

ADVERTORIAL

STATE OF THE FUMIGATION MARKET



SPONSORED BY



One Focus.
Food Industry
Pest Management.™

IN PARTNERSHIP WITH



Quality Assurance & Food Safety



FUMIGATION IN FOOD FACILITIES

FOR SOME FOOD FACILITIES, fumigation is a critical process to ensure against pest contamination. For others, the pest control service is against company or federal regulations. For still others, it is a practice that may warrant consideration, but they know too little about it.

This 2021 State of the Fumigation Market, sponsored by IFC, includes a focus on each of these, as revealed through a third-party survey of QA readers. (See About this Survey, pg. F3.) But, before we get too far down the road on results of the survey, it is important that all readers understand what fumigation is and why it is being used.

As defined by the Nevada State Department of Agriculture (bit.ly/nevadafumigation), “A fumigant is a chemical which, at a required temperature and

pressure, can exist as a vapor or gas that, when released, penetrates objects or enclosed areas in concentrations that are lethal to pest organisms.” Additionally, at the required temperature and pressure, it “exists in the gaseous state in sufficient concentrations to be lethal to a targeted pest,” according to the Department of Agriculture’s Fumigation Handbook.

Fumigants, and the fumigation service,

must be handled by only trained, certified professionals as there are some hazards associated with the service. Most fumigants are highly toxic, making it “a highly specialized operation that requires equipment, techniques and skills not generally used for applying other types of pesticides,” the Nevada manual states. Additionally, while fumigation can be more time and labor consuming than other pest control methods, “when needed, fumigation is more effective and efficient than any other means of control in structures and commodities and may be the only way to control pests in stored commodities, dried fruits and nuts in warehouses, food plants and bulk grain facilities.”

When properly used by trained, licensed personnel, fumigation can be a very effective means of pest control as, according to the University of Kentucky (bit.ly/ukfumigation), it achieves the following:

- Fumigation can quickly eradicate arthropod and/or rodent infestations in commodities and structures.
 - It can penetrate cracks, crevices and some packaging materials that may limit the effectiveness of insecticide sprays and dusts to control pests.
 - Fumigation will leave no unsightly, odorous or hazardous residues if the site is aerated properly.
 - It should not change or harm the treated commodity in any way.
- Throughout this report, we will discuss fumigation at food facilities, with further insights from survey respondents whose facilities use — or do not use — fumigation services.

CURRENT STATUS

WHEN DISCUSSING ANY FORM of pest control, it is interesting to note who performs that service (i.e., a pest control company or internal employees/department). And — in this day and age — it’s worth understanding the effects (if any) of the COVID-19 pandemic.

A large majority (68%) of the respondents to this survey outsource all their pest control, with all services conducted by a third-party pest control company only. However, nearly one-fourth (23%) have a hybrid approach, with some pest control conducted through a pest control company, and some by internal employees/department. Only 8% have all their pest control conducted by internal employees, while 1% responded that there is no pest control conducted at their facility at all.

Although the COVID-19 pandemic had significant impacts on the food industry as a whole, more than four-fifths of respondents (81%) stated that it had no impact on their pest control service.

Of the 19% who said there was some impact:

- **13%** reduced frequency or type of service.
- **2%** cancelled service temporarily.
- **1%** switched from external to internal service.
- **1%** switched from internal to external service.
- **4%** had other impacts.

About This Survey

Sponsored by IFC, QA’s 2021 State of the Fumigation Market survey was conducted by Readex Research. The survey sample of food processing managers and executives was systematically selected from the circulation file of *Quality Assurance & Food Safety* (QA). Data was collected from 267 recipients of QA’s digital magazine and/or e-newsletter at unique U.S. company locations. Of these, 133 work for a company with at least one food/beverage facility that manufactures, processes, packs or stores food/beverages. These respondents are then broken down into two groups: 97 respondents (73%) represented in the “Facilities that Don’t Use Fumigation” section and 36 respondents (27%) represented in the “Facilities that Use Fumigation” section. The margin of error for percentages based on the 36 respondents who work for a company that has at least one food/beverage facility and purchases/performs fumigation services is ±15.9 percentage points at the 95% confidence level. Specific results may not add up to 100% due to rounding, the ability to select multiple responses and/or the ability to skip a question.

