

**Variety Testing Techniques – Forum**  
**T. M. Crook - Leader**

The intent of the variety testing techniques forum was to provide an avenue on how variety trials were conducted in detail in small plots. The following table format is the summary of the following presenters: Jim Stewart, Michigan Sugar Company; Bill Neihaus, American Crystal Sugar Company; Lee Hubbell, Monitor Sugar Company, Peter Regitnig, Rogers Sugar Company and John Gallian, University of Idaho. We appreciate their willingness to share this information.

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	<b>Michigan Sugar Company</b>	<b>American Crystal</b>	<b>Monitor Sugar Company</b>
Entries	49	81 (lattice)	48
Reps	8	6 (com); 4 semi	8
Locations plant/harvest	5-6/4	11/7-8	5
Site Selection		2 sites per factory	
Rows per plot (plant/harvest)	2 @ 30 inch	4 com 2 semi-com	2 @ 30 inches
Plot length (plant/harv)	35	44/40	30,40
Alley width (ft)	4-6	6,10	4,6
Planter type	Heath	12 row Hege & Heath	Heath (6 row)
Planter modifications	Vacuum	Seed hopper reduction	
Seed packaging syst.	Manual	Manual	
Seed planting depth	Condition dependent	1.25 inch	0.75 to 1.5 inch
Planting population	Thin 2.25; PTS 4.5	PTS 5.3; 2.7 semi com	1.3 inch
Thinning date	4 to 6 leaf beets	4 to 6 leaf beets	30-40 DAP
Thin Stand (B/100)	150 (8 inch)	8 inch (150)	135 (100)
Seed Source	Com and exp	Com and exp.	
Stand Counts	30 DAP (Before thin)	Emerge 2 leaf (3 WAP)	Before thinning
Vigor Ratings	N.A.	4 leaf	N.A.
Harvest notes	Rows measured	All rows measured	1-5 Weeks before harvest
Gap compensation	>36 inch	None, PTS; semi >30 inch	>36 inch adjusted
End Beet Accounted	Remove Aug – Sept	Removed Aug, Sept	Avoid in sugar sample
Defoliation by:	Grower	Company; loose beet	Monitor-Alloway
Crown Height	N.A.	N.A.	N.A.
Tare taken per plot	N.A.	N.A.	N.A.
Harvester Type	Modified 2 row AC	2 row (modified 3 row JD, Farmhand)	Oppel 1 row and 2 row AC
Harvester Scale	Digital	Electronic; unusual notes	Dial crane
Harvest Recordings	Harvest Stand	Harvest stand	Stand
Quality Samples taken	On harvester	Electronic scale, 12-15 beets for quality	10-14 beets
Measured parameters	Frozen juice - %S, %CJP (NH2-N, invert)	Fresh brei - %S, NH2-N, N.A., K	Frozen brei %S, N.A., K and NH2-N
Storability measured	YES, criteria for appr.	No	Yes
Quality Analysis		AISO4, Curruthers formula	
Plot Design	RCBD	Lattice (large)	RCBD
Statistical Package	ARM	SAS	MSTAT
Missing plots	Estimate average	Calc for each character	MSTAT program
Cultural Practices	Grower soil prep, fertilizer, Company – cult and sprays	Grower soil, fertilizer Company – weed, leafspot	Grower/company cultivate – company 6 row Alloway
Web Site for trial procedures		<a href="http://www.crystalsugar.com/agronomy/trials/trials2.asp">www.crystalsugar.com/agronomy/trials/trials2.asp</a>	<a href="http://www.monitorsugar.com">www.monitorsugar.com</a> (growers)

### Variety Testing Techniques – Forum (con't)

	Rogers Sugar	Idaho
Entries	32	22 Com/29 Exp.; separate tests
Reps	12	8
Locations plant/harvest	2/2	3/2
Site Selection	Main com area	Grower and/or U of I Exp. Sta.
Rows per plot (plant/harvest)	6/2	4 @ 22 in
Plot length (plant/harvest)	30/25	30/25 ft
Alley width (ft)	10	5
Planter type	JD 71 flex	Milton openers
Planter modifications	Seed feeding attach	Research Cone
Seed packaging syst.	Vacuum	Manual
Seed planting depth	1.25 inch	1.0 in
Planting population	PTS 6 inch	1.5 in (8plants/ft)
Thinning date	N.A.	4 leaf
Thin Stand (B/100)	N.A.	150 (8 in)
Seed Source	Com bags and exp.	Com from distributors
Stand Counts	6 leaf (established stand)	After thinning
Vigor Ratings	Approx. 6 leaf	No
Harvest notes		1-2 weeks before harvest
Gap compensation	None, except for known reasons	None
End Beet Accounted	Full plots: no account Subsample: paint and avoid for quality	Avoid in sugar sample
Defoliation by:	Rogers Sugar	Grower or U of Idaho
Crown Height	N.A.	N.A.
Tare taken per plot	Yes	N.A.
Harvester Type	2 row Gemco – rink bed, sub/full sample	Modified 2-row Farmhand 808
Harvester Scale	Electronic for sub or tare lab for full	Electronic Port-A-Weigh
Harvest Recordings		Non-treatment effects
Quality Samples taken	On harvester – sub Tare lab – full	2 x 8-10 beets
Measured parameters	Fresh brei - %S, NH <sub>2</sub> -N, N.A., K	Fresh brei - %S, Conductivity
Storability measured	No	No
Quality Analysis	Reinefeld & Winner	Amalgamated Sugar Co. formula
Plot Design	RCBD/ML	RCB
Statistical Package	Excel	SAS
Missing plots		
Cultural Practices	Rogers Sugar	Grower or U of Idaho
Web Site for trial procedures		<a href="http://www.uidaho.edu/sugarbeet">www.uidaho.edu/sugarbeet</a>