



## On Farm Automation Takes Off

By Geoff Geddes, for Swine Innovation Porc

Gathering data on pigs is the farming equivalent of purging leftovers from the fridge. In both cases, it's a great idea as long as someone else does it. With the growing trend towards precision livestock farming, having the latest data in areas like water intake and weight/conformation is more important than ever. At the same time, farmers are busier than ever, which prompted researchers to lighten their load through automation that includes individual water recording systems and 3-D vision technology.

"We have worked with these technologies in the past and seen their potential to be used at different levels," said M. Frederic Fortin, Manager – Genetics with the CDPQ (Centre de Développement du Porc du Québec). "Apart from their value in genetic selection, they can aid commercial pork producers by boosting efficiency and enhancing animal welfare."

### Just add water

For water recording systems or "smart drinkers," a key application is aiding in the identification of sick animals.

"If a pig changes its behavior and uses the feeder or water intake less often, it can indicate a health problem to producers so they can treat it early and follow up with the rest of the herd if needed."

At present, animals are checked one-by-one, which is time consuming and labor intensive.



'Smart drinkers' in use at the Deschambault test station. Photo: CDPQ

With the automated system, researchers can measure intake on an individual, pen or barn scale and quickly see which pigs are healthy and which have disease issues.

At the Deschambault swine testing station, daily water intake patterns can be studied on a pen and individual basis and links with other traits such as feed intake, growth performance, carcass quality and health status can be explored. Since November 2015, pigs at the testing station have been raised in a disease-challenged environment and water intake data has been collected on more than 2000 individual pigs. Smart drinkers are also being tested in an environment closer to commercial conditions at the Prairie Swine Centre.

For producers, Fortin suggests installing a water meter at the entry to barns which will track

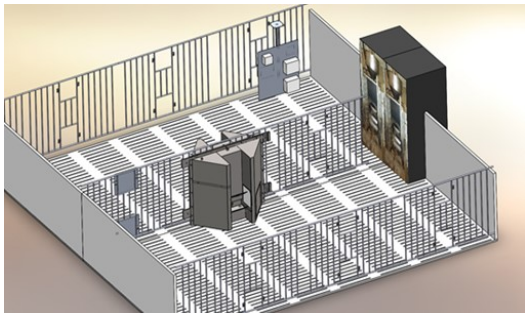


Diagram of 'smart drinkers.' Source: CDPQ

the amount of water consumed each day. In addition to acting as an early warning system for disease, the meter can help them compare water usage in summer and winter and assess water wastage.

### Smile for the camera

In the second part of this project, a specific setup was developed by CDPQ to collect images and create 3-D models of live pigs. It consists of three cameras used simultaneously in a small pen designed to restrain a pig while it is being scanned, which takes about one minute.

“One day we will have the technology to predict pig weight using a vision system that is much more accurate than the human eye. Because there is no manipulation or stress involved for the animal, welfare is improved. Also, since barn staff spends less time physically handling pigs, they can focus on more interesting, valuable and motivating tasks like

reviewing data from the weighing system or collecting images with the cameras.”

By producing images instead of just a weight number, this system offers producers a host of additional data on pigs such as fatness or lean yield, primal cut yield and size of loin or belly compared to size of the ham.

While there is still work to be done in making the 3-D system more precise and having it usable at the commercial level, the early results are encouraging.

Thanks to ongoing research, the gathering of information on farm is poised to become more accurate and efficient, not to mention more interesting. Before your spouse gets wind of it, you might make them a deal: If they clean out the fridge, you'll take the “boring” job of data collection. 😊

#### For more information....

For more information about the work described in this article, please contact Mr. Frederic Fortin at [ffortin@cdpq.ca](mailto:ffortin@cdpq.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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