SURVEY SQUAD

With that introduction, let’s take a look at who the survey respondents are and where they work:

POSITIONS HELD

| | |
|---------------------------------|-----|
| Food safety | 24% |
| Corporate management | 20% |
| Quality control/assurance | 38% |
| Plant manager | 7% |
| Sanitarian | 2% |
| Pest management | 2% |
| Other | 8% |

(Number of respondents: 133)

NUMBER OF FACILITIES

| | |
|------------------|-----|
| 30 or more | 12% |
| 20 to 29 | 2% |
| 10 to 19 | 5% |
| 5 to 9 | 8% |
| 2 to 4 | 36% |
| 1 | 36% |

(Number of respondents: 133)

FACILITY LOCATIONS

| | |
|-----------------------|-----|
| Internationally | 22% |
| Nationally | 27% |
| Regionally | 22% |
| Locally | 28% |

(Number of respondents: 85, those with more than one facility)

FOODS/BEVERAGES PRODUCED

| | |
|--|-----|
| Ready to eat | 29% |
| Meat, seafood | 18% |
| Baked goods | 17% |
| Sugar, candy, nuts, snack foods | 15% |
| Dairy | 13% |
| Canned or frozen fruits, soups, vegetables | 11% |
| Flour, grains, cereals | 11% |
| Fresh-cut produce | 11% |
| Liquor, soft drinks, other beverages | 8% |
| Vitamins, supplements | 6% |
| Oils, fats, malt | 5% |
| Other | 19% |

(Number of respondents: 133)



FACILITIES THAT USE FUMIGATION:

THE FIVE Ws

ONLY ABOUT ONE-FOURTH (27%) of the survey respondents stated that the facility in which they work purchases or performs fumigation services. But they have even more reasons for including fumigation as a part of their pest control services than other respondents have for not doing so. In this section, we discuss the who, what, where, when and why of fumigation at food facilities.

- **Who.** With the extensive chemical, application and safety knowledge and training required of a fumigator, it's no surprise that a significant majority of respondents (75%) have fumigation services provided only by a pest control company. (Table 5)
- **What.** Several products are registered by the EPA as fumigants, and that was well evidenced by the more than half of respondents (58%) selecting "other" over, or in addition to, phosphine (25%) and sulfuryl fluoride (14%) as the fumigants used at their facility. (Table 6)
- **Where.** While many fumigation applications are performed in specific areas of need, more than half of the survey respondents (53%) said that fumigation was most often conducted throughout the whole structure. Trailer (31%), food product warehouses (25%) and equipment (22%) were the next most common application sites. (Table 7)
- **When/Why.** Given all that, when and why is fumigation typically implemented? While nearly one-fifth (19%) stated that fumigation was used only as a last resort, it was more commonly used anytime that a stored product pest infestation is detected (31%), or when it is recommended by the facility's pest control specialist (31%). (Table 8)

5. WHO PERFORMS THE FUMIGATION?

| | |
|--|-----|
| Pest control company only | 75% |
| Internal employee(s)/department only | 6% |
| Some internal/some through pest control company | 19% |

6. WHAT FUMIGANTS ARE USED AT YOUR FACILITY?

| | |
|-------------------------|-----|
| Phosphine | 25% |
| Sulfuryl fluoride | 14% |
| Other | 58% |
| No answer | 14% |

7. WHERE IS FUMIGATION CONDUCTED AT YOUR FACILITY?

| | |
|--------------------------------------|-----|
| Whole structure | 53% |
| Trailers | 31% |
| Food products in warehouse | 25% |
| Equipment | 22% |
| Whole grain storage bins/silos | 17% |
| Pallets only | 8% |
| Boxcars | 3% |
| Other | 11% |

8. WHEN AND WHY IS FUMIGATION TYPICALLY IMPLEMENTED?

| | |
|---|-----|
| Anytime a stored product pest infestation is detected ... | 31% |
| When recommended by our pest control specialist | 31% |
| Only as a last resort | 19% |
| Other | 19% |

(Number of respondents: 36, those whose facilities use fumigation)

FACILITIES THAT DON'T USE FUMIGATION: WHAT ARE THE REASONS?

