EVALUTION OF THE CONTENT OF RADIONUCLIDES IN FEED MIXTURES USED IN POULTRY FARMING

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This paper investigates the radionuclide content in feed mixtures used for laying hens at Hens Farm I.T. Wichuccy, a facility engaged in commercial hen breeding and egg production. The primary objective of the study was to assess the safety and quality of the feed by analyzing the presence of radioactive elements. Samples of key feed components, including grains (corn, wheat, soybean meal) and additives (vitamins, chalk, dicalcium phosphate), were collected from a feed mixing plant. These samples were meticulously prepared and analyzed using a highprecision germanium spectrometer designed to detect gamma radiation. The analysis focused on identifying radionuclides such as cesium, potassium, thorium, radium, lead, uranium, and americium. The results indicated that all detected radionuclides were of natural origin, with the exception of lead, which was not found in the samples. The activity levels of each radionuclide were calculated, and their contributions to the overall activity of the feed mixture were determined based on the proportional composition of the feed. Potassium was found to have the highest activity, which is consistent with its natural abundance in biological materials. In contrast, thorium and uranium exhibited the lowest activity levels. This study provides critical data on the radionuclide content in poultry feed, contributing to the broader understanding of feed safety and quality in commercial hen breeding. The findings are particularly relevant for ensuring compliance with health and environmental regulations, as well as for minimizing potential risks to both animal and human health. Additionally, this research offers a valuable reference for comparison with other national and international studies on radionuclide levels in poultry feed, fostering further advancements in this field. By highlighting the natural radionuclide content and its implications, this work underscores the importance of continuous monitoring and guality control in feed production for sustainable and safe agricultural practices.

135 abstract