



NEW EDUCATIONAL AND SCIENTIFIC LABORATORIES - NEW OPPORTUNITIES!

FEED, QUALITY, TECHNOLOGY AND ANIMAL FEED



By the 120th anniversary of Odesa National Technological University on October 20, 2022, the opening of a modern Educational and Scientific Laboratory for determining the quality of grain, fodder raw materials and compound fodder is planned on the basis of the department of grain and compound feed technology.

Significant organizational and repair work was carried out together with the partners of the university. The laboratory was created with the assistance of the company ADM ("Archer Daniels Midland") LLC "Ukrelevatorprom" and the funds were received from the joint participation of the company and the department of grain and compound feed technology of ONTU in STEM grants (science, technology, engineering, mathematics).

Within the framework of the won grant, modern laboratory equipment of the company VELD Scientifica Srl was purchased with the support of SOCTRADE LLC. (Italy) in the amount of over UAH 757,000: VELD Scientifica Srl analyzer (DK 6+SMS+JPm+UDK 129) for protein determination by the Kjeldahl method, including steam distillation, titration and analysis; semi-automatic fat extractor SER 148/3 for 3 positions of simultaneous determination of fat, which works according to Randall's method (hot extraction when the sample is in a boiling solvent); FIWE3 analyzer for 3 positions of simultaneous determination of fiber, as well



as a low-temperature laboratory electric oven (drying cabinet) SNOL67/350 (Lithuania) is intended for analytical work, drying of various materials, normalization and relaxation of metal, springs, heat treatment of plastics and other materials in an air environment stationary conditions at temperatures from +50 to +350°C.

The laboratory also allows you to evaluate the physical properties of raw materials and finished products, conduct express research and analyze wheat grain, cereal products (compound feed, groats, flour) using the Spektran-119M device, which works in the



infrared spectrum, which determines the mass of grain and oil crops share of moisture, fiber, protein, ash; photometric studies using a KFK-2 MP photometer to measure transmission coefficients, optical density of transparent liquid solutions and transparent solid samples, as well as to determine the concentration of substances in solutions and the rate of change of the optical density of a substance, etc.

The equipment of the laboratory is as close as possible to production laboratories, all samples of raw materials and finished products received for testing are examined for compliance with the latest requirements of DSTU, regulations and directives of the EU and other NDs.



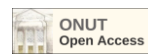
A special highlight of the laboratory is a unique collection of feed raw materials, feed additives, biologically active substances and finished products, which includes about 150 samples.

The management of Odesa National University of Technology highly appreciates the contribution of ADM LLC "Ukrelevatorprom" to the educational process of our students and is confident in the development of further partnership relations in the field of training qualified and conscientious specialists, since a large proportion of the company's employees are graduates of ONTU.

The department of technology of grain and compound feed invites specialized enterprises of the grain processing industry to cooperate.

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ASSESSMENT OF HIGH-PROTEIN QUALITY FEED ADDITIVES FROM BY-PRODUCTS MANUFACTURE OF SUNFLOWER OIL

Abstract

The article states that until 2022, Ukraine will occupy the first place in the world food market in the production of sunflower, sunflower oil and export of sunflower oil. The production of sunflower has always been sufficiently profitable, and the products of its processing competitive on the domestic and world markets. They are also an important component of food and feed protein resources. The production of complete ration compound feed for farm animals and poultry is restrained by a shortage of protein components, a low level of sanitary and hygienic safety of protein raw materials of animal origin. This leads to a decrease in the efficiency of feed, their costs and, as it should be, a shortage of livestock products. Cake and meal are high-protein raw materials, which are obtained in the amount of 1/3 of the mass of processed seeds during the production of sunflower oil. The fodder value of sunflower cake and meal is given. Factors that negatively affect the nutritional value and availability of nutrients of sunflower meal in the feed of farm animals and poultry were analyzed. The choice of components for the production of high-protein feed additive is theoretically justified. The indicators of the quality of sunflower seeds and by-products of their processing, which meet the requirements of DSTU, have been determined. On the basis of theoretical and experimental data, a structural scheme for the production of a high-protein feed supplement based on sunflower cake and meal is proposed, which involves the preliminary preparation of the by-products of sunflower oil production - cake and meal, with the following dosage in the amount: 75% sunflower meal, 10% sunflower cake and 15% limestone flour. The physical properties and microbiological indicators of the quality of a high-protein feed additive were experimentally determined, and it was determined that, compared to a loose, granular high-protein feed additive, it has the following advantages: increased nutritional value, has a greater volumetric weight, sanitary quality, which leads to saving space during transportation and better storage.

Key words: feed additive, sunflower meal, sunflower cake, limestone flour, quality, granulation, physical properties, microbiological indicators, farm animals.

Introduction

In the agro-industrial complex of Ukraine, the oil and fat branch of the food industry occupies a leading place. Oilseed processing enterprises produce oil and fatty products for food, technical and fodder purposes,

including strategic ones. It is known that vegetable oil is a source of energy and contains a number of essential nutrients, in particular unsaturated fatty acids.

Until 2022, Ukraine took first place in the world food market in terms of sunflower, sunflower oil and