



AUTOMATED INDIVIDUALIZED FEED SUPPLY SYSTEM FOR SWINE PRODUCTION TRACEABILITY

SISTEMA AUTOMATIZADO DE ALIMENTAÇÃO INDIVIDUALIZADA PARA SUÍNOS VISANDO APLICAÇÃO EM RASTREABILIDADE ANIMAL

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The continuous search for productivity increase and cost reduction on the agro-industrial production processes has been a driving force for the emergence of new technologies. In swine production, automation is crucial for competitiveness and for adding quality and reliability to production system. The aim of the present work was to develop an automated feeding system for individualized supply to pregnant sows, which enables traceability and production management in both, intensive and extensive farming systems. Thus, we have designed a new feeder with an optimized layout for individualized feeding, taking into consideration the feeder format, number of animals and installation type (fixed or mobile). The method used to validate the new system of automated feeding was done in five steps. The first step was conducted in an intensive breeding system, in which six pens were fitted with feeder and drinkers near the shaded area. The experiment lasted twelve days, being six animals (one animal/pen) used, with access to feed just after accessing the stalls. The sows were fed twice a day, totaling 2 kg of feed/day. The ration delivery was via cables and release mechanism linked to the feed reservoir. During the assessment first stage, the number of feeders was gradually restricted, until only one pen being used for feeding six animals. In the second step of validation, the evaluation was performed in an extensive rearing system, with one pen, feeder and drinkers. The experimental period, the number of animals and the amount of ration fed followed the same as in the first step. In the third step, a digital mock-up of a prototype feeder was developed based on observations from stages 1 and 2. Finally, the system automation was complete and tests were conducted in steps 4 and 5. Thus, two systems of automation were developed. The first one was formed by microprocessor cards divided into two modules. This system had flaws in its execution. The second system was developed with the use of a programmable logic controller, which was successfully executed. However, the individualized feeding automated system based on programmable logic controller was validated in bioassays and met the technical aspects of nutritional management of pigs farming, answering the principles of traceability in production.

Keywords: automation, swine, traceability.

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