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A Summary of Agricultural Air Quality Perceptions in Virginia

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As part of our project “Integrating Education and Development of a Biodegradable Litter Amendment to Mitigate Ammonia Emissions from Poultry House” funded by the National Institute for Food and Agriculture, research project (#2009-55112-05214), we conducted four listening sessions on agricultural air quality with 44 agricultural agency representatives, farmers, and Extension agents/specialists, across Virginia. The purpose of the listening sessions was to gather information from the community (stakeholders) about their perceptions, concerns, what they would like to know, and who should be educated about agricultural air quality. We made a short presentation to introduce the subject and then solicited stakeholder reaction. These meetings were very informal but facilitated to meet the project objectives. Meals were served at each meeting. The common themes from these sessions are found below.

Participants stated that they attended the sessions voluntarily to learn more about agricultural air quality (AAQ), how it is measured, current regulations or impending regulations for AAQ, and to get information on the topic to share with others.

Agricultural air quality topics and emerging issues that were most important for the participants included odor, ammonia, land use changes and ensuing conflicts (land being developed for housing near farms), measuring AAQ, how measurements/models are developed, regulations, particulates/dust, spreading nutrients, and federal (EPA), state, and local regulations and interpretation. Listening session participants wanted educators to provide comparisons between agricultural air pollutants and other examples of air pollution (i.e. dairy cows and household pets e.g. dogs), to highlight good AAQ practices already being used by farmers, to realize the psychological aspects of AAQ that people smell with their eyes, the need for general awareness of agriculture by the public, and the interrelationships between AAQ and water quality. Agricultural AQ appears to be a relatively new issue for many communities in Virginia.

The listening session participants felt the audiences for AAQ education should be broad and include the general public, school children, agricultural professionals, intermediaries, and producers. The suggested educational topics for each audience were:

- General public – agricultural awareness-connection to food, AAQ awareness, current AAQ BMPs being used by farmers, AQ comparisons between agriculture and other sources, expectations for living in a rural agricultural area, AAQ research, and AQ regulations
- School Children - agricultural awareness, actions to help make change, current AAQ BMPs being used by farmers, and AQ comparisons between agriculture and other sources. Extension educators were asked to work through current school programs and curriculum/SOLs and to strive to inform adults through children.

- Agricultural professionals (agents, agency workers) - awareness of regulations, why AAQ is an issue, what is AAQ, measuring AAQ, models of what others are doing about AAQ, and BMPs for farmers to implement.
- Intermediaries (sheriff, health workers, zoning and planning workers, county supervisors,) – agricultural awareness referral resources, AAQ awareness, and AAQ regulations.
- Producers – regulations, types of emissions and sources, BMPs from new technologies/research, cost recovery/incentives for BMP adoption, measurement, a simple model for measuring AAQ, exposure information, AQ comparisons between agriculture and other sources, and incentive information. Producers want to learn from each other and to become aware of how the public perceives them. Extension educators were asked not to pit commodities against each other in their educational efforts (i.e. pigs smell more than cows). Commodity groups were also asked not create conflict with each other in terms of who produces more odor.

Participants were asked how education should be delivered. They responded that many methods should be used to reach a variety of learners and learning preferences. Some believed offering a meal or joining with the agenda of other training, events, or established youth education programs were important incentives to enhance participation. They felt neighbors (early adopters) educating neighbors and farm tours were successful educational methods. The listening session participants also suggested success comes from a positive approach with short messages that reach people where they are at. Fact sheets, web, Youtube and short sound bites for TV and radio. They requested that fact sheets be short and easy to read.

To improve the likelihood of success with an Extension AAQ program, participants were asked what prevents them from learning. They felt time priorities, the importance of the topic, perceptions of the topic and host organization, personalities of the people involved, lack of incentives, vagueness of the relevance and concepts of AQ, weather, economics, and too much or complicated information prevented them from engaging in education. Conversely, they said incentives to learn such as mandates, meals, people (those who are easy to understand and be with), and saving money would help them more fully engage in learning. They also suggested that education needs to meet people where they are at with education- where and how they learn as well as making the case for how they value from the education. The listening session participants believe education is more successful if it is short, includes examples of successful BMPs, lays out economics/costs, is timely (i.e. spring is odor time), includes collaboration and a unified voice across groups (municipalities, agricultural factions, and producers/industry). Producers want help with understanding and adopting new BMPs and incentive programs by showcasing successes and providing clear and simple BMPs. They hope the ultimate goal of AAQ education is the prevention of AQ mandates or regulations.

The factors that prevent farmers from adopting AAQ BMPs are similar to those that hinder learning. Listen session participants believe these factors include time, distrust of who is behind the initiative and how models are created and used, the lack of practical, appropriate, evidence-based, clear, holistic BMPs, difficulty keeping up with innovations, economics/costs/incentives, a non systems approach, fuzziness/uncertainty/unfamiliarity with AAQ issues, concepts, and BMPs, poor timing of information/changes, and the decreasing voice of farmers in society (anti agriculture factions, internal agriculture factions, no municipal support).

Other issues voiced about AAQ education included:

- AQ issues are not the farmer's fault – the general public is at fault for being unsympathetic to agriculture and unaware of agriculture
- Holistic and unifying approach to AAQ needed
- Farmers need to become aware of what other groups are saying and doing about ag AQ
- Farmers fear mandates that will require costly measures
- Land use changes that create conflicts are driving AAQ
- AAQ is still unclear or not seen as relevant by many
- AQ means different things to different people
- The psychological AQ needs to be addressed (what people see is what they believe)
- Producers are interested in new technologies/BMPs
- Farmers want to know what others are doing to deal with AAQ

We hope these thoughts from agricultural stakeholders in Virginia will inform AAQ educational efforts across the nation.

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