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HARVEST EQUIPMENT CLEANING PROCEDURES 2020/21

All rice growers and their harvest contractors and carriers (where involved), need to know why harvest hygiene needs to improve and how it can be achieved.

THE PROBLEM

1. Expenditure on grain pest eradication is increasing and restrictions on the use of methyl bromide and resistance to some pest control treatments are an added concern. Prevention is always better than a cure.
2. Contamination of incoming paddy exposes the company to risk, decreases supply chain efficiencies and inflates the cost of processing.
3. Independent investigation by entomologists previously indicated grain pest build up in new paddy sheds could have arisen from infested grain delivered into those sheds. The infestations probably originated from “dirty” (uncleaned) harvest equipment harbouring residual grain from the winter crop harvest.
4. The most serious pest infestations occur when storages or harvesting equipment are not cleaned properly before the first few loads of new season’s paddy are delivered. Testers will always target the first few loads.
5. Cleaning and disinfestation of the storage facilities is the responsibility of SunRice but growers must also play their part by adequately cleaning all harvest equipment before harvest commencement.
6. Good hygiene should be practiced all the year as insect infestations can develop from any residual grain left undisturbed and unprotected. Grain spillages and residues in either open or confined places can provide grain pests with an opportunity to multiply. The best policy is to clean up any grain remnants with a vacuum cleaner or sweep with a broom and then burn or bury the material.
7. Past surveys of rice harvest equipment show many headers and field bins have not been adequately cleaned after cereal harvest was completed. Residual grain in such harvesters and bins can already be infested with grain beetles and weevils.
8. The paddy receival procedure used at the testing platform aims to detect any grain pests in the sample by use of a simple screening technique. Where live insects are detected in delivery samples, dockage penalties will be enforced.
9. Levels of flutriafol have been detected on grain carried in trucks that had previously carted fungicide treated fertilizer. Maximum Residue Limit (MRL) have arisen when marketing this grain.

THE SOLUTION

The proper cleaning of harvest equipment is the first step to eliminating grain pest problems in paddy.

The following steps are recommended to clean a harvester:

1. Clean harvesters immediately after harvest but if it hasn’t been done yet, do it as soon as possible.
2. Open / remove all auger and elevator covers and inspection plates. Set the fan to maximise the airflow.
3. Run the harvester (static) with all inspection covers open for two minutes to eliminate most of the grain and chaff residues.
4. Disconnect the header front to allow better access. Remove the riddles and screens. Both these tasks will only take a few minutes but will greatly improve the ability to clean the machine.
5. Remove any grain and trash by using a high pressure water cleaner or firefighting unit, starting at the top of the machine. Clean down all external surfaces before commencing on the internal parts.
6. Internal areas must include the header front, crop feeder housing, drum and concave, straw walkers, riddle box, fan case, grain box and rotary grain separator (if fitted). Commence cleaning on the upper areas first so grain and residues are flushed down to the escape points where covers have been removed. Avoid aiming high pressure jets at bearings and bushes as it may damage seals and remove lubricants. It is important to clean the harvester in the heat of the day to dry it sufficiently.
7. After washing down, dry the harvester by running it again for a minute or two with maximum airflow passing through the machine. Alternatively, artificially dry the machine using compressed air or a high volume air blower.

8. After the machine is dry, an air compressor can be used to flush out any remaining grains in cracks and crevices. Fitting a rigid copper pipe extension to the compressor hose outlet will give better access to difficult places. Alternatively, a cheap attachment commonly called a “trigger vacuum” which operates on the venturi principle can be fitted to the end of the compressor hose to suck up any loose grains. Other useful cleaning equipment includes hand held electric blowers that can be fitted with PVC extensions for dislodging any grain and it will quickly dry inaccessible areas. In addition, purpose built blower and vacuum equipment designed to clean harvesters is available and is well suited to contractors who need to clean machines down regularly.

It will take a couple of hours to clean a header satisfactorily after harvest is completed and even so, there may still be some grain lodged in the most inaccessible areas. While it is impossible to guarantee a header is completely clean of all grain, around 99% should be removed by the cleaning method described above. For specialist seed growers who need a thoroughly clean machine, it may be necessary to dismantle and remove more panels and covers to get the necessary access.

Cleaning other harvest equipment must not be overlooked:

1. Trucks should be externally cleaned of any grains and debris and the tray and bin parts also swept or washed down. Trucks are easily cleaned but often ignored as a source of contamination. There have been a number of incidents in the past that could have compromised paddy quality because of failure to check truck bins. Do not presume the bins are clean!
2. A thorough washing of vehicles and equipment used to handle fertilizer treated with fungicide is required to effectively reduce the levels of residue fungicide, therefore minimizing the risk of cross contamination of grain.
3. Grain augers can be run in reverse to clean grain off the flights and the hoppers should be removed and cleaned.
4. Field bins and tractor chaser bins need more attention. They should be cleaned of grain in the bin, the auger flights and more importantly in the surge box/grain box compartment at the junction of the horizontal and unloading augers where grain accumulates. Remove/slide the covers to access the surge box. Proper cleaning of field bins and chaser bins is sometimes forgotten since most of the emphasis is on cleaning out the harvester. These bins are often a major source of contaminated grain and grain pest infestations.
5. If possible, do not shed or store harvest equipment near places where grain is being stored. Where it is unavoidable, make sure there is no spilt grain or bags of left over grain in the same area. Where silos of grain or seed exist, make sure there is no grain and debris lying around the base of the silos that could attract grain insects. Keep the area free of weeds to ensure any spilt grain is easily detected and removed.
6. If the storage facilities, harvest equipment, field storage bins and truck bins are all cleaned in advance of harvest, the opportunity for grain pests to multiply in paddy is very much reduced. With an early harvest commencement this year, it's essential that all involved with harvest equipment complete the necessary hygiene in advance – we can't afford any slippage that might compromise our quality.

We look forward to your cooperation in thoroughly cleaning your harvest equipment this season. This will avoid foreign material, other grains and grain insect pests being detected at receipt, which results in significant payment discounts.