Adoption and resilience of native chicken raising by small-scale farmers in Khon Kaen Province, Thailand

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ABSTRACT: Increasing the productivities of native chicken in the rural small-scale farmer is always the challenging. The study on adoption and resilience of native chicken raising by small-scale farmer in Khon Kaen Province, Thailand aimed to assess the status of productivities and improving the ability of the native production system of the small-scale farmer. The studied was conducted in 12 farmers. The performance of reproductive and resilience of production system were assessment. The results showed that there were no significant different in reproductive performance from different raising systems. But, the current production systems exhibited the lower resilience in all 8 elements measurement. The further development interventions are still necessary in order to promote and to increase the capacity of farmers for increasing the resilience and enhancing the productivities of native chicken system. Consequently contributing the sustainability of farmer’s livelihood.

Keywords: adoption, native chicken, small-scale farmer, resilience

Introduction

In Thailand, a large proportion of the poor people are small-scale farmers. The alleviation of poverty of resources-poor farmers becomes a multifaceted task. A better integration and improvement of livestock production into the small-scale farmer enterprise could contribute significantly to the improvement of livelihoods of small-scale farmer (Davendra and Thomas, 2002). In general, about 90-95% of rural households raised native chickens, ranking from 5-50 birds per household (Chantalakhana and Skunmun, 2002). The typically of chicken are normally scavenging for natural feed around homestead and the crop field. The most popular area for chicken housing is under the house or rice storage, with the piece of bamboo railing for roosting during the night. Some villagers let their chicken roost in the tree. The chicken then normally takes care themselves in the farm-house system (Laopaibol and Jitpraneechai, 1999). These are the common raising system of native chicken which it is still found in the present. Despite the development of native chicken in small-scale farmers had been promoting intensively in the past. There were no significantly impacts from those attempting. The major reason was from the institutional context of small-scale farmers affected the adoption of development intervention. It becomes the challenge in working together with farmers in order to improve native chicken raising system. This project aims to works with farmers in facilitating for improving of native chicken raising system, to enhancing resilience of the system and therefore supporting the living quality of farmers. The development focuses on increasing the institutional capacity and technological intervention. The development so far has been assessed

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especially the beginning in chicks production performance and attitudes changing by project’s farmers.

**Material and Method**

The study was conducted in Ban Hua Fai, Tambon Huai Toey, Amphoe Samsoong, Khon Kaen Province. The feasibility survey was conducted in order to assess the status of farmer’s institution and native chicken raising system. Twelve farmers were recruited based on their interested and willing to develop the raising system of native chicken. The development project was conducted through the participatory development approach via learning and sharing on problems finding and solution. The project supported the native chicken house construction and providing electronic incubator for reproductive performance testing. The twelve farmers then divided to 3 groups of native chicken raising system, 1) free range system, 2) semi-confinement system and 3) confinement system. System 2 and 3 were providing the chicken house and raising facility including breeding stocks at ration of 1: 5 (male: female) and supplementary feeding resources. Egg collection for incubating in the incubation was managed for 3 batches of eggs and 12 eggs per batch. The reproductive performance was measurement. Farmers were routine visited for data collection, problem solving and assessment farmers’ adaptation attitude and resilience of the development system based on an adjustment of USAID (2007) assessment guideline. The study covered the period of 9 months after establishment the raising system.

**Result and Discussion**

**Background of farmers and native chicken raising system**

The project’s farmers were wide range of the institutional context such as age, level of education background, leadership, agricultural skill, household labors availability, socio-economic status, land tenure and resources, diversities of agriculture and occupations. These were a wide range of farmers context that those had impacts on the intensity of native chicken productivities and outputs of the system. The currents raising systems were able to divided to 4 systems, there were 1) free-range system of the extensive system, they were normally raised free range system and scavenging around the farm-house, 2) semi-confinement or the semi-intensive system, chicken flock was then confined at night and open during the day, 3) confinement system or the intermediate intensive system, native chicken were raised in the control area, providing with basic facilities needs with increasing of intensity of management the flock and 4) intensive housing system or intensive system, the typically of the raising system that native chicken are kept fully in the housing either open or closing system (this system was not found in the village).

