

Rice Projects



**Grain Inspection Advisory Committee
Meeting
May 17, 2016**

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United States Department of Agriculture
Grain Inspection Advisory Committee Meeting, May 2016

Project 1 – Zaccaria Rice Mill System Evaluation



- Compare Zaccaria rice mill system (sheller and miller) to FGIS procedures and approved rice mill system (sheller and miller)
- Evaluated % Whole Kernels (WK) and % Total Rice (TR)
- Limited to 60 Long Grain Rough Rice with a range in milling yields based on 2015 crop inspection data
- Two replicates per sample per system



Equipment Used in Study



- **FGIS Approved System**
 - GrainMan Sheller No. 64
 - GrainMan Miller No. 65
- **Zaccaria PAZ-5 System**
 - Husker (Sheller) DLZ-5
 - Mill/Polisher BLZ-5
- **Satake Milling Meter**



Modifications to Zaccaria Procedures

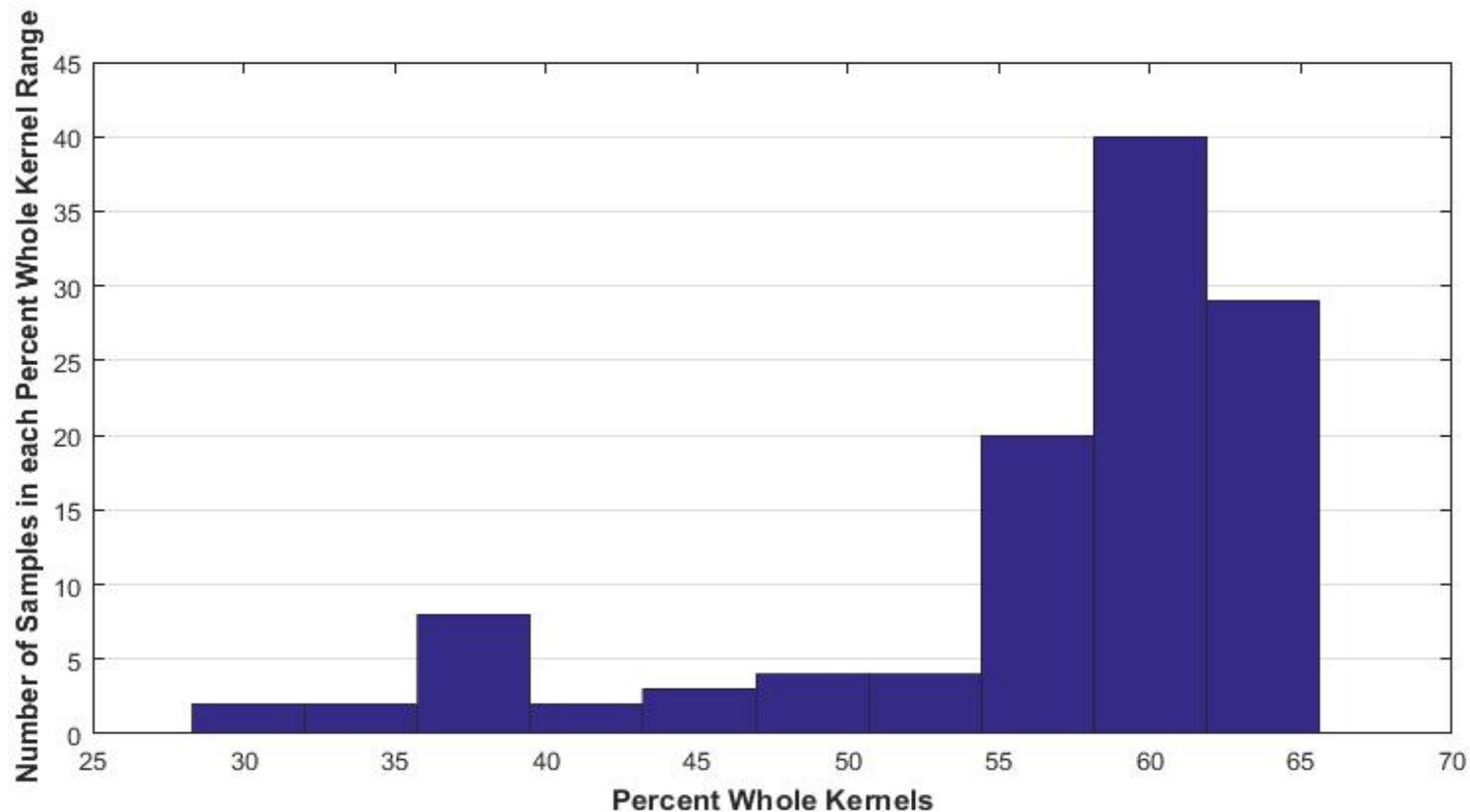


- Milled two 500g subsamples and combined for analysis
- Clean after every sample
- Adjusted milling time to achieve same DOM as GrainMan
- Adjusted milling time to achieve same whiteness as GrainMan

