



CASE STUDY:

Recipe for success:
Removing cockroaches
from a food plant



Intensive inspections uncover a deep-rooted cockroach problem in a commercial bakery. Discover how our experts solved it.

COMMON PESTS IN FOOD PROCESSING FACILITIES



Ants



Cockroaches



Flies



Rodents



Stored Product Pests



Nuisance Birds

INTRODUCTION

The German cockroach is the most common cockroach species in the United States. In addition to harboring a variety of pathogens, including some of those responsible for foodborne illness, this pest can also trigger asthma and allergies for people who are sensitive.¹ Its small size, prolific reproduction capabilities, and secretive behavior contribute to its success as a prominent pest of concern around the world.

The adult German cockroach measures approximately 1/2-inch in length. It is light brown and has two parallel dark stripes on the pronotum, the area behind the

head. It has three life stages, egg, nymph, and adult, and the life cycle can be completed in as little as 100 days under favorable conditions. This can contribute to the rapid development of large populations in a relatively short time.

This species is omnivorous in its diet, feeding on a wide variety of foods. It prefers to live in cracks and crevices where there is moisture and warmth. As such, it can be found in nearly any environment that offers these conditions, including residences, food facilities, and other commercial establishments throughout the U.S.

¹ American Lung Association. "[Cockroaches](#)." Last updated November 2, 2023. Accessed March 13, 2024.



CHALLENGE

Due to the availability of a plethora of food sources, warmth generated by equipment and machinery, and a wide array of harborage environments, food processing facilities offer an ideal environment for German cockroaches. In these operations, infestations are typically found in abundance where moisture and warmth provide critical elements for survival. They are more common in plants where liquids are processed, steam is generated, and/or power washing is done to clean plant equipment and surfaces.

There are two common points of entry for the German cockroach into food processing facilities: hitchhiking with plant employees or being introduced via incoming goods. This pest is not

commonly found outdoors and rarely invades from the exterior perimeter of the building. The adult pest has wings but does not fly.

Because this pest is attracted to areas of warmth and moisture, infestations are typically found in close proximity to where food is processed and exposed. This behavior increases the concern for food contamination. While infestations can occur anywhere in the plant, they are less likely to be found in the packaging and warehousing areas than near the production floor.

That's where our challenge began. A food processing facility that produced bakery goods was experiencing chronic issues with German

cockroaches in their production area. The areas where cockroaches were being spotted met the profile of having cracks and crevices, moisture, and warmth. The facility was equipped with large proofers and ovens, both of which provided the needed survival element of heat. Mixing areas, proofers, and clean-up procedures all provided humidity and moisture for the second cockroach survival element.

Proofer ovens are particularly ideal for the German cockroach, providing just the right amount of warmth and humidity to help them thrive. The same temperatures and humidity levels which are ideal for yeast growth are perfect for German cockroach development.



INVESTIGATION

To get to the root of the problem, our experts began with an intensive initial inspection. They uncovered cockroaches at the base of the walls and doors of the proofer ovens. The facility had large, walk-in proofers. Product was moved in and out of these proofers on carts. Since the product is exposed within the proofers, there was a serious concern for food safety,

as cockroaches could come into direct contact with the food in the proofer.

The inspection also found cockroaches around oven insulation and in the product mixing areas. Cockroaches were not found in storage, and were identified in limited numbers in the packaging area.

SOLUTION

To pinpoint all of the areas where cockroaches were hiding, and to monitor the progress and performance of the treatment plan, our experts implemented an extensive monitoring program. Glue traps were placed inside small plastic holders that were secured in place to prevent them from being washed away during clean-up procedures.

Traps were numbered, mapped, and tracked for activity. Processing, packaging, employee break areas, and locker rooms were all targeted and included in the monitoring program. Since employees can bring in cockroaches on personal belongings from home, it was essential to check all areas of known infestation and points for potential introduction to gauge what additional treatment tactics may need to be implemented.

An important tactic in German cockroach control is to remove as much harborage as possible. Because these insects are so diverse in their feeding habits, removal of all possible sources of food is very difficult. Sanitation is still important, but attacking and removing harborage is a key non-chemical strategy used to reduce survival. A first step in reducing the harborage opportunity was to have the client seal the bases and doors of the walk-in proofer ovens.

Insecticide baits were used cautiously in the facility to achieve a knockdown of population numbers. This was in conjunction with pin-point insecticide applications directed at deep harborage areas around oven walls and oven insulation. All treatments were made by placing insecticides into the cracks and crevices where the cockroaches were harboring.

Through these monitoring, inspection, and treatment efforts, cockroaches were found not only in the oven insulation and proofer ovens but also in the complex layers of mixing tank walls. The tank was composed of a thick covering of stainless steel over a layer of insulation and stainless steel interior liner. The seals on the stainless steel outer covering were not intact and moisture seeping into the insulation provided ideal conditions for cockroach survival. As such, after consultation with the client, it was determined that the mixer construction needed to be modified and changed to eliminate this harborage point.



SUMMARY

The solution to this pervasive cockroach problem is a perfect illustration of integrated pest management (or IPM). It hinged on an intensive inspection and monitoring program to identify all areas of cockroach harborage. Without it, cockroaches living in hidden areas, such as oven and mixer insulation, would have continued to thrive.

After harborage areas were identified, our experts worked in partnership with the client to achieve successful elimination of the problem. Several

equipment modifications were required to not only remedy existing issues but also to help prevent future infestations. Chemical treatments could not have effectively controlled the population without this concerted effort on the part of the client.

Visual inspections and ongoing monitoring will remain an essential element of this program to identify any new areas of pest development and address them early.

Reduce your facility's pest risk.

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