# New Developments in Rice

**Louisiana Agricultural Technology and Management Conference**

**Marksville, LA**
**February 14, 2013**

BASF
The Chemical Company

# Sharpen® herbicide

BASF
The Chemical Company

## *Preplant Burndown for Rice*

- **Sharpen 1.0 to 2.0 fl oz/A**
- **Broadcast preplant burndown**
- **Apply at least 15 days prior to rice planting and 45 days before a permanent flood is established**
- **Apply with glyphosate and adjuvants**

Sharpen
Powered by Kixor® Herbicide

# Sharpen®

# Preplant Burndown for Rice

BASF
The Chemical Company

## Recommendations

- Burndown of broadleaf weeds including glyphosate resistant pigweed
- Apply Sharpen 1 to 2 oz/A + glyphosate + aduvants
- Residual control based on rate
- Fast activity
- Non ALS
- Apply preplant up to 15 days prior to planting rice

.

Sharpen
Powered by Kixor® Herbicide

# Sharpen®

# Preplant Burndown for Rice

BASF
The Chemical Company

**Untreated**


**Sharpen 2 oz/A + glyphosate + adjuvants**
**applied 15 days preplant for rice burndown**

Bolivar County, MS

# New for 2013:

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## Fastac™ EC

Insecticide

- Synthetic pyrethroid:  alpha–cypermethrin
- Crops include:  **Rice**, cotton, corn, grain sorghum, soybeans, wheat and various vegetables
- Use rates range from 1.3 to 3.8 oz/A depending upon targeted pest for control

# Rice Insects Controlled

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## Fastac™ EC

Insecticide

| Insects Controlled | Application Rate |
|---|---|
| Armyworm, fall<br>Armyworm, true<br>Armyworm, yellow striped<br>Grasshopper<br>Green bug<br>Leafhopper spp.<br>Rice water weevil (adult) | 3.2 to 3.8 fl ozs/A |
| Chinch bug<br>Rice stink bug | 2.6 to 3.8 fl ozs/A |

# Expected for 2013:

BASF
The Chemical Company

## Sercadis™

Xemium® Brand Fungicide

- Section 18 re-registration expected in Louisiana for control of strobilurin resistant sheath blight
- Only in the parishes of Acadia, Evangeline, Jefferson Davis, St. Landry, and Vermillion
- Rate Range:  4.5 to 6.8 fl ozs/A

# Outlook® herbicide for Soybeans

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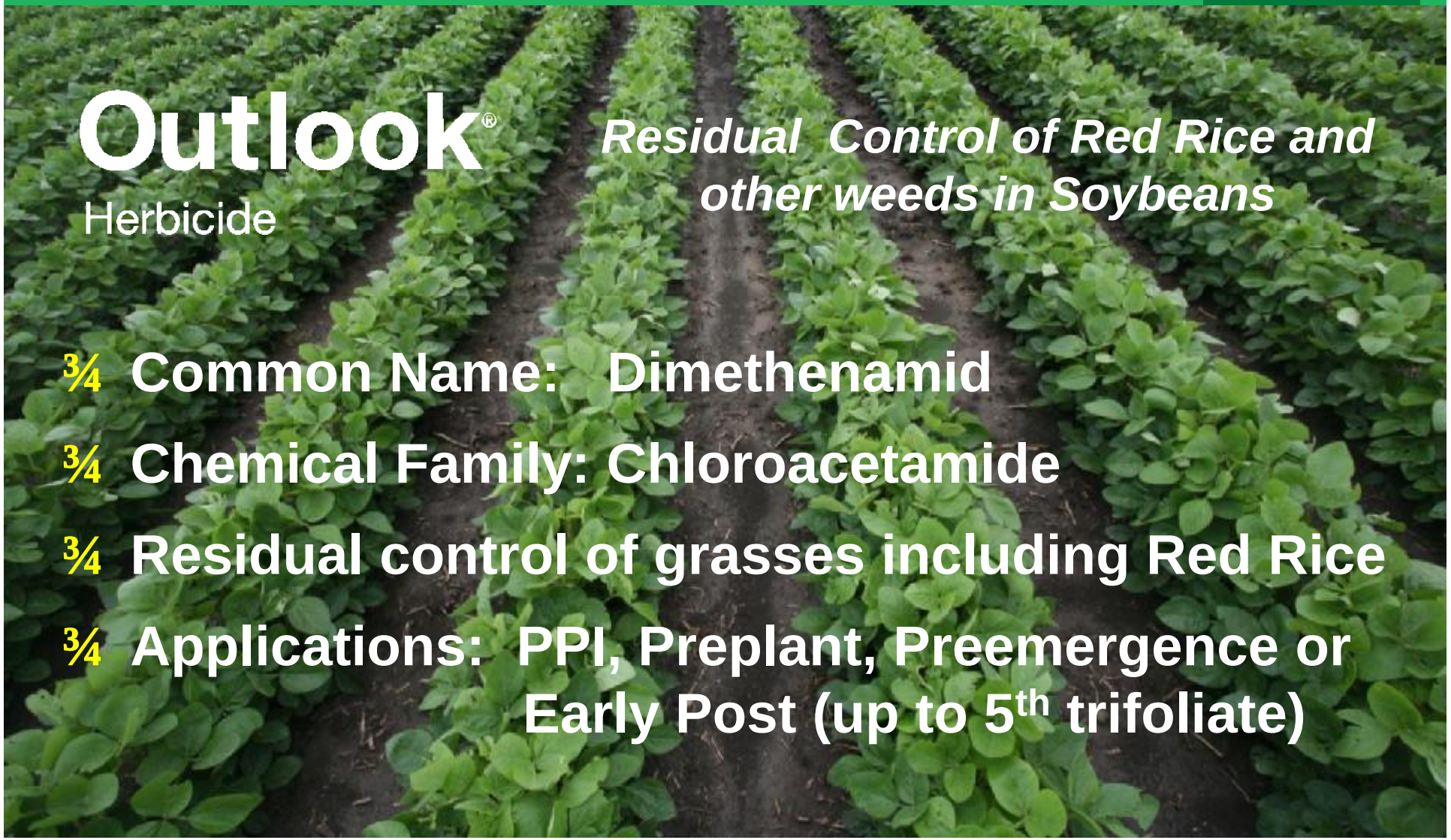


