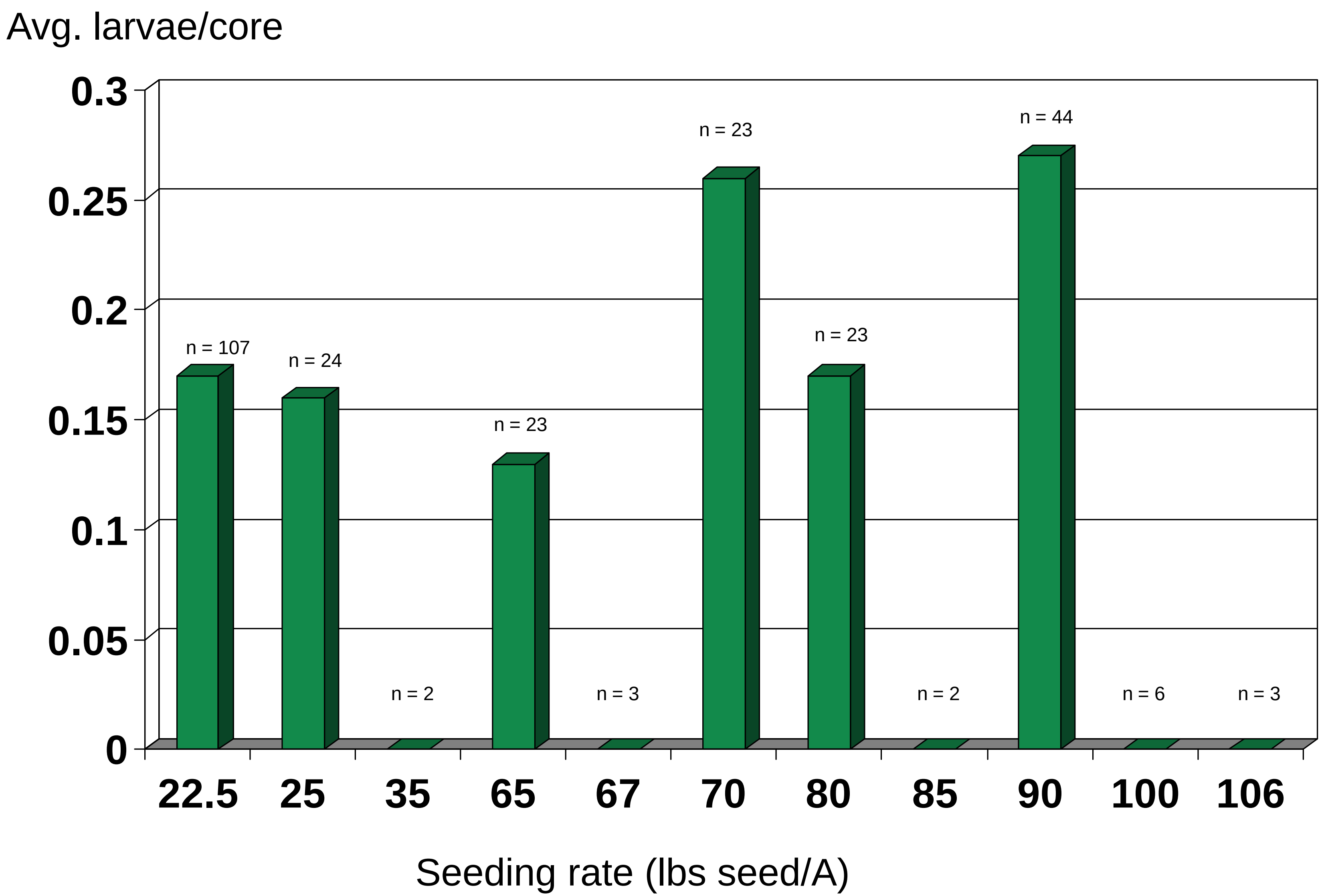
- Seeding Rates
  - Ranged from 22 – 106 lbs/Ac

Results

2011 & 2012 Overall average

0.26 larvae / core

2012 Results by seeding Rate



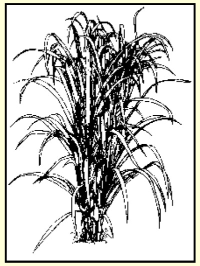
NipsIt INSIDE RWW Control & Yield

Treatment	RWW/5 cores June 15	RWW/5 cores June 26	Yield (lb/A)
Untreated	77.5 a	41.3 a	6,321
Dermacor 2.5 fl oz/cwt	2.5 c	0.3 c	6,903
Cruiser 3.6 fl oz/cwt	11.0 b	13.8 b	6,614
NipsIt INSIDE 1.92 fl oz/cwt	1.5 c	6.0 bc	7,140 N.S.

