

Billet Planting, Seedcane Quality Out of Planters

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Plant Pathology and Crop Physiology



Billet Planting Research

Billet vs. whole stalk tonnage yield (for 51 comparisons)

	Percent loss in billets compared to whole stalk				
	Plant cane	1 st stubble	2 nd stubble	Crop cycle	Loss/cycle (tons)
Average	-14	-7	-6	-9	-11 tons
Range	-47 to +8	-35 to +14	-44 to +12	-42 to +7	-44 to +8

(14 varieties, 17 seasons)

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96-540	-20	-12	-4	-13	-15
01-283	-1	-1	+1	-1	-3
01-299	-2	-7	-2	-4	-5

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Method comparisons

Seed type	Planting system	Acres/day	Planting ratio	Total cost/acre
Whole stalk	Hand	8	7.5:1	\$579
Whole stalk	Machine	12	5.5:1	\$578
Billet	1-row	12	3:1	\$712
Billet	1-row	12	4:1	\$673
Billet	3-row	40	3:1	\$616
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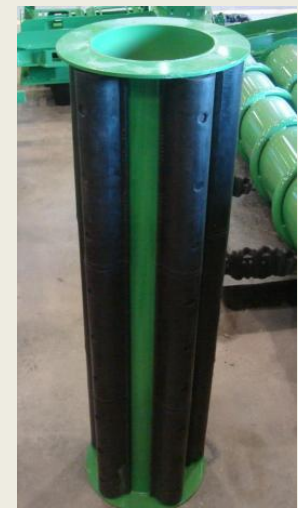
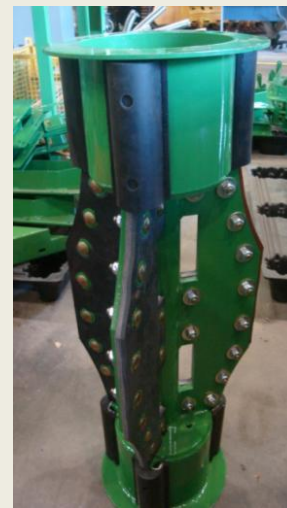
Where is the research emphasis now?

- Harvester modification
- Planters
- Seed-treatment chemicals



Harvester modification

- Deere modification package
 - One blade cutting drum
 - Synchronous rollers
 - Rubberized contact points
 - Solid floor elevator



Harvester damage assessment

Harvester set-up	Undamaged billets (%)	
	2000	2001
Regular chopper (blades removed)	32	44
Regular chopper + leg wraps	--	58
Long billet chopper	52	52
Long billet chopper + leg wraps	66	62

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What is new here?

Two proto-type planters in use during 2014



Costa Rican



Modified Australian

Costa Rican Planter



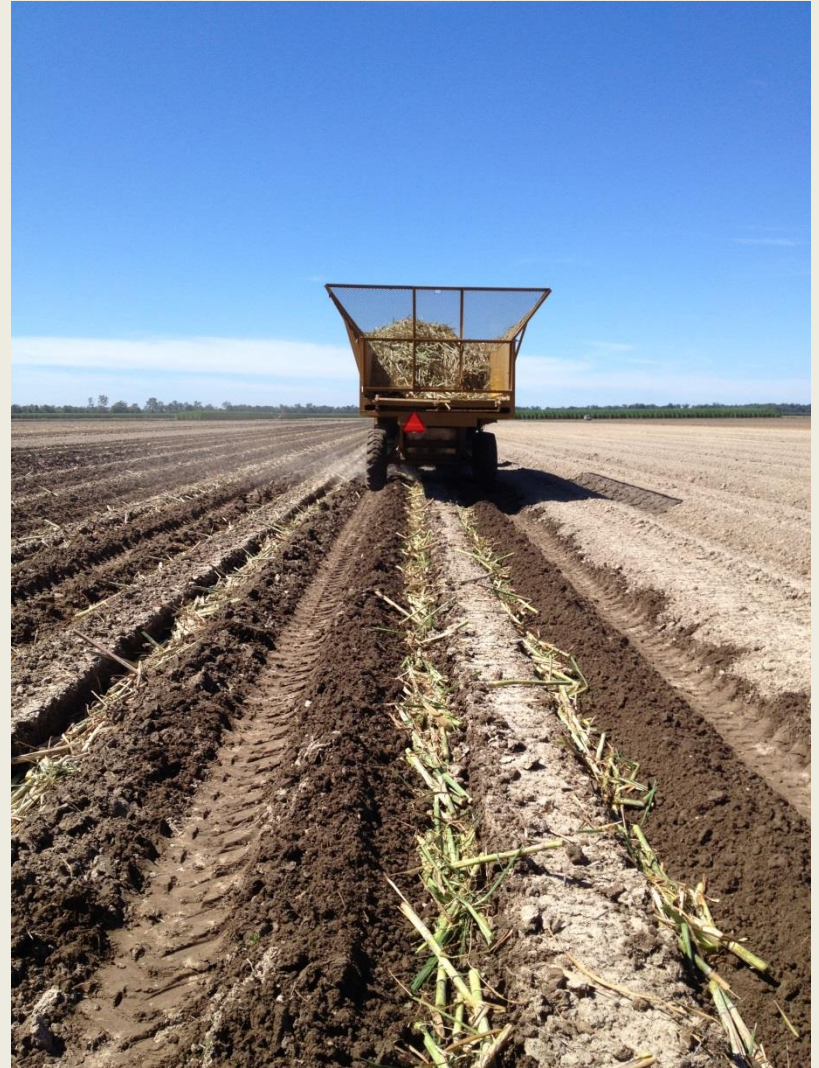
Over-the-top and double-drill



Tip delivery (currently)