**Introduction of chicken house into the raising system and adaptation**

Chicken housing was introduced for flock management and improving of environment (**Figure 1a**). It was designed together and constructed by farmers, with supplied some materials equally by the project. Large proportions of farmers have further modified by extending part of the housing
for other poultry raising. It is clearly showed that housing is necessary for native chicken raising as it served an important habitat and reproductive behavior. However, permanent confinement of chicken in the house illustrated the stressfulness, despite they have some running space surround the house but seemed still insufficient space for performing behavior.

**Impact of raising system on reproductive performance of native chicken**

The study of project by Lertsansiri (2015) attempted to assess the reproductive performances of native chicken from the 3 raising systems were 1) free range system, 2) semi-confinement and 3) confinement system. The experimental results revealed that there were no significant different among the treatments on egg laying rate, fertility of eggs, hatching rate, and birth weight of chicks. It is clearly exhibited that reproductive performances were mainly the ability of broodstock that they can be raised in any system without any difference in the broodstock performance. It could be defined that successful of raising chicken mainly rely on survival rate of chicks, starter and grower. It reflected from the combination of ability of flock and management input from farmers. However, these performance have not been assessed. A better management native chicken flock by farmer would facilitate a higher output of native chicken from the system.

**Improving native chicken productivity**

Successfulness in increasing in native chicken outputs were clearly seen from the positive attitudes farmers and ability in supporting the better habitat, chick rearing, supplementary of feed, feeding technology improvement, management to reduce the loss of flock from risks factors. Native chicken were the higher resilience animal in the given ago-ecosystem. Increasing of outputs from the system was mainly supporting to have a good welfare of native chicken for living well in the environment. Introducing high inputs like improved breed, feed and feeding, confinement system, etc. would promoted the higher outputs, but this new system will not resilience and unmanageable sound for farmers. The increasing tasks intensively will affect the livelihood of farmers, consequently poor adoption by farmers.
Successful native chicken raising are necessary need services from farm agro-ecosystem (Figure 1b). It is clearly exhibited that higher successful in chicken raising needed a better integration to the farm agro-ecosystem. Native chicken relied on surrounding environment which providing feeding ground and habitat during the day, such as crop field likes sugarcane, cassava, rice field, fruit tree, etc. Ecosystem provides food, shad, habitat, resting area, buffer of atmosphere, medicinal herb, etc. for chicken. Native chicken will suffer and have a poor welfare in the poor ecosystem. High survival rate and better growth naturally of chicken was found in the better ecosystem.

Resilience and sustainability

As Figure 1c, It is clearly illustrated that overall resilience (8 elements) of native chicken by small-scale farmers in the project area is still lower resilience (<3). In the element of good governance was lower resilience, due to the poor cooperation among the farmers. It becomes a constraints especially working together as a group. Therefore, low resilience in found in the area of risk management (risk knowledge, warning and monitoring system, preparedness and response to the risk, recovery of raising system), among the farmers were the rather weakness. This found in most case, as farmers were insufficiently managing to reduce the loss of chicken in the flock from various sources of risks.
Future development challenge

As the result of on farm trial reveal that in the successful of native chicken raising was illustrated in the farmers who pay more intension on the development intervention especially in regular management practices. Therefore, it requires an encouraging for development through learning together with and among the farmers (Sayer and Campbell, 2004). The future challenge for the successfulness results can be demonstrated in the term of increasing in survival rate of chicks, increasing in flock size, increasing in number of grower outputs from the system rather manage to increase the reproductive performance. Current breeds of native chicken were well adaptation to the farm ecosystem and farmers’ living culture. Improving of raising systems intervention like housing, feeding devise and feeding strategies intervention could support and sufficient for improving of flock management, reproductive performance and growth performance, enhance welfare of native chicken and enhance household living quality.

Conclusion

Improving of raising system had no effect on the improving of reproductive performance. Farmers accepted and adapted the supporting facilities in which it facilitated the welfare of chicken productivity, therefore, it help in mitigating to in various types of risk that harmful the system. Resilience of raising system required an ago-ecosystem services supporting. Therefore, enhancing of the successful of productivities requires the institutional capacities of the farmers and good interventions of inputs.

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References