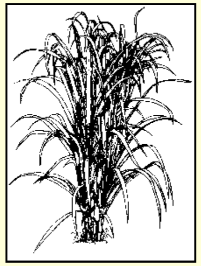
Dr. Mo Way, Texas A&M University, 2012

Bermudagrass Control Options and Bermudagrass Biotypes Research

Jim Griffin



LSU AgCenter
Research & Extension



Spring Bermudagrass Control Programs

Bermudagrass Control Study 2012

HoCP 96-540 stubble (Jeanerette, LA)

Conditions in January-March

Mild winter promoted earlier than normal bermudagrass and sugarcane emergence

<u>Herbicides applied</u>:

February 22, 2012

Bermudagrass ground cover 40-50% with 3-8” runners; Sugarcane 12-14”

March 7, 2012

Bermudagrass ground cover 50-60% with 12” runners; Sugarcane 12-15”

March 27, 2012

Bermudagrass ground cover 50-60% with 12-15” runners; Sugarcane 25-30”

Rainfall received within 5 days after herbicide application.

Bermudagrass Control and Sugarcane Injury 4 Weeks after Treatment, 2012

Herbicide treatment	Herbicide application date					
	February 22		March 7		March 27	
	BG control	SC injury	BG control	SC injury	BG control	SC injury
	----------------------%	----------------------				
Sencor 3 lb/A	40 a	0 c	40 a	0 c	48 a	5 a
Command 3 pt + Direx 2.5 qt/A	68 a	25 a	50 a	13 ab	40 a	18 a
Prowl 2 qt + Sencor 3 lb/A	48 a	5 c	38 a	0 b	35 a	8 a
Command 3 pt + Sencor 1 lb/A	45 a	20 b	43 a	8 c	43 a	15 a

Bermudagrass Control Study 2012

- Bermudagrass control greatest for Command + Direx applied in February
- Sugarcane injury greatest for Command plus Direx and Command plus Sencor; injury observed at all application dates when sugarcane foliage was present at application
- Early emergence of sugarcane enhanced its ability to compete with bermudagrass.

Command + Direx - Two weeks after March 7 application

Average Bermudagrass Control (%) 4 WAT
Research Summary - USDA (Caleb Dalley) and LSU AgCenter (Griffin)

Herbicide treatment	Herbicide application date		
	Mid-February	Early-March	Mid-March
Sencor 2 lb	39 (3)	38 (1)	--
Sencor 3 lb	54 (6)	41 (3)	43 (2)
Sencor 4 lb	73 (2)	72 (1)	--
Command 3.3 pt + Direx 2.5 qt	75 (6)	58 (3)	55 (2)

Average Bermudagrass Control (%) 6 WAT
Research Summary - USDA (Caleb Dalley) and LSU AgCenter (Griffin)

Herbicide treatment	Herbicide application date		
	Mid-February	Early-March	Mid-March
Sencor 2 lb	24 (2)	--	--
Sencor 3 lb	34 (5)	43 (2)	44 (2)
Sencor 4 lb	45 (1)	--	--
Command 3.3 pt + Direx 2.5 qt	61 (5)	49 (2)	47 (2)

Average Sugarcane Yield (T/A)

Research Summary - USDA (Caleb Dalley) and LSU AgCenter (Griffin)

Herbicide treatment	Herbicide application date		
	Mid-February	Early-March	Mid-March
Sencor 2 lb	38.4 (4)	45.4 (2)	36.7 (1)
Sencor 3 lb	40.5 (4)	45.4 (2)	40.2 (1)
Sencor 4 lb	41.3 (2)	47.2 (1)	--
Command 3.3 pt + Direx 2.5 qt	41.5 (4)	41.5 (2)	36.7 (1)
No herbicide	28.1 (3)	33.5 (1)	--

Average Sugar Yield (lb/A)
Research Summary - USDA (Caleb Dalley) and LSU AgCenter (Griffin)

Herbicide treatment	Herbicide application date		
	Mid-February	Early-March	Mid-March
Sencor 2 lb	10,150 (4)	11,715 (2)	8,562 (1)
Sencor 3 lb	10,620 (4)	11,325 (2)	9,621 (1)
Sencor 4 lb	10,874 (2)	12,330 (1)	--
Command 3.3 pt + Direx 2.5 qt	10,844 (4)	10,352 (2)	8,924 (1)
No herbicide	8,117 (3)	8,886 (1)	--

