Grain Handling Group

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Objective:

- Design the grain handling setup for an Insight yield monitor system,
- Construct the grain handling components; and
- Test and demonstrate the grain handling system.

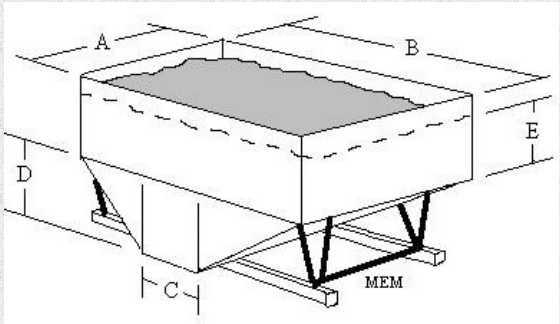
The following will be completed:

1) Design
   a. Tank and frame design requirements
   b. Casters and conveyer
2) Construction
   a. Location
   b. Tank and frame construction

This purpose of this project is to determine the accuracy of the insight yield monitor and demonstrate the calibration of a yield monitor in a class room setting.

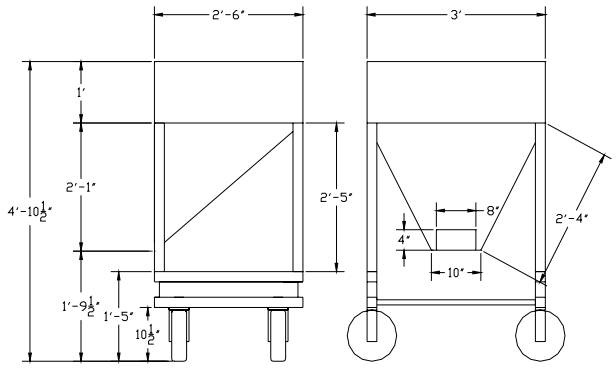
Objective 1a. Tank and frame design requirements

- Tanks must be able to hold 10 bushel
- Tank and frame must be portable
- Must be 32 inches wide to fit through any standard door
- Must be strong enough to support 1.000 pounds
- The first tank must be able to weigh the grain.



Gravity Wagon Grain Volume

http://grapevine.abe.msstate.edu/~fto/tools/vol/gravitywagon.html



AutoCAD drawing of tanks

Objective 1b. Casters, Scales, and Conveyer

- Casters were purchased from Northern Tool company
- Scales and conveyer were purchased from Nichols Electronics Company
- Scales has a 3,000 lb max with Digital screen
- Conveyer can handle over 10 bushel/minute

Mount Length	Capacity	Part #	Description
33½"	3,300 lbs.	400144	Stock Weigh 3300-33½" Load Cell and Mount

- Are self-aligning on uneven terrain
- Are more conducive to shock absorption via patented rubber mounts
- Handle the stress of shock loads in most animal weighing procedures
- Improve weighing reliability on all surfaces
- Provide increased stability due to wider mounts

Rubber casters were used for several reasons:

1)To obtain the needed height of the carts

2) Easy to push even when fully loaded

3) Parking brakes for when in use

Objective 2a. Construction Location

1) Built at Beuligmann Farms
2) All of the steel was bought and cut at Nix Welding shop
3) Welded together by Jason and Thomas
4) Painted by John Beuligmann

Objective 2b. Tank and Frame Construction

1) The tank was built out of 12 gauge steel
2) The frame was constructed out of 2" x 2" tubing
3) 1.5" angle iron connects the tank to the frame
4) Casters are bolted to the bottom of the frame
5) Sliding doors are on the front of both tanks

We built a wood mockup to make sure our design was adequate.

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Nichols Electronic Company Beuligmann Farms

Nix Welding Prof. Gaines Miles

PURDUE UNIVERSITY Grain Handling Group Jason Beuligmann Thomas Sprague ASM April 15th,2005