

Pork producers study footprint *Pork producers are identifying ways to reduce their carbon footprint, but more than 25% of the matter depends on retailers and consumers.* (1/29/2010) **Rod Smith**

FOR most of the past year, pork producers have been studying their carbon footprint and have learned some important and interesting information: Manure management plays a large role in carbon emissions, transportation plays a minor role, processors are efficient and more than 25% of pork's footprint occurs at the retail store and home levels.

These are the early findings of a pork checkoff-funded study by environmental specialists at the University of Arkansas that were recently reported by Dr. Gregory Thoma, a professor in the university's department of agriculture chemical engineering.

The study was approved last year by the National Pork Board, which manages the checkoff (*Feedstuffs*, April 6 and June 1, 2008).

'Cradle to grave'

Thoma, speaking to a session of the Minnesota Pork Congress two weeks ago, said there are important reasons for an industry to understand its carbon footprint, or the amount of greenhouse gases (GHGs) emitted in association with its product or service.

These include economic factors and resource conservation because the more efficient production is, the fewer GHGs it emits and the fewer resources it uses, Thoma said.

Additionally, consumers do care about how environmentally sustainable a product is, and retailers are suggesting that food products, at some point in the future, may need to carry carbon footprint information on the labels, he said.

By doing a lifecycle analysis (LCA), or assessment, producers can determine their carbon footprint, identify where they can become more efficient and make operational improvements to decrease emissions and save resources, Thoma said.

For pork producers, an LCA is "a full-system accounting" of GHGs emitted in pork production beginning with extractions from nature and ending with disposal of packaging, he explained.

The LCA Thoma and colleagues are doing for the Pork Board shows GHGs emitted "from cradle to grave" -- from crop production to hog production, processing and consumption -- in the production and delivery of one serving of pork to consumers, he said, with GHGs expressed as carbon dioxide equivalents (CO₂e).

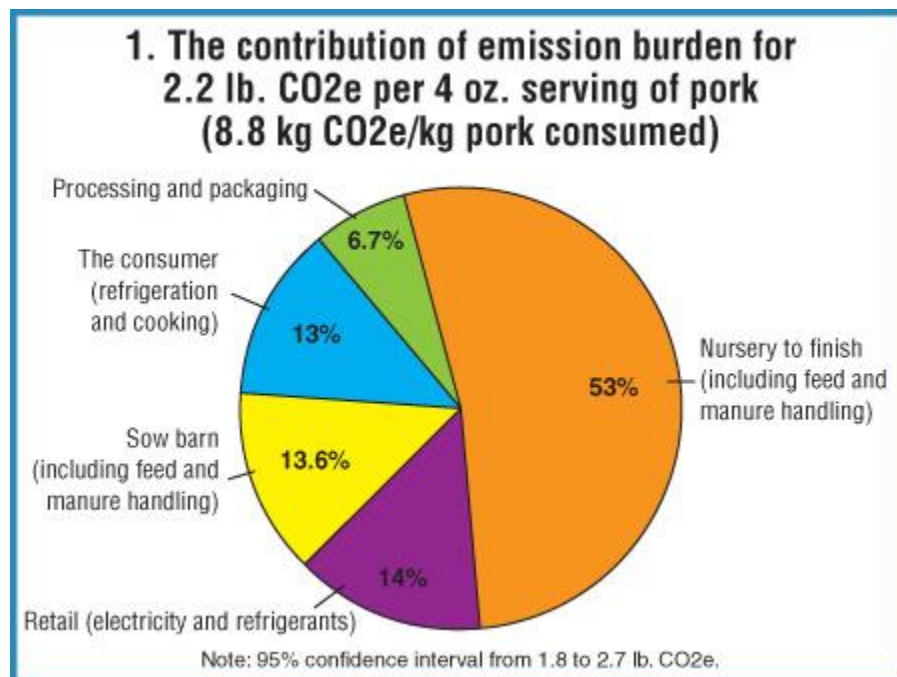
Thoma offered two caveats for the pork LCA. He said there are four parts of the analysis where "an allocation of burden" has to be assigned for CO₂e in crop production, rendering, retailing and consumption because the CO₂e involved is due to more than pork -- e.g., an allocation must

be made for electricity to run the meat cases because there are more products than pork in the meat case.

