# Novel Tools & Technology for Prevention of HPAI

## PILOT PROGRAM GUIDE 2025/26

The Novel Tools and Technology for HPAI Prevention Pilot Program is intended to evaluate if novel tools and technology are practical to use on commercial Lower Mainland poultry farms, and their potential to reduce the risk of Highly Pathogenic Avian Influenza (HPAI) infection in high-risk areas of the region.

## TABLE OF CONTENTS




The Food Security Initiative is funded by the Province of British Columbia. The initiative is delivered by the Investment Agriculture Foundation of BC.

# PROGRAM OVERVIEW

The Novel Tools and Technology for HPAI Prevention Pilot Program (NTT) is part of the Food Security Initiative and is funded by the Province of British Columbia. The pilot program is delivered by the Investment Agriculture Foundation of BC (IAF).

NTT is designed to evaluate the practicality and effectiveness of novel tools and technology for reducing the risk of Highly Pathogenic Avian Influenza (HPAI) on commercial poultry farms in high-risk areas of the Lower Mainland and reduce the overall impact of HPAI in the province.

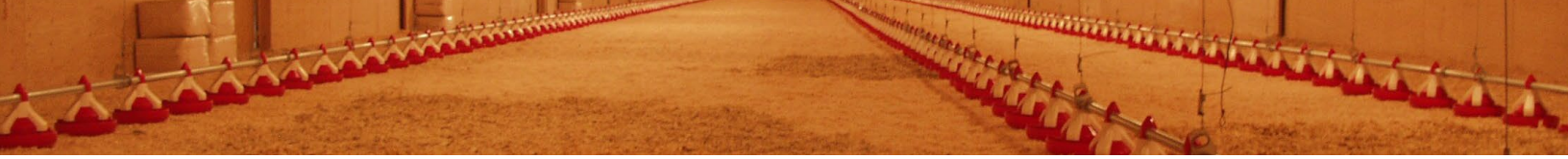
There are two streams for the Novel Tools and Technology for HPAI Prevention Pilot Program:

Stream 1: Poultry Producer Novel Tools & Technology Implementation supports commercial poultry producers installing eligible novel tools and technologies on their commercial poultry farms in the Lower Mainland.

Eligible commercial poultry farmers who have completed BC Office of the Chief Veterinarian-administered Case Control Study Online Questionnaire can apply for Stream 1.

Stream 2: Research, Monitoring, and Evaluation supports suitable research partners who will generate, collect, test, and analyze detailed data about the effectiveness, practical use, and scalability of novel tools and technologies[1] in reducing the overall impact of HPAI in the province.

[1] More details about the novel tools and technologies recommended by the province's working group will be published soon to iafbc.ca/ntt and shared via the NTT Newsletter when available.



# APPROACH

NTT applications will be accepted through the IAF Client Portal. Following the submission of an application and prior to funding decisions being made, project applications are screened and reviewed by IAF. This review involves:

- Ensuring application completeness.
- Organization/Applicant eligibility check.
- Project alignment and eligibility check.

Applications will be assessed by Ministry of Agriculture and Food (Ministry) staff to ensure viability, reasonableness, and eligibility. The Ministry may be in direct contact with applicants (or any listed experts/contractors on the application) or request IAF follow up for clarification as required.

Submitting an application is not a guarantee of funding. If the program funding requested exceeds funding available, adjudication and funding will be prioritized based on the expected economic impact of HPAI.

## Funding Limits

| Stream | Funding Maximum |
|---|---|
| Stream 1: Poultry Producer Novel Tools & Technology Implementation | $30,000 per farm/Premise ID |
| Stream 2: Research, Monitoring, and Evaluation | $75,000 per project |

For the purposes of this pilot program, the per farm/Premise ID cap will be applied to each Premise ID registered premise, regardless of whether they are operated under a single CRA business number.

NTT is not a cost-shared program. There are no requirements for eligible producers to contribute funds to the projects. If the total project costs exceed the available funding limits, the participant is responsible for covering those costs.

