

# Debaling Agricultural Materials

UI-Debalers

Design Review

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## Problem Statement

With the rise of precision agricultural based feedstocks for biofuels and bio-based products there is a need for debaling a variety of materials. This needs to be accomplished in a controlled manner to produce a consistent density outflow.

# Previous Plans



Above: Hustler Chainless Xr15

- Inconsistent out feed



Left: HayBuster H-1030

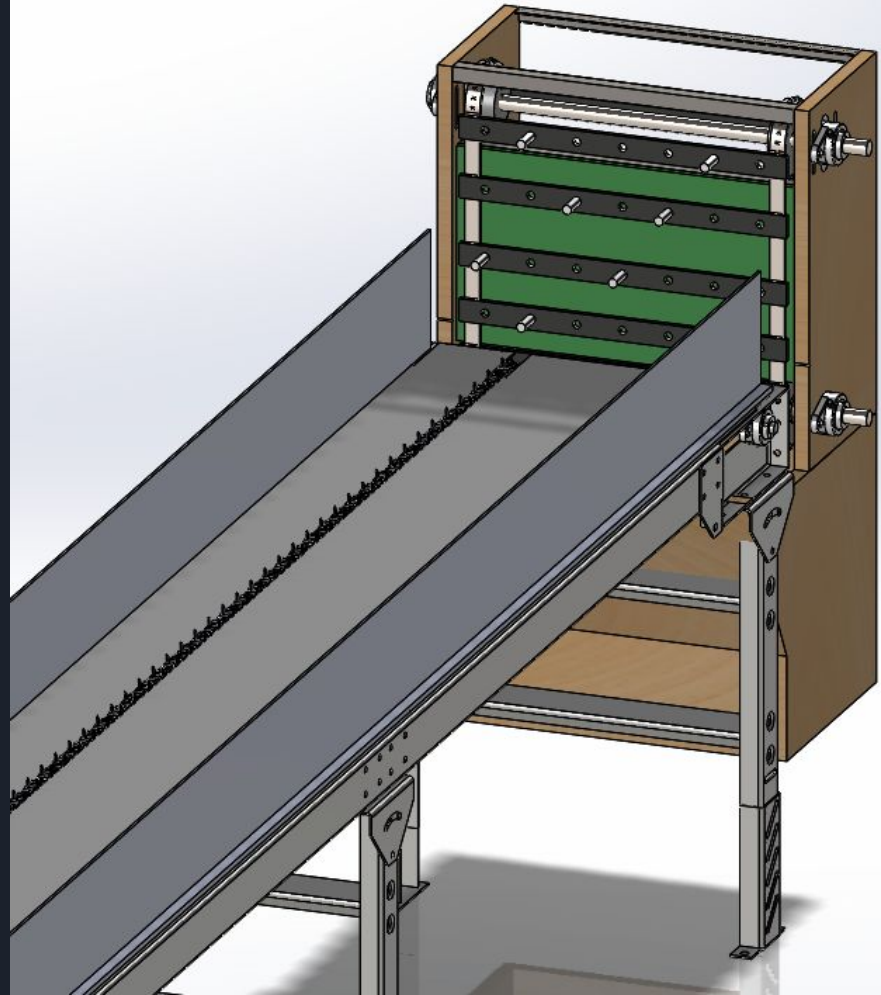
- Excessive amount of dust and small particles

