



Loading and Unloading

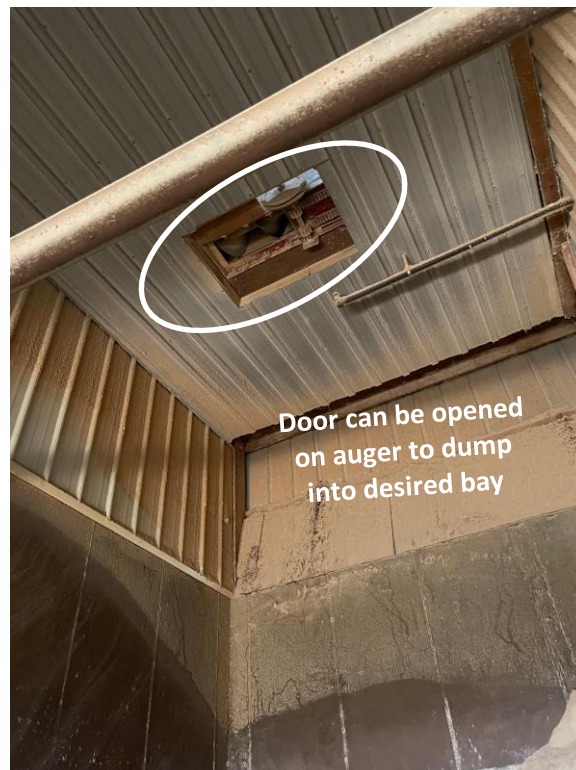


Objective:

- ✓ Capture and understand various methods/components of the feed center involved in Unloading trucks and other delivery vehicles; methods of Loading of TMR mixers and methods of Unloading of TMR Mixers.
- ✓ Understand for each of the various methods the capability to accommodate wants/needs for a specific situation, as well as contribution toward efficient operation of a feed center.

Unloading Trucks into flat storage

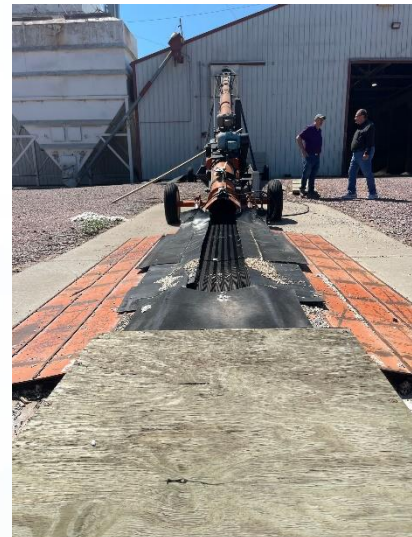
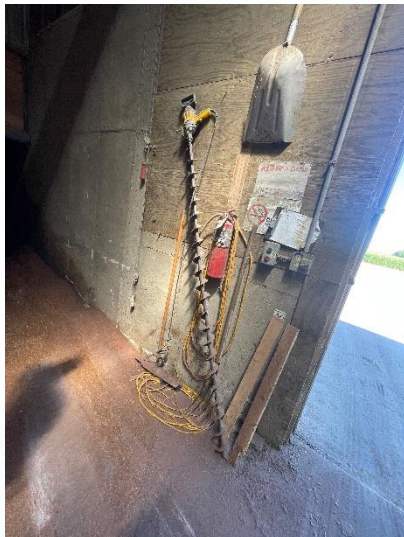
Using a dump and augur, this system works well for grain products in meal and pelleted forms. In the feed mill example below, the pictures show an auger with doors that drop different commodities over different bays. The doors on the auger are on a pulley system to unload over desired bay.



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Unloading Cottonseed: In this feed mill example, a belt system is used to unload cottonseed. This allows farms to be able to bring cottonseed in on hopper bottoms, which can often save up to \$40/ton over live bottom trailers. The person unloading climbs the hopper bottom trailer and drills out towards the augers to get the cottonseed flowing.



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Feed Center Design
Loading and Unloading



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Considerations: There is space required in this type of system. At least 70' is required between bays and an entryway to efficiently deliver into 12'-15' wide bays for enclosed commodity buildings. It could require less space if using wider commodity bays.

Other things to keep in mind with this type of system:

- i. Turning radius for trucks
- ii. Temporary parking areas for tag trailer units
- iii. Overhead clearance for dump trucks / trailers
- iv. Reinforcement / protection of building, bays from damage by trucks and loaders.

