with all our research programmes we aim at producing more and nutritious forage plants and strengthen the links between crop production and livestock and small and medium farmers. The larger farmers should be encouraged to on their available land produce more forages for sale to the small and medium farmers. Only if and when all actors in the agricultural sector of Uzbekistan acknowledge that there are major challenges in terms of water availability, declining soil fertility and quality, providing sufficient high quality forages for ALL cattle in the country and all adopt in their own way and under their own conditions the principles of what is commonly called 'regenerative agriculture' we can find solutions to the earlier mentioned challenges and develop a vibrant agricultural production system that is ecologically sustainable, financially the most profitable without subsidies and providing a livelihood to the 5 million small and medium-size farming households of Uzbekistan!

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3. Source: "Agriculture of Uzbekistan in 2019-2022" of the Statistics Agency

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TECHNOLOGIES FOR EFFICIENT UTILIZATION OF CORN FEED IN POULTRY PRODUCTION

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Abstract. *This article reviews recent technological developments and managerial strategies designed to improve the effective utilization of corn feed in poultry farming.*

Key words: *Corn feed, poultry, efficiency, feed additives, genetic selection, pelleted feed.*

Аннотация. *В этой статье рассматриваются последние технологические разработки и управленческие стратегии, направленные на повышение эффективности использования кукурузного корма в птицеводстве.*

Ключевые слова: *кукурузный корм, птицеводство, эффективность, кормовые добавки, генетическая селекция, гранулированный корм.*

Annotatsiya. *Ushbu maqolada parrandachilikda makkajo'xori ozuqasidan samarali foydalanishni yaxshilashga qaratilgan so'nggi texnologik ishlanmalar va boshqaruv strategiyalari ko'rib chiqiladi.*

Kalit so'zlar: *Makkajo'xori ozuqasi, parrandachilik, samaradorlik, ozuqa qo'shimchalari, genetik seleksiya, granulalangan yem.*

Introduction. Corn plays a crucial role in the dietary requirements of poultry, as it supplies the necessary energy for their growth, maintenance, and production. Moreover, it is also crucial to optimize production outcomes and reduce environmental impacts by maximizing the efficiency of corn feed utilization in poultry diets. Nonetheless, the inadequate utilization of corn feed can result in both financial setbacks and environmental complications within poultry production systems. This segment highlights the significance of enhancing the efficiency of corn feed utilization and underscores the necessity for technological advancements to accomplish this objective.

Materials and methods. In order to enhance digestibility and facilitate enzyme activity, it is customary to grind corn kernels, thereby augmenting the available surface area. The process of finely grinding corn has been found to particularly benefit the digestive process of young avian species. Hammer mills, roller mills, and attrition mills are frequently employed in the grinding of corn.

Pelleting is a process that entails compacting ground corn feed into pellets using elevated pressure and temperature. This method enhances feed efficiency by enhancing bulk density, minimizing feed loss, and enhancing the digestibility of nutrients. Additionally, pelleted feed enables the incorporation of various additives, such as protein sources, vitamins, and minerals, into a consistent blend. Steam conditioning necessitates the introduction of moisture and heat to the feed prior to the pelleting step. This particular procedure serves to enhance the malleability of the feed, bolster its binding characteristics, and promote the gelatinization of starch, thereby yielding superior pellet quality and digestibility. Extrusion is a thermal processing technique characterized by high temperature and short duration, where the feed mixture is cooked under pressure before being quickly depressurized. This results in the expansion and texturization of the feed. The process of extrusion enhances the gelatinization of starch, denaturation of proteins, and deactivation of anti-nutritional compounds, ultimately leading to improved nutrient bioavailability and digestibility.

This supplementation improves nutrient absorption and decreases the need for artificial additives. Preparatory methods such as micronization, flaking, and roasting can be employed on corn feed with the purpose of enhancing its digestibility, palatability, and nutrient availability. These procedures cause alterations in the structure of the corn and promote increased enzymatic access to nutrients during the process of digestion.