**IAF strongly recommends you sign up for the NTT Newsletter to stay up to date on the NTT program. This newsletter will provide program updates, clarifications, and reminders about upcoming application dates.**

If there is a discrepancy between the information found in this guide and www.iafbc.ca/ntt/, the program webpage takes precedence.

# PROGRAM DETAILS

## PARTICIPANTS

### Stream 1: Poultry Producer Novel Tools & Technology Implementation

**Eligible participants for Stream 1** include commercial poultry producers, including:

- Table egg layers
- Broiler breeders
- Duck, goose, turkey, and other poultry producers
- Conventional and specialty broiler farms

**Please note:** Program funding is being prioritized based on commodity type. See the prioritization criteria on page 9.

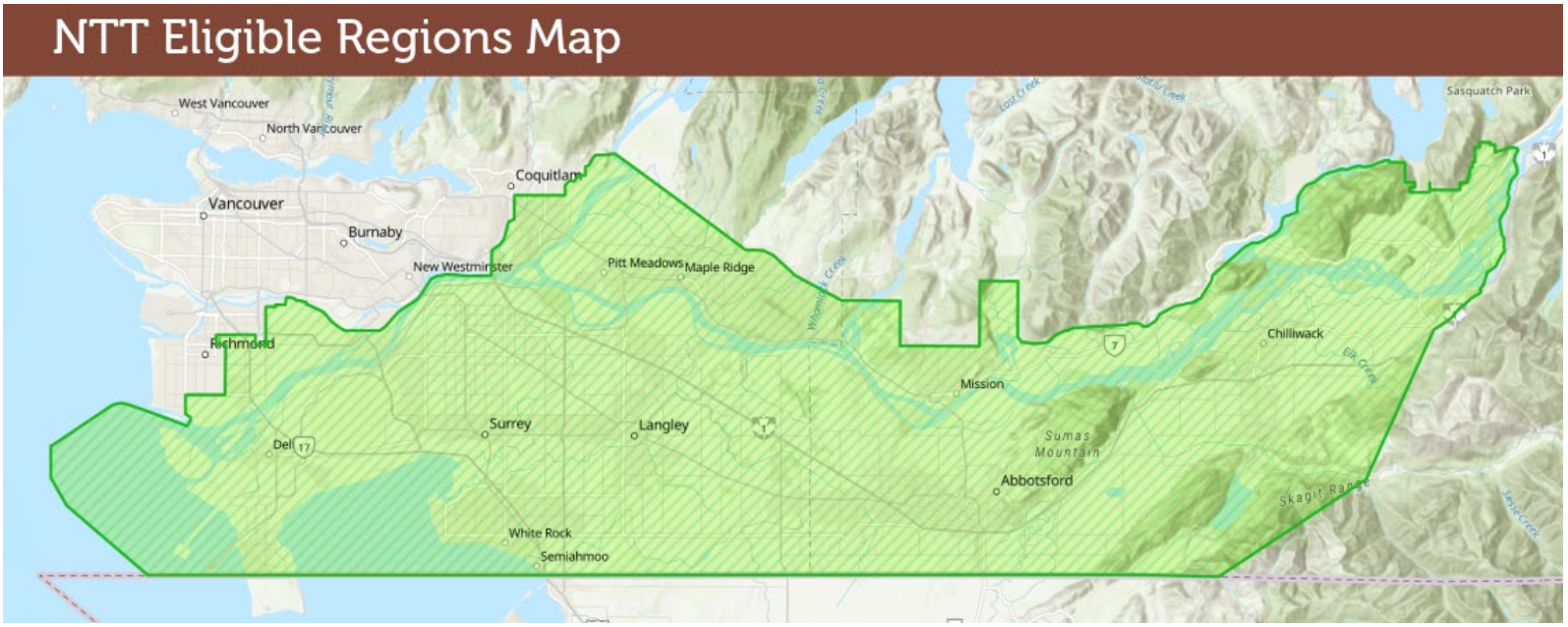
Applicants must:

