

Pre-plant EPA Session

TIME: TBD		DATE: TBD
Determination of Soil Fumigant Emission Reduction Factors		Moderators: Jeff Dawson/Charles Smith
30 minutes	EPA Overview: Jeff Dawson & Charles Smith	
1hr 30 minutes	Open Discussion	

Goal: The U.S. EPA has evaluated the potential risks associated with the pre-plant soil uses of several fumigants. In its effort to develop more refined approaches for evaluating these use patterns, it has become increasingly clear that a better understanding of how changes in basic factors such as field conditions, barrier tarps, and application equipment impact emissions is needed. In the recent document *“Factors Which Impact Soil Fumigant Emissions – Evaluation For Use In Soil Fumigant Buffer Zone Credit Factor Approach”* (Authors: Dawson and Smith, D306857, 6/9/08, available at www.regulations.gov) the Agency investigated these factors. The information contained in this document was used to develop a series of credits for the use of certain cultural practices by growers. The conclusions outlined in this document indicate that several factors can be manipulated by growers or applicators to reduce emissions and these include the use of high barrier films (e.g., VIFs), the use of reactive boundary layers (e.g., sodium thiosulfate), and manipulation of soil moisture and compaction where feasible. Other factors include application equipment design and the inherent conditions of a treated field which cannot easily be manipulated (e.g., soil type and organic matter levels). The goals of this session are to begin to summarize additional research on these issues which was not addressed in the document above, identify critical factors that should be considered in future evaluations of factors that impact soil emissions, and begin to define values for those factors.

Questions:

1. Several factors were identified that impact fumigant emissions from treated fields such as the type of film used by growers, how much soil compaction is used, moisture levels in treated areas and the use of reactive boundary layers. Application equipment and inherent field conditions also play significant roles controlling emissions. Do you agree that these are the most important factors which impact emissions from treated fields? Are they independent or do they act in a synergistic manner? How much impact do regional and cultural practice differences have on these results?
2. Which factors can be manipulated by producers, 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 field conditions (e.g., high barrier films, irrigation, soil adjuvants)?
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, micro-field, and field-scale data for predicting emissions under varied field conditions based on changes in first-principle parameters. One such suggested system is Chain 2D that was developed by USDA (<http://www.ars.usda.gov/Services/docs.htm?docid=8914>). What data are required for the reliable use of such models? Do other viable model options exist that can be used to predict emission rates based on first-principles parameters (e.g., Hydrus 2D)?

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.