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Alberta Champions Spent Hen Welfare with New Euthanasia System

Calgary, AB. March 21, 2005: Alberta research and livestock industry support has resulted in a breakthrough new system for euthanizing spent hens.

The system, a spacious Modified Atmosphere Chamber (MAC) in which large numbers of birds are euthanized rapidly and painlessly with carbon dioxide, is a breakthrough for the North American poultry industry, says Susan Gal of the Alberta Egg Producers (AEP). It promises high animal care standards, dramatically improved efficiency and an invaluable option to respond to crises such as avian influenza.

“This system offers tremendous advantages for our industry,” says Gal. “Right now, nearly all spent hens in Alberta are humanely killed on-farm by producers, but the typical processes are labour intensive and time consuming. The new system is a low cost, humane tool for efficiently killing large numbers of spent hens. Producers can build it themselves and use it to handle spent hens with far less effort, cost and lost productivity.”

The new MAC system was developed by Alberta Agriculture, Food and Rural Development (AAFRD), building on knowledge from previous efforts at the University of Alberta and the University of Georgia. The basic structure is a six foot wide by four foot high and four foot deep bin that can hold roughly 650 birds. Based on trials at commercial operations, a two-bin system using around 20 people to constantly load and dump the bins can handle 30,000 birds in an eight to 10 hour day.

“Hens are unconscious within about seven to 15 seconds of being in the chamber and dead within 30 to 60 seconds,” says Dr. John Church, project manager of the spent hen effort and leader of the AAFRD Livestock Welfare Unit. “It’s a very humane way to handle the birds.”

Laying hens are considered “spent” at the end of their laying cycle, typically after 52 weeks in production. In Alberta, the province’s approximately 170 registered egg producing farms result in roughly 1.6 million spent hens annually.

Up until about five years ago, roughly half of Alberta’s annual spent hen flock was transported alive to a federally inspected meat processing facility. However, transportation is stressful for the birds, which are in a physically fragile state following the long production cycle. In addition, the processing facility for spent hens has since stopped taking the birds, due to declining markets. Producers not sending birds to the federally inspected facility had either processed birds themselves at a provincially inspected facility for re-sale as fowl, or humanely killed them on farm and disposed of them by incineration or burial.

“From both animal care and production cost perspectives, euthanizing birds on-farm is clearly the best way to go, and that’s something the industry has recognized,” says Susan Church, general manager of Alberta Farm Animal Care (AFAC). “The new system is a result of Alberta’s egg production industry leading the way to establish integrated, humane on-farm disposal methods that eliminate the need to transport the live hens and minimize the stress of handling.”

Disposing of spent hens is a long-standing issue for the province’s producers, says Gal. “At least 10 years ago, our board began thinking that ultimately on-farm euthanasia would be the best route to go. As a result, we set our vision at 100 percent of our birds killed on-farm.”

Working first with a local processor – Northern Alberta Processors in Edmonton – and then with AAFRD, AEP initially investigated improved electrocution methods for on-farm use. However, this effort failed to deliver the high kill rates and management efficiency the industry wanted.

AEP then turned to the University of Alberta, where Dr. John Feddes and Dr. Martin Zuidhof had developed a small MAC cart – a modified version of the University of Georgia’s Modified Atmosphere Killing (MAK) system. The small MAC cart delivered the desired kill rates but because of its small size, was not ideal for meeting the needs of large commercial operations.

AAFRD then went to work on a large MAC system, led by Engineer Darryl Slingerland and the team at AAFRD’s AgTech Centre in Lethbridge. The AAFRD group based its design on a system developed by Saskatoon Processing Co., modifying and adapting this system to fit the needs and requirements of the Alberta industry. “There were a few big hurdles to overcome, but we’re very happy with the system as it stands today,” says Slingerland. “This is a very practical system that producers can build and maintain relatively easily with low cost.”

The bins are designed to attach to front-end loaders for easy on farm disposal, says Slingerland. “Overall, producers can typically save two to three days of work compared to using other systems. That’s important because time is critical for commercial producers – they need to get their barn empty and rest it for seven days before they repopulate and begin a new production cycle.”

AAFRD and AEP are now working to provide information and expertise to producers to build their own MAC systems. In addition to AAFRD and AEP funding, funding support for portions of this effort has been provided by AFAC and the Alberta Livestock Industry Development Fund (ALIDF).

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