

## **Board Research Initiative Request for Proposals**

### **Investigation of Reduced Hatchability in Broiler Breeders**

#### **Background**

Over the last several decades, the use of genetic selection by poultry genetic companies have allowed for the development of superior genetics capable of high efficiency broiler and breeder production. Furthermore, advancements in nutritional and management practices have further enhanced these results. Although continuous improvements in broiler production traits such as feed conversion, average daily gain, and breast meat yield have been observed over the course of time, key broiler breeder production traits such as hatchability have recently faltered in the process. The poultry industry depends on a regular supply of day-old chicks and this supply is dependent on the fertility and hatchability of eggs. Over the last few years, the poultry industry has experienced reduced hatchability in all broiler breeder lines causing the industry to short supply of chicks creating chicken meat shortages. While the reason of this decline is unclear, further research is needed to determine and identify the cause of reduced hatchability in broiler breeders and develop preventative best strategies in the future.

#### **Research Questions and Focus Areas**

- Is the reduction in hatchability due to the decline in male traits such as libido and sperm quality/quantity or is it associated with the hen (sperm storage, mating interactions etc.)?
- What is the primary reason for the reduction in hatchability (genetic, management, nutrition etc.) and what strategies can be implemented to alleviate the issue?
- What is the best nutritional strategy to feed males? Evaluate nutritional strategies that improve sperm quality and identify management practices to enhance male performance.
- Identify the relationship between sperm storage and mating frequency and determine the optimal rate required for maintaining hatchability.
- Evaluate the impact that hen feathering has on the life of flock fertility and identify management and nutritional strategies to improve feather quality.
- What role does male fleshing have toward the life of flock fertility?
- Determine the impact of various egg collection methods including automated egg collection on hatchability.
- Quantify the impact of farm cracks on hatchability and develop on-farm procedures to reduce observed incidences.

#### **Proposal Submission**

Researchers should submit only a maximum two-page pre-proposal summary that describes the parts of the objectives they wish to address and what they propose to do. A title, the researcher's name, affiliation, and email address should be included in the pre-proposal. Details of procedures or specifics of the budget should not be included in the pre-proposal submission. Pre-proposals should be submitted in Microsoft Word format to [research@uspoultry.org](mailto:research@uspoultry.org).

#### **DEADLINE FOR PRE-PROPOSAL SUBMISSION IS NOVEMBER 1, 2022.**

The outcome of the pre-proposal review will be one of three responses from USPOULTRY:

- Send a full research proposal for consideration.
- Please make specific modifications in what you are proposing and send a full proposal.
- Do not send a full research proposal.

Full proposals will follow established USPOULTRY guidelines as seen at [www.uspoultry.org](http://www.uspoultry.org). Funds can be used for graduate students, technicians, research supplies, and work and meeting travel. Funds cannot be used for professional (faculty or postdoc) salaries or equipment purchase. Up to 15% overhead is allowed. No budget, including overhead, may exceed \$125,000.