***Residual Control of Red Rice and other weeds in Soybeans***

- **Common Name: Dimethenamid**
- **Chemical Family: Chloroacetamide**
- **Residual control of grasses including Red Rice**
- **Applications: PPI, Preplant, Preemergence or Early Post (up to 5th trifoliate)**

# Thank You

BASF
The Chemical Company

# Impact of Rice Harvest Cutting Height and Ratoon Cropping on Late Season and Overwintering Stem Borer Infestations

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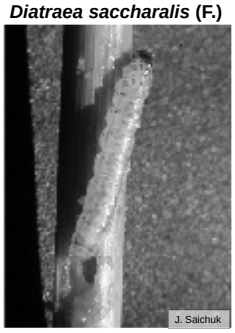
## Stem boring pests of rice in the Gulf Coast Region (Lepidoptera: Crambidae)

**Sugarcane borer**
***Diatraea saccharalis* (F.)**




**Mexican rice borer**
***Eoreuma loftini* (Dyar)**


*Way et al. 2006, Reay-Jones et al. 2007*

## Stem borer injury to rice (*Oryza sativa* L.)

- **Lack of uniformity in grain development**


- **Whiteheads and broken culms**

*Way 2002*

## Stem borer management in rice

- **Insecticides**
  - **Chlorantraniliprole seed treatments**
  - **Pyrethroid applications, no economic thresholds**
- **Cultivar resistance**
  - **Commercial cultivars are susceptible**
- **Biological control**
  - **Parasitoids are not efficient**
- **Non-crop hosts**
  - **Year-round source of *E. loftini* populations**

*Way et al. 2006, Reay-Jones et al. 2007, Lv et al. 2011, Beuzelin et al. 2011*

## Rice stubble is a potential source of stem borer populations


## Rice stubble management in the Gulf Coast region

- **Harvest cutting height**
  - **40 vs. 20 cm stubble**

## Rice stubble management in the Gulf Coast region

- **Harvest cutting height**
  - **40 vs. 20 cm stubble**
- **Production of a ratoon crop**
  - **Second crop developing from the main crop stubble**


## Rice Stubble Management Experiments

**Objective:**

**Determine the impact of harvest cutting height and ratoon crop on stem borer infestations in rice stubble from summer to spring**

