FOOD Quality
Farm to Fork Quality Assurance

PART IV
FoodTech: Tools That Changed the Industry

# PEST CONTROL Past AND Present

## Over time, pest control has undergone a sea of change

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IN TODAY'S CLIMATE OF HEIGHTENED FOOD SAFETY scrutiny, it is hard to believe that not so long ago, attitudes about what constituted a hygienic processing environment were very different. This is especially true for pest management practices. Only a little more than 70 years have passed since Congress enacted the Federal Food, Drug and Cosmetic Act of 1938 (FD&C Act), and a little more than 100 years ago, Upton Sinclair's *The Jungle* opened America's eyes to what was happening in meat packing plants.

While it was revolutionary at the time, the FD&C Act did not offer concrete recommendations on how a plant should be kept sanitary. The word "may" is peppered throughout the act, leaving what constitutes food "adulteration" open to U.S. Food and Drug Administration (FDA) auditors' interpretations. Unfortunately, at the time the law was enacted, the FDA would only investigate a plant in response to a complaint.

Just as it does now, the U.S. Department of Agriculture of the 1930s oversaw only meat and poultry processing plants and dictated only which pesticides should be used, not how to prevent pests as today's government regulators prefer. Approved pesticides and a cursory overview of the pest control program varied from inspector to inspector. Without regular FDA inspections, plant employees were left to decide for themselves whether or not food was fit for consumption and if the production environment could compromise food safety. Even today, Section 402(a) of the act remains ambiguous. Section 402(a)(4) particularly relates to pest management, because pests are considered a contaminant:

"A food shall be deemed to be adulterated if ... it has been prepared, packed, or held under conditions whereby it may have become contaminated with filth, or whereby it may have been rendered injurious to health."

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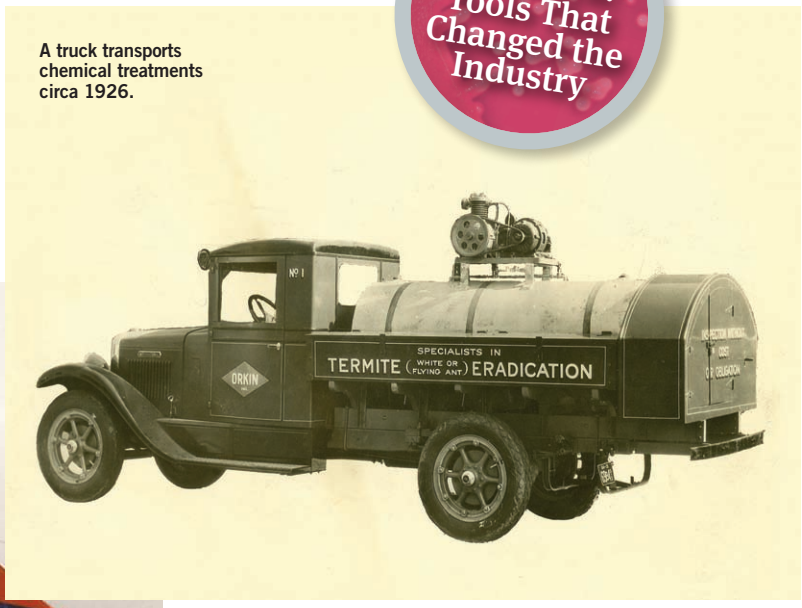
This ambiguity left pest control operators with two groups of customers—those who cared about pest management and those who did not. Big names in the food processing industry were willing to allocate the necessary funds to control pests, recognizing that it protected their brands by ensuring product integrity, while some smaller operators simply aimed for the least expensive pest control service.




A truck transports chemical treatments circa 1926.


Annual fumigations sometimes took the place of a proactive sanitation program.

## USE ANY MEANS NECESSARY

The two different customers shared one common trait: Both believed that it was entirely the pest control professional's responsibility to get rid of pests. They did not view pest management as a partnership in which the plant's sanitation and facility maintenance functions should each play a part in pest prevention. Instead, many manufacturers relied on toxic fumigants such as methyl bromide or aluminum phosphide. Unfortunately, annual fumigation of facilities and/or commodities became a substitute for ongoing sanitation and preventive pest control.

Today, fumigations are used only in extreme cases, when other prevention and treatment methods have failed. The Environmental Protection Agency has removed many pesticides, including methyl bromide, from the approved list, with some quarantine exemptions. Because of these pesticide restrictions and the reduction of fumigations, Integrated Pest Management (IPM) has become the food processing industry standard.

## EVERYTHING OLD IS NEW AGAIN

While it might seem like IPM is a hot new buzzword in the pest management industry, it is actually a very old practice. In the past, IPM was used for practical reasons. As early as 2500 B.C., Sumerians used sulfur compounds to control insects and mites. The first descriptions of cultural controls (i.e., behavioral changes) date back to 1500 B.C., when humans began to plant dates to control pests. In 13 B.C., the Romans implemented mechanical controls by building the first ratproof granary. Though it was not called IPM then, these early pioneers were practicing IPM by manipulating their environment to protect their food sources from pests.

