



# PROVISION VALUE GARD

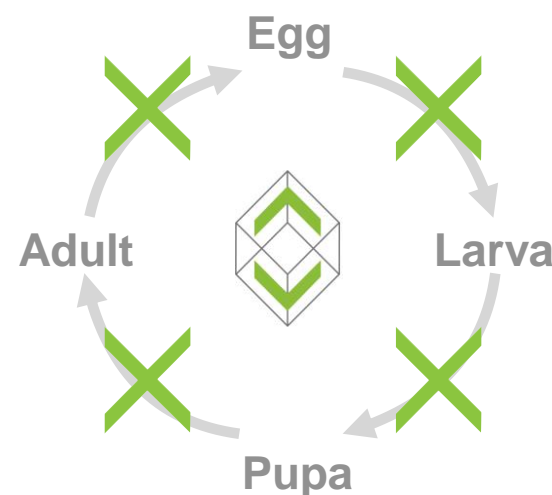
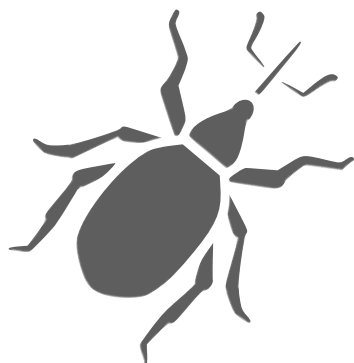
BLOCKING INSECTS



# What is ProvisionGard™ ?

PROVISIONGARD™ is a water-based coating that contains an active insect-growth-regulator (IGR) ingredient to control insect infestation of the packaged product for over 2 years by preventing insects from evolving through their lifecycle stages.

As insects contact the surface of the PROVISIONGARD™ coated packaging, they absorb the insect growth regulator and cease evolving to their next stage of the growth cycle and die without contributing to insect population growth.



What differentiates the PROVISIONGARD™ active ingredient from widely used pesticides is that this technology is based on naturally occurring substances found only in insects. It is not harmful to children, birds, dogs, cats, or other mammals and bees.

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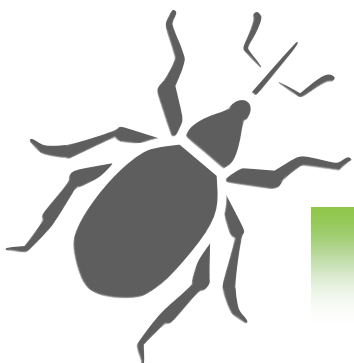
# What is ProvisionGard™ ?

PROVISIONGARD™ restricts reproduction of all members of the Stored Grain insect world. The most common insects affecting dry packaged food include:

- Indian Meal Moth
- Sawtoothed Grain Beetles
- Red Flour Beetle
- Rice Weevil
- Cigarette Beetle
- Lesser Grain Borer
- Warehouse Beetle
- Confused Flour Beetle
- Psocid

## End Use Markets

- Rice
- Flour & Bakery Mix
- Pasta
- Cereal Grains
- Corn Meal / Corn Flour
- Breakfast Cereal
- Corn Soy Milk (CSM)
- Dried Fruit
- Starches
- Dry Powdered Milk
- Spices
- Dried Peppers and Vegetables
- Confectionaries
- Seed
- Tobacco Products
- Bird Seed
- Livestock & Poultry Feed
- Pet Food & Treats



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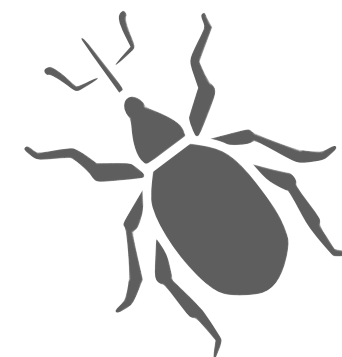


# The ProvisionGard™ Results

Since 2004, dozens of tests comparing customers' existing packages to the same packages prepared with ProvisionGard™ products have been completed. Food types have included breakfast cereals, granola bars, rice, pasta, dried fruit, nuts, pet treats, pet food, bird seed, and animal feeds.

Over all of these tests, results have been remarkably consistent regardless of the package type or food contained within the package. Insect control with ProvisionGard™ is less a function of package type or food being protected, as it is simply the exposure of insects to the patented combination of coating and insect-growth regulator.

Typically, over a 90-day testing period, the difference in insect population between a control and treated package is 85 – 98%.



