ABSTRACT

The feeding laying hens is one of the factor that affect the production of eggs. The appropriate feeding mass to achieve maximum eggs production is 100 gs each hen. The designed system helps with feeding by giving feeds based on feeding mass automatically. In this system there are proximity sensor, relay, servo motor, and AC with set delay. The sensing aproximity sensor is triggered by an object which is moved with the help of servo motor with set delay to fit sense the middle point of the stall. The distance between stalls is 20 cm, so when the sensor detect the object less than 20 cm then relay will be off and vice versa. The function of the relay is to connect and disconnect current flow which affect the movement of the AC motor. There is also another servo motor installed to the feeding box to drop the feeds. The delay of the servo motor is set to fit the time for the feeds to drop with the desired mass which is 100 gs each hen. The method used in the system's testing is to compare the manual testing with the testing using designed system. This testing has success parameter such as the accuracy of the AC motor to stop right in the middle of each stalls with the testing result of average distance value of 20 cm each AC motor stopping point; the accuracy of feeds dropping 3,5% by the system with the result of average value 101,5 gs each drops, 180º servo motor opening, and 500 ms delay and error 1,5%. The experiment was carried out in three treatments, namely experimental feeding by weighing beforehand (P1), feeding with an estimated mass of feed (P2), and feeding using a tool that had been made (P3) producing an average egg weight of 59.3 each. grams, 52.4 grams, and 60.6 grams. The comparison of egg production for 10 days can be seen from P2 and P3 which are 5.23 kg and 6.05 kg. In addition, the next comparison is the average feeding time in each treatment resulting in P1 = 34.4 seconds, P2 = 9.73 seconds and P3 = 6.06 seconds.

Key words: feed mass, proximity sensor, AC motor movement, comparison method, system testing