Developing Strategy to Reduce the Mortality of Native Chicken using Qualitative Modeling

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Author Order	4 of 5
Accreditation	2
Abstract	Smallholder native chicken farming continues to face challenges that include simple farming management as well as ND and AI diseases that lead to decreased productivity and increased mortality rate. The aim of the study was to develop a strategy to reduce the mortality rate of native chickens in extensive and semi-intensive rearing systems. This study uses survey method with 78 extensive and 88 semi-intensive native chicken farmers as respondent. This study explores the disease incidence, illness treatment, mortality rate, as well as AI and ND antibody titers which then analyzed descriptively. System dynamic model using Ventana software (VENSIM) was used to identify the contributing factors to the mortality rate of native chicken in smallholder farming. The results showed that the common diseases among native chickens reared in semi-intensive and extensive farming are AI, ND, CRD, and pullorum, with a high rate of disease-specific mortality (>5%). Compared to native chickens in semi-intensive farming, those of in extensive farming showed a higher natural immunity against AI and ND. The qualitative modeling produced seven reinforcing loops and five balancing loops. Some challenges in developing native chicken farming were disease incidence due to lack of proper land and cage, the occurrence of selling unhealthy chickens, farmers opting out for poultry vaccination, high operational cost, lack of business motivation, limited knowledge on poultry management and health, lack of extension programs, and traditional management. We concluded that the rate of disease-specific mortality (ND and AI) remained high in native chickens reared both in extensive and semi-intensive farming. It takes an effort to improve farming management, vaccination, and the governmentÃ¢Â€Â™s contribution through extension programs to decrease disease incidence and mortality rate of native chickens.
Publisher Name	Faculty of Animal Science, Universitas Gadjah Mada
Publish Date	2022-02-27
Publish Year	2022
Doi	DOI: 10.21059/buletinpeternak.v46i1.70195
Citation	
Source	Buletin Peternakan
Source Issue	Vol 46, No 1 (2022): BULETIN PETERNAKAN VOL. 46 (1) FEBRUARY 2022
Source Page	54-62
Url	https://journal.ugm.ac.id/buletinpeternakan/article/view/70195/pdf
Author	Dr NOVIE ANDRI SETIANTO, MSc