JOB OFFER

Animal breeding schemes design and modelisation to promote resilient agroecological production systems

YOUR MISSION AND ACTIVITIES

■ You will be welcomed within the UMR GABI on the INRAE site of Jouy-en-Josas,20 km south-west from Paris, in the Genetics in aquaculture team (GenAqua) which develops work concerning the genetic improvement of fish and bee species. Your project will be part of the broader framework of the "CoBreeding" project of the national research program "PEPR Agro-Ecology and Digital", bringing together more than 80 researchers from animal and plant sciences. In this context, your work will be based on two animal species, the rainbow trout and the laying hen, whose uniqueness compared to other animal species is that they are reared in very large groups of several hundred to thousands of individuals within the same batch. The work will be carried out in close collaboration with the teams working in poultry genetics from the PEGASE unit (Rennes) and the GABI unit (Gibbs team).

Modeling work on animal breeding schemes is needed to propose new methods of management and genetic improvement of populations, in line with the necessary ecological transition of production systems. The design and management of agro-ecological livestock systems involve recognizing and promoting biological diversity and biotic interactions at all levels of organization to improve the adaptation of livestock to poorly standardized environments. To this end, it is a question of genetically promoting the diversity of biological profiles (complementarity target) and positive interactions (cooperation target) between animals to ensure the resilience of the stock performances in the face of fluctuating and changing environments.

An important scientific lock to the implementation of breeding schemes promoting diversity and cooperation between individuals relates to the development of approaches allowing multiple interactions to be taken into account on the resilience of herd performance, in particular when the animals are reared in large groups such as in fish or poultry species. The priorities relate, on the one hand, to the methods of valuing intra-stock genetic diversity and, on the other hand, to the definition of a selection strategy at the scale of large groups favoring cooperation between individuals. Programs for the stochastic simulation of populations under selection, involving the interactions between individuals in individual-centered models, will have to be developed to meet these expectations.

■ You will be more specifically in charge of:
- Developing conceptual models of animal breeding schemes (trout/hen) likely to enhance complementarity and positive interactions between individuals, establish associated evaluation and selection strategies
- Developing mathematical models and corresponding simulation programs
- Testing various scenarios and analyzing the results to propose concrete options for breeding programs to improve the performance and resilience of flocks of animals reared in large groups
- Valuing scientifically as well as with the actors in animal breeding the proposed approaches

THE PROFILE WE ARE LOOKING FOR

■ Recommended training: Ph-D thesis in one of these three disciplines 'quantitative genetics', 'population genetics' or 'applied mathematics'

- Desired knowledge: applied mathematics, quantitative or population genetics
- Experience: doctoral or postdoctoral experience in modeling selection programs (animal or plant) would be appreciated.
- Aptitudes: interest in systemic approaches and the optimization of the functioning of systems (here animal populations under selection); English proficiency; good ability to work in a team.

↘ Reception conditions

- Research Unit: GABI
- Postal code + town : 78350 Jouy-en-Josas
- Type of contract: post-doctoral CDD
- Contract Duration: 24 months
- Start of contract: 1er December 2022 or during first trimester 2023
- Gross remuneration: minimum 2,600€/month but variable according to experience

↘ How to apply

Transmettre une lettre de motivation et un CV à :
Florence Phocas

- e-mail : florence.phocas@inrae.fr
- postal address : INRAE
UMR 1313 GABI – bât 440, 78 350 Jouy-en-Josas

✖ Deadline to apply : 1st of December 2022