



Good Things Come in 3D for Pork Researchers

By Geoff Geddes, for Swine Innovation Porc

With apologies to twins and the 4-person bob-sled, the best things come in threes. That's especially true of 3D technology, which offers some intriguing possibilities for the pork industry. Use of 3D vision systems for rapid and objective assessment of hog carcass quality is a great example of a hi-tech, high impact application generated by the latest research.

"There's a growing interest in carcass quality among producers for a simple reason: it's how they get paid," said Dr. Candido Pomar, research scientist with Agriculture and Agri-Food Canada. "Until now my research focus has been pig nutrition, but I've been getting requests from swine producer associations to work on carcass quality as it's the area that most impacts their members."

In evaluating grading systems in Canada, however, Dr. Pomar observed that such systems, and carcass evaluation methods in general, are not very effective in measuring carcass composition.

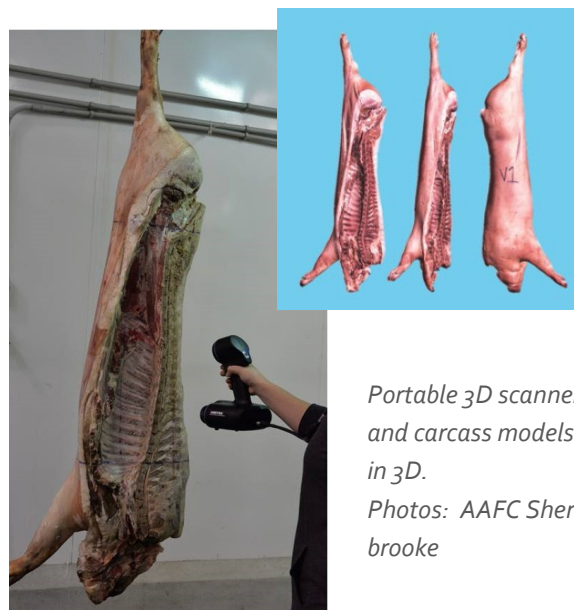
Location, location, location

In general, a lean carcass has more value than a fat carcass. Ultimately, however, the value of a carcass depends not on the amount of fat and lean, which is the focus of the current system, but on where that fat and lean are located. If there's leanness in the shoulder, ham or loin, each area will carry a different value.

"The most important thing is to have fat in the belly as it's the most expensive part of the carcass and gives you more value per kilo."

Faced with the question of how to measure carcass value more accurately, Dr. Pomar and his colleague, Dr. Marcel Marcoux, found the answer in 3D technology.

"We felt the best approach was to work with images rather than just fat and muscle depth, and we also thought that conformation was a key aspect of carcass value," said Dr. Pomar. Using the 3D system, we were able to gauge very precisely the lean and fat distribution and thus the value of the carcass."



Portable 3D scanner and carcass models in 3D.

Photos: AAFC Sherbrooke

Yielding results

In addition to more accurately assessing carcass weight and leanness, 3D technology can also better determine the weight and lean yield of each carcass cut, allowing for more efficient carcass sorting and assessment.

“We are providing industry with a new tool that will significantly improve our ability to estimate the real value of the carcass and tell the plant how much revenue they can generate if they cut it a certain way. For example, do they cut it to a Canadian, U.S. or Japanese standard? What makes the most sense for a particular cut and will generate the most dollars?”

Knowledge is powerful

But the benefits don't stop there. This tool could aid geneticists who can evaluate the carcass and determine which animals have more genetic value. As well, the information gathered with 3D imaging might be used by producers and nutritionists to tailor feeding programs based on the implications for carcass quality.

With the right company stepping up to fund further development, this 3D system may be a game changer for the industry.

“Right now the 3D scans are done manually, but if an automatic scanner can be developed, it could bring a 10-minute process down to one minute. An optimized system will be quick, precise and maintain the value of the carcass. I think eventually all carcasses in the

slaughter plant will be scanned automatically so staff knows immediately the value of the carcass and the best way to use it to maximize value.”

If the interest this system has generated is any indication, it may become an industry staple sooner than first thought.

“We're getting a lot of requests to develop the same approach for evaluating sheep, and there could well be applications for beef cattle and veal as well. The progress and the buzz around this are encouraging, so our focus now is getting it to industry as soon as possible.”

While there are no guarantees in life, thanks to 3D technology, carcass evaluation may take on a whole new dimension. 😊

For more information....

For more information about the work described in this article, please contact Dr. Candido Pomar at: candido.pomar@agr.gc.ca

This research was part a larger national project titled *Use of novel technologies to optimize pig performance, welfare and carcass value*.

You may find additional resources related to the project by consulting our website:

<http://www.swineinnovationporc.ca/research-technology.php>

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