*Beuzelin et al. 2012. Crop Prot. 34: 47-55*

## Rice stubble management experiments

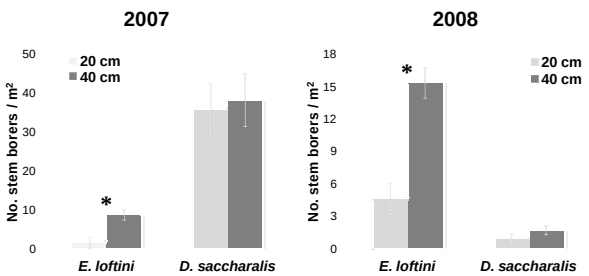
- **Southeast Texas, 2 years: 2007-2008 and 2008-2009**
- **Cultivar: Cocodrie**
- **Plot size: 4.9 m ´ 1.7 m (9 rows, 8.3 m²)**

- **Two main crop harvest heights: 20 cm vs. 40 cm (RBD: 6 strips, 2 plots/harvest height/strip)**

## Rice stubble management experiments

- **Data collection after main crop harvest (late August)**

## Impact of rice main crop harvest cutting height on post-harvest stem borer infestations (late August)

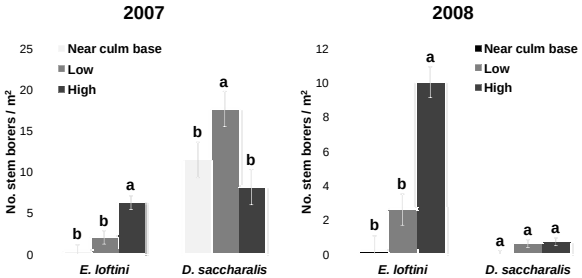



***E. loftini*: $F = 17.2$; $P = 0.001$**
***D. saccharalis*: $F = 0.1$; $P = 0.738$**

***E. loftini*: $F = 29.4$; $P < 0.001$**
***D. saccharalis*: $F = 1.7$; $P = 0.197$**

**ANOVA: SAS, Proc Glimmix, Normal distribution**

## Stem borer location in rice culms after main crop harvest (late August, 40-cm stubble)




***E. loftini*: $F = 19.4$; $P < 0.001$**
***D. saccharalis*: $F = 13.8$; $P < 0.001$**

***E. loftini*: $F = 39.0$; $P < 0.001$**
***D. saccharalis*: $F = 3.2$; $P = 0.048$**

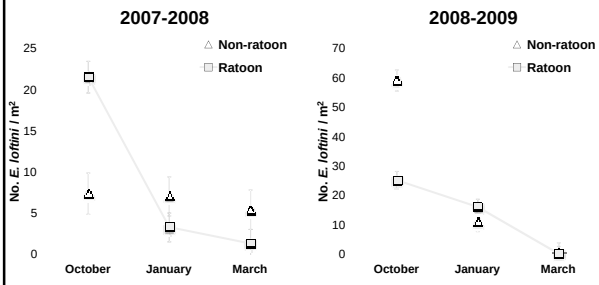
**ANOVA: SAS, Proc GLIMMIX – Tukey's HSD, α = 0.05: bars with the same letters are not different**

## Rice stubble management experiments

- **Two stubble management regimes**
  - **Main crop only** (left unmanaged)
  - **Ratoon crop** (fertilized, flooded, not treated with insecticides, harvested in November)

