Insecticide Netting

To Prevent Insect Infestation at Food Facilities

Project Overview

- Long-lasting insecticide-incorporated netting (LLIN) may be an ideal way to prevent insects from reaching commodities in facilities or to prevent movement of insects between different parts of facilities.
- We tested netting with 0.4% deltamethrin produced by Vestergaard Inc. and distributed by AgBio, Inc. for post-harvest purposes.
- Even brief contact with netting by insects has profound negative effects on movement and dispersal that are immediate and long-lived.
- Although long exposures are required for rapid kill, repeated short exposures have same effect.

Fast Facts

75-93%
CUMULATIVE MORTALITY AFTER A 5 MIN EXPOSURE IN 5 OF 8 SPECIES TESTED

88%
MOVEMENT REDUCTION AFTER EXPOSURE

99%
PROGENY REDUCTION IN SIMULATED WAREHOUSES

1+ year
RESIDUAL EFFICACY

10+
WAYS TO DEPLOY NETTING

$0.58/sq ft
COST TO PURCHASE NETTING

More Info on Project & Other Post-Harvest Resources

Project Team

Authors: William R. Morrison III (USDA), Deanna Scheff (USDA), Alison R. Gerken (USDA), Rachel V. Wilkins (KSU), Kun Yan Zhu (KSU), Tanja McKay (ASU), Thomas Phillips (KSU), Georgina Bingham (UNL), and James F. Campbell (USDA)

This work was funded, in part, by NIFA CPPM **Grant#2017-70006-27262**

Kansas State University
Arkansas State University
University of Nebraska Lincoln
USDA

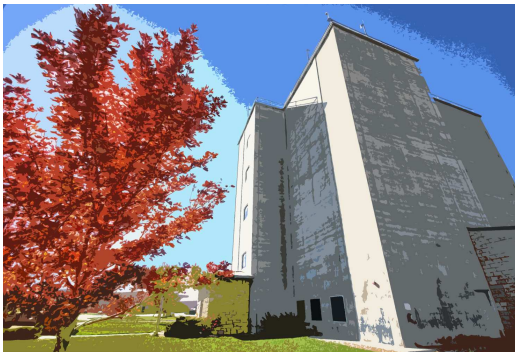
Where to deploy insecticide netting?

Specific locations in the post-harvest supply chain

Bulk Storage	Transportation	Processing & Retail
• Grain bins	• Trains	• Mills
• Elevators	• Semi-trucks	• Warehouses
• Flat storage	• Ships	• Stores

#1 Covering for doors, windows, partitions, and vents at **processing facilities**

- Larger size of the netting holes allows airflow
- Immigrating insects will be intercepted
- After contact, results include: reduced movement, reproduction, and infestation

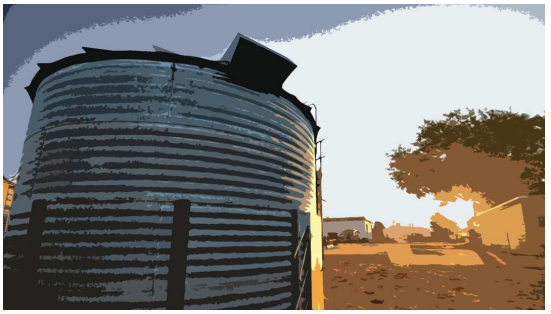


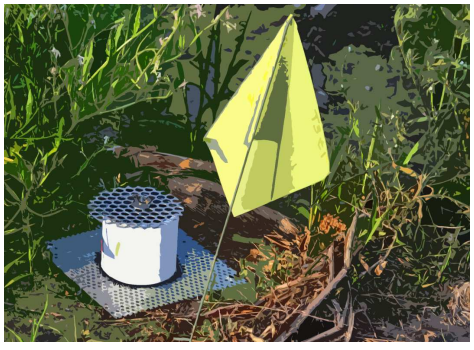
#2 Coverings for **palleted** or **packaged** goods

- Pallets or shelves can be covered with netting
- Insects attracted to products encounter netting
- Warehouses w/ netting = lower infestation & offspring

#3 To protect **bulk storage** of grain

- Cover vents, awnings, access ports, or the boot of bins
- Attracted insects will not be able to gain access





#4 As a kill mechanism in a **trap** to protect perimeter

- Combine netting with attractants in a trap to kill insects
- No repellent effects of netting with goal to attract insects to spatially limited area and reduce the risk of infestation