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Analysis of the possibilities of using sawdust for bedding in poultry farms: A case study from eastern Poland

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Abstract. The aim of the research study was to analyze the use of sawdust for poultry maintenance, from the perspective of a sawmill planning a possible expansion of its activities to include the preparation and distribution of sawdust bedding. The aim of the study became a prerequisite for proposing a test method that accounts for a diagnostic survey using a questionnaire addressed to owners of poultry farms within the potential distribution range of the sawdust producer. As a result of the study, the scale of poultry production on farms, the current mulching methods, and the actual consumption of bedding material were learned. An attempt was made to determine whether farmers are considering introducing sawdust into poultry houses, what concerns and limitations affect their decisions, and what conditions would need to be met to switch to sawdust as bedding in poultry houses. Expectations regarding the purchase and logistics service, including the preferred form of delivery, frequency of orders, and the way of handling used bedding, which affect the profitability of sawdust distribution by the sawmill to poultry farms, were examined.

Key words: bedding, poultry, sawdust, sawmill, survey.

INTRODUCTION

Modern livestock production on farms is based on the use of technologies conducive to sustainable production development, considered in economic and environmental terms, while ensuring animal welfare requirements, which can serve as a basis for multilateral assessment (Gaworski & Turbakiewicz, 2020). The welfare of animals is determined by many factors, including the living conditions created in livestock houses. Bedding material (Choudhary et al., 2025), both organic and inorganic (Rocha & Gaworski, 2017), significantly impacts animal comfort in buildings. In poultry farming, organic bedding is particularly important for maintaining optimal conditions (Kic, 2016). It affects the substrate dryness, contamination levels, the smell in the poultry house, and the comfort and welfare of the animals, which, in turn, indirectly affects production results (Strašifták & Juhás, 2023) and the need to equip poultry houses with

properly designed ventilation (Zajicek & Kic, 2012). From the perspective of the farmer responsible for the poultry herd, however, it is not only the properties of the material itself that matter, but also practical issues. These include the repeatability of bedding quality across subsequent batches, convenient delivery, ease of paving, and product availability during periods of increased demand.

Keeping poultry in flooring systems – regardless of production direction and intensity – requires the use of high-quality bedding materials. Emphasis on bedding selection and quality is necessary, as it affects key parameters such as feed intake and chicken body weight, and ultimately their slaughter performance (Sigroha et al., 2017). In order for the mulch to fulfil its function, it should be free of biological and physical contaminants, such as pieces of metal or too-thick fractions (e.g., long blades of grass or straw). An important feature is its absorbency and ability to bind moisture and ammonia from feces (Miles et al., 2011). Once used, mulch becomes a valuable fertilizer and a source of benefits in crop production (Ashworth et al., 2020).

In practice, many bedding materials are known and used in poultry production (Diarra et al., 2021). Each of them has its own specificity. The use of sawdust as bedding material is associated with the need to meet technological and quality requirements. The raw material may vary in moisture and purity, may contain impurities and a too-dusty fraction, which increases the risk of respiratory irritation in animals (David et al., 2015). This means that placing sawdust on the market as bedding requires not only the acquisition of the material, but also its preparation, control of parameters, and ensuring the predictability of deliveries. Logistics is an additional challenge (Kwaśniewski, 2019): sawdust has a low bulk density, which increases the importance of transport, storage, and possible packaging costs, and the cyclical nature of poultry production means that demand can be periodic.

The efficient operation of poultry farms depends on access to bedding. High-quality bedding is a market product, so the key question remains: What are the effects of confronting the demand for poultry bedding with the supply of sawdust on the local market? The answer to this question may be a prerequisite for designing research and formulating practical conclusions for use on the local sawdust market.

The aim of the research study was to analyze the use of sawdust for poultry maintenance, from the perspective of a sawmill planning a possible expansion of its activities to include the preparation and distribution of sawdust bedding. The scientific (cognitive) aim of the study was to develop an approach to assess various aspects of farms' demand for sawdust intended for poultry bedding. The practical (utilitarian) aim of the study was to indicate the factors favouring and limiting the cooperation of the sawmill (sawdust producer) with potential recipients of sawdust for bedding on poultry farms.

