Effect of Different Housing Systems (Closed System, 50 % Feed + Pasture, Completely Pasture) on Energy Usage Efficiency of White Turkey Reared

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Abstract

This research was performed with the purpose of comparing and determining an energy usage efficiency of white turkey closed, 50 % feed + pasture, completely pasture systems. Trials and measurements were performed at the Department of Animal Science, Faculty of Agriculture in Bingöl University located in Bingöl province of Turkey in 2014. In the research, those 90 turkey chicks were divided into 3 trial groups (closed system, 50 % feed + pasture, completely pasture systems), each group having 30 wheat turkey chicks, with three repetitions distributed and the total duration of the research took 17 weeks. To accomplish this aim, the energy input-output of every 1000 white turkey closed system, 50 % feed + pasture, completely pasture systems was calculated. Energy usage efficiency, energy productivity, specific energy and net energy were calculated closed system, 50 % feed + pasture, completely pasture were determined 0.64, 0.01 kg MJ⁻¹, 70.01 MJ kg⁻¹, -232429.57 MJ (1000 bird)-1 respectively; 0.63; 0.01 kg MJ⁻¹; 70.77 MJ kg⁻¹, -180602.18 MJ (1000 bird)-1 respectively and 0.76, 0.02 kg MJ⁻¹, 59.33 MJ kg⁻¹, -85993.93 MJ (1000 bird)-1 respectively. In conclusion, the white turkey production closed system, 50 % feed + pasture, completely pasture conditions is not an economic activity in terms of energy usage. Feed energy was determined as the highest ratio of total energy input in closed system. Electricity energy was determined as the highest ratio of total energy input 50 % feed + pasture, completely pasture systems. Modern and well established scientific practices should be used to obtain more energy efficiency. In addition, using solar energy to warm up poultry house may be useful in decreasing the electricity energy using and increasing the energy usage ratio

Keywords: Closed system, Energy usage efficiency, Specific energy, White Turkey