

Billet Planting Update

(and some rust info)

Jeff Hoy

Plant Pathology and Crop Physiology



Planting = STRESS

Planting = STRESS

Stress Reduction Kit



Directions:

1. Place kit on FIRM surface.
2. Follow directions in circle of kit.
3. Repeat step 2 as necessary, or until unconscious.
4. If unconscious, cease stress reduction activity.

Billet Planting?

Billet Planting

Easy = Less Stress

Billet Planting

Easy = Less Stress

Higher Cost

More Risk

Problem: Less stalk to rot



Current Status

Current Status

- Billet plantings suffer more from any problem

Current Status

- Billet plantings suffer more from any problem
- Need high seed rate to insure against stand failure

Current Status

- Billet plantings suffer more from any problem
- Need high seed rate to insure against stand failure
- Good planting practices ESSENTIAL

Current Status

- Billet plantings suffer more from any problem
- Need high seed rate to insure against stand failure
- Good planting practices ESSENTIAL
- Well planted billets + no stress = comparable yield

Current Status

- Billet plantings suffer more from any problem
- Need high seed rate to insure against stand failure
- Good planting practices ESSENTIAL
- Well planted billets + no stress = comparable yield
- Basic breeding for stalk rot resistance underway

Current Status

- Billet plantings suffer more from any problem
- Need high seed rate to insure against stand failure
- Good planting practices ESSENTIAL
- Well planted billets + no stress = comparable yield
- Basic breeding for stalk rot resistance underway

Current Status

- Billet plantings suffer more from any problem
- Need high seed rate to insure against stand failure
- Good planting practices ESSENTIAL
- Well planted billets + no stress = comparable yield
- Basic breeding for stalk rot resistance underway

Southland Farms



St. Martin Parish

40 acres per day



(Over the top)

Open and plant 3 rows



Finished product



What do you see?



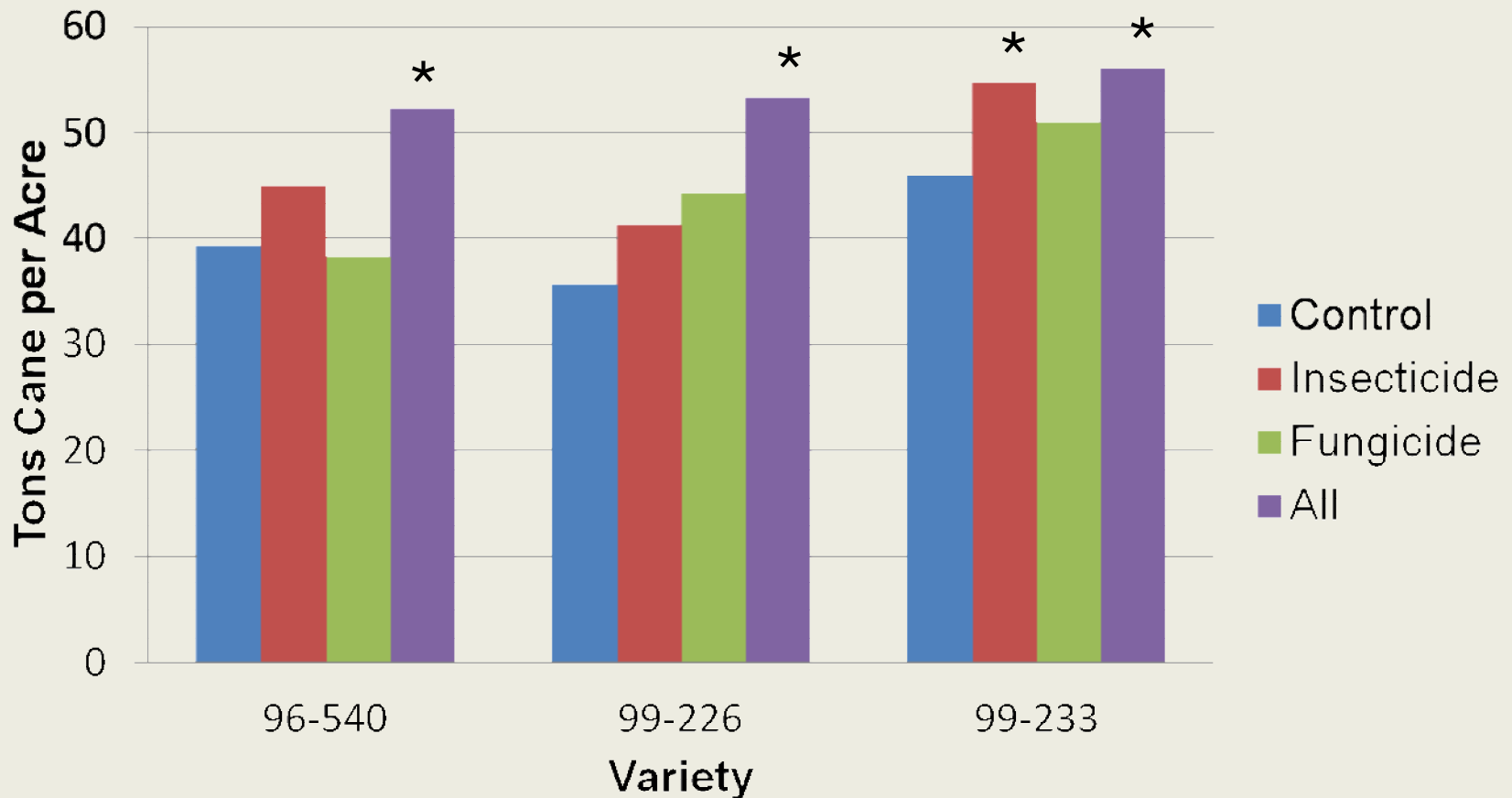
What don't you see?



