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NICHE CROPS AS A FACTOR IN DIVERSIFYING AGRICULTURAL BUSINESS REVENUES: FOCUS ON MEDICINAL PLANTS

НІШЕВІ КУЛЬТУРИ ЯК ЧИННИК ДИВЕРСИФІКАЦІЇ ДОХОДІВ АГРАРНОГО БІЗНЕСУ: ФОКУС НА ЛІКАРСЬКІ РОСЛИНИ

The article examines the role of niche crops as a tool for diversifying agricultural business income in the context of current economic and climate challenges. The main attention is focused on substantiating the economic feasibility of developing niche crop production, in particular, the cultivation of medicinal plants, as one of the promising areas for increasing the sustainability and competitiveness of agricultural enterprises. Market trends, the potential of internal and external demand for medicinal raw materials, as well as factors affecting the efficiency of their production are analysed. The key advantages of introducing niche crops into the structure of agricultural production, in particular in the context of adaptation to climate change and reducing the risks associated with traditional farming, are identified. Conclusions are drawn about the feasibility of strategic reorientation of a part of the agricultural business to the cultivation of medicinal plants as a segment with high added value.

Keywords: *niche crops, medicinal plants, income diversification, agribusiness, competitiveness.*

Останніми роками в Україні зростає інтерес до нішевих сільськогосподарських культур як перспективного напрямку диверсифікації аграрного бізнесу. В умовах воєнних викликів, нестабільності ринків та обмеженого експорту, особливу увагу привертають лікарські рослини, які мають високу додану вартість, експортний потенціал і широке застосування в фармацевтичній, косметичній та харчовій галузях. Вирощування таких культур дозволяє аграріям не лише знизити залежність від традиційних ринків, а й підвищити економічну стійкість господарств завдяки більш гнучкій моделі доходів. Мета дослідження - обґрунтувати економічну доцільність розвитку нішевого рослинництва в аграрному секторі як ефективного інструменту диверсифікації доходів сільськогосподарських підприємств, а також проаналізувати потенціал вирощування лікарських рослин у контексті підвищення конкурентоспроможності агробізнесу в умовах ринкових коливань та змін клімату. У статті розглянуто роль нішевих культур як інструменту диверсифікації доходів аграрного бізнесу в умовах сучасних економічних та кліматичних викликів. Основна увага зосереджена на обґрунтуванні економічної доцільності розвитку нішевого рослинництва, зокрема вирощування лікарських рослин, як одного з перспективних напрямів підвищення стійкості та конкурентоспроможності сільськогосподарських підприємств. Проаналізовано ринкові тенденції, потенціал внутрішнього і зовнішнього попиту на лікарську сировину, а також фактори, що впливають на ефективність її виробництва. Визначено ключові переваги впровадження нішевих культур у структуру аграрного вироб-

ництва, зокрема у контексті адаптації до змін клімату та зменшення ризиків, пов'язаних із традиційним землеробством. Зроблено висновки щодо доцільності стратегічного переорієнтування частини аграрного бізнесу на культивування лікарських рослин як сегменту з високою доданою вартістю. Проаналізовані приклади виробництва окремих культур засвідчили, що навіть на відносно невеликих площах можливо досягти високої рентабельності за умови дотримання технологій вирощування, переробки та реалізації.

Ключові слова: *нішеві культури, лікарські рослини, диверсифікація доходів, агробізнес, конкурентоспроможність.*

Formulation of the problem. In the context of globalization, climate change and unstable economic situation, traditional models of conducting agrarian business are losing their effectiveness. The dominance of grain crops and the raw material orientation of agricultural production do not always ensure the stability of agricultural enterprises' incomes. One of the effective ways to overcome these challenges is the diversification of agricultural production, in particular, the introduction of niche and highly profitable crops, such as medicinal plants, industrial hemp, spices, energy crops, etc.

However, niche crop production in Ukraine is still in its infancy. Lack of sufficient information about markets, unstable legal and regulatory framework, imperfect state support mechanisms, and limited access to quality seeds and technologies hinder the active introduction of such crops into the structure of sown areas. At the same time, global practice shows that growing niche crops can significantly increase the economic sustainability of agricultural producers, especially small and medium-sized farms.

In this context, it is important to scientifically substantiate the potential of niche crop production as a tool for diversifying agricultural business income, analyse the economic efficiency of its implementation, and develop recommendations to stimulate the development of this area in Ukraine.

Analysis of recent research and publications. In the course of the research, it is important to take into account the existing scientific heritage on the chosen topic, as this allows for a more thorough assessment of the level of study of the problem, identification of gaps in scientific knowledge and determination of the most effective approaches to its solution. A significant number of scientists have studied niche crop production (medicinal plants), in particular, Mirzoeva T. V. reveals the essence of the concept of niche diversification. She lists the main reasons that determine the interest of agricultural producers in niche diversification in today's conditions and notes that niche diversification in the agricultural sector is implemented through the cultivation of niche crops such as medicinal plants [1].

