GRAINSAFE
STORED GRAIN MANAGEMENT

Clean your harvester for quality grain

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Grain residue in harvesting machinery guarantees a healthy crop of insects to infest next season's harvest.

A little time invested in harvester cleaning after each harvest gives big returns from cleaner grain and fewer breakdowns.

The benefits of cleaning harvesters include:

- ✔ fewer insects in grain;
- ✔ purer seed;
- ✔ less weed problems;
- ✔ better performance;
- ✔ longer harvester life.

Clean harvesters are needed for a *whole-farm approach* to stored grain insect control

▶ Vacuuming

Vacuuming is slow and inefficient. Some areas will be inaccessible and long straw or caked grain tends to block the air hose. A compressor-powered blow/vacuum gun (e.g. the Blovac® is a convenient alternative to the traditional vacuum cleaner. Vacuuming is useful as an aid to other methods.

▶ Compressed air

Compressed air lances clean harvesters very effectively, particularly in difficult-to-reach areas.

A commercial product is the Airlance System. Air lances need at least four litres/sec (8 cfm) of air at 550 kPa (80 psi). They work best around seven litres/sec (15 cfm) at 800 kPa (120 psi).

It typically takes three to four hours to clean a harvester with air lances and a vacuum cleaner.

A combination of cleaning methods works best

▶ Exhaust guns

Exhaust-powered guns allow fast, effective harvester cleaning. They easily remove caked-on grain and residues.

Equipment dealers may have off-the-shelf guns. Alternatively, build an inexpensive unit using the plan included with this article.

Wear protective clothing - overalls, goggles, gloves, dust mask and hearing protection. And never power the exhaust gun from the harvester's engine - the risk of an accident is too high.

▶ High pressure water

High pressure water will clean many areas of a harvester after removing covers from the machinery. Firefighting pumps are suitable.

But all damp residue must be flushed out and the machine thoroughly dried after cleaning.

Use at least 550 kPa (80 psi) water pressure and an adjustable nozzle. Allow at least 2000 litres of water for a thorough job.

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▶ Plan your attack

Prepare a well thought out plan to ensure a successful cleaning job.

Some operators start at the harvester front and finish at the grain bin, while others work from the top down. Use the attached ***Cleaning Checklist*** to develop a plan for your harvester.

Whatever your cleaning method, use a step-by-step approach and stick to it

Whole and broken grain are favourite foods of most grain insects. This residue is often found around the tailings cross auger, main cross auger and grain bin - give these areas particular attention.

▶ Non-chemical protection

Use an inert protectant dust such as Dryacide® to guard your harvester against insect infestation. Dryacide is non-toxic, so is not a problem in markets that are sensitive to chemical residues.

Remove grain residues *before* dusting with protectants such as Dryacide®

After thoroughly cleaning and drying your harvester, dust all internal areas with using a hand-held compressed air venturi gun or bellows. Around 2 to 2.5 kilograms of Dryacide is enough for most harvesters - check the label for details of application rates.

Dust half the Dryacide throughout the machine, then run the machine for a few minutes **without the fans on.** Spread the rest of the dust, then run the machine again.

Dryacide is registered for use throughout Australia on machinery, storages and grain.

Before using the harvester, run it with fans on and inspection covers removed to blow out excess dust.

▶ Chemical protection

Chemical protectant dusts are also available, but approvals vary between states.

Check state regulations and grain buyer's requirements before using chemical dusts rather than inert dusts (e.g. Dryacide) on your harvester or grain.

The danger of contaminating newly-harvested grain is particularly important if you use chemical dusts instead of Dryacide.

▶ Dispose of residue

Insects breed in grain residues left after cleaning harvesters.

Burn, bury or spread them thinly over soil to stop insect activity.

▶ What about fumigation?

Fumigants disinfest grain harvesters effectively, but only if their concentration is high enough for long enough. Gases such as phosphine or methyl bromide are commonly used.

Distributing phosphine fumigant tablets throughout the machine, then loosely covering it with a tarpaulin is not adequate. Well-sealed sheeting must fully enclose the machine - much harder than it sounds!

Licensed fumigators have the gear experience skills needed to fumigate harvesters successfully.

Fumigating your harvester is not a substitute for thorough cleaning

Fumigants are deadly to insects when properly used, but do not stop insects re-infesting your harvester, especially if grain residue is present.

