

***M. V. Gladyi, Yu. F. Melnik, V. G. Kebko, Yu. P. Polupan, I. I. Murzha.
Modern technologies of processing of poultry wastes and production of high-
protein feed additives: domestic and foreign experience***

The article highlights different technologies of aviculture wastes recycling, first of all feather raw materials, for fodder purposes, in particular hydrothermal method, extrusion method, thermochemical method, and method of high temperature and high pressure. Hydrothermal method of recycling of meat and bone wastes in the horizontal vacuum boilers has quite satisfactory results, but ineffective in the processing of feather raw materials. More effective methods of raw feathers processing are ones with the use of extrusion process and thermochemical machining, but due to the complexity of processes, large amount of outlay and unsatisfactory sanitary and environmental conditions these technologies are not widely used in manufacturing. European experience of non-waste production and processing of aviculture wastes deserves deeper studying, particularly recycling of raw feathers, by processing method with high temperature and high pressure at continuous technological process and the possibility of using these technologies in the domestic large-scale production at poultry farms of industrial type.

The purpose of the work was to study domestic and foreign advanced technologies of processing of non-food wastes of poultry products and production of high-protein feed additives and to consider the widespread introduction of the most effective ones in domestic manufacture on an industrial scale.

The main wastes of processing of poultry products are gastrointestinal tract and its content, bone frame in the case of deep processing of carcasses, heads, legs, and other expired products, blood and, above all, feather raw materials, which totally constitute 20% of poultry weight. Recycling of meat and bone wastes from poultry slaughtering is carried out in horizontal vacuum boilers (so called Laps boilers), which are mainly used for animal origin wastes at sanitary-veterinary factories, united in association "Ukrvetsanzavod."

The vacuum horizontal boiler for the production of fodder flour from animal raw materials wastes at the sanitary-veterinary utilization factories is a cylindrical metal frame located on stilts, which has a loading manhole and unloading pipes and on the outside of a cylindrical frame – a shell for heating of the frame with pipes for filing and withdrawal of the heat carrier and shaft, which is mounted along the length of the frame, with a mixer, fixed on the ends by bearings. Hot steam is the heat carrier for temperature processing of raw materials, which is supplied directly from the boiler room into the frame shell.

In order to improve horizontal vacuum boiler for producing fodder flour from animal raw material wastes and to reduce its prime cost the special device was designed for its heating by using electricity. To do this on the outside of boiler (for its heating) there is a bullet made of the refractory material with three electric heaters, covered with a layer of insulation.

In our country animal origin feed production has recently decreased, and the price of imported fodder is extremely high due to the reduction in livestock

numbers and their processing. At the same time, Ukraine has gained intensive development of the poultry industry, particularly growing the broiler chickens and processing their meat at the large poultry farms of industrial type. Herewith, the substantial amount of non-food wastes from poultry products processing (gastrointestinal tract, bone frame in the case of deep processing of carcasses, dead poultry, blood, feather raw materials etc.) is not used for fodder purposes in many poultry farms. Furthermore, in order to get rid of wastes from poultry and livestock products processing, and instead of organizing high protein feed additives production from them, the technologies of destruction them by burning are developed, which can't be considered reasonable solution to this problem. It is not only the reason of significant losses of valuable high-protein raw material for animal origin fodder, but also leads to environmental pollution. Therefore, in the conditions of a shortage of animal origin fodder, the use of non-food poultry products processing wastes is not only a great resource saving value, but simultaneously solves some environmental problems.

Keywords: **technologies, poultry wastes, feather raw materials, high-protein feed additives, environmental ecology**