

Hay Fork Weighing System

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Problem Statement: The Purdue Ag Centers would like to utilize an existing tractor carried three point weighing system to document bale weight as the forage is moved from storage areas to feeding areas. Project will require the design, fabrication, and testing of design for precision and accuracy.

User Instructions:

- Calibrate scale
- Zero scale
- Position tractor on level surface
- Level forks using display in cab
- Once weight has been displayed, hold print to store to DDL logger

Before



After



Alternative Solutions:

- Using front end loader
- Portable field weighing station
- Stationary centralized weighing station

Final Solution: We chose to go with the forks instead of spears due to preference from our sponsor. For the leveling system we chose to go with the inclinometer over a gyro or accelerometer. The inclinometer will give us the degree of accuracy we are looking for as well as being user friendly. The particular model chosen is designed for heavy machinery as well as being weather proof.

Budget

Load Cell Bracket	\$276
Data Logging Software	\$585
Paint	\$20
Bale Forks	\$825
Steel	\$54
Inclinometer	\$1200
Machine Shop Services	\$40
Total	\$3000

