

学 位 論 文 要 旨	
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題 目	Studies on environmental-conscious pork production using local by-products (地域未利用資源活用による環境配慮型養豚技術の確立に関する研究)
<p>This study was conducted to establish environmentally conscious pork production system and improve the rate of feed self-sufficiency using Nagasaki regional peculiar by-products of syrup waste and unqualified potatoes. The materials with high moisture content such as these two by-products have been thought difficult to use as feedstuff because of their perishability. However, recently operating spreading liquid-feeding system in pork production could make possible to utilize these materials as feedstuff. For this purpose, effective storage method of these by-products, the effect of the low protein diet prepared by these by-products on growth performance, carcass characteristics and meat quality, and the effect of potato resistant starch on the nitrogen excretion and ammonia emission from pig manure. The data obtained were followed.</p> <ol style="list-style-type: none"><li>1. It became obvious that syrup waste was stable at normal temperature by adding 0.4% formic acid and useful feedstuff with favorable palatability for pigs. Unqualified potatoes were chipped, mixed with defatted rice bran and syrup waste and stored simply in the silo constructed with L shaped concrete retaining walls. The quality of processed silage was high enough with high lactic acid content, low pH and negative secondary fermentation.</li><li>2. A diet including raw potato starch remarkably reduced nitrogen content in the excreta, especially in urine, and the amount of ammonia emission from the excreta mixture. The same tendency was observed when the low protein liquid diet made up by the silage was fed. Results suggest that unqualified potatoes are an effective ingredient in the diet for pig fattening because it reduces nitrogen excretion, which is detrimental to the environment.</li><li>3. The treatment of the low protein liquid diet had no adverse effects on carcass productivity and traits. No effects on physical and chemical properties in the loin meat were also observed. Higher oleic acid and lower linoleic acid percentages in subcutaneous fat seemed to contribute to high score of panel test of the loin meat.</li></ol> <p>In conclusion, syrup waste and unqualified potatoes, which are by-products not used effectively so far, could contribute to build up an environmental-conscious pork production system by reducing environmentally detrimental nitrogen excretion and producing high quality meat, and improve the rate of feed self-sufficiency.</p>	