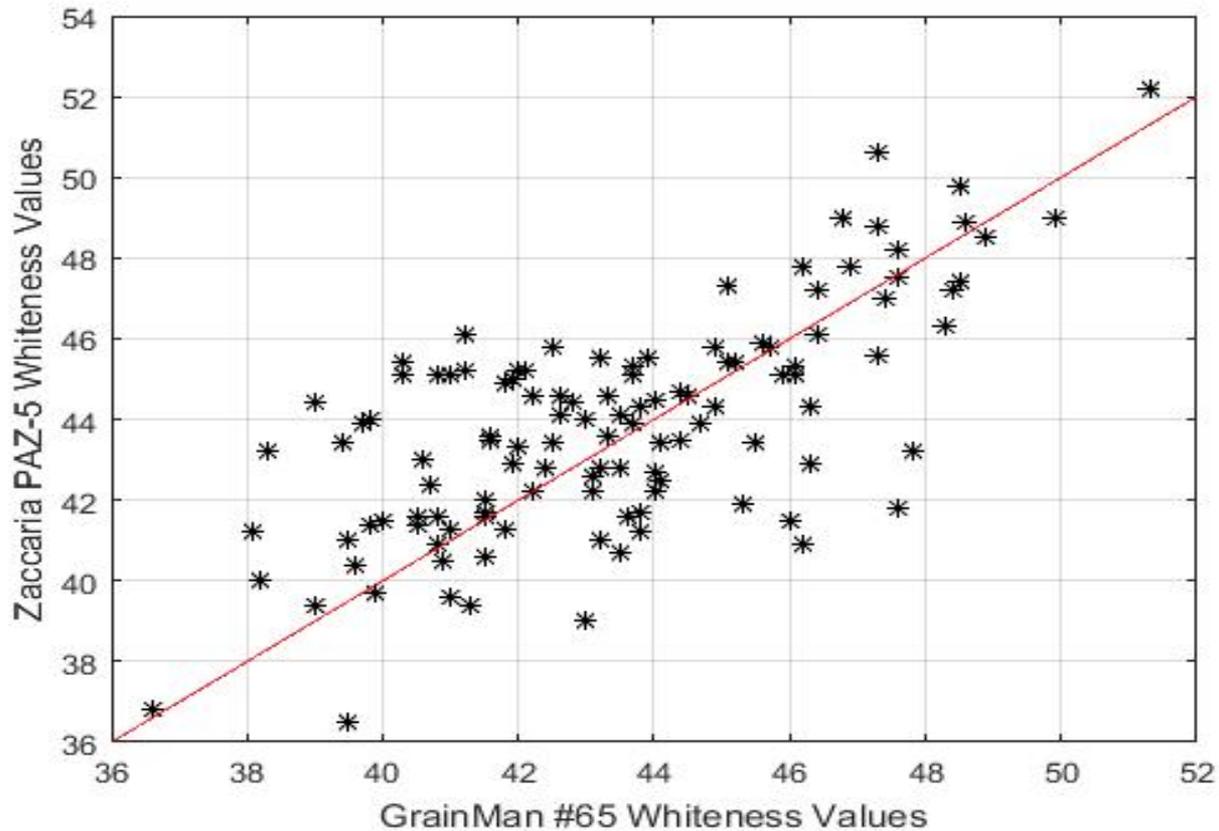


**FGIS Visual Reference Library –
Hard Milled Degree of Milling**

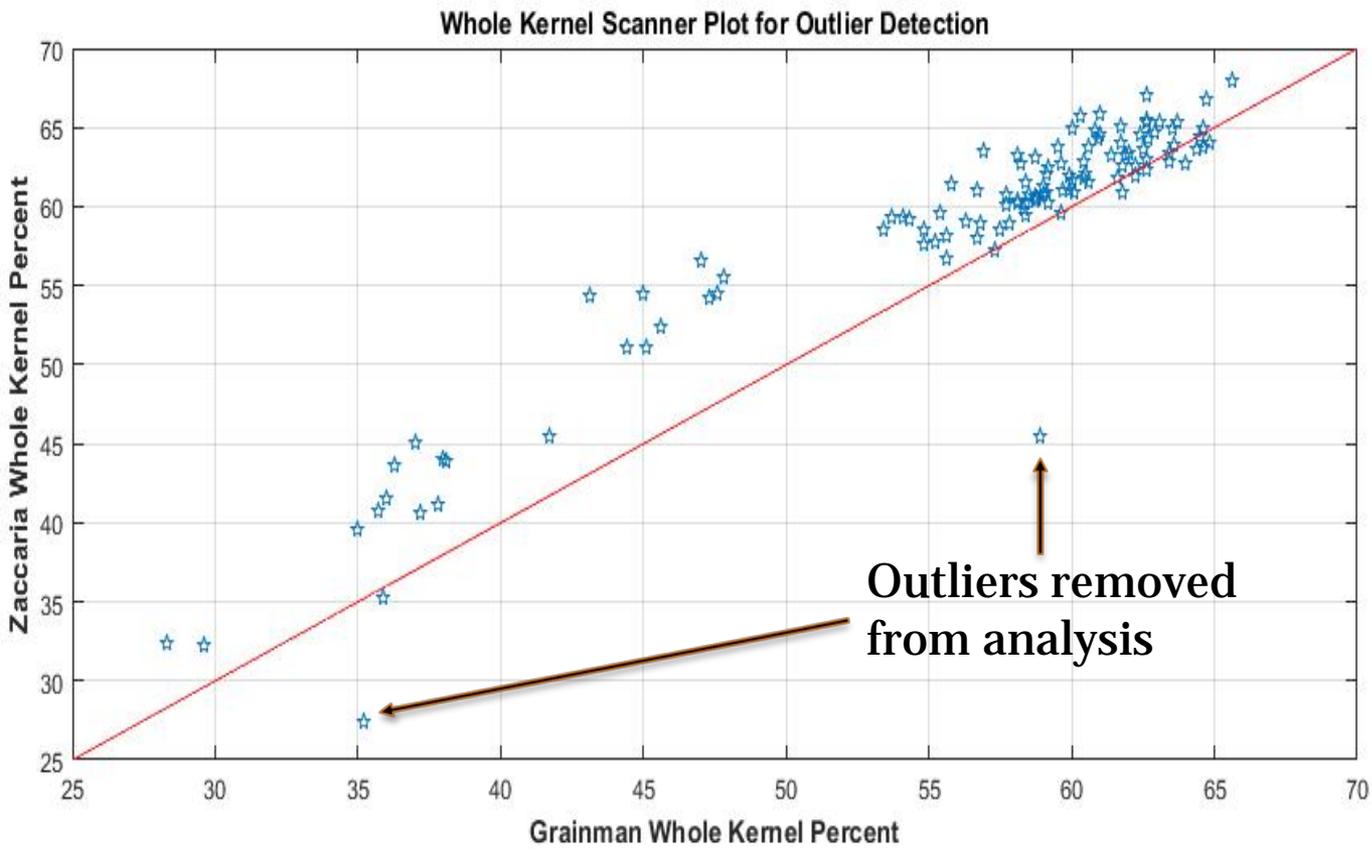
Sample Set



Whiteness



% Whole Kernels



Data Analysis



Factor	Mean Zaccaria	Mean GrainMan	Zaccaria – GrainMan
Whole Kernel	59.1%	56.3%	2.8%
Total Rice	70.8%	70.0%	0.8%
Whiteness	43.87%	43.43%	0.44%

- Percent Whole Kernel and Percent Total Rice measures of milling yield
- Both are official factors certified by FGIS
- Whiteness is an unofficial determination indicating how much bran has been removed and natural kernel color



Zaccaria Study Conclusions



- Adjustments to Zaccaria polishing time resulted in milled rice equal to polishing achieved with GrainMan as determined by Degree of Milling and Satake Whiteness value.
- 2.8% WK difference is statistically significant
 - Practical significance depends on trading contract specifications.



Project 2 – Commercial Rice Mill Study



October 2015 Resolution –

“The Advisory Committee encourages FGIS to initiate a study with rough rice to determine the effectiveness of the Grainman Miller No. 65 for predicting commercial rice milling yield. Factors to consider in addition to milling yield are total broken kernels, whiteness and chalkiness. Newer rice hybrids along with their harvest and drying history should be included in the study.”



Commercial Rice Mill Study



- Cooperative Agreement with University of California – Davis
 - Cal-Agri to provide current official determinations
- Participating rice mills
 - Southwind Milling, Pine Bluff, Arkansas
 - Riceland Foods, Stuttgart, Arkansas
 - Louisiana Rice Mill, Crowley, Louisiana
 - Sun West/Far West, California



Commercial Rice Mill Study Objectives



- Investigate agreement between commercial mill results and results from current FGIS procedures, approved shellers, and approved miller
 - Long Grain Rough Rice
 - Medium Grain Rough Rice
 - Short Grain Rough Rice
- If significant differences in milling performance are identified, then investigate alternate procedures to align current approved equipment more closely to commercial results



Potential Outcomes



- Affirm current approved system and procedures provide comparably results to commercial mills
- Adjustments to bring current approved system and procedures into closer alignment with commercial mills
- Adjustments insufficient and need to evaluate other laboratory rice mill systems



Questions?