The stated goal of the study became a prerequisite for proposing a test method that accounts for a diagnostic survey using a questionnaire administered to owners of poultry farms within the potential distribution range of the sawdust producer. As a result of the study, it was expected to learn about the scale and specificity of poultry production on farms, the current mulching method, and the actual consumption of bedding material. An attempt was made to determine whether farmers are considering introducing sawdust into poultry houses, what concerns and limitations affect their decisions, and what conditions would need to be met to switch to sawdust as bedding in poultry houses. An

important part of the study was also to learn about the expectations regarding the purchase and logistics service, including the preferred form of delivery, the frequency of orders, and the way of dealing with used bedding, which has an impact on the profitability of the distribution of sawdust by the sawmill to poultry farms.

MATERIALS AND METHODS

For the purposes of the study, research was conducted using the diagnostic survey method, with a questionnaire of one's own authorship as the research technique. To obtain respondents' statements (farmers), the CAWI (Computer-Assisted Web Interview) method was used. A link enabling the completion of the questionnaire electronically was made available to the owners of poultry farms in the area, which, taking into account the criterion of distance, enabled the actual handling of deliveries by the given (analysed) wood processing plant (sawmill). In this way, the number of poultry farms has been narrowed to those that could realistically use the service of sawdust litter delivery. Participation in the study was voluntary and anonymous.

The questionnaire was divided into five thematic sections, ranging from general information about the farm to a description of practices and needs, to the conditions of purchase and logistical issues, and to the management of sawdust bedding after use. Closed questions (single and multiple choice) dominated, supplemented with short descriptive fields where it was necessary to clarify the information. The proposed rating scales have been simplified to provide clear descriptive categories and practical measures, making it easier for respondents (farmers) to answer questions. In critical areas, the principles of conditional logic were applied to refine some answers and obtain the most precise information. The thematic sections included in the survey were:

Section I. Information about the farm and current production practices.

Section II. Information about the need for bedding.

Section III. Farm readiness to introduce sawdust as bedding in poultry houses.

Section IV. Financial expectations regarding the purchase of sawdust for the needs of the farm.

Section V. Logistics of delivery and management of used bedding.

There were 5 questions in Section I. Based on the questions asked, basic data on each farm were collected, including the type of poultry production, the number of poultry houses, the total bedding area, and the number and length of production cycles per year. The questions here allowed us to describe the scale of the activity and initially estimate seasonal demand for bedding. The information obtained provided an interpretative background for further answers and enabled comparisons between farms with different production scales.

There were 5 questions in Section II. This part of the questionnaire focused on the bedding material currently used, the degree of owner satisfaction, and the difficulties they face in its use. The respondents' answers enabled us to estimate the costs associated with purchasing and using the current bedding per production cycle.

There were 3 questions in Section III. These questions were intended to identify the reasons for previous decisions regarding the purchase of bedding and the attitude towards the potential change of the currently used bedding to sawdust. In the absence of readiness for change, the reasons for the decision were sought. The intention of the

questions and answers was to identify implementation barriers and identify factors influencing farmers' decisions.

There were 3 questions in Section IV. This part of the survey was designed to determine the conditions that would have to be met for farmers to decide to switch to sawdust litter. The questions focused mainly on the factors necessary to decide whether to change the type of bedding and on the price that would help make that decision.

There were 6 questions in Section V, the last section, which combined issues of product form and distribution with post-production cycle management. Questions were prepared to determine the purchasing preferences of potential customers (farmers). The questions focused on preferred delivery methods and the cyclical nature and volume of deliveries. The aim was to obtain information on whether the recipient (farmer) has the technical infrastructure necessary to unload and store supplies of material (sawdust). Such questions were also considered to determine the current management of used bedding by farm owners and the potential management of sawdust bedding after the end of the production cycle.

Farm owners who took part in the survey declared that they had not used sawdust as a bedding material in poultry houses in poultry production so far. The survey was conducted among 9 poultry farm owners within the sawmill's logistics range to assess the feasibility of distributing sawdust litter to farms. The 9 farms included in the study were selected based on their distance from the sawmill, which justified the profitability of cooperation and the supply of sawdust.

The survey results were presented in tables, and the discussion focused on supplying poultry farms with sawdust from a given sawmill. The resulting data presented in the tables were processed using descriptive statistics; the mean and standard deviation were calculated.

RESULTS AND DISCUSSION

All respondents (owners of 9 farms) declared the production of broilers, i.e., intensively fattened poultry intended for slaughter. This situation simplifies the interpretation of the results, because the facilities (farms) deal with a homogeneous breeding profile. The high density of farms specializing in broiler breeding may result from the fact that in the analyzed region, there is one of the largest animal feed production plants in Poland, along with a poultry processing plant under it. The company prefers local production due to its proximity to poultry suppliers. This translates into a large number of poultry farms specializing in breeding for slaughter.

