Problem & Introduction:

• With the John Deere 600FD grain header there is no integrated transport system due to the complex structure that allows for the grain header to contour to changing surfaces.

• Other solutions require the use of header carts that can cause congestion in-field and are not as time efficient, especially in large multi-combine operations.

Background:

• John Deere 600D rigid draper offers an integrated transport system that is very popular out West in wheat country and on flatter terrain.

• If an integrated transport system could be implemented on the 600FD, we feel that it could become very popular in geographies that support soybean production.

Constraints:

• Combine must support weight of flex draper head and integrated transport system

• An operator must be able to handle the weight of deployment

• Safe deployment

• Does not affect the process of cutting when not in use

• Need 14” tire to suffice the weight of the 600FD (8,047 lbs. 40’ model)

• Max trailing speed of 26 MPH

• Must meet ASAE standard S360, Load carrying ability for Farm Materials Transport

Criteria:

• Priced Comparable to other manufactures

• Reliable on road when in use

• Must be comparable time of deployment to putting the grain header on a header cart

Alternate Solutions & Design Process

• Retrofit existing parts off the 600D grain header

• Hydraulic lifting capabilities

• Completely removable transport system

• Original design wasn’t capable due to problems associated with the center of gravity creating a design that was not safe to trailer

Economic & Global Factors:

We looked at multiple different factors across the Global/Social/ Cultural/Economic/ Environmental Factors and found the following the most important.

• This can ultimately save the operator time and money

• Ability to tap into global markets like that of South America

• Large soybean operations in South America create opportunities for this system

Conclusion & Recommendations:

• Retrofitting John Deere’s current design on the 600D series draper is ideal to solve this problem

• This will yield the least amount of changes from the current product, use technology already owned by the company, and have a familiar application for the user

• With further modeling this problem is feasible using current John Deere parts alongside new parts

Impacts & Sustainability:

• Having the ability to transport grain header without header cart and separate transport vehicle.

• Less time needed to transport 600FD & less manpower which creates an all around more efficient operation

• Less materials needed to create this system unlike that of a traditional header cart