

W2096 (April 2024)

HARVEST HELP: COMBINE CLEAN-OUT



Recommended Procedures for a Between-field Combine Clean-out

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An Ounce of Prevention is Greater than 150 Pounds of Unwanted Biomaterial

Combines are one of the largest and most impressive machines on a farm. These large machines effectively remove crops from fields and separate grain from other material to be spread back in the field. Following harvest of an individual field, combines retain significant material. As much as 150 pounds of biomaterial is retained, including chaff, grain and weed seed. This material may remain in tight spaces within the machine or in obvious places, such as the gathering head and grain tank.

While it is impossible to remove all material from a combine, effort following the harvest of fields can reduce movement of weed seed and other material from one field to another. Most farmers can point to fields with specific problems that other fields do not have, such as burcucumber, Palmer amaranth, or other difficult-to-manage issues like herbicide-resistant weeds. Sanitation and appropriate combine clean-out when working with these fields should be a top priority to prevent spread of issues.



Material removed from clean grain elevator and tailings elevator when initially opened. (Iowa State University photo)

Priorities to Prevent Spreading Weed Seed

To reduce the movement of issues from one field to another, farmers should take care to do three steps, whenever possible:

- 1. Remove problem weeds prior to harvest to prevent contamination of combine.**
- 2. Consider harvest order to prevent carrying seed of problem weeds to currently clean fields.**
- 3. Practice good clean-out procedures prior to moving to clean fields.**



Plant material caught in the sickle sections of the cutting platform. (NDSU photo)

Combine Clean-out Essentials

Cleaning out the combine prior to moving from one field to another is an essential step to limit potential of weed problems moving from one field to another during harvest. A full clean-out may be impractical due to the time constraints of cleaning the complex interior of a combine. However, farmers should focus on priority areas where significant material may remain and be knocked loose in following fields.

► **This combine is ready to run the auger empty and perform a self clean-out.** (Iowa State University photo)



► **Open the clean grain elevator, tailings elevator, rock trap and unloading auger sump to allow exits for biomaterial during a self-cleaning.** (Iowa State University photo)



◀ **Complete a final clean-out of the rock trap with a leaf blower or air compressor.**

(Iowa State University photo)



▲ **The final step in the clean-out process is to remove biomaterial left on the exterior of the combine, including the straw spreader.** (NDSU photo)

Personal Protective Equipment (PPE)

Wear personal protective equipment when cleaning out a combine. PPE necessary for this clean-out includes gloves, protective eyewear, a dust mask with at least an N95 rating and hearing protection.

20- to 30-Minute Cleaning Steps

A brief 20- to 30-minute cleaning commitment will remove some of the material that may easily come loose later in the field. Priorities for this cleaning should include:

- 1. Run unloading auger empty for at least one minute.**
- 2. Open the clean grain and tailings elevator doors, rock trap and unloading auger sump.**
 - Make sure all bystanders are at least 50 feet away.
 - Optional: Remove the header from the combine prior to self-cleaning.
- 3. Start the combine and separator.**
 - Adjust cleaning shoe fan to full speed for maximum airflow and alternately open and close cleaning shoe sieves electronically.
 - Adjust rotor to full speed for maximum air suction and alternately open and close concaves.
- 4. Operate the combine this way for at least two minutes for self-cleaning.**
 - Optional: Drive over end rows or rough terrain to dislodge material during operation.
- 5. Clean any material left in the rock trap.**
- 6. Use a leaf blower or air compressor to remove material from the exterior of the combine, focusing on the head, feederhouse, and axle and straw spreader at the rear of the machine.**
- 7. Remember to close the doors to the rock trap, and clean the grain elevator and unloading auger sump.**

Summary

This clean-out procedure will not reduce the importance of practicing weed control tactics like removing weeds prior to harvest or choosing harvest order to prevent cross-contamination of fields. It will reduce movement of material and weed seed to fields harvested later in the season. At the end of the harvest season, complete a full combine clean-out for maintenance of the machine.



This publication was originally produced by the North Central Agriculture and Natural Resource Academy as part of the Combine Clean-out Series, 2017.

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