

Harvest Season Clean Out

Kimberly Schmidt, UW-Madison Division of Extension Agriculture Educator, Shawano County

You have most certainly heard of spring cleaning but have you ever heard of harvest cleaning? During harvest this year you may want to take a few extra minutes to clean out your combine before moving between fields. A combine can contain up to 150 pounds of biomaterial and this material often contains weed seeds. Herbicide resistant weeds are a concern that continues to grow in the crop production landscape. Limiting the spread of weed seed between fields is a key part of an integrated pest management system. This is especially important, because the weeds present at harvest were allowed to produce seed and have survived other control attempts during the growing season. These weed seeds, if allowed to spread and germinate, have the potential to become difficult to control elsewhere.

Before cleaning a combine, always read, follow, and understand all safety and operation instructions for the combine and cleaning equipment. Cleaning a combine will produce a lot of dust and debris, thus personal protective equipment is necessary. Wear appropriate work clothes such as long pants and long sleeve shirts or jackets that are not loose fitting. A respirator or dusk mask with a NIOSH rating of N95 or P100 filter size as well as eye protection should be also be worn to protect against dust particles and debris. Cleaning will require a leaf blower or air compressor to blow out all the material so ear protection should be worn.

The 2017 North Central Region Agriculture and Natural Resources Cropping Academy developed the following protocol to clean combines between fields that takes approximately 20-30 minutes.

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

Another optional step you can take to more thoroughly clean

your combine is to pack around 1.5 cubic feet of wood shavings (livestock bedding) into the sump. Once packed turn on the unloading auger and empty the shavings. Dan Smith, Regional Outreach Specialist for the Nutrient and Pest Management Program, along with Kevin Jarek, Extension Outagamie County Agriculture Educator, produced a detailed how-to video on cleaning a combine.

In 2019, Nick Arneson and Dr. Rodrigo Werle with Wisconsin Cropping Systems Weed Science Lab and Dan Smith, Regional Outreach Specialist with Nutrient and Pest Management Program, conducted a case study where 31 samples of debris from 9 different combines were collected. When these samples were mixed with potting mix and soil, and tended to in a greenhouse, 97% of the samples contained viable weed seeds. The percent of samples with a particular weed seed present is illustrated in the following graph. Additionally, 9 of the 31 samples contained viable soybean seeds, and 15 of the 31 samples contained viable corn seeds.

The combine areas contained the following approximate quantities of total weeds emerged in percentages: head/grain platform samples: 49%, feeder house: 30%, rock trap: 19% and rotor: 2%. Harvest is a busy time of year and you may be pressed for time. If this is the case, the results of this study indicate that prioritizing the head and feeder house of the combine would provide the most impact in reducing weed spread for your time.

A few additional tips on reducing the spread of weed would be to try and remove as many weeds from the field before harvest and consider a location when cleaning that reduces a possibility of the weed seeds spreading. Additionally, harvesting fields that have the least amount of weeds or are the most "clean" before more heavily infested fields will also help prevent the spread of weeds.

Herbicide resistant weeds will continue to grow as an issue for producers. Taking a half hour between fields at harvest to clean your combine could potentially save you time and input costs in the future you would have spent on controlling difficult population of weeds.

This article was originally published in Wisconsin Agriculturist Magazine