The study involved seven smaller farms with one, two, or four chicken coops (this group was the most numerous, accounting for 77.7% of the units) and two farms with 10 and 50 poultry houses, respectively. Among the basic information provided by the farm owners was the bedding area in the poultry houses. In the studied group of farms, this area ranged from 1,000 m^2 to almost 185,000 m^2.

In two farms, 5 production cycles per year were carried out; in four farms, 6; and in three farms, 7. This may translate into high repeatability of potential sawdust purchases per year and building permanent relationships between the sawdust supplier and the recipient (farm owner). At the same time, the study's results indicated a seasonal pattern in mulch consumption among farm owners. Respondents could indicate the four

months of the year with the highest demand for bedding. The list of responses shows that the highest bedding consumption occurred in the winter months (in order: January, February, December), while the lowest occurred in the summer and autumn months. Such information can be crucial for a sawmill (sawdust producer), as the possible production of sawdust bedding and delivery logistics should be prepared for increased loads in the cold months. This means greater supply dynamics, larger inventories, and higher dry material requirements.

The survey results indicated that, among the surveyed farms, straw pellets (2/3 of farms) and straw (1/3 of farms) were mainly used. Sawdust was not currently used by any of the surveyed farms, which was an opportunity for the sawmill (sawdust producer) to offer a new bedding for farms. According to the survey, larger farms used straw pellets, while smaller farms used straw bedding.

Respondents (farmers) reported high satisfaction with the bedding currently in use. 55.6% of respondents were 'satisfied', 33.3% were 'very satisfied', and 11.1% had no opinion. The lack of responses indicating dissatisfaction with the currently used bedding suggests that not only the price, but also the so-called technological inertia may be a barrier to change. It is a term describing passivity and resistance to the introduction of new technologies, stemming from attachment to existing solutions. The survey showed satisfaction with the currently used mulching methods, suggesting that respondents may be low in motivation to change their bedding and may be reluctant to take the risk.

Despite the satisfaction and acceptance of the bedding used so far, the farmers noted specific operational difficulties. The most common problems were rapid dampness in the bedding and its high price, followed by clumping of the bedding. From the sawmill's perspective, this is an important signal, as sawdust could be considered an alternative, particularly if it is perceived as qualitatively stable (dry, non-clumping) and cost-effective compared to pellets and straw.

Table 1. Comparison of mulching costs on surveyed farms

Farm	Bedding material	Mulching surface (m^2)	Mulching costs	
			(Euro $cycle^{-1}$)	(Euro $(1{,}000\ m^2)^{-1}$)
01	Straw pellet	184,464	73,200	397
02	Straw pellet	1,000	476	476
03	Straw pellet	26,500	8,095	305
04	Straw pellet	2,500	476	190
05	Straw pellet	4,800	1,381	288
06	Straw pellet	2,500	524	210
07	Straw	1,300	595	458
08	Straw	1,500	714	476
09	Straw	3,200	1,667	521

Respondents (farmers) were also asked about the current costs they incur per year when buying bedding. The results in Table 1 on mulching costs show that potential recipients incur a wide range of expenses, depending on the material used and the farm's scale. When converted per 1,000 m^2, the cost of mulching with straw pellets in the surveyed sample of farms is between EUR 190–476, while for straw it is EUR 458–521/1,000 m^2. The average cost of mulching 1,000 m^2 per one production cycle among the surveyed farms was, respectively: EUR 311 for straw pellets and EUR 485

for straw. Taking into account the standard deviation (SD) in the descriptive statistics, the following results of the calculation of the average mulching cost can be indicated: for straw pellet (mean ± SD) 311 ± 100 Euro $(1{,}000\ m^2)^{-1}$, while for straw (mean ± SD) 485 ± 26 Euro $(1{,}000\ m^2)^{-1}$. These data can be a helpful reference point for potential sawdust mulch pricing.

Table 2 shows the annual demand for bedding material. The results indicate that, among the analysed farms, annual variation is great, mainly due to differences in mulching area. Therefore, the data presented should be analysed after the demand has been standardised to 1,000 m². In the analysed sample of farms, straw pellet consumption is 8–14.2 t per 1,000 m² per year, while straw consumption is 19.2–21.3 t. The average demand per 1,000 m² in the examined sample of farms is: 10.55 t per year for straw pellets and 20.4 t per year for straw. Taking into account the standard deviation (SD) in the descriptive statistics, the following results of calculating the average demand for bedding material on a yearly basis can be indicated: for straw pellet (mean ± SD) 10.55 ± 2.04 t $(1{,}000\ m^2)^{-1}$ per year, while for straw (mean ± SD) 20.40 ± 0.88 t $(1{,}000\ m^2)^{-1}$ per year. For the sawmill, such data has direct practical value, as it allows for determining the potential sales volume based on the known or estimable mulching area on farms located within a real logistical range.