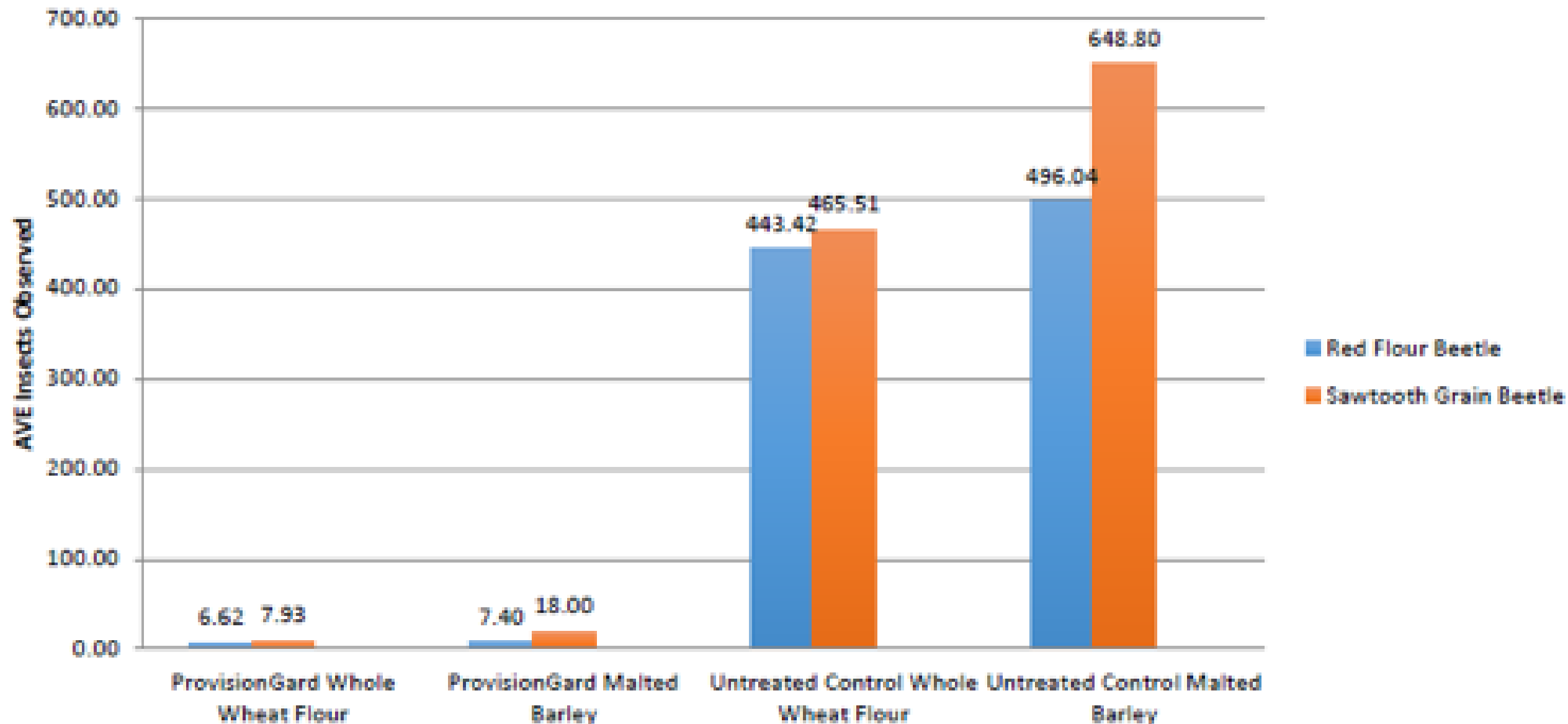
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# The ProvisionGard™ Results

Summary Chart of average number of insects observed by species between treated and control bags - SOM paper multi wall

Comparison of ProvisionGard coated and Untreated Control Bags



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ProvisionGard Insect Study

# Moses Biologic

Insect Testing Services

Masters of Entomology Kansas State University



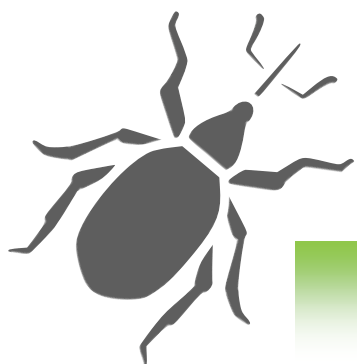
# ProvisionGard™ Results

Conclusion from IIFPT PVG Project Efficacy Report



## 4. Conclusion

The present study has demonstrated the effectiveness of Provision Value Gard treated packaging materials against red flour beetle, *T. castaneum* and cigarette beetle, *L. serricorne*. Exposure of egg stage of *T. castaneum* to PVG treated packaging materials showed efficacy in inhibiting the growth of larval stage and further development of insects. The packaging treatment with PVG could be used as a preventive method to help manage stored products insects in areas where bagged and packaged food products are stored. Thus, PVG products will effectively help in the inhibiting the growth of *T. castaneum* and *L. serricorne*.