By incorporating quality control measures such as the analysis of particle size, monitoring of moisture content, and regular testing for nutrient composition, the consistency and quality of corn-based poultry feed can be effectively upheld. This consistent feed quality significantly enhances bird performance and mitigates the potential hazards associated with nutritional imbalances.

Results and discussion. Research has indicated that the pelleting of corn-based poultry diets can result in a 10% enhancement in feed conversion ratio in comparison to mash diets [5,4,1]. Incorporating enzymes like phytase, xylanase, and protease into poultry feed made from corn can enhance the breakdown of complex nutrients, such as phytate, non-starch polysaccharides (NSPs), and proteins. Studies have indicated that the addition of enzyme supplementation to corn-based poultry diets results in a 3-5% increase in metabolizable energy content [2,12]. Precision feeding systems have the potential to decrease feed wastage by as much as 15% and enhance feed efficiency by 8-12% within poultry operations [11,3].

Replacing 20% of the corn feed with corn co-products has the potential to decrease feed expenses by 8-12% while maintaining optimal poultry performance [6]. For instance, corn kernels are frequently utilized as the main source of energy in poultry nutrition. Grinding technologies, including hammer mills, roller mills, and attrition mills, are commonly employed to reduce corn to different particle sizes. The process of fine grinding enhances the surface area available for enzymatic digestion, ultimately leading to improved nutrient absorption in poultry. Furthermore, corn gluten meal (CGM) is a byproduct derived from the corn wet-milling procedure, where the protein-rich portion is isolated from the starch and fiber elements of the corn. CGM serves as a significant protein and amino acid source for poultry feed. It goes through various processing methods like centrifugation, drying, and grinding to create a dehydrated, easily pourable meal that can be incorporated into feed mixtures. Corn germ meal is a by-product of extracting corn oil from corn kernels, achieved through the grinding and drying of the germ portion. This ingredient boasts a high fat and protein content, making it a suitable addition to poultry diets as a source of concentrated energy. To ensure its stability and suitability for feed formulations, corn germ meal undergoes a series of processing techniques, including solvent extraction and drying, which aim to eliminate excessive moisture and residual oil.

According to a study conducted by [7], the implementation of Precision Livestock Farming (PLF) systems in poultry production can lead to a significant improvement in feed efficiency, with an estimated increase of 7-10%. Furthermore, these systems can also contribute to a reduction in environmental emissions by approximately 15-20% through the utilization of optimized feeding strategies. Precision Livestock Farming (PLF) systems incorporate a combination of sensors, cameras, and data analysis tools to surveil various health indicators in poultry, including body weight, activity patterns, and signs of illness. The prompt identification of health issues enables prompt intervention strategies, which can enhance feed efficiency and mitigate the negative effects of health problems on feed utilization and production efficiency.

Implementing effective manure management strategies can lead to a notable reduction of approximately 20-30% in nitrogen and phosphorus losses, as well as enhance soil fertility within poultry production systems [8,9,10]. The formulation of a thorough nutrient management strategy aids poultry farmers in maximizing the efficacy of manure as a fertilizing agent, while concurrently mitigating the risks associated with nutrient runoff and leaching. This strategy ought to encompass soil examination, manure analysis, evaluation of crop nutrient demands, as well as appropriate application rates, all of which are vital in ensuring optimal nutrient utilization by crops. The adoption of effective manure collection methods, such as scrape systems, belt systems, or automated manure removal systems, plays a crucial role in reducing direct interaction between poultry and manure, decreasing ammonia emissions, and streamlining the process of manure management and storage. There are several methods available to enhance nutrient management and mitigate environmental consequences through the treatment of manure. These methods encompass anaerobic digestion, composting, aerobic treatment, and solid-liquid separation. Anaerobic digestion offers the potential to generate biogas for energy generation, whereas composting enables the production of organic fertilizer. Compliance with environmental regulations and the implementation of best management practices for manure management are crucial for ensuring regulatory adherence and promoting sustainability in operations. It is imperative to provide regular training and education to staff members on appropriate methods for handling, storing, and applying manure in order to effectively carry out these practices.