He also said the model does not account for carbon sequestration in crop production because that varies by tillage practices, and data on that are not sufficient at this time.

'Astonishing' role

Thoma said the pork LCA shows that 2.2 lb. of CO₂e are generated per 4 oz. serving of pork, or 8.8 kg of CO₂e are generated per 1 kg serving of pork. The contribution of each part of the footprint to the total footprint is shown in Figure 1.



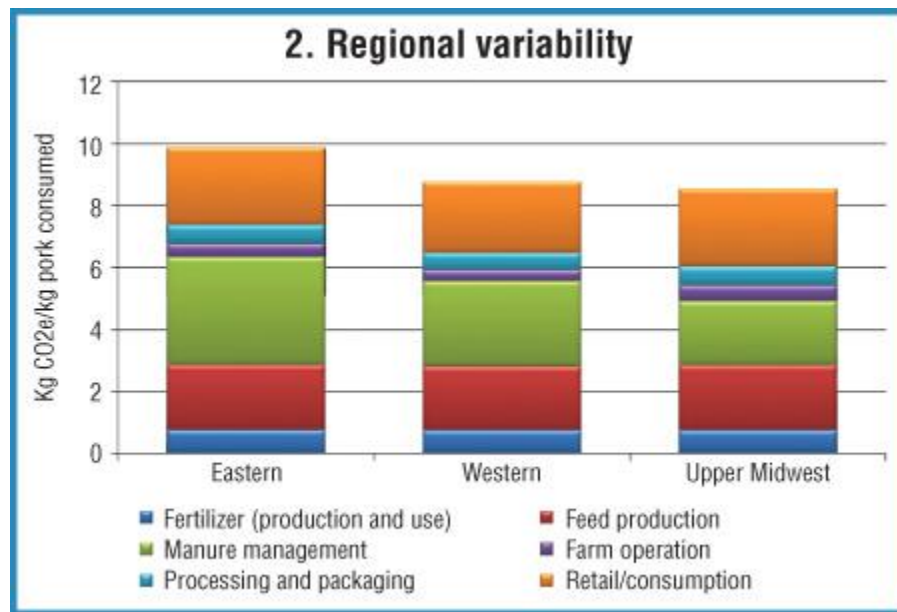
He said the first major finding is that there is a big difference in GHGs emitted by manure systems, with anaerobic lagoons emitting nearly 3.6 times more GHGs than deep pits, indicating that manure handling represents "a large opportunity" for producers to improve management to decrease emissions.

He said other major findings are that pork processing and packaging contribute the least to pork's carbon footprint and that diesel use in transportation has extremely little impact on the footprint - so minor, in fact, that eating locally produced and processed pork does not reduce the size of the footprint.

Thoma said the finding that the retail and consumer levels are responsible for 27% of the footprint "is astonishing." He attributed this to electrical and refrigerant use in the stores, especially to refrigerant leaks, and to running refrigerators and stoves in the home. He noted that cooking on a grill is more efficient from a GHG perspective than cooking on a stove.

The consumer's contribution to pork's carbon footprint is significant, Thoma said, "and this needs to be communicated." He said if a consumer went into a store and said, "I'm not going to buy this pork chop because of the carbon footprint that was created in its production," he or she needs to be told, "Well, hey, a lot of that footprint is your responsibility."

Finally, Thoma said there are regional variations in the size of pork's carbon footprint (Figure 2), with most of the variation happening in the eastern U.S., where fewer hogs are produced than in the central part of the country; also, most of the variation is associated with manure management.



The next stage in the LCA work, Thoma said, should be developing a more detailed field-to-farm gate LCA to capture more thorough data on how production practices affect GHG emissions to identify more opportunities to reduce GHGs and save resources.

The data should be able to show producers the footprint outcomes they can expect from actions taken, he said.

Assisting Thoma in the study are university colleagues Jason Frank, Charles Maxwell, Cash East and Darin Nutter.