Table 2. Comparison of bedding demand on surveyed farms

Firm	Bedding material	Mulching surface	Demand on an annual basis	
		(m²)	(t)	(t $(1{,}000\ m^2)^{-1}$)
01	Straw pellet	184,464	2,200	11.9
02	Straw pellet	1,000	10	10.0
03	Straw pellet	26,500	376.6	14.2
04	Straw pellet	2,500	20	8.0
05	Straw pellet	4,800	50	10.4
06	Straw pellet	2,500	22	8.8
07	Straw	1,300	25	19.2
08	Straw	1,500	31	20.7
09	Straw	3,200	68	21.3

One of the partial objectives of the research study was to determine whether there is genuine readiness among farmers to switch from the currently used bedding to sawdust bedding and which factors support maintaining current practices on farms. The survey results indicated that the farmers in the sample were not interested in switching to sawdust; 100% of respondents reported not having considered changing their bedding to sawdust in the last 2 years. This means that the potential demand for this product (sawdust) in the analysed group of farms is very limited at the time of the survey, and farmers' purchasing decisions are rather stable and based on proven solutions.

When designing the questionnaire, the possibility was envisaged that farmers might not be interested in changing the bedding material currently used in their poultry houses. Therefore, a question was formulated about the possible causes of such behaviour; Respondents could indicate a maximum of two reasons from the given answer options. The answers showed that the lack of interest in sawdust is not due to a single reason; in this case, several barriers exist. The price barrier (55.6% of responses) and the lack of regular suppliers (44.4% of responses) were most often indicated. This suggests that cost

predictability and continuity of supply are key for farms. It is likely that there are no major suppliers of sawdust mulch on the market at the moment. In addition, farmers' responses regarding the risks of using sawdust included concerns about its reliability, pollen, and moisture content. Some respondents also pointed to potential problems with disposal after sawdust has been used and a lack of sufficient knowledge or information about sawdust. The responses thus showed that sawdust is not seen as an obvious substitute in the poultry farms studied. In the recipients' minds, the use of sawdust requires additional justification (economic and organizational) and confirmation of its quality.

The next question clarifies why farms continue to use the current bedding; respondents could indicate up to 2 answer options. Availability (77.8% of responses), i.e., ease of purchase and certainty of obtaining the material when needed, was the main factor reported. Price (44.4% of responses) and habituation (44.4% of responses) were also important, indicating established practices and a low willingness to experiment in an area that affects poultry farming conditions. In addition, 33.3% of responses indicated that the bedding currently used was easy to dispose of. From the perspective of a sawmill planning to distribute sawdust to bedding, these results mean that market entry will not be based on 'spontaneous' demand, but rather on the need to create an offer that breaks purchasing inertia. In practice, the signals coming from the survey are such that without meeting the strict expectations of consumers, primarily concerning low prices, stability of supplies, as well as high quality standards, the willingness to change the current practices among farmers may turn out to be very low.

In the next question of the survey, the issues of importance, price, and material quality intended for poultry bedding were developed with farmers. Analyzing the answers, we can conclude that quality and price preferences are equally distributed. Price and quality are equally important in the purchase decision process. This means that to successfully sell a product, it must be both high-quality and affordable.

Despite the lack of interest in sawdust at the moment, some responses outlined the conditions under which the change could become a reality. Farmers indicated that they would be prompted to consider sawdust as a bedding material primarily by: a significantly lower price than at present (55.6% of responses) and a problem with the availability of the bedding used so far (44.4% of responses). Respondents also noted the quality guarantee, the possibility of a free test, and good availability/timeliness of deliveries. One person stated that they would not change the bedding they currently use, regardless of other factors.

When asked about the acceptable price difference, 33.3% of respondents indicated they would consider changing their bedding to sawdust, even without a price reduction, if the quality or logistics were more favourable. On the other hand, 44.4% of farmers expect a price reduction. The remaining 22.2% could not assess it. In practice, this means that, to reach the largest possible audience, sawdust intended for bedding would have to be of high quality and priced more favourably than substitutes.

