

Strategies to Control Weevils in Grain Storage Facilities

Weevils in grain storage facilities can be difficult pests to control. There are many species, such as the rice weevil (*Sitophilus oryzae*), maize weevil (*Sitophilus zeamais*), and the granary weevil (*Sitophilus granarius*). These weevils are easily identified from other grain insects by their long proboscis or snout. Their mouthparts are at the end of the snout. The female chews a hole in a kernel of grain and deposits an egg inside the kernel. She then seals the egg inside the grain where the juvenile will go through its entire life cycle and emerge as an adult. Go to <http://ento.psu.edu/extension/factsheets/weevils-on-stored-grain>* for details on the insect's biology.

Because of the way weevils transform from egg to adult and isolate themselves inside the grain kernel, they can be difficult to control. However, an effective way to control them is to kill the adults on contact with a tank mix of Centynal™ EC Insecticide and PBO-8® Synergist or Diacon® IGR PLUS and PBO-8® Synergist.

As weevils proliferate across the U.S., there are unique situations where the control of the weevil requires a specific approach for effective control.

- **SITUATION #1** - the insects are not common but have been introduced into a few grain handling facilities from harborage in the surrounding area and are spreading as new grain enters storage.
- **SITUATION #2** - the insect is common, but is not dispersed widely in the environment.
- **SITUATION #3** - weevils infest the field, the grain facilities, and the grounds surrounding grain storage areas. Some of the insect populations may have developed resistance to pyrethroid chemistry.



THE RICE WEEVIL



THE GRANARY WEEVIL

Centynal™ EC Insecticide has been evaluated in the laboratory and in university trials, and has shown to be an effective tool in weevil management. In pyrethroid resistant populations, the addition of PBO-8® Synergist improves the performance and control that Centynal™ EC Insecticide offers. Centynal™ EC Insecticide is effective for approximately 90 days. Diacon® IGR or Diacon® IGR PLUS may be added in cases where long-term storage is needed. Both provide protection from other invading stored product pests. If weevils are seen during monitoring after about 90 days; then fumigation with an EPA registered fumigant or turning the grain and re-treating with Centynal™ EC Insecticide and PBO-8® Synergist or Diacon® IGR PLUS and PBO-8® Synergist will be necessary.

THE WEEVIL CONTROL STRATEGY

- Clean grain storage facilities and grain handling equipment thoroughly and treat with a Centynal™ EC Insecticide/Diacon® IGR/PBO-8® Synergist tank mix or Diacon® IGR *PLUS* and PBO-8® Synergist at labeled rates. Make sure there are no places for weevils to hide.
- Check all incoming loads for insects; especially if coming from suspected sources of weevils. Hold a sample of suspected weevil infested grain in a jar so you can observe it for a few months.
- Treat all incoming grain that will or may be stored more than a few months with Diacon® IGR *PLUS* and PBO-8® Synergist.
- If the grain will only be stored 3 months or less, use Centynal™ EC Insecticide and PBO-8® Synergist on the grain as it goes into a cleaned storage facility.
- If the grain will be stored in ground piles, consider treating the grain with Centynal™ EC Insecticide and PBO-8® Synergist at labeled rates and Diacon® IGR at 4 fl oz/1000 bu from the beginning, especially if weevils are suspected with the incoming grain.
- If weevils emerge in storage, turn the grain and treat it with Centynal™ EC Insecticide and PBO-8® Synergist, Diacon® IGR *PLUS* and PBO-8® Synergist, or fumigate with an EPA registered fumigant.
- Always follow label directions for use and personal protective equipment requirements.
- Follow label rates.
- Some situations may require fumigation with an EPA registered fumigant for short-term control of grain insects.

To learn more about weevils, other stored product insects and the lineup of products that control them, visit BugFreeGrains.com.



 **CENTRAL** Life Sciences®

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