Can pesticides improve billet yield?

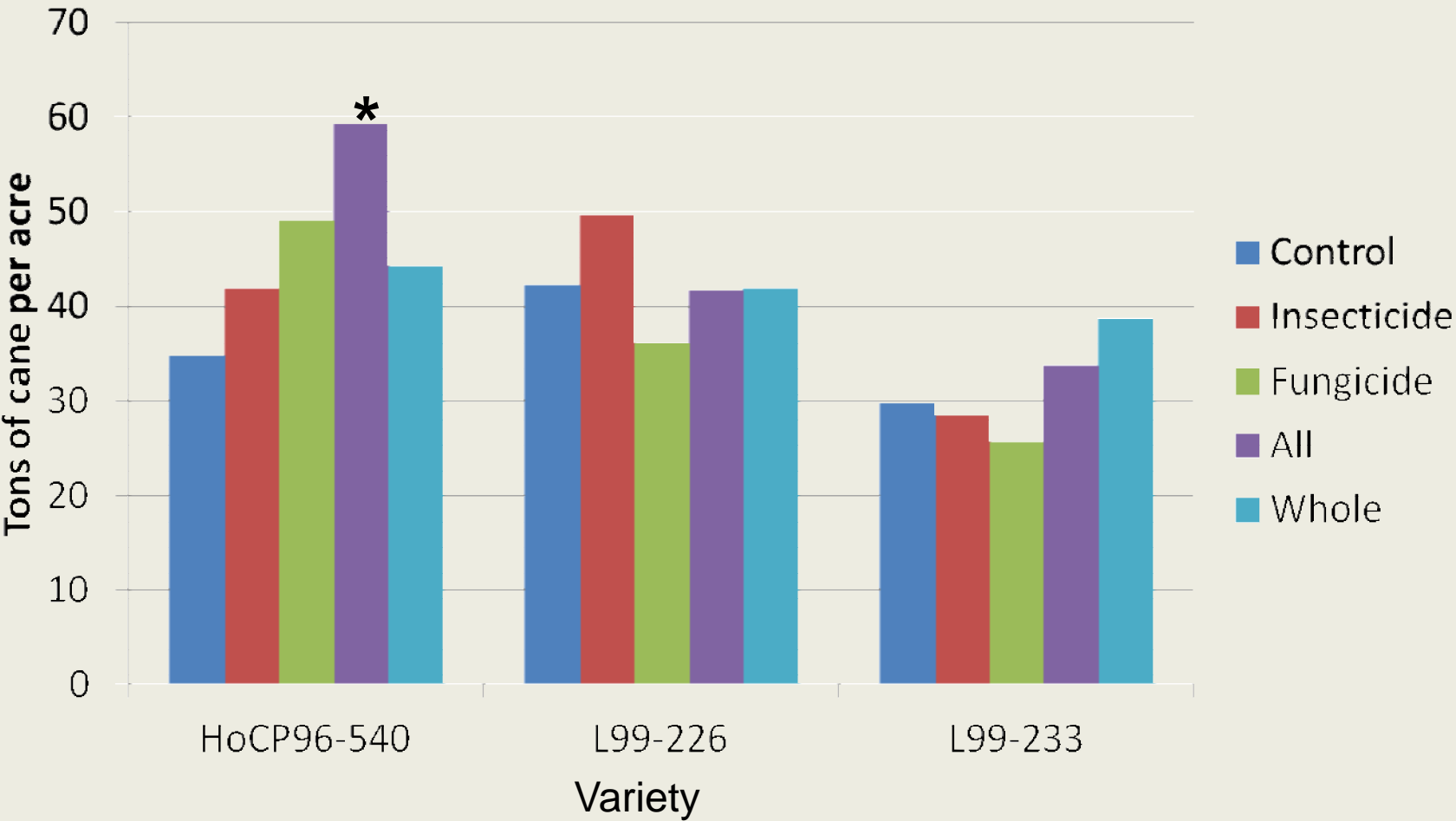
- Fungicides did not improve yield in past
- Syngenta “seed” treatment chemicals part of new Plené[®] planting system for Brazil
- Insecticide and three fungicides
- Wanted to try chemistry with our billet planting system

Effects of Syngenta® Seed Treatment Chemicals on Billet Planting Yield



Plant cane 2010

Effects of Syngenta® Seed Treatment Chemicals on Billet Planting Yield



Plant cane 2011

Effect of Sygenta Chemicals on Billet Planting Yield (Harvester)

L 99-226	Non-treated	Combination	Whole stalk
Tons cane/acre	45.0 b	49.7 a	46.8 ab

2011 plant cane; harvester application



Application Method Experiment



LSU AgCenter Sugar Station, 2011

Treatments



- Dip
- Planter spray rig
- In-furrow, after planting spray (with high water volume)

Conclusions

- Promising results from multiple years with multiple varieties

Conclusions

- Promising results from multiple years with multiple varieties
- Dip application not feasible for industry

Conclusions

- Promising results from multiple years with multiple varieties
- Dip application not feasible for industry
- Results still preliminary
- NO LABELS

Conclusions

- Promising results from multiple years with multiple varieties
- Dip application not feasible for industry
- Results still preliminary
- NO LABELS
- Chemicals cost \$\$

Cooperators – Chemicals

- Nathan Blackwelder (ASCL)
- Calvin Viator and Associates
- LSUAC Sugar Research Station
- Syngenta

Can harvester modifications
deliver a higher quality billet
(less damage)?

Can harvester modifications
deliver a higher quality billet
(less damage)?

