

Agronomic Tip: Control Options for Insects in Stored Grain

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Why is there a problem?

When grain is binned at high temperatures, metabolism of harvested seeds remains high - resulting in seed respiration. This produces moisture and heat. When this moisture is combined with condensation from grain cooling in the fall, it can lead to grain crusting at bin tops and grain spoilage. It is in this environment where insects in stored grain thrive.

How to Control Insects:

1. **Aerate Grain** – this is the least expensive and most practical option for farmers that they can do themselves. Even in late fall, when temperatures are just around 0°C, cooling the grain will slow down the grain feeding insects (rusty grain beetles, red flour beetles). As the temperatures drop over the winter, the less time it takes to kill the insects.

Time Required to Kill Insects at Various Grain Temperatures	
Grain Temperature	Time Required to Kill Insects
-5°C	12 weeks
-10°C	8 weeks
-15°C	4 weeks
-20°C	1 week

Source: Manitoba Guide to Crop Protection 2006

2. **Phostoxin** – in tablet or pellet form can be placed in bins and acts to fumigate the grain and kill insects (see Guide to Crop Protection for registered crops and insect controlled). This is a restricted product and can only be sold and used by licensed pesticide applicators possessing a valid fumigation or stored agricultural products license. See Guide to Crop Protection for length of exposure for control.
3. **Diatomaceous earth** – Rusty grain beetle infested grain from bins needs to be removed, and diatomaceous earth added as grain is augered back into the bin. When rusty grain beetles come in contact with dust, the waxy cover on the exoskeleton is absorbed, leaving them susceptible to dehydration. It can take five or six weeks to control insects with this method.

If there is grain crusting as well as insects in grain bins, remove the crust from the bin first and then proceed with preferred insect control method.

Compiled by CANTERRA SEEDS