- Have successfully completed the BC Office of the Chief Veterinarian-administered Case Control Study Online Questionnaire.
- Be based and operating within the eligible program region (see Figure 1) and file business or farm income taxes in BC.
- Agree to provide data requested by AF, or designate, to allow for analysis to assess whether installing and operating various tools and/or technologies reduces the risk of flocks becoming infected with HPAI. Data may be collected from approved applicants from November 7, 2025, to April 30th, 2026, via 2 to 3 short online surveys.
- Agree to take part in NTT Stream 2 research projects as and where reasonably requested, to support the research and evaluation of the Working Group Recommended Novel Tools & Technologies and the Eligible Novel Tools & Technologies. Data may be collected by research teams approved for Stream 2 research from November 7, 2025, to July 17, 2026.
- Have an active 9-digit CRA business number.
- Constitute a legal entity.
- Be registered with the BC Premises Identification Program.
- Hold chicken or turkey quota under Canada's supply management system or raise **more than 300** ducks or geese commercially for the purpose of selling products and by-products.

**Ineligible participants for Stream 1** include:

- Producers outside of the eligible program region, marked with a green outline in Figure 1.
- Poultry producers who do not hold quota, or are raising poultry on a premise with **fewer than 300** domestic birds (i.e., small-scale, hobby farms, or birds kept as pets or show birds)

Figure 1 - Eligible Program Region




## Stream 2: Research, Monitoring, and Evaluation

Eligible participants for Stream 2 include:

- Research teams with expertise in fields such as viral transmission, agricultural ventilation systems, poultry barn engineering, or wild bird deterrence, that are led by faculty at Western Canadian academic institutions, or by licensed professionals (P. Ag, P. Eng, DVM) that serve the poultry sector.
    - Academic institution-based teams must demonstrate industry partnership and/or industry support for the proposed research in their application.

Applicants must:

- Include a legal entity capable of entering a legally binding contract on behalf of the research team.
- Academic institutions must be public post-secondary institutions authorized under provincial legislation to deliver post-secondary education and training in British Columbia, Alberta, Saskatchewan or Manitoba.
- Professionals (P. Ag, P. Eng, DVM) must be licensed and must file business income taxes in their respective province.

Ineligible participants for Stream 2 include:

- Research teams that do not have the demonstrated knowledge and expertise required to undertake the listed research, monitoring, and evaluation activities.
- Research teams not meeting the requirements listed above.

# ACTIVITIES

## Stream 1: Poultry Producer Novel Tools & Technology Implementation

Tools and technologies funded through this pilot program must be installed to filter or treat the incoming or recirculated air in airspaces where poultry are kept, and where appropriate ventilation system upgrades have been completed to ensure that the maximum amount of air being drawn into the airspace can be filtered or treated (e.g., sealing non-inlet air entry points, tightening barn pressure, or upgrading to positive pressure.)

All tools and technologies funded by this pilot program must be installed between January 1, 2025, and November 7, 2025. Additionally, participants must agree to operate the tools and technologies continuously until March 31, 2026.

Retroactive costs from January 1, 2025, or later are eligible for Stream 1. Purchases made prior to January 1, 2025, will not be reimbursed.

By participating in the NTT pilot program, participants agree to provide data to the Ministry of Agriculture and Food (or designate) upon request, to allow for analysis to assess whether installing and operating various tools and technologies reduces the risk of flocks becoming infected with HPAI. Data may be collected by the Ministry from November 7, 2025, to April 30, 2026, via 2 to 3 online surveys and/or through Stream 2 approved researchers who may request premise access. The Ministry will work with researchers to ensure that any site access requests are reasonable and adhere to strict biosecurity standards.

Activities for Stream 1 can be completed by the producer or by subcontracting an allied agricultural industry company/professional with the required expertise and equipment.

