

# 2016 Louisiana Agricultural Technology & Management Conference

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**UNLEASHING**  
the **POWER**  
of **PLANTS**

**FARM**  
**DIFFERENT™**



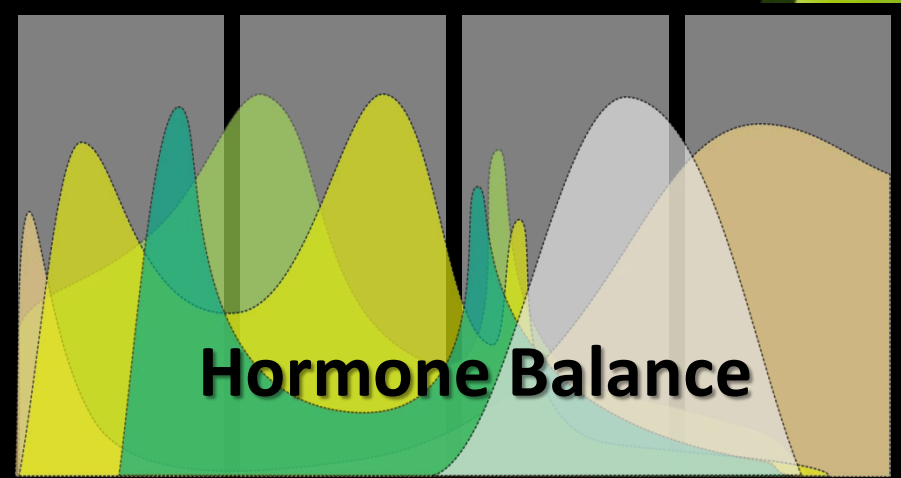
**UNLEASHING**  
the **POWER**  
of **PLANTS**

**FARM**  
**DIFFERENT™**

**EMPOWER the GROWERS**



**LANGUAGE of the PLANT**



*“If you want to Achieve Value you’ve Never had, you Must Manage Details you’ve Never Managed”*

**MAXIMUM GENETIC EXPRESSION**



Understanding the importance of  
**Hormone Balance. . .**

  
... a vital

**FIRST STEP**

for



**GROWERS** who want to  
**UNLEASH** the **POWER** of **PLANTS**

# Why Are Plant Hormones and Hormone Balance So Important

Plant hormones affect virtually **all aspects** of plant growth.

**Understanding how hormones work** and how they can be manipulated provides the ability to **overcome** many of the **stress** factors limiting plants' natural growth cycles and **genetic** expression.

