

## **MENGETAHUI HUBUNGAN SUHU, KELEMBAPAN, DAN AMONIA PADA PRODUKSI TERNAK BERDASARKAN NILAI REGRESI DENGAN PEMANFAATAN *INTERNET OF THINGS* BROILERX AMBIENT 1.4**

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### **INTISARI**

Pesatnya perkembangan teknologi saat ini, dapat membantu kinerja industri peternakan dalam melakukan manajemen perunggasan khususnya peternakan ayam broiler. Penelitian ini bertujuan mengetahui nilai korelasi antara data lingkungan (suhu, kelembapan, dan amonia) yang terbaca melalui pemanfaatan sensor perangkat IoT (*Internet of Things*) BroilerX Ambient 1.4 terhadap produksi ternak (*Feed Intake* (FI), *Gain*, *Feed Conversion Ratio* (FCR)) pada kandang *Closed House* Charoen Pokphand Fakultas Peternakan UGM. Riset ini dilakukan sebagai upaya mengetahui kemampuan perangkat BroilerX Ambient 1.4 dalam melakukan korelasi terhadap produksi ternak, tanpa melihat efek biologis yang ditimbulkan perangkat terhadap produksi ternak. Terdapat dua jenis data yang diperoleh, yakni data lingkungan dan data produksi. Pengambilan data lingkungan dilakukan secara otomatis melalui perangkat BroilerX Ambient 1.4 yang telah terinstal di kandang. Data lingkungan diambil sebanyak empat kali sehari selama satu periode pemeliharaan dan di rata-rata. Pengambilan data produksi ternak diperoleh dari FI, *Gain*, dan FCR sebanyak satu kali sehari selama pemeliharaan. Data penelitian dianalisis statistik menggunakan regresi (*R-Square*) linear berganda dengan aplikasi *Microsoft Excel*. Korelasi pada penelitian ini adalah menilai tinggi rendahnya nilai regresi antara variabel X dan Y, tidak termasuk pengaruh biologis yang ditimbulkan oleh variabel X terhadap variabel Y. Berdasarkan hasil penelitian dinyatakan bahwa sensor suhu dan kelembapan BroilerX Ambient 1.4 memiliki nilai regresi tinggi terhadap produksi ternak secara berturut-turut sebesar 0,71 dan 0,66. Sedangkan, sensor amonia BroilerX Ambient 1.4 memiliki nilai regresi rendah terhadap produksi ternak sebesar 0,23. Presisi pembacaan sensor suhu dan kelembapan dinilai telah akurat, namun pembacaan sensor kadar amonia diperlukan perbaikan ke versi berikutnya.

(Kata kunci: Regresi, korelasi, suhu, kelembapan, amonia, FI, *Gain*, FCR.)

## **KNOWING THE RELATIONSHIP BASED ON TEMPERATURE, HUMIDITY, AND AMMONIA IN LIVESTOCK PRODUCTION BASED ON REGRESSION VALUE USING THE INTERNET OF THINGS BROILERX AMBIENT 1.4**

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### **ABSTRACT**

The current rapid development of technology can help the performance of the livestock industry in managing poultry, especially broiler chicken farms. This study aims to determine the correlation value between environmental data (temperature, humidity, and ammonia) which is read through the use of BroilerX Ambient 1.4 IoT (Internet of Things) device sensors on poultry production (Feed Intake (FI), Gain, Feed Conversion Ratio (FCR) ) in the closed house cage of Charoen Pokphand, Faculty of Animal Husbandry UGM. This research was conducted as an effort to determine the ability of the BroilerX Ambient 1.4 device to correlate poultry production, without looking at the biological effects that the device has on poultry production. There are two types of data obtained, namely environmental data and production data. Environmental data collection is carried out automatically through the BroilerX Ambient 1.4 device that has been installed in the cage. Environmental data were taken four times a day during one maintenance period and averaged. Data collection on poultry production was obtained from FI, Gain, and FCR once a day during rearing. The research data were analyzed statistically using multiple linear regression (R-Square) with the Microsoft Excel application. The correlation in this study was to assess the high and low regression values between variables X and Y, excluding the biological effect caused by variable X on variable Y. Based on the results of the study it was stated that the BroilerX Ambient 1.4 temperature and humidity sensors had high regression values on poultry production in a row respectively 0.71 and 0.66. Meanwhile, the BroilerX Ambient 1.4 ammonia sensor has a low regression value on poultry production of 0.23. The reading precision of the temperature and humidity sensors is considered accurate, but the readings of the ammonia level sensor need improvement to the next version.

(Keywords: Regression, correlation, temperature, humidity, ammonia, FI, Gain, FCR)