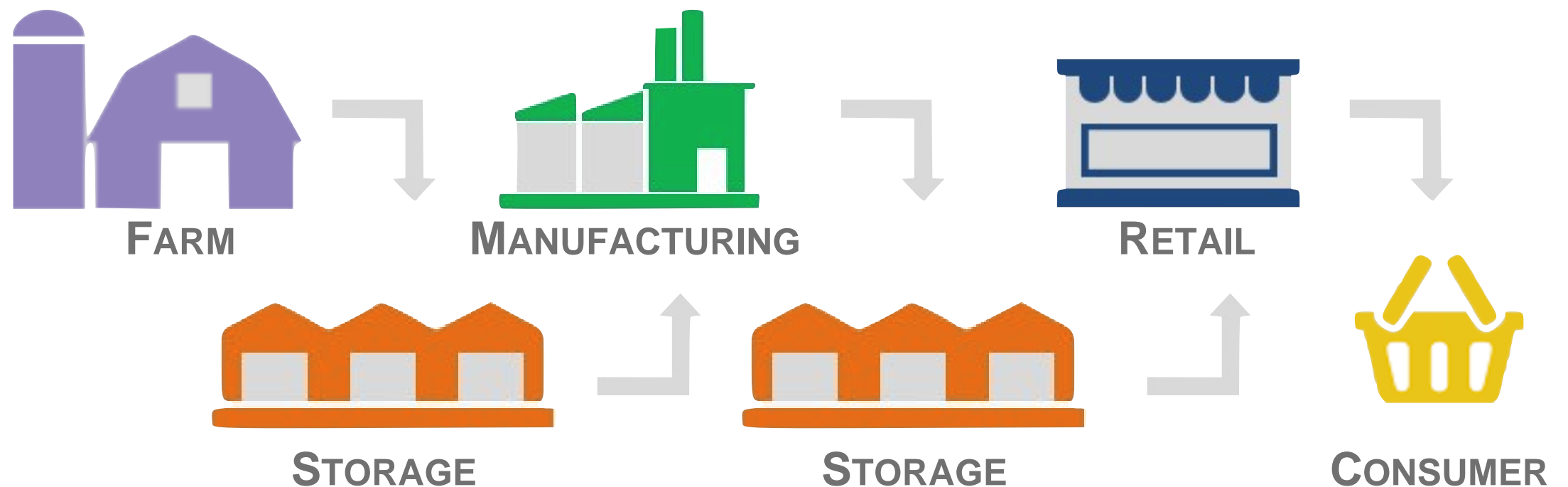


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# Food Supply Chain



With the wide range of applications, ProvisionGard™ can provide protection from insect infestation at all stages of your supply chain!

**Protect your product from Farm to Fork!**

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# How is ProvisionGard™ applied?

ProvisionGard™ insect-suppression coating is ideally applied to **paper-based** packaging during the printing or converting process. In many instances, ProvisionGard™ water-based coating replaces the coating already in use. Flexographic and rotogravure are the usual application methods. Typical coating weights required vary from 1.0 – 2.0 pounds per 3000 square foot ream.

ProvisionGard™ products can also be used in **Woven Polypropylene** packaging. Here, PVG is incorporated into the BOPP/WPP material during the lamination process via a food-grade polyethylene pellet additive.

**Films** can also be produced using these same additive pellets by mixing them during the film casting or blowing process. This could include creating multilayer film structures for film packaging and even stretch-film.

**Adhesives** for film and paper bonding can deliver the ProvisionGard active by a simple addition to their current formulation. This includes solvent-based, solvent-less, and water-based systems.

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# ProvisionGard™ Commercially Available Products

Polymer Films

Coatings

Adhesives

PGT 81086 PE  
Additive Pellets

PGT 23207 water  
based carton  
coating

PGT 24000 water  
based paper  
coating

Solvent /  
Solventless  
Additive



Flexible Film



Super Sacs



Primary Cartons



Paper Bags



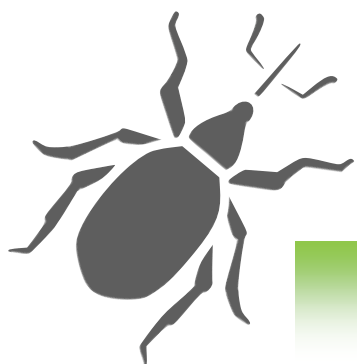
Corrugate

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# Environmental Statement

- Recyclable
- Repulpable
- Non-Toxic
- Non-Flammable
- Non-Hazardous
- EPA Approved
- FDA Compliant
- Meets CONEG Requirements
- Free of Hazardous Air Pollutants