### Eligible Activities

Eligible costs under this program include:

- Mechanical Air Filtration - Installation of particulate filters (e.g., MERV 16 or above or HEPA).
- Ultraviolet (UV) Light Systems - Installation of UV-C systems to disinfect incoming or recirculated air.
- Electrostatic Precipitators (ESP) Systems - Installation of ESP systems that collect and remove electrostatically charged dust particles from air.
- Positive Pressure Ventilation Systems - Installation of a positive pressure ventilation system to upgrade from sidewall inlets, creating a positive air pressure system within barn airspaces where poultry are kept. Should be combined with one other approved NTT activity.

Note: See all details about eligible novel tools and technology in the Eligible Novel Tools & Technology Guide in Appendix A.

## Stream 2: Research, Monitoring, and Evaluation

Participants in Stream 2 of the Novel Technology and Tools Pilot Program will work in consultation with Ministry of Agriculture and Food staff in developing and executing research and evaluation methods.

### Eligible Activities

Research and evaluation of the Province's Working Group recommended tools and technologies with a focus on their effectiveness and practical use in preventing HPAI incursion into poultry barns.

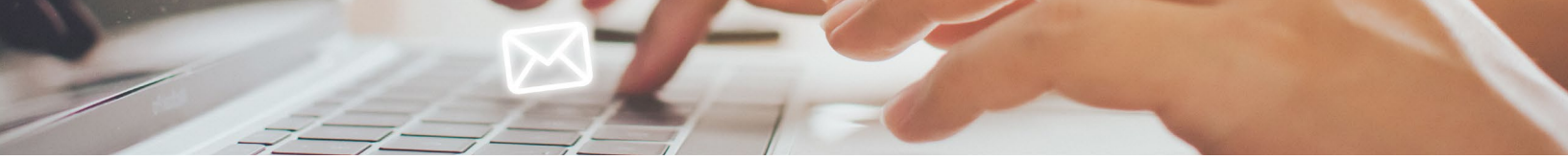
Note: Further detail regarding the Working Group's Recommended Novel Tools and Technology will be published shortly to iafbc.ca/ntt and shared via the NTT Newsletter when available.

### Ineligible Activities and Expenses

Ineligible activities and expenses include:

- Goods and Services Tax (GST)
- In-kind expenses
- Activities related to AI response
- Capital costs (such as vehicles, furnishings, land, and buildings).
- Taxes and duty or shipping costs.
- Tools or technologies that the Province's Working Group has determined to be ineligible for any reason
- Costs inherent in the day-to-day operations of the business or for ongoing maintenance (e.g., ongoing expenses for employee salaries, existing software subscription costs, etc.).

Note: Purchases made prior to January 1, 2025, will not be reimbursed.



# APPLICATIONS

## Important Program Dates

| Stream | Applications Open | Application Close | Project Start | Project Completion |
|---|---|---|---|---|
| Stream 1: Poultry Producer Novel Tools & Technology Implementation | August 12, 2025 | August 29, 2025 | January 1, 2025 | November 7, 2025 |
| Stream 2: Research, Monitoring, and Evaluation | August 26, 2025 | January 15, 2026 | At Approval | July 17, 2026 |

**High demand is expected for NTT.** Applicants are encouraged to submit completed application(s) as soon as possible. Applying is not a guarantee of funding.

If funding is not fully committed within the application timeline outlined above, notification of application extension will be provided in the NTT Newsletter and posted to www.iafbc.ca/ntt/.

Applications will be received, reviewed, and adjudicated until available funds are fully committed. Applications will be assessed by Ministry of Agriculture and Food staff to ensure viability, reasonableness, and eligibility. The Ministry may be in direct contact with applicants (or any listed experts/contractors on the application) or request IAF follow up for clarification as required. Funding decisions for Stream 1 will be sent by September 15, 2025. Funding decisions for Stream 2 will be sent within eight weeks of the complete application submission.