IPM was used in the United States as well. In the 1950s, American farmers began using IPM to tackle insecticide overuse, which was making pests resistant to chemical control. This led to a secondary problem—once their natural enemies had been killed by an initial insecticide application, new pests would attack crops with the same effect. As IPM grew in agriculture, the concept migrated into structural pest management.

In 1975, IPM was formulated into national policy when President Richard Nixon directed federal agencies to take steps to advance the concept and application of IPM in all relevant sectors. In 1979, President Carter established an interagency IPM Coordinating Committee to ensure development and implementation of IPM practices.

## ADOPTING A MORE HOLISTIC APPROACH

Back in the food processing industry, another factor was leading to a more holistic pest management approach—the start of independent food safety educational organizations. The American Institute of Baking, now AIB International, which started as an educational agency teaching people in the baking industry, set

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sanitation and food safety guidelines that eventually became the industry norm. Companies like ASI Food Safety Consultants and Silliker, which looked at plant sanitation and pest control practices, were soon to follow.

While these shifts were happening across the food manufacturing industry, one particular pest control incident changed the way large food processors viewed pest control providers. A pest control company working for one of the largest U.S. food manufacturers applied the wrong chemicals in its facility, forcing the manufacturer to dispose of tons of product and lose significant revenue, while the pest control company incurred legal penalties. Food processors began to see that choosing the lowest bidder was not necessarily the best strategy when it came to pest management.

After that incident, and with the increased presence of third-party auditors, food processors started looking more closely at the use of prevention to control pests. Professional pest control providers had always spoken to customers about monitoring and conducive conditions, but customers had not necessarily given this information their full attention.

Sometime after these changes began, I inspected a plant in Canada and found holes in an exterior wall. The plant manager approached me when he heard I was going to write up the holes in my report. He had the maintenance person fix the holes right in front of me and then asked, "Do you see any holes now?" This incident really showed me how things had changed—plants were now taking the IPM we had been preaching seriously.

## RODENTICIDE USE HAS CHANGED

Another big advancement involves the way food processors use rodenticides, even though the official rules have not changed. According to the label, a rodenticide can legally be used inside a building as long as it is housed in a tamper-resistant bait station and is not accessible to non-target organisms. Years ago, rodenticide was used in open-bait stations inside buildings, placed every 20 to 30 feet. That method caused concern about cross-contamination, however, because rodents could spread the rodenticide to food products. These days, I do not know of a single food manufacturer that allows rodenticide inside its plant.

Today, IPM is essentially the prevention and treatment of pest problems using all the tools at your disposal—not just chemicals. These tools may be biological, like planting marigolds to deter certain insects or using parasitic wasps to control flies; mechanical, including sealing holes in walls and performing other pest exclusion work; or cultural, such as educating staff on sanitation procedures. Chemicals are not off limits in IPM, but the use of unnecessary chemicals is. When needed, chemicals must be selected carefully; the least toxic, least volatile material suitable for the job must be applied to specifically targeted areas based on pest behavior. This has always been the case. What has changed is people's motivation to implement IPM programs. Today, reducing chemical usage as part of sustainability programs motivates businesses.

## NEW ERA OF CHEMICAL REDUCTION

Fortunately, change has been for the better. The Global Food Safety Initiative (GFSI), a nonprofit organization whose food safety criteria has been adopted by major food retailers, has changed the game, kicking off another new era of chemical reduction and very specific IPM standards. IPM is no longer a nice-to-have for the big brands but a must-have for all food processors who want to distribute their products to major retailers. Food processors now view pest management providers as partners in food safety rather than as vendors who practice what the industry has long referred to as "spray and pray." Food safety auditors now pore over pest management documentation to ensure the correction of all noted deficiencies, while modern pest management professionals use electronic handheld devices to track data in real time and analyze large data sets over time to see trends in pest activity—allowing even more targeted and effective pest management.


**Pest control has made many advances since the times when technicians relied on bicycles during World War II gasoline rations.**

Food safety will always be an important topic. With globalization of our food sources increasing, the importance of traceability will grow as retailers look to track every step in the supply chain, from farm to fork. Pest management will evolve to encompass even more electronic data so that all stakeholders can see the pest management steps that have been taken—from processor to distributors to retailers. Professionalism in the pest management industry will become even more important as food processors seek out well-trained and knowledgeable providers with whom to collaborate on comprehensive IPM programs.

Evaluate your pest management provider with the future in mind. Seek out a professional who is well versed in the current food safety standards—particularly those that fall under GFSI. Ask about training programs and find out if the provider is familiar with good manufacturing practices. Your pest management provider should be a partner rather than a vendor. Together you can help keep your products safe—protecting your customers, the end consumer, and your company's brand. A new century is here. Are you ready? ■

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