Bermudagrass Control with Sencor, Command + Sencor, and Sencor + Velpar

Herbicide treatment	Bermudagrass control		Sugarcane yield	Sugar yield
	4 WAT	6 WAT	T/A	lb/A
Sencor 3 lb	72/43 (58)	47/49 (48)	33.6	9,333
Sencor 1.5 or 2 lb + Velpar 2 pt	77/49 (63)	60/45 (53)	35.2	9,689

USDA Test (C. Dalley) 2/28 application; LSU AgCenter Test (J. Griffin) 3/2 application (bermudagrass ground cover 30-60% and 3-4" runners)

Cost Comparisons
Bermudagrass Control Programs

Herbicide treatment	Cost $/A					
	Sencor	Command	Direx	Velpar	Prowl	Total
Sencor 3 lb	$34.50	--	--	--	--	$34.50
Command 3 pt + Direx 2.5 qt/A	--	$51.24	$15.63	--	--	$66.90
Command 3 pt + Sencor 1 lb	$11.50	$51.24	--	--	--	$62.70
Sencor 2 lb + Velpar 2 pt	$23.00	--	--	$19.63	--	$42.63
Prowl at 2 qt + Sencor at 2 lb/A	$23.00	--	--	--	$11.00	$34.00

Sencor $11.50/lb; Command $17.08/pt; Direx 4L $25/gal; Velpar 2L $78.50/gal; Prowl EC $22.00/gal

Summary
Bermudagrass Research 2009-2012

- Variability in bermudagrass control observed among experiments (LSU and USDA)
- Bermudagrass control greatest for Command + Direx applied in February and March
  - Command provided 50 to 92% control; Sencor 28 to 75% control
  - Differences in bermudagrass control among herbicide treatments not reflected in yield differences
- Variability due to:
  - Perennial nature of bermudagrass; bermudagrass biotype (?)
  - Herbicides provide only suppression
  - Bermudagrass infestation level
  - Sugarcane variety; time of emergence of bermudagrass and sugarcane
  - Weather conditions: late frost, rainfall, temperature (affect time of emergence and competitiveness)

Spring Bermudagrass Control

For Maximum Bermudagrass Suppression:

- Apply herbicide in late February/early March (do not skimp on rate)
- Herbicides will provide around 4 weeks of bermudagrass suppression whether applied in February or March
- Do not become overly concerned if bermudagrass emerged at application
- Control = suppression of weed by herbicide + competition from the crop; 2012 showed the importance of early crop competition
- An early spring without a late frost can increase sugarcane competitiveness
- Management practices that encourage early emergence and rapid growth of sugarcane (residue removal soon after harvest, early removal of winter weeds, good field drainage, variety selection, etc.) should be followed
- Be aware that excessive sugarcane injury from Command due to presence of sugarcane foliage (late application) may result in yield loss

Bermudagrass Biotype Study

- Bermudagrass collected at sugarcane outfield locations and at other sites and used as “mother plants”
- Stolon sections from “mother plants” planted into 2 inch pots in the greenhouse
- Two plants transplanted in center of each 5 x 5 ft plot at the Ben Hur Research Farm
- Areas between plots sprayed with glyphosate using a hooded sprayer to prevent bermudagrass encroachment from adjoining plots

Why? To measure rate of establishment, biomass yield, response to frost, spring regrowth

Bermudagrass Biotypes Evaluated in Greenhouse and Field Experiments

Biotype	Grower	Farm	Location	Parish
--------------------------------Outfield Sites (12)--				
A	Lawrence Levert	St. John	St. Martinville	St. Martin
B	Ronald Hebert	Ronald Hebert	Jeanerette	Iberia
C	Brett Allain	Allain	Baldwin	St. Mary
D	Wilson Judice	Frank Martin	Centerville/Calumet	St. Mary
E	Pete Lanaux	Lanaux	Lucy	St. John the Baptist
F	Brian Graugnard	Bon Secour	Vacherie	St. James
G	Joel Landry	Glenwood	Napoleonville	Assumption
H	Howard Robichaux	Mary	Raceland	Lafourche
I	Danny Naquin	Magnolia	Schriever	Terrebonne
J	Joe Beard III	Brunswick	Samuels	Point Coupee
K	Todd Andre	Alma	Allon	Point Coupee
L	Al Landry	Landry Farm	Plaquemine	Iberville
--------------------------------Off-Station Nursery Site (1)------------------------------------				
M	Blake Newton	Bunkie	Bunkie	Avoyelles
--------------------------------Other Sites (7)---				
N	Ronnie Gonsulan	Airport Road	New Iberia	Iberia
O[1]	Ronald Hebert	Bayside	Jeanerette	Iberia
P	Mike Cremaldi	Calumet Cut	Patterson	St. Mary
Q	Kerny Gros	Barrowza Plantation	Port Allen	West Baton Rouge
R	LSU AgCenter	Sugar Research Station	St. Gabriel	Iberville
S	LSU AgCenter	Dean Lee Res. Station	Alexandria	Rapides
T	LSU AgCenter	Northeast Res. Station	St. Joseph	Tensas