## Application Process

Applicants can apply through the IAF Client Portal. The application process will generally consist of:

### Create an Account & Organization Registration

- Go to IAF's Client Portal.
- Create a personal profile (name and email).
- Provide your organization's information.
- IAF will validate your account, then you will receive an email granting you access to the portal. *Please note this can take up to two business days.*

### Applying for Project Funding

Select the Novel Tools and Technologies Pilot Program from Funding Opportunities, and provide:

- Additional Site Information (such as Project location, Commodity Type, etc.)
- BC Premises ID number (Stream 1 only)
- Selection of activities and project costs per activity
- Copies of relevant documents (e.g. Copy of Corporate Registry)
- Funding request / project budget

Applicants are required to provide supporting documents (such as quotes or invoices, or proof of expertise for Stream 2) in support of their application. These documents can be uploaded through the IAF Client Portal as attachments to the application.

IAF staff are available to answer questions regarding eligible activities, costs and/or the application process. IAF may also contact applicants for additional information or clarification to assess their application. Applicants can contact ntt@iafbc.ca or 250-940-6150 with any questions about the program.

Contact IAF:
Have a question? The IAF Team is here to help! Email ntt@iafbc.ca anytime, call 250-940-6150 during business hours or starting on August 12, 2025, you can book a 10-minute phone consultation with an IAF staff member to discuss your NTT application. Visit the NTT webpage for details.

## Review & Adjudication

Prior to funding decisions being made, project applications are screened and reviewed by IAF. This review involves:

- Ensuring application completeness.
- Organization/Applicant eligibility check.
- Project alignment and eligibility check.

Applications will be assessed by a Ministry of Agriculture and Food staff member to ensure viability, reasonableness, and eligibility.

IAF will email applicants to Stream 1 with a funding decision by September 15, 2025. Priority 1 applicants can expect a funding decision within two weeks of a complete application, and priority 2-4 applications will be considered after intake has closed and if funding is still available.

Stream 2 applicants will be notified by email of the funding decision within eight weeks of submission of a complete application.

All decisions regarding application status are final. All applicants will receive a funding decision email from IAF via the IAF Client Portal. The status of an application can be found anytime in the IAF Client Portal.

## Program Prioritization

If the program funding requested exceeds funding available, adjudication and funding will be prioritized based on the expected economic impact of HPAI.

Stream 1: Poultry Producer Novel Tools & Technology Implementation

- Priority 1: Commercial layer, broiler breeder, duck and goose, and turkey farms
- Priority 2: Commercial specialty broiler farms
- Priority 3: Commercial conventional broiler farms
- Priority 4: Commercial farms that producer other types of poultry

Stream 2: Research, Monitoring, and Evaluation projects will be prioritized based on the expected impact and timeliness of research project completion.

# NOTIFICATIONS AND OBLIGATIONS

## Arm's Length Transactions

All businesses from which goods or services are purchased must be at Arm's Length from the applicant, meaning not related to the applicant, not affiliated with the applicant, or controlled in any way by the applicant.

## Funding Notifications and Contracts

If the project is approved, IAF will inform the applicant by email of the details of the decision and any associated terms and conditions. Notification will be provided by September 15, 2025, for Stream 1 applicants, and within eight weeks of a completed application submission for Stream 2 applicants.

Funding is application and project-specific and must be used for the approved project activities and related expenses. Funds are non-transferable.

Approved projects may begin as soon as they receive their approval, with eligible expenditures being considered as of January 1, 2025, for Stream 1. All Stream 1 projects must be completed by November 7, 2025, and Stream 2 projects must be completed by July 17, 2026.

If the project is not approved, the applicant will receive an email response from IAF.

## Funding Acknowledgements

This program is funded by the Government of British Columbia through the Food Security Initiative. As such, acknowledgement of funding is required if or when public communication about a project and/or funding occurs. To ensure appropriate acknowledgement, all communications and marketing materials, including public announcements or social media posts, must be pre-approved by the IAF Communications Team. Details on correctly acknowledging funding can be found on the project resource hub. Materials must be submitted via the IAF Client Portal.

