Livestock

Asian Chicken Genetic Gains (AsCGG): A platform for testing, delivering, and improving chickens for enhanced livelihood outcomes in South East Asia

Australian Government
Australian Centre for International Agricultural Research

Overview

Smallholder poultry enterprises in low and middle-income countries are integral to the livelihoods and nutrition of nearly all poor rural households.

Up to 84% of chickens in Cambodia, Myanmar and Vietnam are indigenous types raised in small flocks of 20-50 hens and produce at most 60 eggs per hen per year while taking more than a year to achieve a market live-weight of 1.5kg. In contrast, commercial broiler chicks reach a weight of 1.75 to 2.0kg in 6 weeks, and a layer produces 250 to 270 eggs per year.

Low-producing chicken genotypes typically dominate smallholder production systems in Southeast Asia. Feed is through scavenging, with inconsistent supplementation of kitchen waste and limited amounts of grains. Birds are maintained with little management, resulting in exposure to extreme heat, pests, predators, and endemic diseases. As a result, productivity is often low for the unimproved local germplasm in these systems.

Improving chicken genetics and flock management practices is expected to contribute to enhancing socioeconomic and livelihoods outcomes.

KEY FACTS

ACIAR Project No. LS/2019/142
Duration: September 2020 to June 2024 (3 years and 10 months)
Target areas: Cambodia and Vietnam
Budget: A$2,000,000

Project Leader
Dr Tadelle Dessie, International Livestock Research Institute

Key partners

- Ministry of Agriculture, Forestry, and Fisheries, Cambodia
- Ministry of Agriculture and Rural Development, Vietnam
- National Institute of Animal Sciences, Vietnam
- National Animal Health and Production Research Institute, Cambodia

ACIAR Research Program Manager
Dr Anna Okello

Objective

This project aims to test and avail high-producing, farmer-preferred poultry genotypes to support increased smallholder chicken productivity as a pathway out of poverty in Cambodia and Vietnam.

This includes:

- Improving food security and grow smallholder poultry farmers' incomes by using better chicken genotypes and improving the management of smallholder poultry systems.
- Strengthening women's decision-making powers and capabilities at different nodes of the chicken value chain, empowering them to drive production changes and contribute to enhanced household economic welfare.
- Providing new insights for policymakers on the role of private sector engagement in promoting sustainable multiplication and delivery of poultry technologies, including farmer preferred breeds, for small-scale commercial operators.
- Promoting business-to-business partnership between 'growers' and parent stock farmers, thereby expanding the range of private sector actors involved in the poultry value chain.

Expected scientific results

- Assess the productivity of different chicken genotypes in terms of bird live weight, the number of eggs laid and survival under local environments.
- Improve farmers' knowledge, attitudes, and practices around new chicken strains, including preferred phenotypes (breeds and traits), consumer/market preference, and social and cultural acceptability.
- Measure the potential of selected chicken strains for egg productivity, growth, product quality, fitness and reproductive traits under controlled conditions.
- Assess the performance of the different chicken strains under standardised management, focusing on the yield responses of the strains to appropriate vaccines, feeding options, and improved housing.

Expected impact/outcomes

- Provide national decision-makers with evidence-based recommendations into culturally relevant village poultry breeds that optimise productivity in Vietnam and Cambodia.
- Develop smallholders access to preferred, healthy and highly productive breeds and associated poultry value chain inputs through a public-private partnership.
- Establish baseline evidence of the broader impacts of improved poultry production and productivity on smallholder livelihoods, including income and household consumption.
- Increase empowerment of women smallholder farmers in the chicken value chain in rural communities.
- Create a functioning multi-country 'south-south' network of poultry scientists to support long-term chicken genetic improvement in Africa and Southeast Asia, utilising modern genetic tools to deliver more productive, farmer-preferred village poultry breeds.
- Improved household incomes from the production of biofertilisers

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