In the fifth section of the survey, potential preferences for the method of delivering sawdust to farms were addressed. Three options were evaluated in the survey: delivery in Big-bags with a capacity of 500–1,000 kg, bags of 20–25 kg (on a pallet), and delivery of sawdust in bulk (by truck). Respondents agreed on the potential delivery of bedding. A group of 100% of respondents said they would prefer the Big-bag delivery method.

Farmers indicated in the survey that they would be most interested in a purchasing organization model based on ad hoc ordering (2/3 of positive responses). From a technical point of view, the majority of farms (89%) reported having appropriate conditions to handle sawdust supplies, including the ability to unload and store bedding. This means that for the sawmill, delivery logistics, i.e., access, unloading, and storage, are not the main barrier to cooperation with poultry farms interested in sawdust supplies.

Answering the questionnaire about the possibility of sensible management of sawdust litter after use, four farmers indicated the lack of ready-made solutions, three respondents saw the possibility of management only to a limited extent, and the rest (two farmers) assumed the possibility of transporting the excrement from the chicken coop to the heap. Such opinions have a concrete meaning for the sawmill. Even if the supply of sawdust is feasible thanks to appropriate infrastructure, the market lacks the knowledge and means to manage it after the production cycle. For consumers, this is a significant problem that generates costs and may delay the decision to buy sawdust.

At the end of the survey, the question was asked: If the supplier ensured full collection and management of used sawdust litter, would it be easier for you to decide to buy sawdust? Two respondents declared that this would make the decision easier; three respondents said 'Yes', but on the condition that the pick-up would be included in the price, one farmer said 'No', and three people could not evaluate the proposed option. Such a distribution of responses suggests that a delivery model that includes both product delivery (sawdust) and collection after consumption could induce some undecided people to purchase sawdust for poultry bedding.

Summary and discussion of survey results

The purpose of the survey study was to verify the feasibility of selling sawdust bedding for poultry farms on the local market, from the perspective of a sawmill planning to expand its operations to include the preparation and distribution of sawdust. The collected responses indicate that there is no real interest in purchasing sawdust litter in the analyzed group of potential recipients, and the readiness to change the currently used solutions is low. This means that at this stage, the study did not confirm the existence of demand that would justify the sawmill's rapid entry into new sales activities.

Based on the respondents' answers, it is possible to identify the main (highlighted) barriers that limit the sawmill's entry into the analyzed market of poultry producers.

Attachment of farm owners to the existing bedding. Farms operate within schemes that use proven solutions to minimize operational risk on the farm's side. From the farmers' perspective, changing the bedding material is associated with uncertainty of effects and unnecessary risk, which reduces the tendency to test a new product.

Lack of trust and knowledge about sawdust as a bedding product, including concerns about the quality and repeatability of supply. In the case of production farms, the stability of bedding parameters is extremely important, and a new product – even if objectively correct – is sometimes perceived as risky.

Sensitivity to the price of customers and the unfavourable ratio of risk to costs incurred by the manufacturer. The distribution and introduction of bedding to the market would involve competing on price with potential customers, and the costs of potential problems across the entire process (organizational, sanitary, and production) are perceived as high.

Formal and legal barriers and control requirements. The implementation of a new bedding type may be limited by formal conditions and control practices in poultry production. From the recipients' perspective, changing the bedding to sawdust may require additional confirmations and, in some cases, the approval of supervisory entities or business partners. In practice, this prolongs the decision-making process and increases the viewer's caution towards the new material.

Problematic or unclear management of the used sawdust bedding. In the studied group, there was visible uncertainty about the possibility of sensible bedding management after use. For many households, this is an important part of the decision, as it affects costs, logistics, and compliance with waste management practices.

For the sawmill, this means that the local market – to the extent studied – does not show readiness to accept the product (sawdust). Entry would require not only sawdust production, but also building trust, establishing quality standards, and providing logistics services.

Possible directions of action. If a sawmill were to consider entering the market for selling sawdust litter, the product would first need to be refined to meet all quality requirements. In practice, this means ensuring that bedding parameters are as consistent and repeatable as possible and that simple quality control measures are introduced. It is also worth preparing a short product description so that the recipient knows what to expect in subsequent deliveries and can assess the comparability of the batches.

The next step would be to reduce the risk for farms, as this largely discourages changes to existing solutions. The most natural approach seems to be a small-scale pilot, with a free test batch delivered to a few selected farms. The conducted research shows that respondents do not see a real need for change, as problems with the currently used bedding are, in their opinion, not a sufficient incentive to change. By providing a test batch, the sawmill could demonstrate that the current problems can be eliminated with minimal effort on its part. Only the results of such trials could form the basis for further talks on regular deliveries.