## Reporting Requirements

Successful applicants must complete a project report prior to receiving funds from the program. This report must be filled out and submitted to IAF along with all invoices for the project to be considered for funding reimbursement. It is important the final report is submitted on time and with all required information. Expenses will be reimbursed based on the submitted receipts and the approved project budget. All reporting will be completed via the IAF Client Portal.

## Project Audit

Projects may be audited. Please retain all project documentation. The IAF Team or a representative will reach out if your project has been selected for audit.

## Changes to Contracted Projects

If you are not able to complete your project according to the approved application, please inform the IAF Team as soon as possible using the IAF Client Portal.

# APPENDIX A: Eligible Novel Tools & Technology Guide

## Mechanical Air Filtration

| | |
|---|---|
| Eligible Technology | • Installation of particulate filters (e.g., HEPA, or MERV 16 or higher). |
| Cost | • Variable - dependent on filter/ model |
| Considerations | • Selection of filter (MERV, HEPA) depends on the desired size of particles to filter<br>• More efficient filters may be more costly<br>• Filters may accumulate dust in barn environments |

- Mechanical air filtration is a well-established way to filter particulate matter and aerosols from air. There are many different types of air filters, and they are typically categorized based on their efficiency. For example, Minimum Efficiency Reporting Values (MERV) ratings are determined for filters based on the average filtration efficiency for different sizes of particles. A higher MERV rating means the filter can efficiently remove a greater range of particles at a higher efficiency.
- High-efficiency particulate air (HEPA) filters meet requirements beyond MERV filters, efficiently removing even smaller particles. The selection of an appropriate filter, therefore, depends primarily on the size of particles or aerosols targeted for removal, but must also balance cost, as more efficient filters typically pose greater initial expenses and also incur ongoing fees for energy and maintenance.
- Both MERV and HVAC systems are widely used in healthcare and clinical settings for the removal of harmful bioaerosols, like SARS-CoV-2 and other viral pathogens. Federal and provincial agencies have recommended HEPA filtration as an interim measure to prevent HPAI transmission in healthcare settings.
- Some evidence shows that HEPA filtration is superior to UV light for the inactivation of viruses; often, air filtration is combined with other air management approaches to increase efficiency. Such systems have been adapted to farm environments, as illustrated through several studies. A study in France found that HEPA filters decreased transmission of PRRSV in swine to nearly zero levels; MERV 14, 15, and 16 models have also shown effectiveness against PRRSV in the US, indicating that air filtration can dramatically reduce outbreaks caused by viral pathogens.
- Filters with a MERV rating below 16 may be used as a pre-filter with more expensive HEPA filters and could also be useful when used in conjunction with other Eligible novel tools and technologies as a pre-filter.

## Ultraviolet (UV) Light

| | |
|---|---|
| Eligible Technology | • Installation of UV-C systems to disinfect incoming or recirculated air |
| Cost | • Variable - dependent on model |
| Considerations | • UV light can be harmful to humans and animals<br>• Requires constant cleaning to be effective and may require active monitoring and cleaning in high dust environments like poultry barns unless combined with additional filtration technologies |

- Ultraviolet (UV) light is a type of light with a shorter wavelength, which can penetrate into cells, such as pathogens, and destroy them. There are three types of UV light, based on their wavelengths: UV-A, UV-B, and UV-C. UV-C has the highest energy, and has most often been used in systems designed to inactivate pathogens. UV-C has also been combined with other sterilization approaches, such as mechanical filtration, ionizers and portable air purifiers, to develop systems that both capture and inactivate pathogens.
- Such systems are well-established to inactivate both aerosolized bacteria and viruses in laboratory and healthcare settings. In agricultural settings, UV systems have been implemented for the treatment of livestock emissions and as a component of air filtration systems to reduce airborne bacteria and dust in pig facilities.
- A number of studies confirm that influenza viruses, including H5N1, are susceptible to UV inactivation. While field studies of UV systems in the poultry sector for prevention of HPAI are currently lacking, the effectiveness of this technology against influenza viruses generally, paired with promising evidence in similar farm settings, positions UV light as a scalable solution to prevent HPAI transmission, especially when combined with other air management approaches.

