ADM Demonstration Model Sifter

Levi Benning  
Iowa State University, levi4x4@iastate.edu

Brian Davis  
Iowa State University, bdavis95@iastate.edu

Kyle Henik  
Iowa State University, kjhenik@iastate.edu

Ross Henning  
Iowa State University, rhenning@iastate.edu

Follow this and additional works at: http://lib.dr.iastate.edu/tsm415

Part of the Bioresource and Agricultural Engineering Commons, and the Industrial Technology Commons

Recommended Citation
Benning, Levi; Davis, Brian; Henik, Kyle; and Henning, Ross, "ADM Demonstration Model Sifter" (2017). TSM 415 Technology Capstone Posters. 22.  
http://lib.dr.iastate.edu/tsm415/22

This Poster is brought to you for free and open access by the Iowa State University Capstones, Theses and Dissertations at Iowa State University Digital Repository. It has been accepted for inclusion in TSM 415 Technology Capstone Posters by an authorized administrator of Iowa State University Digital Repository. For more information, please contact digirep@iastate.edu.
ADM Demonstration Model Sifter

Client: Archer Daniels Midland Company, Decatur, Illinois

**Problem Statement**
Mill operators don’t fully comprehend the components, concepts, material flow, and proper maintenance practices associated with full scale wheat sifters.

**Scope**
A small scale demonstration model and related SOP are required for ADM’s Milling Academy educational class.

**Objectives**
- Design and retrofit of a Tru-Balance 221 sifter
- Compile a SOP for operation and cleaning of the model including possible risks and hazards to the operator
- Technical specifications and bill of materials for the retrofit of the demonstration model

**Methods**
- Define essential project requirements
- Design effective, functional components to support use of training model
- Fabricate and implement various sifter components
- Operate, test, and validate new sifter additions
- Document sifter operation, cleaning procedures, and technical specifications

**Proposed Solutions**
- Clear side panels showing flow paths
- Imaging systems for close up views of product in hard to see areas
- The addition of a granulation sifter to show extraction rates
- A continuous feed system to allow extended runtimes
- Vacuum extraction system for dust to enhance visibility
- Palletized unit with wheels allowing easy portability

**Major Outcomes**
- Modify a conventional sifter to allow more visibility and provide access to outputs for teaching purposes
- Present modified sifter prototype to ADM with operators manual and TPM schedule

**Benefit to Client**
- Portable sifter able to be used at many locations
- Enhanced viewability allows direct understanding of the process being taught
- The ability to be continuously run without need to reseat every few minutes

Acknowledgements: Authors are grateful to Michael Means and Michael Wiechman for the opportunity to work on this project. Project was co-funded by the differential tuition.