**Proposal ACPV Workshop 2022**

**Title:** Sensor data and analytics for poultry health, welfare, and food safety

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**Co-Chair:** Dr. Rocio Crespo, College of Veterinary Medicine, NC State University

**Objectives:**

* To offer an updated view of electronic sensor and data analytics applications for poultry health, welfare, and food safety.
* To introduce veterinarians to some advance data analytics techniques.
* To provide resources and examples of data analytics applications.
* To examine challenges of implementation and needs in training and technology.

**Justification:**

The poultry industry is becoming more automated and digitalized. Many hatcheries, farms, and processing plants count with sensors, automatic devices, and screens to monitor the environment, record embryo and bird responses, evaluate water and feed consumption, record growth, and egg production, etc. These observations can be easily transferred to others in the production chain. Although the volume, speed, and ability to share data have increased, the analysis and integration of these data can be challenging. Lack of training on new software or advanced data analytic techniques can prevent veterinarians from taking full advantage of this information to make decisions related to health status, disease prevention, improving animal welfare, or food safety. This workshop offers an opportunity for poultry veterinarians to gain knowledge of some of the technologies available to monitor poultry welfare and health.

**Proposed hybrid program virtual and in-person Vancouver:**

1. One month before the event, 6 of the 32 modules of the course [**Data Analytics for the Poultry and Swine Industries**](https://www.anprocampus.com/ttpages/info/?id=64)will be available for participants.

Introduction to Data Analytics

1. M2. Identifying potential root causes

2. M4. Data visualization and graphics

3. M8. Data preparation for analysis

4. M26. Logistic regression

5. M28. Decision trees

6. M29. Neural Networks

**\* We can offer more or other modules if the ACPV Board and Organizing committee want to go this route.**

This Course is self-paced, interactive, and virtual. It will provide training to those with knowledge and experience in data analytics and those with basic knowledge. It will include some general topics and some advanced methodologies that are now very simple to conduct using software like JMP and R. These modules will provide a short overview of other data analytic techniques that they can explore later on.

Data analytics knowledge is the main limitation to apply correctly all digital technologies. These modules will help them better understand some of the talks presented during the live sessions. The modules will be available up to two months after the live sessions. The time commitment to review these modules is approximately 8 hours, with all exercises included.

1. The live sessions will include the following invited speakers:

- **Simon Cohen**, Vice-President MTech. *Sensors and data analytics for poultry production*.

- **Suresh Neethirajan**, Associate Professor at Wageningen University & Research.

 *Sensors for monitoring health. Making sense of sensors based big data in poultry production.*

- **Dr. Maurice Pitesky**, Professor University of California Cooperative Extension.

 *Data challenges and practical aspects of machine learning-based statistical methods for the analysis of poultry data.*

- **Jean Pierre Vaillancourt**. Professor. University of Montreal.

- **Gustavo Machado**, Professor. North Carolina State University. *Modeling for infectious bronchitis and Salmonella.*

- **Dr. Edgar O. Oviedo**, Professor North Carolina State University. *Data Analytics for Poultry Health and Welfare.*

**Additional topics.**

* Management of hatchery reports of environmental status
* Data management from serologies
* Microbiome data for health and food safety.

This workshop can provide 6 CE hours. If the participants decide not to take the online modules, the live session of the workshop can provide 4 CE hours.