Unloading trucks into bins: There are several scenarios that could fall within this unloading system. Below are a few common examples:

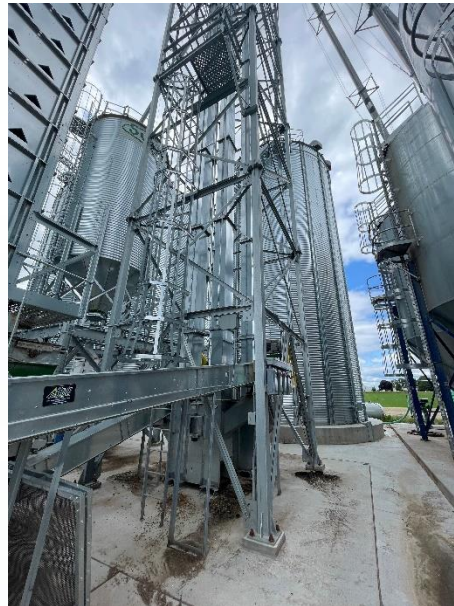
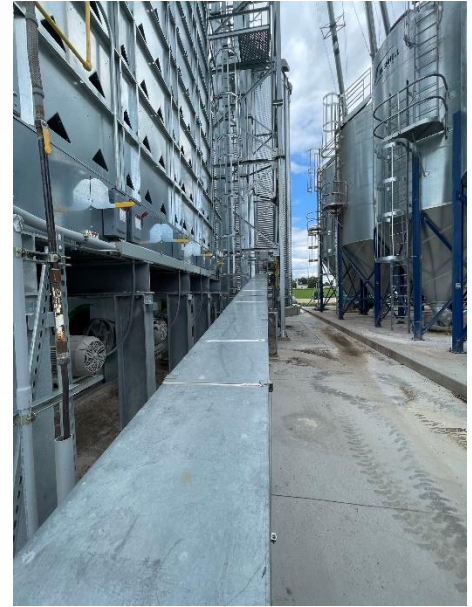
- ✓ Dump pit and lift leg into distribution head (whole grain, meal or pelleted feed forms).
- ✓ Auger from truck into bin (whole grain, meal or pelleted feed forms)
- ✓ Pneumatic delivery from truck into bin (whole grain, meal or pelleted feed forms)
- ✓ Pump delivery from delivery tank into storage tank (liquid feed form)

Considerations:

- a. Limitations to lift leg
 - i. Density of meal form feeds;
 - ii. Minimum percent grain, grain product or protein meal required
 - iii. Maximum % of mineral components ("rock")
- b. Limitations to pneumatic transfer
 - i. Density of meal form feeds
 - ii. Minimum percent grain, grain product or protein meal required'
 - iii. Maximum % of mineral components ("rock")

Farm example with automation: Commodity/grain delivery vehicles can drive over unloading area and dump commodities. This works from live bottom, hopper bottom, or auger trucks. Grain travels up belt into leg system where it can be directed to a wet bin for grains coming from the field to later be directed to the dryer or to the commodity bins next to the feed center to feed into stationary mixer

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Photos from SE MN Dairy

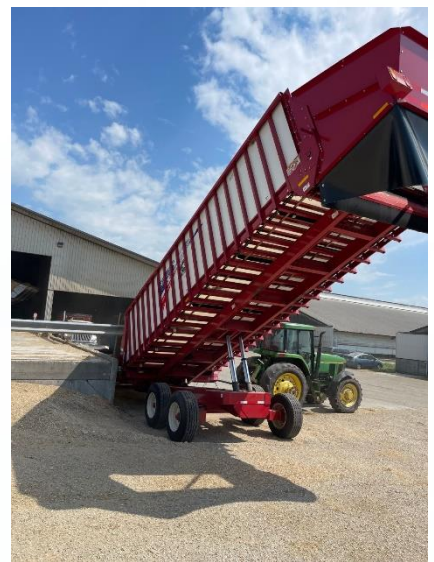
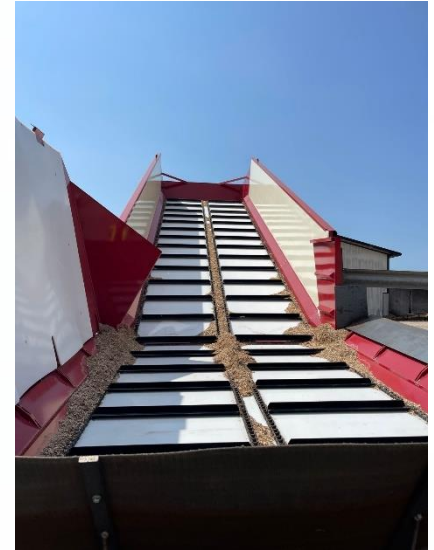
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Meyer Reloader: This Meyer reloader allows for feeding of two sites that are a significant distance apart from one another. The TMR can be mixed normally and then transferred into a delivery truck, which is designed better for road travel than a mixer.

[Meyer reloader link](#)

Roto-mix delivery semi-trailers range in size from 30'-40' and 1425-1900 cu. ft.

[Truck Mounted Commercial feeder box link](#)



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Unloading vs Mixer Wagon: Often the mixer wagon is used to mix ingredients into a premix on-farm. Common methods are unloading on-farm premix via rear dump door into a pile or storage bag. Another option is unloading on-farm premix via side discharge, and then pushing with a loader into pile or storage bay.



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