

Kansas Flint Hills Smoke Management Plan: The Burning Decision Support Tool

The following is a slightly edited transcript of the seventh in a series of K-State's Agriculture Today radio broadcasts on the Kansas Flint Hills Smoke Management Plan. This is an interview with Tom Gross, Bureau of Air, Kansas Department of Health and Environment, conducted by Eric Atkinson of the K-State Radio Network. Podcasts of all Agriculture Today interviews can be found at:

<http://www.ksre.k-state.edu/DesktopDefault.aspx?tabid=197>

Q: One of the main cogs in the new Kansas Flint Hills Smoke Management Plan is the burning decision support tool. This will be an online device allowing grassland managers to plug in their own burning factors, and will render a recommendation on whether to burn on any given day in a given area. What is the purpose of this tool?

A: The primary purpose is to provide information to a rancher or a producer so he or she can go to the website and look at the impact of burning from the perspective of their own acreage. That website is hosted by K-State Research and Extension. It is at: ksfire.org

An individual can go in and plug in information on fuel load, acreage to be burned, and location, and see on a map what direction the smoke from their fire is projected to move, how far it will move, and a general, relative indication of how concentrated the smoke plume is projected to be. A different location on the website will have the projected cumulative impact of burning in a given area on a given day. That's a piece we're still working on. To make this projection, we would go back in time and look at one or more days from a year in which there were cumulative air quality impacts from smoke on Kansas City or Wichita. We'll plug in the amount of acreage burned on that day and the meteorological conditions on the following day. Then, based on the conditions that caused a problem in the past, we'll see if the model would predict similar air quality problems in those metropolitan areas to occur today as a result of burning in various locations, or if meteorological conditions be better so that we wouldn't have a problem.

What the person would see as an output from this decision support tool would be a map showing areas of either red, yellow, or green throughout the Flint Hills to indicate whether it would be a good day to burn in terms of air quality.

Q: This sounds like a very sophisticated instrument. It's incorporating a lot of different types of information – weather, fuel load, the amount of acreage that might potentially be burned that same day in the area surrounding you. You've tried to capture the real picture of the effect an individual's grassland burn will have in terms of smoke output and direction, correct?

A: It sure is. We've had discussions with some of the experts in Agronomy at K-State Research and Extension on how to plug in some of the data that the computer model needs in order to create these predictions. To get the model calibrated, we'll look back at days in 2010 and 2009 when we had air quality impacts from smoke in Kansas City and Wichita. We'll put the meteorological conditions and the acreage burned on those days into the model and

see how well it does at predicting the results. Then we'll use that to fine-tune and improve it. It is a new thing and I hope that it works perfectly, but we'll learn along the way. We want to get feedback from the producers and see whether they think it is easy to use tool, whether they would use it again, and whether they understand the output it gives them. Also, we want to know whether there are any changes and improvements we need to make. We'll try to make any necessary adjustments and improvements before next year.

Q: You and those working on this tool are putting the finishing touches on it now. One of the pieces of information the producer will have to plug in would be their fuel load. Does the tool give some guidance on estimating fuel load?

A: The way it's currently set up, we have three levels of fuel load: "light," "average," and "heavy." We're going to have a paragraph off to the side explaining this in terms of pounds per acre. If anyone has any questions, perhaps they could get with their local Extension agent to help come up with the right fuel load.

Q: So they'll have plenty of props on the tool itself?

A: Yes, it's pretty straightforward. We hope it's easy and intuitive to use.

Q: It is in real time. The weather will be updated constantly.

A: Yes. As new meteorological information is released, we'll have the next day's prediction uploaded probably by mid-afternoon so that somebody could go in at 2:00, 3:00, or 4:00 and get an idea of what the next day would bring in terms of being a good, moderate, or not-so-good day to burn.

Q: What is your timetable for having this tool in place and ready to run?

A: Right now we're looking at getting it up and running by March 15. We'll continue to make improvements on it after that time.

Q: You will be addressing this topic at the upcoming K-State Cattlemen's Day, and you'll certainly welcome feedback from the producers on the process at that time as well?

A: Yes, we'll talk about it and answer questions. Overall, I think it's important not to just ask somebody to make changes, but to provide the necessary tools to do so, and I think this decision support tool is one of the key ones.

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