**“There is no one out there that has better technology and knowledge of how a plant works”**



StollerUSA

Research & Product  
Development Team



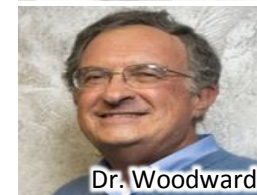
Dr. Liptay



Dr. Alvarado



Dr. Salzman



Dr. Woodward



Dr. Klein



Dr. Shortell



Dr. Orzolek

# PLANT HORMONE CYCLES

Germination  
& Establishment

Vegetative  
Growth

Flowering  
& Reproduction

Fruit Sizing &  
Maturity

START

GROW

FINISH

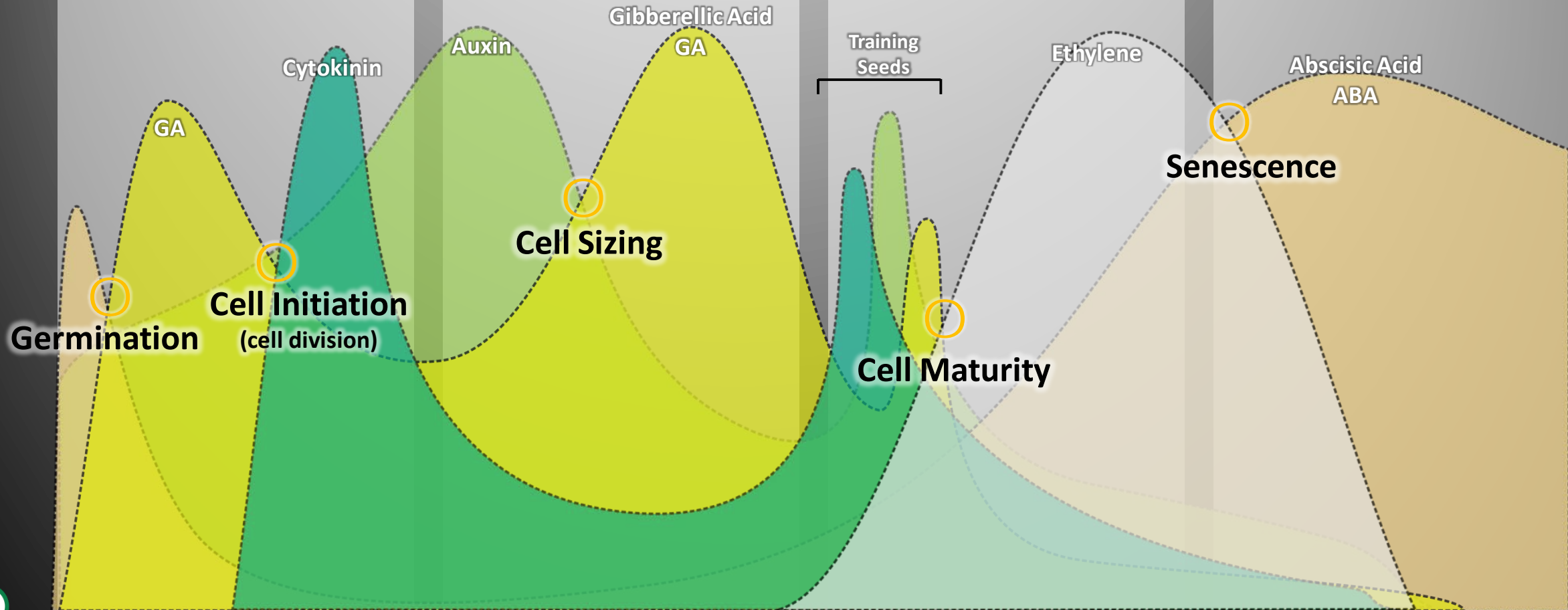
Key  
Nutrients

Ca, Fe, Mg,  
N, P, Zn

B, Ca, Cu, Fe, K, Mg,  
Mn, Zn, amine N

B, Ca, Cu, K, Mg,  
Mo, amine N

B, Cu, K, Mg, Mn,  
Mo, P, amine N



Any imbalance in these key nutrients can affect hormone cycles at any time and can irreversibly reduce genetic expression and yield.



**Bio-Forge:**

**What it is.**

**How it works.**

**How to use it.**

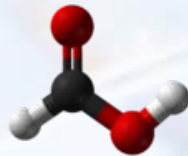
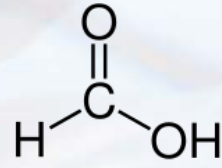
**Why it helps.**

**STOLLER ENTERPRISES INC  
HOUSTON TEXAS**

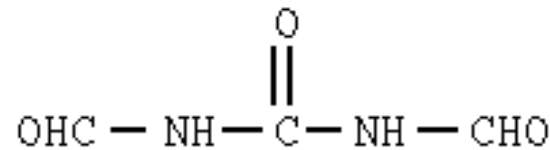
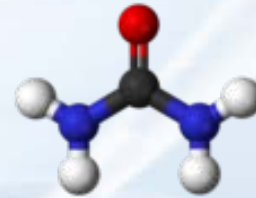
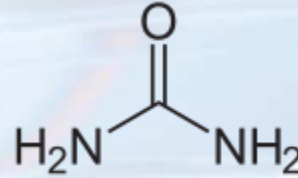
# What is Bio-Forge?

A reaction of two naturally occurring molecules

Formic acid (2)



Urea



**N,N'-Diformylurea**

United States Patent: 6040273 Canada Patent No.: 2253839

Chemical Abstract Service (CAS): 188596-19-2



A background image showing a close-up of a microscope lens and a petri dish. The lens is positioned over a petri dish containing a small plant seedling. The image is overlaid with a semi-transparent American flag pattern, featuring stars in the upper left and stripes across the rest. The overall color palette is light blue and white, with a green and blue gradient at the bottom.

## How it works: Mode of Action

- **Direct oxidant scavenging**
- **Indirect gene induction / activation**
- **Environmental tolerance**
- **Hormone interactions**
  - **GA**
  - **ABA**

## Use Bio-Forge to:

- **Physiologically**
  - Blocks ethylene receptors
  - Mimics other biological compounds, signals
  - Up/down regulates key genes
- **General impressions**
  - Interrupts the ethylene cycle
  - Combine monitor across the field, all over the place, BF levels this out across the field near the highest point, you can lay a blanket over the field. Uniform dry down during maturity



## **Bio-Forge as a tool in crop production “enhanced hormone balance”**

- **Enhanced root growth**
- **Thick stems, increased branching**
- **Suppresses excess ethylene**
- **Enhanced germination and early growth**
- **Very strong Anti-oxidant**
- **Proliferation of new tissue**
- **Tool for stress – multiple apps**
- **Epigenetics – generational gene expression**
- **Increased nodulation on legumes**

# BioForge Application on Rice

- Bioforge ST can be applied to rice seed at the rate of 2oz/cwt
- Apply at the rate of 1pt/acre anytime before permanent flood