Will billets with less damage
improve billet planting
yield/reliability

Harvester Comparison Experiment



Big D Farms, Lafourche Parish, Sept. 2011

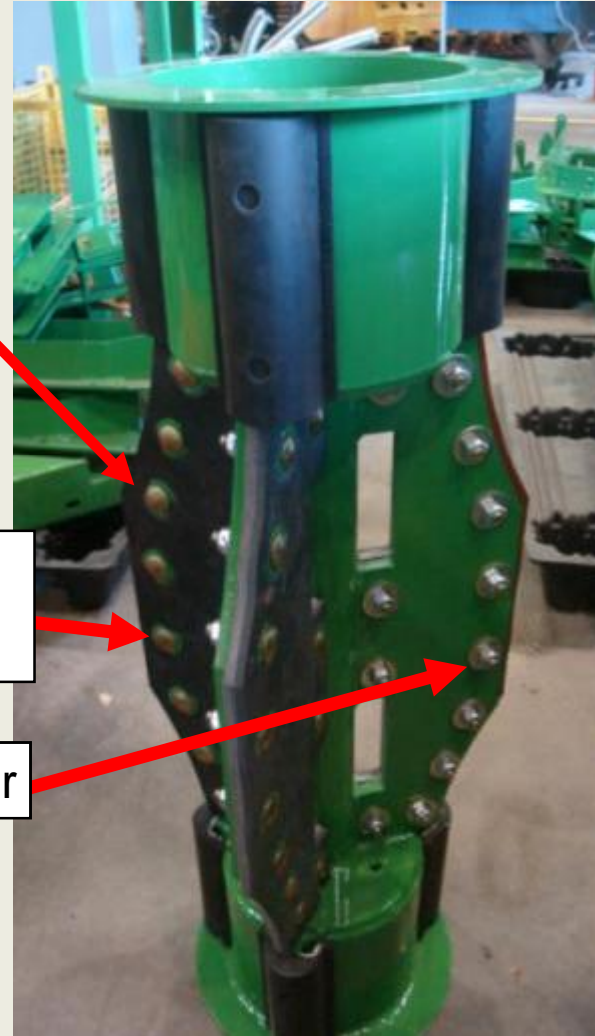
BUTTLIFTER ROLLER - 3 BAR OPEN

Production



CB11455267

Seed Kit



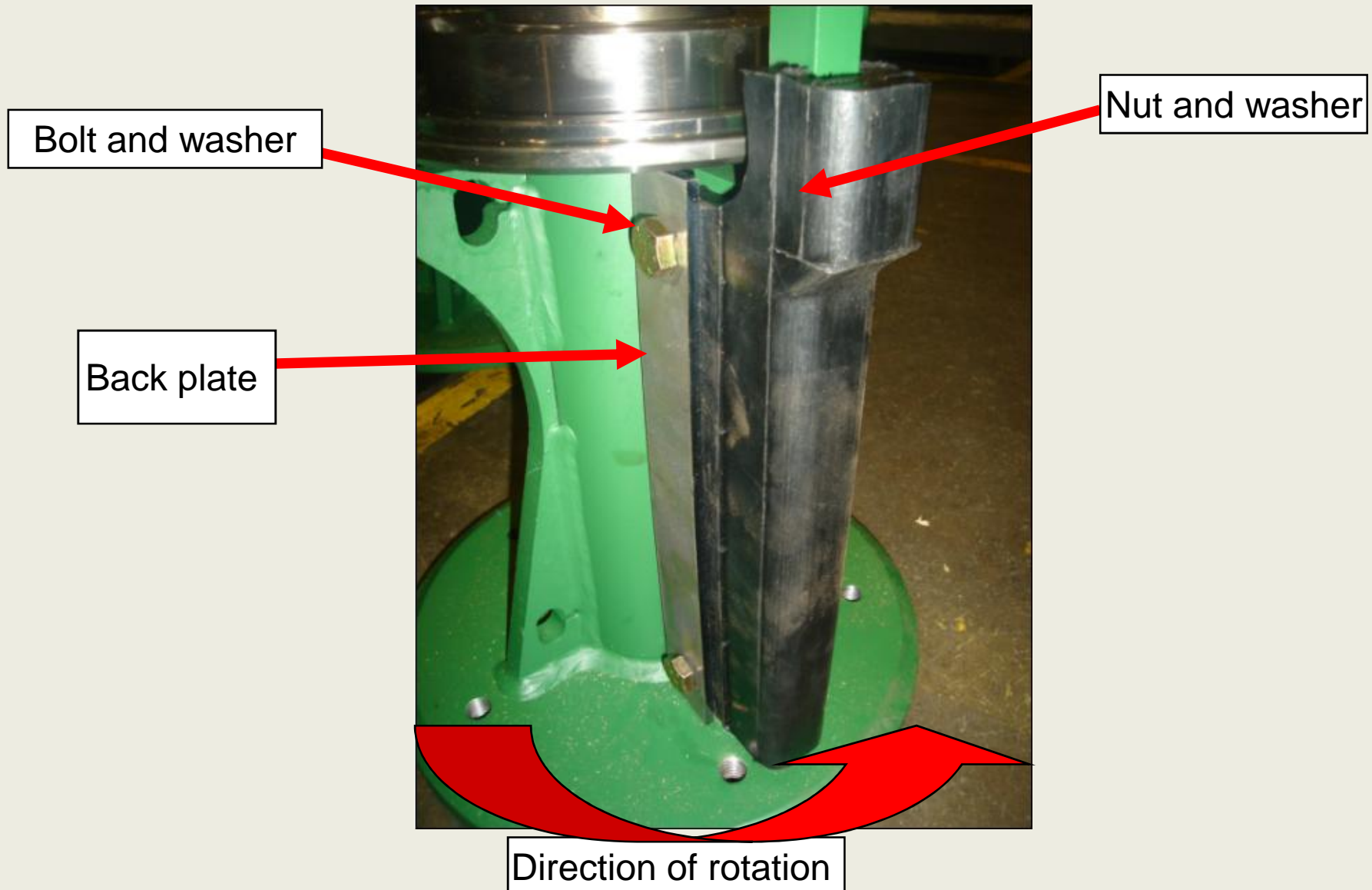
NW10074



Bolt of the Rubber side

Nut and washer

RUBBERS OF KICKERS OF BASECUTTER AND BACK PLATE



FEED ROLLER 4 BAR

Production



CB11431272

Seed Kit



NW10079

DRUM ASSY - TOP

Production

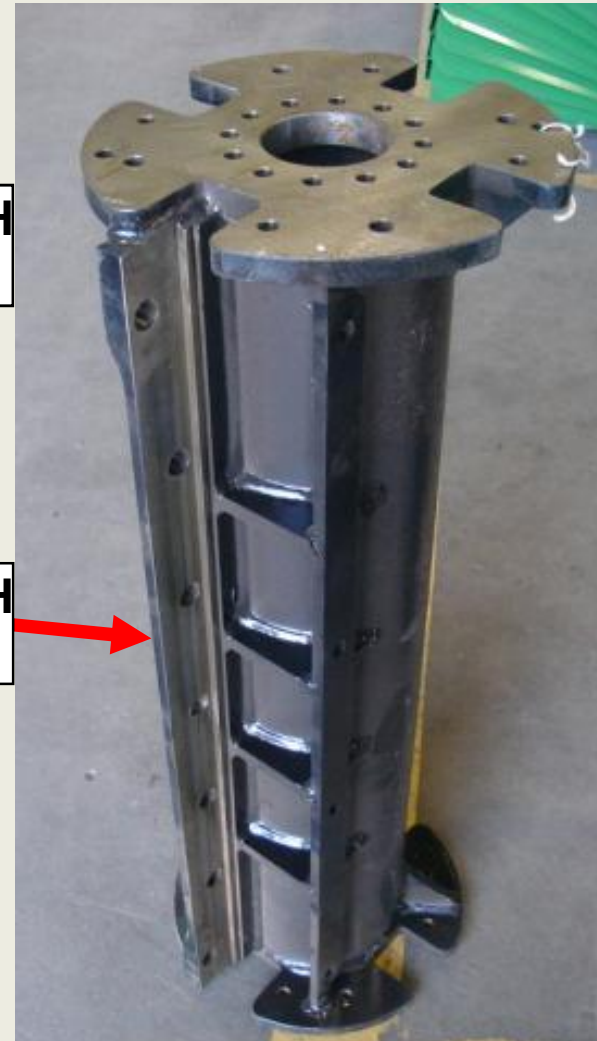


**ROLLER WITH
4 BLADES**

**ROLLER WITH
1 BLADE**

CB11469337

Seed Kit



CB11478553

SLATS



17 Slats

Planting field experiment



L 99-226 & L 03-371 planted



Billet light rate



Billet heavy (commercial) rate



Whole stalk: 3 stalk rate



Planting rate measured