Checklist on next page ▸

- *Harvester Cleaning Checklist* -

Use as a guide for your own checklist

✓ **Read the harvester manual** and follow the manufacturers suggested cleaning methods;

✓ Open the **inspection covers on elevators, augers and conveyors,** then run the harvester for several minutes with the fan on high speed to move grain, dust and straw;

✓ Disconnect the **harvester front** to give better access; clean the tray under the feed auger, preferably with compressed air;

✓ Open the access plates around the **crop elevator** then remove straw and heads from elevator pick-up bars and drive chains;

✓ Remove residue from the **drum and concave** area - clear the stone trap and blow material out of the grain tray and conveyor between the drum and sieves;

✓ Remove access plates on the **fan** casing, then vacuum or blow out with compressed air;

✓ Clean ledges and remove residues from the **straw walkers**, including material around the crank drive shaft;

✓ Blow residues from the **riddles** into the auger trough (open the bottom access plates, if fitted), then clean the trough;

✓ Open the base plate on the **grain tank outloading auger**; sweep or blow residues to the bottom of the bin; clean the bagging-out doors; turn the auger to move residues;

✓ Clean the **exterior** of the harvester, including the elevator area, engine surrounds, fan casing and behind body panels;

✓ For **rotary harvesters**, remove residue from the intake area of rotary separators; detach screen and brush out; clean intake and seconds augers;

✓ Make **mechanical adjustments and repairs** that show up during cleaning; apply a rust-inhibiting preservative to cutting and conveying areas, and lubricate where needed;

✓ **Dust internal surfaces** with a grain protectant such as Dryacide®;

✓ Finally, **put your harvester to bed** (under cover of course) until the next season rolls around.

see exhaust gun plan on back ▸

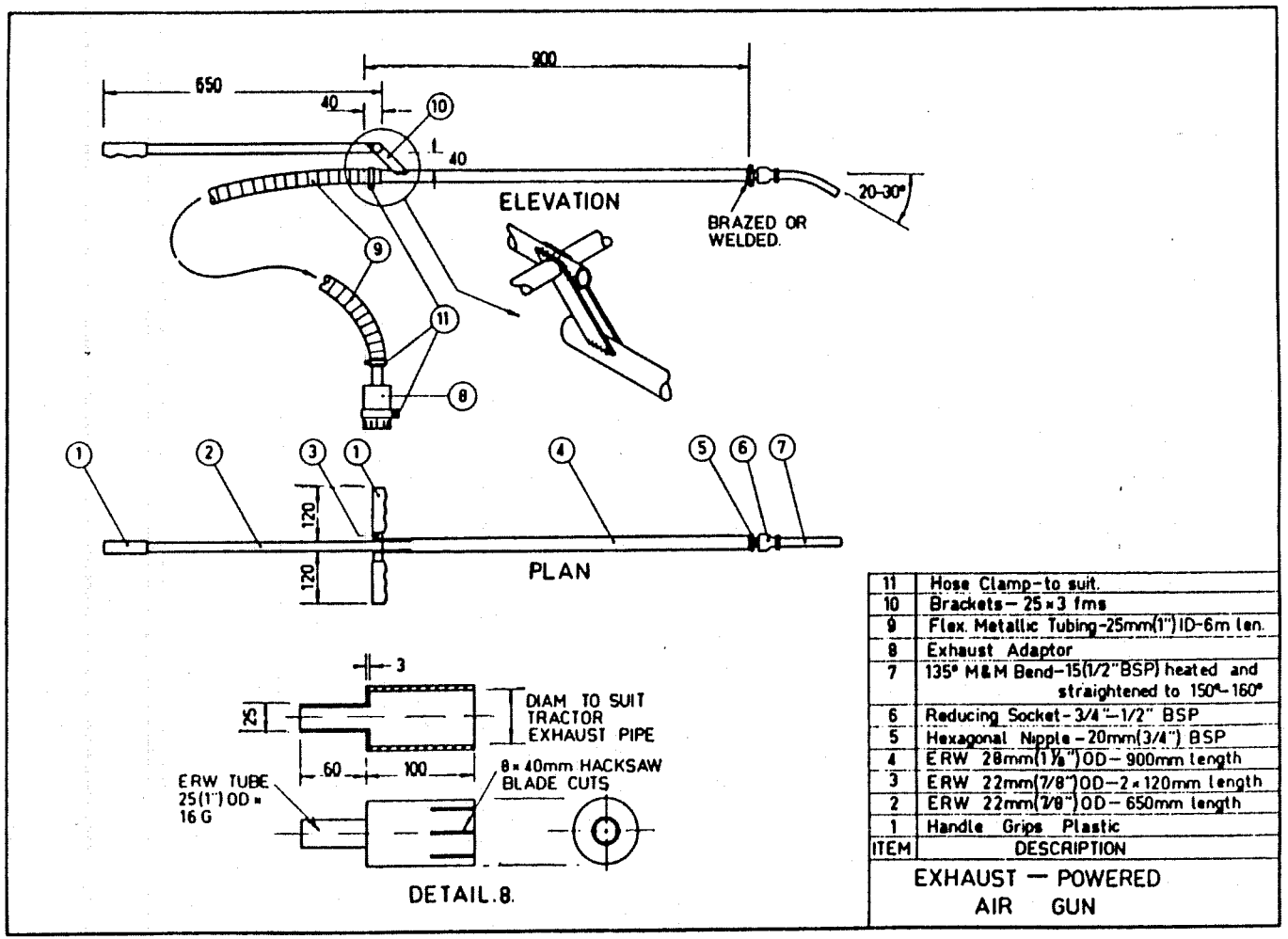

Figure 1 Exhaust-powered gun for cleaning grain harvesters

Source: Harvester cleaning - DPI Queensland (undated information bulletin)