At the same time, the offer should align with how the farms operate. The survey shows that orders carried out on an ad hoc basis and those packed in Big-bags dominate. Therefore, it is important to predict delivery dates, make deliveries efficiently, and choose the variant that best suits the recipient. The form of product delivery, tailored to recipients' convenience, is of great importance because it does not require additional organizational changes.

An important element is also the presentation of profitability in a way that is understandable to the recipient. In practice, farms compare costs relative to the production cycle or mulching area, not only by unit price. Therefore, it makes sense to present the cost per cycle or per square meter, which makes it easier to compare with the solution used today.

The last issue is the handling of used bedding. Some farms lack a clear plan for managing sawdust after the cycle ends, which can be discouraging. It is worth preparing clear information and recommendations on the management of used bedding, while a more extensive solution could involve cooperation with an external entity that handles the collection or management of the material. However, it should be emphasized that this approach increases the sawmill's scope of activities and generates additional organizational costs.

The topics considered in the research are a prerequisite for discussing the problems of improving the poultry production system in the context of the economic environment. This environment may include a sawmill offering sawdust for use in chicken coops. To improve cooperation between farms and sawmills, it is important to understand each other's needs and the potential of sawdust for poultry production, compared with other materials (Bolan et al., 2010). A key element of this knowledge is the assessment of sawdust quality relative to other bedding materials used in poultry production. The quality assessment considers various methods to reduce ammonia emissions from bedding (Eglite et al., 2021), thereby preserving animal health and comfort. An important consideration in the survey of farmers was litter management from chicken coops. At this point, it is worth noting the possibility of drying poultry manure (Kic & Aboltins, 2013) and using litter from poultry houses for biogas production (Dornelas et al., 2017). This course of action was not included in the survey. Hence, the proposal for cooperation between poultry farms and the biogas plant is a promising area for dialogue between the sawmill (sawdust producer) and the owners of the poultry houses. This may be in line with poultry manure management plans in a given region of the country (Dróżdż et al., 2020), taking into account the important criterion of environmental protection (Augustyńska-Prejsnar et al., 2018; Borowski & Barwicki, 2022) and safe management of poultry bedding in the form of organic fertilizers (Kyakuwaire et al., 2019). One of the key arguments in discussions about poultry bedding is its potential for biomass energy (Dalólio et al., 2017). Biomass energy can be an important factor in arguments for the implementation of sawdust in poultry production and, in a broader context, in comparisons of the potential of energy from agricultural and forestry production (Bloch-Michalik & Gaworski, 2017). Various ideas for the energy use of poultry manure, including its co-incineration with coal (Junga et al., 2017), broaden the scope of motivation for using sawdust as bedding in poultry houses. Poultry bedding disposal technologies are considered in terms of progress (Kelleher et al., 2002) and it is worth asking poultry farm owners about examples of such progress in future surveys. Animal welfare, which is an element of the sustainable transformation of the agricultural production chain (Gaworski, 2006) and an inspiration for further research on poultry farms, remains a key factor in assessing progress in poultry production, including the search for alternative bedding materials.

CONCLUSIONS

The study found very low potential for implementing sawdust litter on the farms studied. All respondents stated that in the last 2 years, they had not considered changing their bedding from sawdust. Among the most frequently cited reasons for a lack of interest were price, a lack of regular suppliers, and concerns about the material's trustworthiness and quality. The issue of mulch management after the end of the production cycle also proved to be an important problem, as for some farms, the lack of a clear solution in this regard is a factor discouraging change. At the same time, respondents stick to the solutions currently in use, primarily because of their availability, affordability, and established practices.

Based on the analyses conducted, it should be concluded that selling sawdust litter to poultry farms in the studied market environment would entail a high risk of failure. To change customer attitudes, the sawmill would not only have to produce a high-quality

product but also build market trust, ensure delivery predictability, and, in practice, address the issue of material management after use. The scope of organizational expenditures and costs that would be necessary to be incurred with a low declared demand at the same time does not constitute a strong justification for launching this branch of activity. In the case of an attempt to distribute sawdust litter, the sawmill would have to compete for potential customers primarily by price or by offering additional, clearly noticeable benefits, which, in practice, could limit the project's profitability. As a consequence, the research results do not constitute a strong argument for launching the sale of sawdust litter in the studied model, and a more rational approach is to focus on ways of using sawdust that ensure more stable demand and lower market risk.

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