Louviere double-drill (8 ft-row)



Rivet 8-ft row, double-drill planting fall shoot counts

Planting date	Variety	Seedcane	Both drills shoot count (15 ft)
8/22	HoCP 00-950	Billet	243
		Whole	184
8/25	L 01-283	Billet	252
		Whole	177
9/7	HoCP 04-838	Billet	292
		Whole	215
9/7	HoCP 04-838	Billet	217
		Whole	185
9/7	L 01-299	Billet	156
		Whole	91
9/11	HoCP 96-540	Billet	175
		Whole	146
9/11	HoCP 96-540	Billet	100
		Whole	76
9/13	L 01-283	Billet	107
		Whole	64
9/14	L 01-283	Billet	147
		Whole	43
9/15	L 01-283	Billet	106
		Whole	66

Billet damage assessment



Billet damage assessment during 2014

Planter	Before/after planter	Variety	Date/location	Average length (inches)	Undamaged billets
2-drill ASCL	Before	L 01-299	8/1 Levert	20.9	52%
2-drill ASCL	After	L 01-299	8/1 Levert	20.1	58%
2-drill ASCL	Before	HoCP 04-838	8/26 St. Gab	24.1	44%
2-drill ASCL	After	HoCP 04-838	8/26 St. Gab	20.2	32%
Drum	After	HoCP 04-838	8/26 St. Gab	18.9	26%
2-drill ASCL	Before	HoCP 96-540	8/26 St. Gab	23.0	64%
2-drill ASCL	After	HoCP 96-540	8/26 St. Gab	20.9	64%
Drum	After	HoCP 96-540	8/26 St. Gab	21.5	49%
2-drill ASCL	After	HoCP 96-540	9/10 St. Gab	21.3	23%
2-drill Rivet (8')	Before	L 01-299	9/23 Rivet	22.4	40%
2-drill Rivet (8')	After	L 01-299	9/23 Rivet	20.9	38%
2-drill Rivet (8')	Before	HoCP 96-540	9/23 Rivet	21.0	56%
2-drill Rivet (8')	After	HoCP 96-540	9/23 Rivet	20.4	35%
Costa Rica	Before	L 99-226	9/24 Allen	24.7	32%
Costa Rica	After	L 99-226	9/24 Allen	21.4	22%

Can yield be improved by
planting method?

Double-drill on 6 ft-row



Double-drill next to open furrow



Open furrow vs. double-drill



Double-drill on 6 ft-row






Can seed treatment chemicals
improve planting of 3-4 bud billets?



Plant cane fall and spring shoot and millable stalk populations for HoCP 96-540 at the Sugar Research Station during 2014

Treatment	Fall shoots/acre (x1,000)	Spring shoots/acre (x1,000)	Millable stalks/acre (x1,000)
Non-treated billets	17 cde	13 cd	36 d
Non-treated whole stalks	14 e	25 a	43 b
Billets Uniform dip treatment	27 ab	22 ab	44 ab
Billets Uniform in-furrow spray	15 de	9 d	33 e
Billets Cruiser dip treatment	23 bc	17 c	42 bc
Billets Cruiser in-furrow spray	20 cd	13 cd	39 cd
Billets Uniform + Cruiser dip treatment	31 a	23 a	47 a
Billets Uniform + Cruiser in-furrow spray	15 de	9 d	36 d

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Billets Uniform + Cruiser in-furrow spray	15 de	9 d	36 d

Plant cane yield components for HoCP 96-540 at the Sugar Research Station during 2014

Variety and treatment	Stalk weight (lbs.)	Sugar/ton cane (lbs.)	Tons of cane/acre	Sugar/acre (lbs.)
Non-treated billets	2.5 ab	205 a	39.3 ef	6,099 cd
Whole stalks	2.7 a	209 a	47.2 bc	7,475 ab
Billets Uniform dip treatment	2.7 a	205 a	46.7 bcd	7,211 ab
Billets Uniform in-furrow spray	2.5 ab	199 a	36.6 f	5,477 d
Billets Cruiser dip treatment	2.6 ab	202 a	52.3 ab	7,972 a
Billets Cruiser in-furrow spray	2.6 ab	201 a	43.4 cde	6,567 bc
Billets Uniform + Cruiser dip treatment	2.5 ab	201 a	53.6 a	8,065 a
Billets Uniform + Cruiser in-furrow spray	2.6 ab	198 a	36.1 f	5,370 d

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- Insecticide effect on plant likely

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- Some making it work with good planting alone
- Still more risk – reduced yield possible
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- Optimize planting systems
- Chemicals: optimize combination, rates, and method of application (convince Syngenta)
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- Growth regulators: short internodes

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What do you
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