NEARLY THREE-FOURTHS of survey respondents (73%) said that their facility did not purchase or perform any fumigation services. They cited a number of reasons for this, with the most common reason being that they have not had the need for fumigation (60%). Other reasons included:

- 15% do not want the pesticidal exposure of fumigation.
- 14% are not permitted by regulation to use fumigants in the facility.
- 4% are not permitted by their company.
- 3% do not know enough about fumigation.

There is a validity to the rationale of those not wanting the pesticidal exposure of fumigation, as fumigants are highly toxic. However, because of that, they are regulated by three primary agencies — the Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA) and each state's agency in charge of pesticides/pest control. Additionally, fumigants are classified by the EPA as restricted use pesticides, meaning they can be purchased and used only by certified applicators only as directed on the label and as covered by the certified applicator's certification.

Even with appropriate certification and care, however, a low percentage (4%) of respondents stated that their company does not permit fumigation in the facility. For the 3% who chose to not purchase or perform fumigation because they do not know enough about it, perhaps this report will provide some further understanding. Irrespective of the reason for not purchasing or performing fumigation, when asked if the facility would consider it in the future, only 37% said they would not. Others said yes, they would, if the need arose (27%) or if fumigation were to be recommended by a pest control specialist (14%).



PRE-SERVICE PREP IS AN ESSENTIAL ASPECT OF THE SAFETY AND EFFICACY FUMIGATION SERVICE.



PREP SERVICE

PRE-SERVICE PREPARATION is an essential aspect of the safety and efficacy of any fumigation service, with proper sealing of critical importance for both. The structure or area to be fumigated must be tightly sealed with no gaps or cracks. If only part of a building is to be fumigated, it can be sealed off with polyethylene sheeting and adhesive tapes or sprays or other methods employed by the trained fumigator. If not properly sealed, the fumigants can leak out, resulting in insufficient gas levels for complete elimination. As stated in the UK document (cited on pg. F3), "Leaks can allow fumigant concentration to drop below lethal levels before the required exposure period has elapsed." Additionally, leaks can expose persons or products outside the fumigation area to be exposed to toxic fumes. Thus, it is critical that prepping the area

for the service be thorough, and all fumigant label directions be followed both in preparing for and conducting a fumigation service. Of those respondents whose facility uses fumigation services, with at least some of it conducted by a pest control company, the responses were fairly evenly split on who conducts that preparation. Thirty-five percent stated that the preparation is conducted solely by the pest control company, 24% prepped for the service themselves and 41% split the prep work between internal employees and those of the pest control company. How much time does a food facility need to dedicate when its internal employees are doing the preparation work for the service? A majority of the respondents (74%) said it took at least an hour, with 14% stating that 10 or more hours had to be dedicated to a preparation. (Table 9)

9. TIME NEEDED FOR FUMIGATION PREPARATION

| | |
|------------------------|-----|
| 10 hours or more | 14% |
| 5 to 9 hours | 23% |
| 1 to 4 hours | 36% |
| Less than 1 hour | 18% |
| Don't know | 9% |

(Number of respondents: 22, those who outsource at least some of their fumigation services, but whose employees prepare the area for fumigation at least some of the time)



72% OF RESPONDENTS STATED FUMIGATION SERVICES ALWAYS RESOLVED THE PROBLEM

FUMIGATION FIX

AS DEPICTED IN TABLE 10 (BELOW), food facilities use fumigation services to control or eliminate a large number of pests. We generally think of stored product-feeding beetles, weevils and moths as most associated with fumigation services, and this was true in the QA survey as related to flour beetles — the pest most commonly targeted in fumigation (50%). However, cockroaches and other structural pests were the second most common — both listed by 33% of respondents as targeted for fumigation control.

In addition to a vast array of species, the pests targeted in a fumigation service were said to originate from many different sources, with incoming ingredients/foods being the most commonly cited source by those facilities that use fumigation:

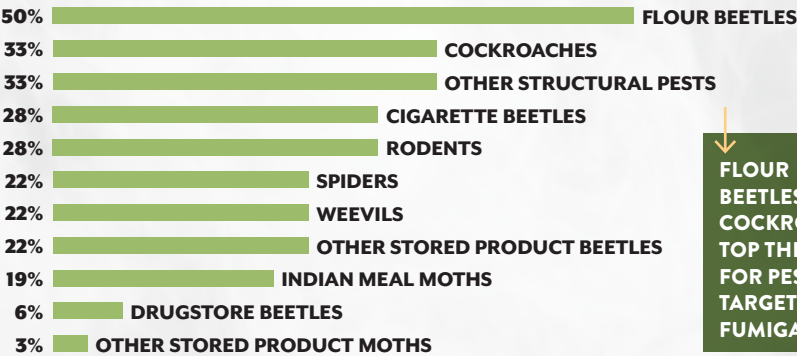
- **Incoming ingredients/foods.** With half (50%) of respondents stating that pests for which they use fumigation services most commonly originate in incoming ingredients and foods, more facilities may want to consider trailer fumigation (as the 31% did in Table 7, pg. F4). Additionally, it could be advantageous for these to increase their supplier pest control requirements to decrease their need for fumigation.
- **Exterior environment.** As the second most commonly cited source, by 25% of respondents, pests coming from the exterior can be a significant source of infestations. However, structural exclusion methods should also be implemented to potentially decrease the need for fumigation and other chemical applications.
- **Non-food incoming supplies.** Other incoming supplies can be a source of pest infestations, as noted by 6% of respondents. As previously noted, it could be advantageous for businesses to increase their supplier pest control requirements — for non-food suppliers as well.
- **Employees/visitors.** Only 3% found employees or visitors to be a source of pests targeted for fumigation. This is not surprising, however, given that many of the pests that may be unintentionally carried into a facility on persons or in their belongings are not always treatable with fumigation, such as bed bugs, or may be seen as having fumigation as a very last option, such as cockroaches.
- **Unknown.** Although it may seem to be surprising that 14% did not know the origination of the pest for which fumigation was conducted, it can be very difficult to determine pest sources, particularly once an infestation is well underway, commodities have been combined, etc.



Indian Meal Moths were cited by 19% of respondents as a pest that is targeted for fumigation.

10. WHICH PESTS ARE TARGETED FOR CONTROL WITH FUMIGATION IN YOUR FACILITY?

(Number of respondents: 36, those whose facilities use fumigation)



FLOUR BEETLES AND COCKROACHES TOP THE LIST FOR PESTS TARGETED BY FUMIGATION

MOST RESPONDENTS APPEAR to be fairly consistent in their use of fumigation services over the years. More than half of the respondents who use fumigation stated that they use about the same amount as they did in the past overall (58%) as compared with five years ago (58%), and as they expect to in the future (69%). (Tables 11 & 12)

Only 11% purchased or performed more fumigation in the last year than they had before that, and only 17% use it more than they did five years ago. An even lower percentage (6%) expect to increase their use of fumigation in the future. In fact, 28% said they purchased or performed fewer fumigation services than in the past, and 19% fewer compared with five years ago. Additionally, 22% expect to use fewer fumigation services in the future. (Tables 11 & 12)

But whether the food facility has or plans to conduct more, fewer or the same number of fumigation services, the vast majority were satisfied with the results they attained, with 72% of respondents stating that their fumigation services always resolved the problem, and another 22% stating that it sometimes did.



11. HOW MANY FUMIGATION SERVICES WERE USED IN 2020 COMPARED WITH:

| | | | | | |
|----------|----------------------|-----|-------------|----------------------|-----|
| THE PAST | More | 11% | 5 YEARS AGO | More | 17% |
| | About the same | 58% | | About the same | 58% |
| | Fewer | 28% | | Fewer | 19% |

12. HOW MANY FUMIGATION SERVICES DO YOU EXPECT TO USE IN THE COMING YEAR, COMPARED WITH 2020?

| | |
|----------------------|-----|
| More | 6% |
| About the same | 69% |
| Fewer | 22% |

13. DOES YOUR FACILITY'S FUMIGATION SERVICE RESOLVE THE PEST PROBLEM?

| | |
|-----------------|-----|
| Always | 72% |
| Sometimes | 22% |
| Never | 3% |

(Number of respondents: 36, those whose facilities use fumigation)

F*****N!

Fumigation doesn't have to be a dirty word.

In fact it's just the opposite. Fumigation can give your facility a clean new start.

- Reset pests to zero
- Reduce downtime
- Avoid product recalls

For over 80 years we have made it our mission to stop pests from ruining reputations and destroying bottom lines.



One Focus.
Food Industry
Pest Management.™

Fumigation experts are standing by!
Call 800.477.4432 or visit indfumco.com