- **Data collection in late October, mid-January, and mid-March**

## *E. loftini* late and post-growing season densities in ratoon and non-ratoon stubble (October-March)

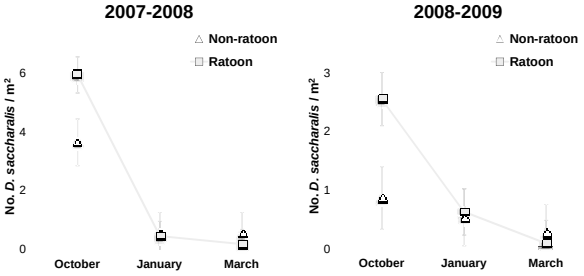



**2007-2008**
Ratoon: $F = 0.8$; $P = 0.432$
Date: $F = 23.0$; $P < 0.001$
Ratoon × Date: $F = 17.6$; $P < 0.001$

**2008-2009**
Ratoon: $F = 15.0$; $P < 0.001$
Date: $F = 89.6$; $P < 0.001$
Ratoon × Date: $F = 21.7$; $P < 0.001$

ANOVA: SAS, Proc GLIMMIX, Normal distribution

## *D. saccharalis* late and post-growing season densities in ratoon and non-ratoon stubble (October-March)




**2007-2008**
Ratoon: $F = 1.2$; $P = 0.289$
Date: $F = 28.0$; $P < 0.001$
Ratoon × Date: $F = 2.4$; $P = 0.099$

**2008-2009**
Ratoon: $F = 2.0$; $P = 0.161$
Date: $F = 5.5$; $P = 0.005$
Ratoon × Date: $F = 2.2$; $P = 0.112$

ANOVA: SAS, Proc GLIMMIX, Normal distribution

## Discussion – Rice stubble management

- **Lowering rice harvest cutting height has the potential to decrease *E. loftini* infestations**
- **Compared to *D. saccharalis* larvae and pupae, relatively more *E. loftini* immatures are located near the top of rice culms**
- **Rice stubble, ratoon and non-ratoon, harbors late season and overwintering stem borer populations**

## Conclusions – *E. loftini* and *D. saccharalis* management in Gulf Coast rice

- **Under conditions conducive to stem borer infestations, stubble management between fall and spring may be justified**
- ***E. loftini* and *D. saccharalis* are not inter-changeable pests**
  - **Location in rice culms**
  - **Oviposition behavior**
  - **Tunneling behavior**
  - **Seasonal activity**

} **Species-specific IPM strategy needed?**

*Legaspi et al. 1997, Reay-Jones et al. 2007, Showler & Castro 2010, Beuzelin et al. 2011*


## Acknowledgements

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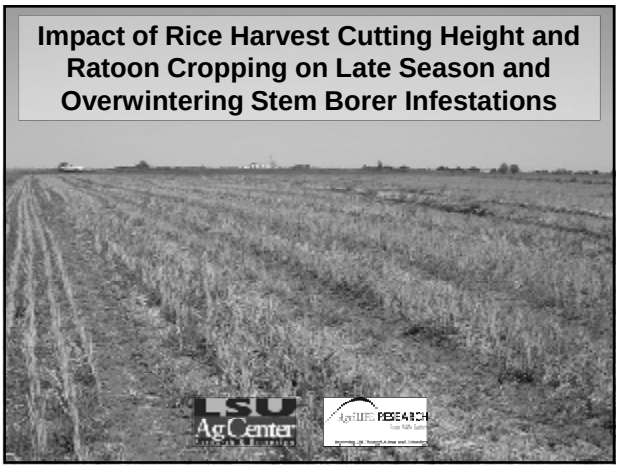
- **USDA CSREES Crops-At-Risk IPM program grant 2008-51100-04415**


Impact of Rice Harvest Cutting Height and Ratoon Cropping on Late Season and Overwintering Stem Borer Infestations
LSU AgCenter
AgriLIFE RESEARCH

## Insecticidal Control of Sap Feeders, Cheneyville, LA

- **1st Stubble, HoCP 96-540**
- **Insect numbers counted on 3rd or 4th leaf down from the whorl**
- **Treatments applied with $CO_2$-pressurized backpack sprayer calibrated to deliver 10 gpa at 30 psi on July 24, 2012**

## Insecticidal Control of Sap Feeders

| Treatment | Rate / acre | No. per leaf* | | | | | |
|---|---|---|---|---|---|---|---|
| | | Pre-treatment | | 4 DAT | | 12 DAT | |
| | | WIC | SA | WIC | SA | WIC | SA |
| **Untreated check** | -- | **2.6** | **433.4** | **7.3**a | **334.6**a | **6.0**a | **69.8**abc |
| **Transform WG** (sulfoxaflor) | **1.5 oz** | **6.3** | **382.2** | **3.5**b | **8.9**b | **4.1**a | **0.3**c |
| **Baythroid XL** (β-cyfluthrin) | **2.1 fl oz** | **3.6** | **372.2** | **2.0**b | **302.5**a | **0.3**b | **108.9**ab |
| **Besiege** (chlorantraniliprole + γ-cyhalothrin) | **9.0 fl oz** | **4.0** | **457.0** | **0.7**b | **271.4**a | **0.1**b | **126.6**a |
| **Admire Pro** (imidacloprid) | **1.3 fl oz** | **6.2** | **463.9** | **0.3**b | **71.4**b | **0.0**b | **0.53**c |
| **Leverage 360** (β-cyfluthrin + imidacloprid) | **3.0 fl oz** | **5.9** | **434.4** | **0.0**b | **65.2**b | **0.0**b | **12.5**bc |

***Means within columns followed by the same letter are not different (P > 0.05, Tukey's test)**