Post-Harvest Session 1: EPA Determination of Structural Fumigation Emission Profiles

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Goal: The U.S. EPA recently evaluated the potential risks associated with the post-harvest uses of methyl bromide as well as other post-harvest fumigant chemicals. In its effort to develop risk management decisions for these materials, it has become increasingly clear that quantitative data of sufficient quality would allow for a more rigorous determination of how basic factors such as building design, sealing methods, changing weather conditions, absorptive properties of treated commodities, and aeration techniques influence emissions from treated structures during holding times and active aeration. Given the regulatory challenges that exist, the development of emission reduction factors which better reflect modern practices and conditions are required. It is envisioned that these factors can be used to potentially alleviate the regulatory burdens for users who utilize such approaches as part of their practices. Examples of such factors may include: (1) placement of active aeration outflows; (2) numbers of active aeration outflows and associated performance criteria; and (3) influence of building location and design on emissions relative to surrounding terrain and typical weather conditions during treatments. The goal of this session is to begin to summarize available research on this issue, use this research to identify the critical factors that should be considered related to emissions reduction, and to begin to define factors for these parameters.

Questions:

1. Individual factors that impact fumigant emissions from structures include aeration methods, building design, climate, and location relative to topography. What are the most important factors which impact emissions from treated structures? Are they independent or do they impact emission rates in a synergistic manner? How much impact do differences in building design and aeration methods have on these results?
2. Can parameters be manipulated in a typical commercial production system, to reduce emissions yet still retain an effective, economically viable production system? If so, what techniques can be used to manipulate emissions from treated structures (e.g., high barrier films, emission stacks, recovery systems)?
3. Do data exist that can be used to demonstrate, in a reliable manner, responses to questions 1 and 2?
4. Modeling approaches have been suggested as a means for using laboratory and field-scale data for predicting emissions under varied conditions based on changes in sealing methods and aeration parameters. What model systems can be used for this purpose, if any? What data are required for the reliable use of such models?

The intent of this session is to provide a public forum where research and initiatives related to the above goal and questions are presented. EPA is not asking participants for recommendations to make regulatory decisions.