Conclusion. In summary, the utilization of technological advancements is crucial in optimizing the efficient utilization of corn feed in poultry production. Through the implementation of various methods such as feed processing technologies, enzyme supplementation, precision feeding, feed additives, genetic selection, alternative corn products, precise livestock feeding, and sustainable manure management practices, poultry producers can improve feed efficiency, decrease production expenses, and foster environmental sustainability within their farming operations.

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ВЛИЯНИЕ АГРОТЕХНИКИ ВОЗДЕЛЫВАНИЯ НА ФИЗИЧЕСКИЕ ПОКАЗАТЕЛИ КАЧЕСТВА ЗЕРНА

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Annotatsiya. *Ushbu maqolada donni turli muddat va me'yorlarda, har xil seyalkalarda va ochiq maydonlarda ekish usullari kabi agrotexnik tadbirlarning don sifat ko'rsatkichlariga ta'siri bayon etilgan.*

Kalit so'zlar: *kuzgi bug'doy navlari, ekish usullari, erta, o'rta va kechki muddatlar, donning shishasimonligi, oqsil, kleykovina, don naturasi.*

Abstract. *This article describes the effect of agrotechnical measures on grain quality indicators, such as methods of planting grain in different periods and rates, in different seeders and in open fields.*

Key words: *winter wheat varieties, sowing methods, early, middle and late dates, grain vitreousness, protein, gluten, grain nature*

Аннотация. *В данной статье описано влияние агротехнических мероприятий на качественные показатели зерна, таких как способы посева зерна в разные сроки и нормы, в разные сеялки и в открытый грунт.*

Ключевые слова: *сорта озимой пшеницы, способы посева, ранние, средние и поздние сроки, стекловидность зерна, белок, клейковина, натура зерна.*

Введение. В настоящее время в нашей республике, благодаря использованию ресурсосберегающих технологий при выращивании пшеницы, получают качественный и обильный урожай. Особое внимание уделяется модернизации и быстрому развитию сельского хозяйства, углублению структурных изменений, непрерывному развитию производства, дальнейшему укреплению продовольственной безопасности страны, расширению производства экологически чистой продукции, безотходному сбору выращенных культур и их качественному хранению на зерновых складах.

Важную роль играет проблема управления факторами, влияющими на физические показатели качества зерна. Физические показатели качества пшеницы изменяются в зависимости от биологических особенностей сорта, почвенно-климатических условий и агротехнических мероприятий, применяемых при возделывании.

Учёные отмечают, что урожайность озимой пшеницы на орошаемых землях нашей республики за последние годы выросла вдвое, однако качество зерна не улучшилось, а в некоторых регионах, наоборот, снизилось.

Другой причиной снижения количества белка и клейковины в составе зерна озимой пшеницы является одностороннее внесение минеральных удобрений, т.е. не соблюдение соотношения 1:0,5:0,3 количества азотных, фосфорных и калийных удобрений. Также улучшение их водоснабжения, увеличение количества поливов, высвобождение с урожаем большого количества азота. Поэтому показана необходимость разработки технологии возделывания, соответствующей биологическим особенностям сорта агротехники и обеспечивающей улучшение качества зерна.

В исследованиях многих авторов отмечено, что по мере улучшения влагообеспеченности озимой пшеницы уменьшаются физические параметры зерна, стекловидность зерна, количество белка и клейковины в его составе. В последние годы отмечается снижение качества зерна интенсивных сортов озимой пшеницы на орошаемых землях. Снижение содержания белка и клейковины в зерне происходит за счет повышения урожайности и недостатка в почве азота, который легко усваивается растениями. Но эту проблему невозможно решить только за счет увеличения количества азота, вносимого под озимую пшеницу. Проведённые Н.Халиловым опыты (1994; 1998) показали, что внесение 240 кг азота на гектар под 83 вида озимой пшеницы повысило продуктивность её сортов на 52-74% увеличило содержание белка в зерне лишь на четверть. Поэтому для увеличения количества белка и клейковины в зерне, улучшения качества зерна необходимо подобрать сорт, способный удовлетворить потребность сильной пшеницы, оптимизировать все агротехнические