a) volume of food production wastes;

b) using plant materials such as corn, barley, wheat, oats for compound feed production;

c) final price of compound feed.

Food production wastes using as part of compound feed also correspondence to hierarchy of waste management, which is adopted in Ukraine. According to this hierarchy, the main way to reduce the amount of waste is waste reuse as resources for the production of new products. From a technological point of view, the use of food waste in compound feed is not difficult and does not require unique, new equipment designing. However, this use of food waste is quite limited due to economic and marketing reasons.

A food production waste contains variety valuable nutrients, including carbohydrates, vitamins, minerals. It depends on type of food production enterpriser, where food wastes are formed.

In order for food production waste using in compound feed to be economically feasible, the following must be taken into account:

1) the distance from food waste generation and storage place to the processing plant should be minimal and not exceed 200 km. This will allow to minimize transportation costs and reduce the carbon footprint;

2) the compound feed composition, in which waste from food production is used, must meet the needs of livestock farms, which are potential consumers. Depending on the livestock's type, breeds, purpose the compound feed composition differs significantly;

3) low energy consumption when processing food waste into compound feed. This will reduce the impact energy prices on the compound feed final cost;

4) the compound feed with the use of food waste price should be lower than similar feed without food waste. The products must also have all the necessary certificates;

5) the possibility of selling compound feed using food waste in small batches. This approach will allow small farms to optimize their costs for livestock feeding.

A comprehensive approach to food waste using, which is based on the above points 1-5, requires close cooperation between the food waste generators, feed manufacturers and farmers.

In our opinion, the key factor is farmer's interest as end consumers in compound feed containing food waste using. The growth demand from farmers can encourage feed manufacturers to cooperate with food waste producers. Another effective tool for spreading the practice of using food waste in compound feed is financial support for manufacturers. This can be implemented at the state level through tax reductions, at the level of municipal authorities through interest-free loans for this area development, at the level of non-governmental organizations through the provision of grants for development, marketing or management. It is also important to raise the level of environmental education among Ukrainians and understand the principles of sustainable development and their practical application in business.

THE POTENTIAL OF COLLAGEN OBTAINED FROM LEATHER WASTE FOR BIOMEDICAL USE

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Collagen is a versatile biomaterial with many applications in the biomedical field due to its excellent biocompatibility, biodegradability, and mechanical properties. Leather waste is a promising source of collagen, and recent studies have explored its potential for biomedical applications [1-3]. Since 2020, several studies have investigated the use of collagen obtained from leather waste for various biomedical applications. The aim of our study was to summarize the most

recent research about biomedical use of collagen from leather waste and to estimate the potential of this material to be used with this purpose. Within theoretical research 9 studies have been evaluated. It was reported the extraction of type I collagen from leather waste using an enzymatic process [4]. The resulting collagen exhibited good biocompatibility and was suitable for use as a scaffold for tissue engineering applications. Another study investigated the use of collagen extracted from leather waste as a drug delivery system [5]. The authors developed a novel collagen-based hydrogel loaded with the antibiotic ceftriaxone. The hydrogel demonstrated excellent antibacterial activity against Gram-negative and Gram-positive bacteria and good biocompatibility with human fibroblasts. Collagen from leather waste has also been explored for wound healing applications. Moreover, collagen from leather waste has been evaluated for use in bone regeneration. One study reported the successful preparation of a collagen-based scaffold from leather waste for bone tissue engineering applications [6]. The scaffold exhibited good biocompatibility and supported the growth and differentiation of bone cells *in vitro*. It was also reported the preparation of a collagen dressing from leather waste for the treatment of chronic wounds. The dressing demonstrated good biocompatibility and accelerated wound healing in a rat model [7] and on HEK293 cell line system [8].

These results suggest that collagen obtained from leather waste could be a promising biomaterial for biomedical use and may provide a sustainable solution for leather waste management.

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