

Poultry Manure Belt Drying Project

Jesse Vandenberg

Alberta Agriculture and Forestry, Lethbridge, Alberta

Jesse.vandenberg@gov.ab.ca

In 2016, the Egg Farmers of Alberta and Alberta Agriculture and Forestry initiated a project to help fill information gaps related to manure belt drying systems in layer barns. Fresh poultry manure generally has a high moisture content, which results in the volatilization of ammonia. High levels of ammonia in the barn can have adverse effects on egg production as well as poultry and worker health. Additionally, the loss of ammonia by volatilization reduces the amount of nitrogen in the manure, which reduces the value of manure as a fertilizer, and also has a negative impact on the local environment. Manure drying belts are one method that can be used to reduce the moisture content of the manure thus decreasing the amount of ammonia volatilization, but there are still information gaps that need to be clarified for use in Alberta. The current project is aiming to evaluate the effectiveness of installed drying systems and their best practices. This will be done by evaluating the effectiveness of current drying systems in Alberta by measuring the moisture contents of manure from farms with drying compared to those without. Building on that information, in-barn testing on an operating farm will be used to draw conclusions from more controlled scenarios. If needed, further research will be conducted at the University of Alberta Poultry Research Centre to evaluate the change of ammonia emissions based on different drying scenarios.

The main goal of the project is to comprehensively evaluate the benefits and drawbacks of manure drying belts by measuring important factors including the energy usage, nutrient contents in the manure, and ammonia emissions. From these measurements, economics and the net environmental impacts can be calculated to help guide producers to improve efficiencies.

The key questions that the project will aim to answer include:

- The effectiveness of current drying systems and what the moisture contents are in Alberta with and without drying.
- If the extra energy usage for drying manure is justified by the benefits of reducing ammonia volatilization and improving nitrogen retention in the manure.
- The impact of drying in aviary systems.
- Best practices to optimize the drying and manure handling processes.