Effects of harvester modifications on L 99-226 billet characteristics

Treatment	Billet length	# buds per billet	# damaged buds	# damaged internodes
Non-modified before planter	19.6 a	3.9 a	0.7 a	1.5 a
Non-modified after planter	19.3 a	2.7 c	0.4 b	1.1 a
Modified before planter	21.1 a	3.6 b	0.1 c	0.6 b
Modified after planter	18.9 a	2.8 c	0.3 bc	0.6 b

Effects of harvester modifications and planting rate on initial stand establishment in L 99-226

Treatment	Initial stand (shoots/acre x 1000)
Non-modified – heavy rate	58.3 a
Non-modified – light rate	42.4 bc
Modified – heavy rate	51.3 ab
Modified – light rate	38.0 c
Whole stalk	50.5 ab

Conclusions

Conclusions

- Harvester modifications did improve billet quality – more uniform with less damage

Conclusions

- Harvester modifications did improve billet quality – more uniform with less damage
- Modifications did not affect initial stands

Conclusions

- Harvester modifications did improve billet quality – more uniform with less damage
- Modifications did not affect initial stands
- Planting rate affected initial stands

Conclusions

- Harvester modifications did improve billet quality – more uniform with less damage
- Modifications did not affect initial stands
- Planting rate affected initial stands
- Not much stress since planting

Conclusions

- Harvester modifications did improve billet quality – more uniform with less damage
- Modifications did not affect initial stands
- Planting rate affected initial stands
- Not much stress since planting
- Stay tuned

Cooperators - Harvester

- Windell, Herman, & Nathan (ASCL)
- Ryan Viator (USDA-ARS)
- Kenneth Gravois & Mike Hebert (LSUAC)
- Big D Farms
- John Deere