# Design Concept

## 2 Assemblies

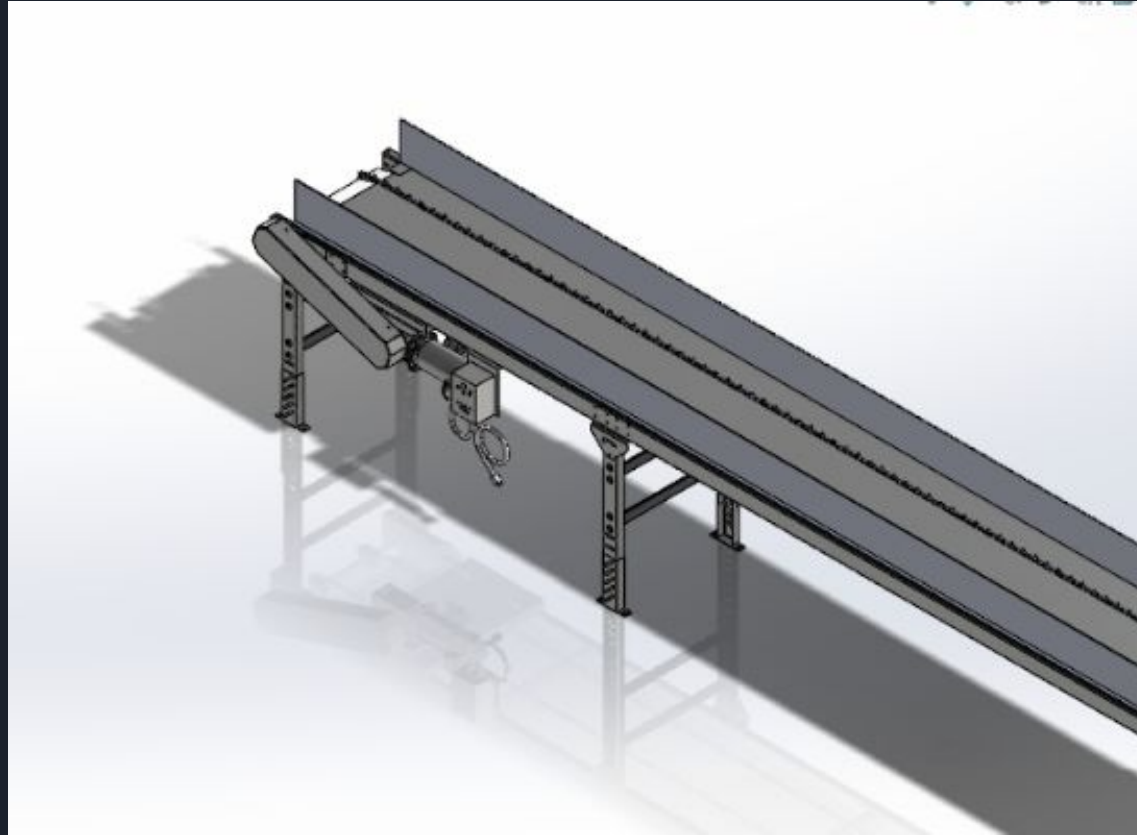
1- Infeed conveyor

2- Debaler



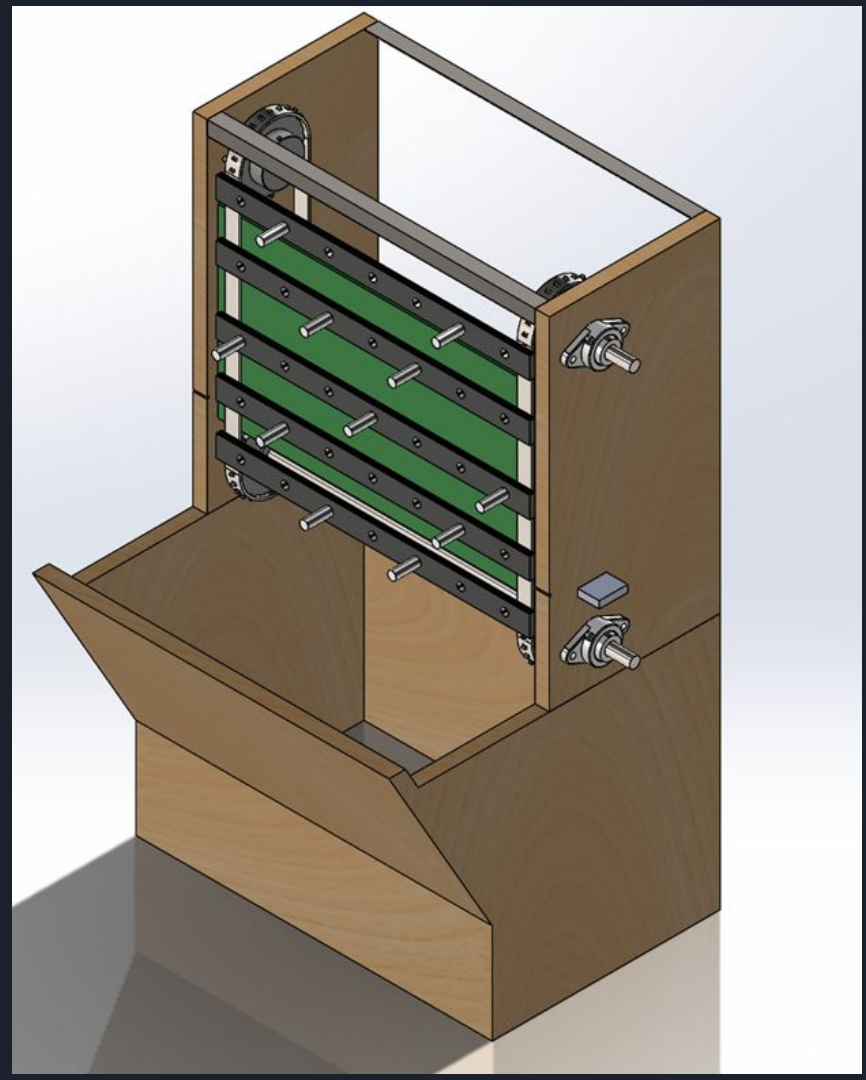
# Infeed Conveyor

- Hay conveyor chain works for pulling up the bales.
- Infeed walls work to protect the bales from falling off.



# Debaler

- Vertical motion to pull bale apart
- Chevron pattern to teeth
- Gap from bale edge to teeth interface is twice tooth length
- UHMW backing plate
- Replaceable cross bars to hold teeth











# Prototype Parts

- On budget
- ½ inch shaft and bearings should be suitable
- #50 chain
- Initial design assumptions
  - Based on McMaster-Carr specifications
  - Shigley Mechanical Design





Questions ?