

DEVELOPING PRECISION FUMIGATION PLANS USING THE PROFUME* FUMIGUIDE*

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Developing a fumigation plan is the appropriate beginning to any fumigation job, and in the future may be a requirement for all fumigations. The fumigation process involves multiple steps, including: Preparation of Safety Procedures and Equipment, Customer Communication, Defining the Target Dosage and Fumigant Quantity, Sealing, Fumigant Introduction, Monitoring, Aeration, Clearance, and Reporting. Each of these steps in the fumigation should be planned in advance to minimize the potential for equipment or product damage, human injury, or poor insect control.

Planning specific fumigation steps may be straightforward for some jobs or quite challenging in others. For example, sealing a chamber fumigation is usually simple, whereas tarping a large leaky mill can be very complex. Aeration for an 8 story mill that has exhaust fans on the roof is likely easier to plan than determining how to aerate a single story warehouse in a crowded industrial complex.

Planning tools have been available for preparing the activities and equipment necessary for each step of a fumigation. However, what has been lacking is a program for considering dosage options to prepare precision fumigations across the wide range of gas confinement conditions, temperature ranges, exposure periods, and target pests that fumigators will encounter. Precision fumigation can be defined as optimizing fumigant use to maximize efficiency and minimize risk. Dow AgroSciences has developed the Fumiguide* Program for ProFume* gas fumigant (ProFume Fumiguide) to provide this functionality, allowing the fumigator to use his/her expertise to conduct precision fumigations.

First, the fumigator must understand the key concerns and objectives of the customer. For example, the primary consideration for a miller may be minimizing downtime or fumigant costs. The miller may be flexible though in other areas, such as running the machinery to raise the temperature, or offering to seal the structure more thoroughly than in the past. These activities offer opportunities for improving the efficiency of the fumigation.

Next, the fumigator inputs various scenarios for managing gas confinement, temperature, and exposure duration into the ProFume Fumiguide to determine which scenarios may meet the customer's needs. Finally, the fumigator presents fumigation plan options to the customer, and through education and negotiation, they can select the plan that best fits the situation and each other's requirements.

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The ProFume Fumiguide provides another benefit – the ability to accurately adjust to fumigation realities that differ from those in the fumigation plan. As the fumigator enters monitoring data during the exposure period, the ProFume Fumiguide provides status updates on the dosage (CT) achieved so far, the actual half-loss time (HLT), and the projected dosage at the end of the planned exposure period. The program also provides recommendations on how to achieve the target dosage if the HLT is longer or shorter than planned. If the HLT is longer than planned, possibly aeration could be started earlier, thereby saving worker time on the job. If the HLT is shorter than planned, then recommendations for adding more fumigant and/or extending exposure period are provided. Even with thorough planning, fumigators should expect to need to make adjustments during some fumigations due to factors outside of their control. The ProFume Fumiguide provides the ability to do this.

The ProFume Fumiguide is an educational and operational tool, allowing the fumigator to consider multiple fumigation scenarios prior to deciding on the optimal fumigation plan with the customer. Also, by helping the fumigator apply only the fumigant necessary to control the target pest, use of the ProFume Fumiguide promotes good stewardship and responsible use of this product.