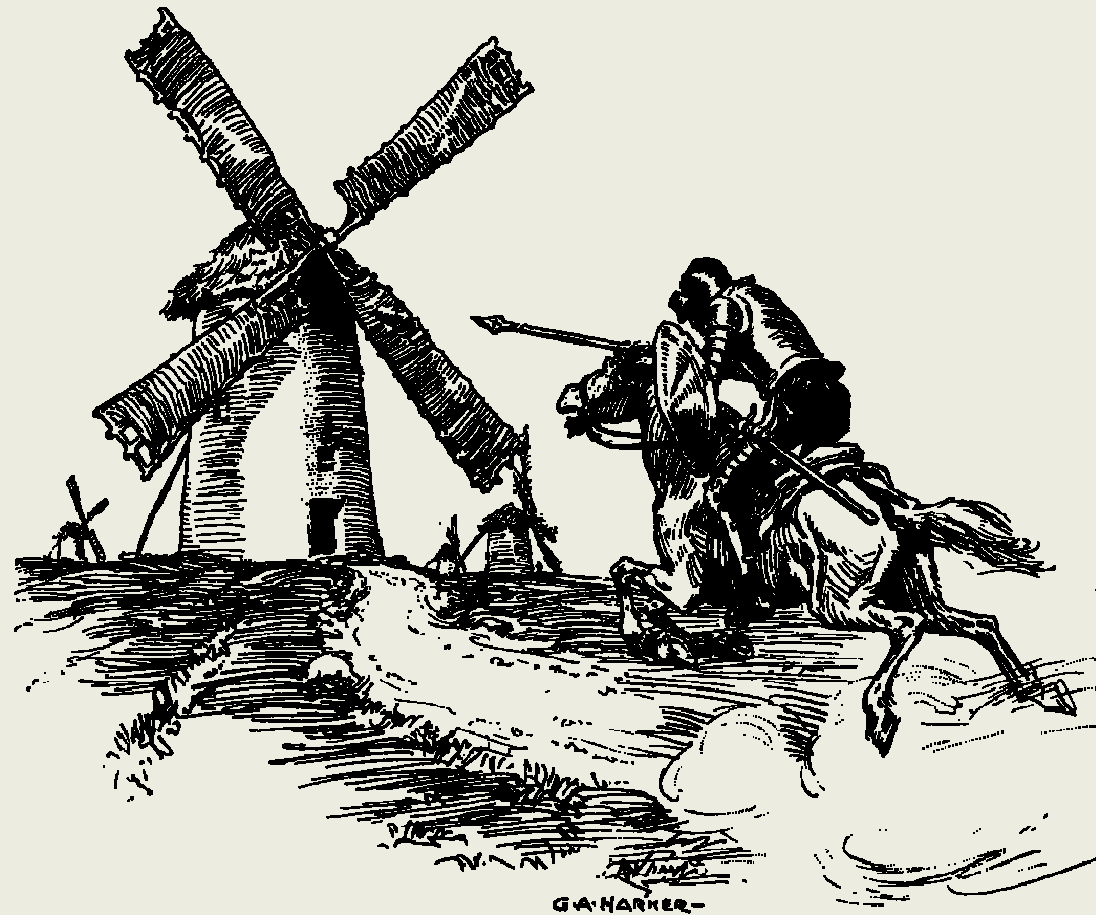
Variety ratings for billet planting tolerance

Variety	Billet planting tolerance
Ho 95-988	Poor
HoCP 96-540	Intermediate
L 97-128	Poor
L 99-226	Poor?
L 99-233	Intermediate
HoCP 00-950	Poor
L 01-283	Intermediate
L 01-299	Intermediate
L 03-371	Poor

Intermediate = lower yield when stress occurs

Poor = consistently lower yield

Billet planting = Tilting at windmills?



Billet Planting

Billet Planting

Goal: Less Risk

Billet Planting

Goal: Less Risk

Slightly Lower Cost?

Billet Planting

Goal: Less Risk

Slightly Lower Cost?

Might Be Our Future

Public Enemy No. 1: Brown Rust



It's back.....

When Should You Apply Fungicide?

- **Susceptible variety being grown:**

HoCP 96-540, L 99-226

When Should You Apply Fungicide?

- **Susceptible variety being grown:**
HoCP 96-540, L 99-226
- **Early, vigorous plant growth:** plant cane, light textured soil, high fertility, lack of freezes or protected location

When Should You Apply Fungicide?

- **Susceptible variety being grown:**
HoCP 96-540, L 99-226
- **Early, vigorous plant growth:** plant cane, light textured soil, high fertility, lack of freezes or protected location
- **Rust infection beginning on young leaves of plants with most advanced growth**

When Should You Apply Fungicide?

- **Susceptible variety being grown:**
HoCP 96-540, L 99-226
- **Early, vigorous plant growth:** plant cane, light textured soil, high fertility, lack of freezes or protected location
- **Rust infection beginning on young leaves of plants with most advanced growth**
- **Rust on older leaves is not indication of need to spray**

Fungicide Application Recommendations

- Apply Headline[®] at 9 oz/acre in at least 15 gal of water per acre
- Apply on 36 inch band at first application
- Spray before extensive development of rust on young leaves
- Re-evaluate situation after 18-21 days (two applications allowed under current label)