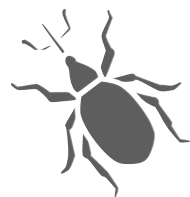


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# Industry Approvals

- **IIFPT** Indian Institute of Food Processing Technology (Ministry of Food Processing Industries) (May 2018) Report affirmed the efficacy of ProvisionGard™
- **ConAgra** - Global Safety and Health Vice President has approved ProvisionGard™ for use on its packaged products
- **Kellogg** - Global Food Safety Group approved ProvisionGard™ for use on primary cartons and secondary packaging
- **PepsiCo** has approved for use on paper and film food packaging to address insect infestations
- **North American Millers Association** has approved for use on all paper and woven packaging for exports
- **USAid Food For Peace Program** has approved ProvisionGard™ for use on all paper and woven packaging for exports
- **USDA** Frank Arthur - Research Entomologist delivered a presentation to the Entomological Society of America (Nov 16, 2015) affirming the efficacy of ProvisionGard™



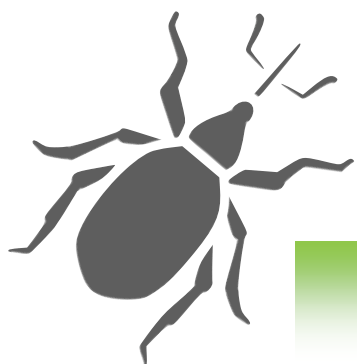
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# Global Customers



HORSE FEED

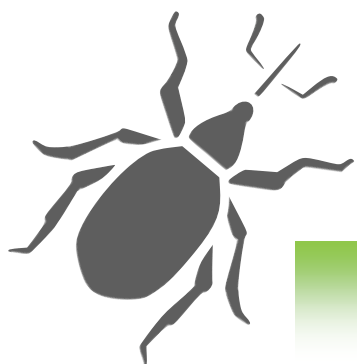
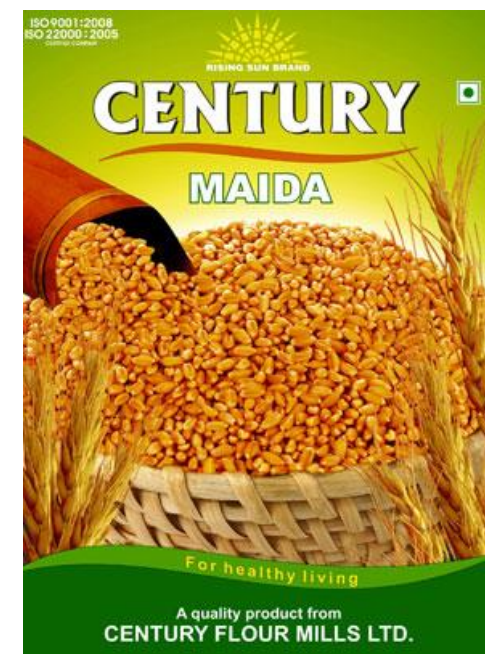


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# India Customers



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# Frequently Asked Questions

**Will my packaging manufacturer need to re-tool to use ProvisionGard™?**

No. ProvisionGard™ products will not require any changes to your existing setup.

**Where is ProvisionGard™ being used?**

It is currently used in many countries, including but not limited to, the European Union, Australia, New Zealand, UK, Canada, and Japan.

**Is there any danger in handling and being exposed to ProvisionGard™ in the printing process?**

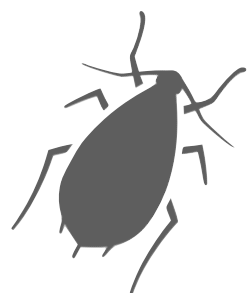
There are no additional risks associated with exposure to ProvisionGard™ in the converting process compared to the standard water-based coatings and polymers.

**Does ProvisionGard™ affect the taste or odour of the package contents?**

Several palatability studies have been conducted by separate end-use customers. None of these tests have shown any difference between a PG package and standard packages.

**What is the effective shelf life of a PVG Coated Package?**

ProvisionGard™ packages are continuing to exhibit undiminished insect suppression 2 years after conversion.



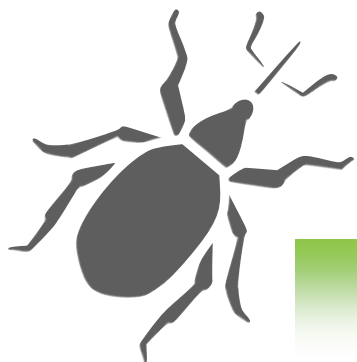
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# Summary of the ProvisionGard™ Benefits

- ProvisionGard™ reduces fumigation requirements
- ProvisionGard™ generates cost savings
- Protect your brand reputation
- Reduce product losses
- A central component to your **Green** initiative
- ProvisionGard™ is safe and approved by EPA and FDA for food packaging
- Multiple applications - paper, plastic and woven products
- Increase product shelf-life
- Expansion into new markets
- Provides solution to consumer complaints, returns and company image
- No additional equipment or labour to implement added value



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