



The role of renewable energy on animal farms

Nándor Csatári and András Vántus

University of Debrecen, Faculty of Agricultural and Food Sciences and Environmental Management

The recent measures in the European Union promote the usage of renewable energies and enhancing the energy efficiency. These measures also effect agriculture, on the one hand by using biofuels mixed into fuel for machinery. Besides biofuels animal farms have opportunities in using renewable energy in several other ways. There are sectors in animal farming, where the energy demand is continuously high in electricity (e.g. forage grinders, mixers, milk coolers, air ventilation systems) or in heating (e.g. stables for poultry or piglets). Beside the energy demand in agricultural sector there are several products and side products suitable for energy production. For example different kinds of organic manures and corn silage could be raw materials for biogas production; plant residues like cereal straw and corn stalk bales could be combusted in boilers. Furthermore solar cells or solar collectors can be mounted on the big roof surfaces of animal farm buildings. Among animal farming sectors, dairy farming in the most energy intensive, and uses the widest variety of energy forms. It is often mentioned as the “heavy industry” of animal farming.

In this research 14 dairy farms were examined in Hajdú-Bihar County in the topic of energy demand, renewable energy usage. The questioned farms covers 35% of the dairy cow population in Hajdú-Bihar County. The questions covered the general attributes of the farms and the details of the (existing or planned) renewable energy application. In terms of economic analysis saving, the investment return time and the employment effect was examined.

The results show wide variety of applied renewable energy application. Fifty percent of farms uses at least one kind of renewable energy. Two biogas plants, 6 boilers for solid biomass, 2 solar cells. Regarding employment effect biogas plants created some full time workplaces, biomass boilers also needs some work hours to maintain, but none of the farms applied more labour. Besides renewable energy applications energy saving or recycling solutions. Mentioning the two most important: 70% of the farms used frequency regulated vacuum pump, and 65% of farms used the heat of the cooled milk in a recycling system for heating water.

The investment supports plays great role in renewable energy projects by lowering the return time; and through additional points in application assessing, which is an incentive for farmers to include renewable energy element in their modernization projects. The Animal Farm Modernization Support program is the most important for animal farms. Among the examined farms 80% have more than one Animal Farm Modernization Support projects during CAP 2007-2014 period. Four renewable projects were supported, with the intensity of 40 - 75%. In three cases the additional point of a renewable energy solution in the application was an important incentive.

All the farms are aware of the renewable energy options, and most of them have further plans in this topic. It is advised to the businesses to seek the best suitable technologies in energy saving, and to adopt the good practices from other businesses.