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# Creation of the Ideal Welding Cell for Sprayer Booms

Paul Appleget

*Iowa State University*, [appleget@iastate.edu](mailto:appleget@iastate.edu)

Katie Larson

*Iowa State University*, [klarson1@iastate.edu](mailto:klarson1@iastate.edu)

Matthew Rowan

*Iowa State University*, [mprowan@iastate.edu](mailto:mprowan@iastate.edu)

Jon Thomas

*Iowa State University*, [jrthomas@iastate.edu](mailto:jrthomas@iastate.edu)

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Paul Appleget, Katie Larson, Mathew Rowan, Jon Thomas

## Creation of the Ideal Welding Cell for Sprayer Booms

Client: Hagie Manufacturing, Clarion, Iowa

### Problem Statement

Welding production requires an increase to 2 machines per day. Hagie has full capability to keep up with John Deere's standards set by a newer business deal between the companies.

### Who cares about this problem?

Hagie Customers, John Deere, Dealers

### Objective(s)

- Complete ideal layout to achieve a 36% efficiency improvement
- Tooling, lifting devices, and fixtures improved to assist in efficiency demands
- Material flow plan and body travel reduction completed to assist with ideal layout

### Constraints

This project requires time and work on software to build an idea, but will not include research with the intent of spending money to install or make changes to the facility.  
Time line October 2018-April 2019

### Scope

As Hagie's design team, we will be designing an efficient layout for the ideal welding cell. We will not be changing processes or designing building layouts.



Hagie's Black Widow Sprayer



Boom Style developed by Hagie

### Methods

#### Major Activities

- Time Studies, floor plan designs

#### Type of analyses to be used and what they will be used for

- Time, order of processes, foot traffic, number of touches

#### Software type and use

- Proplanner-extension of AutoCAD
- Used to create current state of floor layout and how materials and operators move
- Used to create future state of most efficient layout and movement
- AutoCAD- Used to create floor plan

### Proposed Solutions

- Break down the hybrid cell into multiple fixtures and combine with 90/100 cell
- Double the hybrid fixtures and combine with 90/100 cell

### Major Outcomes

- Ideal work center executed
- Layout planned and executed in AutoCAD
- Material flow plan and body travel reduction executed
- WIP and container plan executed
- Tooling, lifting devices, fixtures improved where necessary
- Achieve a 36% efficiency improvement

### Benefit to Client

- Efficient production, increased revenue
- More jobs in Iowa, Quality farm equipment

Current floor plan developed by the Iowa State Hagie Welding Team