Bermudagrass Biotype Study Results

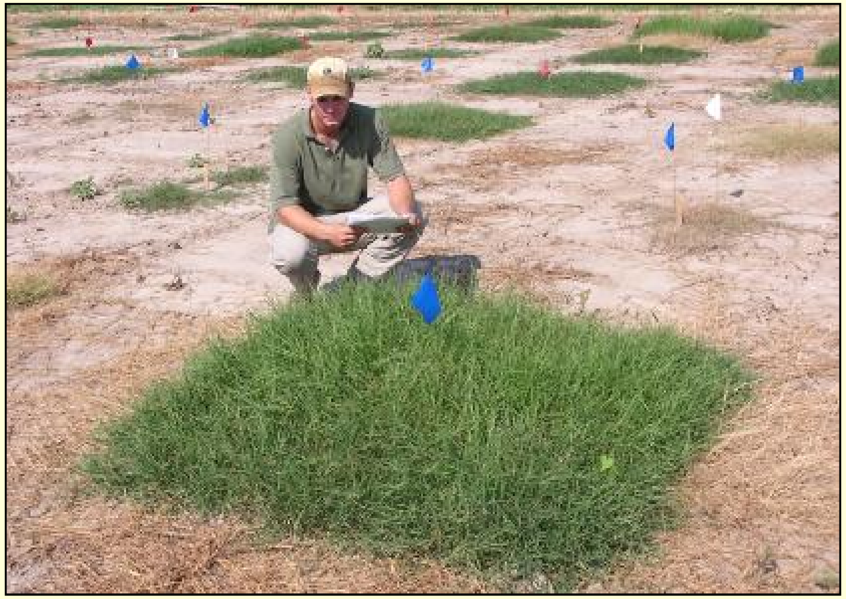
- Biotypes most aggressive based on bermudagrass ground cover 87 days after planting of at least 93%:
  - A (Lawrence Levert, St. Martinville)
  - Q (Kerny Gros, Port Allen)
  - R (LSU AgCenter, St. Gabriel)

- Biotypes least aggressive (no more than 39% ground cover):
  - J (Joe Beaud III, Samuels)
  - N (Ronnie Gonsulan, New Iberia)
  - T (LSU AgCenter, St. Joseph)

- Some biotypes were tall growing and established rapidly while others were short growing and slow to establish.

Bermudagrass Biotype Study Results

- Internode length and leaf width varied greatly among biotypes
- Biotypes most aggressive based on dry matter yield in 2011 and 2012:
  - A (Lawrence Levert, St. Martinville)
  - Q (Kerny Gros, Port Allen)
  - S (LSU AgCenter, Alexandria)
  - Averaged 3.3 tons/A (total for 1 harvest each year)



- Biotypes differed in time of emergence following winter dormant period and in seed head production
- Differences observed among biotypes may help explain variability in bermudagrass control and competitiveness in sugarcane

Bermudagrass Control Study Results

- Biotypes <u>least</u> susceptible to Roundup:
  - A (Lawrence Levert, St. Martinville)
  - C (Bret Allain, Baldwin)
  - J (Joe Beaud III, Samuels)
  - Q (Kerny Gros, Port Allen)
  - S (LSU AgCenter, Alexandria)
  - T (LSU AgCenter, St. Joseph)

- Biotypes <u>most</u> susceptible to Roundup:
  - D (Wilson Judice, Centerville)
  - F (Brian Graugnard, Vacherie)
  - L (Todd Andre, Allon)
  - M (Blake Newton, Bunkie)
  - P (Mike Cremaldi, Patterson)
  - R (LSU AgCenter, St. Gabriel)

Questions?