## Electrostatic Precipitators (ESPs)

| | |
|---|---|
| Eligible Technology | • Installation of systems that collect electrostatically charged dust particles to remove from air |
| Cost | • Variable - dependent on model<br>• Estimates suggest around $1 per bird + annual operating costs |
| Considerations | • Requires several sets of plates per barn, depending on size<br>• Not suitable for dusty environments like poultry barns without additional filtration technologies |

- Electrostatic precipitators (ESPs) are a type of electrical filter used in ventilation ducts. ESPs can filter micron or sub-micron-sized particles from air by generating an electrostatic field, which charges airborne particles and attracts them to an oppositely charged plate or electrode. Because ESPs are effective at filtering small-sized particles (0.3-0.6 μm), they have been studied as a tool to filter bioaerosols, including viruses.
- In some cases, ESPs have been combined with UV-C technology to both capture and inactivate viral particles, as inactivation is not completely achieved by ESP capture alone. In laboratory settings, ESPs were able to capture airborne virus-like particles; a separate laboratory study demonstrated their effectiveness at removing bovine coronavirus, influenza A virus, and porcine reproductive and respiratory virus (PRRSV) from air in an HVAC system.
- In a farm setting, ESPs were demonstrated to remove 96-99% of influenza A and PRSV particles from the air when placed in the airflow between experimentally inoculated (infected) pigs and control (non-infected) pigs. While ESPs have been tested in commercial poultry houses for the purposes of removing pathogenic bacteria from the air, including *Campylobacter* and *E. coli*, with mixed results, this technology has not been tested on poultry farms specifically for the removal of HPAI or similar viruses.
- Advantages of ESPs include effective filtration for small particle sizes, the ability to add an ESP to an existing system with little disruption, and relatively low cleaning and maintenance requirements compared to other technologies. However, ESPs may produce harmful byproducts such as ozone, and may not be suitable for dusty environments without pre-filtering.

## Positive Pressure Ventilation Upgrade

| | |
|---|---|
| Eligible Technology | • Installation of a positive pressure ventilation system to upgrade from sidewall inlets, creating a positive air pressure system.<br>• Should be combined with one other approved NTT activity. |
| Cost | • Variable – estimates range from $30,000 to $80,000 per barn |
| Considerations | • Requires careful control of mixing air to ensure even distribution<br>• Should be combined with tunnel venting or ducting to heat and evenly disperse air<br>• Can cause some moisture related issues within the structure of the building if not properly managed |

- It is difficult to effectively filter incoming air in barns using negative pressure ventilation systems because no matter how well sealed a barn is, air will always enter through openings in the barn envelop that are not filtered. A positive pressure ventilation system allows for much greater control and the ability to effectively filter incoming air.
- In a positive-pressure system, fans are used to pull air into the barn, creating positive pressure that then forces air out through any cracks, preventing unfiltered air from entering the barn. By maintaining a higher air pressure inside the barn than outside, it forces air to escape through any gaps, preventing the influx of contaminated air. The incoming fresh air is typically distributed throughout the barn using ducts, attic inlets or circulation fans. If heating is required, this is commonly done in the ducting of an air supply system. The fresh air is forced in with a fan and evenly distributed using large ducting with multiple nozzle holes in it. The supply air mixes with the inside air throughout the barn.
- Some reports have highlighted that inside air can be forced into the building structure through leaks in the building's internal envelope. When the air cools to its dew point, condensation can occur within the building wall cavities, so planning must be undertaken to account for this. Frost and moisture in the wall can lead to structural deterioration, attics and walls full of wet insulation, and may lead to hidden microbial growth.
- These systems are also reliant on electricity and all facilities should have a standby generator that can be quickly started in the event of mains power failure.
- A recent study in Germany to test filter modules describes the transition of a naturally ventilated turkey barn to a slightly over-pressured, filtered "hybrid" barn, with significant reduction observed in a variety of bacteria, mold, and yeast species, as well as influenza A.

August 2025.