Bakhmat M.I. and others have analyzed the current state and trends in the development of foreign trade in medicinal plant raw materials. Scientists also found that chamomile plants respond significantly to the soil and climatic conditions of the region, technological methods, however, successfully established production and sales of products makes it possible to obtain a level of profitability of chamomile production of 146% under conditions of successful implementation [2].

Zinchuk T. O. and Tkachuk O. V. have formed the main theoretical approaches to the functioning of the market of medicinal plant raw materials in Ukraine and identified the features of its formation. The authors clarified the essence of the concept of "medicinal plant raw materials", considered its socio-economic and medical-pharmacological significance, and emphasized the importance of this industry in the conditions of production specialization and innovative development [3]. Olkhovych S. Ya. et al. established that medicinal crops are more profitable to grow than agricultural crops [4].

However, the issues related to the development of niche crop production, in particular the cultivation of medicinal crops as a factor in diversifying agricultural business revenues, remain insufficiently studied. The economic potential of these crops, the mechanisms for their effective implementation in agricultural production, and the issues of establishing

sustainable sales channels and integration into domestic and foreign markets are not fully disclosed. This state of affairs necessitates further research in this area.

Formulation of the purpose of the article. The purpose of the study is to substantiate the economic feasibility of developing niche crop production in the agricultural sector as an effective tool for diversifying the income of agricultural enterprises, as well as to analyse the potential of growing medicinal plants in the context of increasing the competitiveness of agribusiness in the context of market fluctuations and climate change.

Presentation of the main material. In modern conditions, the agricultural sector of Ukraine is faced with the need to find new approaches to ensure sustainable development and increase the economic efficiency of economic activity. One of the most promising areas is the diversification of production through the cultivation of niche crops, including medicinal plants [5–8]. Medicinal plants, which are purposefully grown in Ukraine, occupy a small share in the overall structure of agricultural land in terms of the area under cultivation, specifics of care and economic indicators. However, they are characterised by high profitability potential, especially if agricultural technologies are followed and the market is effectively marketed.

The impetus for the growth of interest among farmers in the cultivation of medicinal plants has been the COVID-19 pandemic, which not only caused global changes in consumer demand, but also brought to the fore the issue of strengthening the immune system and the use of natural remedies for the prevention and treatment of diseases. During this period, there was a rapid increase in demand for medicinal raw materials from both the pharmaceutical industry and the segment of organic products, dietary supplements and health teas. This trend has continued in the future, transforming into a more sustainable trend towards the use of natural products worldwide.

In addition, in the post-pandemic period, the situation in the agricultural sector of Ukraine has become more complicated due to military operations, disruption of logistics chains, instability of the foreign exchange market, and general uncertainty, which has further encouraged farmers to seek alternative areas of management. In this context, niche crop production, in particular the cultivation of medicinal crops, has begun to be considered as an effective tool for diversifying production and a source of sustainable income in conditions of economic turbulence.

In 2016, the area under medicinal plants was 60.7 thousand hectares, and under essential oil plants – 24.2 thousand hectares. However, already in 2017, these figures decreased significantly: to 4.1 thou hectares and 9.1 thou hectares, respectively. In 2020, there was an increase in sown areas: medicinal plants – by 62.6%, to 6.8 thousand hectares; essential oil crops – by 36.9%, to 5.4 thousand hectares [9].

In Ukraine, more than 25 different medicinal crops are grown, each with its own individual cultivation technology and characteristics (Table 1).

The table summarises the key agronomic requirements for growing the most common medicinal plants in Ukraine. The parameters presented allow us to assess the needs of crops in terms of soil conditions, irrigation, propagation methods, harvesting periods and expected yields.

Although the area under medicinal plants in Ukraine has experienced significant fluctuations, recent years have shown a positive upward trend. High profitability and growing demand for natural medicines make this industry a promising one for agricultural businesses. The profitability of growing medicinal plants in Ukraine varies from 29% to 122%, depending on the crop and cultivation technology [11].

One of the most widespread wild plants in Ukraine is chamomile (Matricaria chamomilla L.), which has long been known for its valuable medicinal properties and is actively used in folk and official medicine. Due to its wide distribution area, unpretentiousness to growing conditions, and steady demand from the pharmaceutical, cosmetic and food industries, chamomile is gradually moving from the category of

Table 1

Comparative table of growing conditions for medicinal plants

Agricultural crop	Soil	Water supply	Sowing / Planting	Yield (dry weight)	Harvesting period	Special features
Chamomile	Light, loamy soil, pH 6–7	Moderate	In early spring with seeds	6–10 c/ha	June–July.	Requires manual harvesting.
Peppermint	Moist, fertile, pH 6–7	Regular	Vegetatively (seedlings)	15–20 c/ha	2–3 times per season	Perennial, can be distilled for oil
Lavender	Light, well-drained, pH 6–8	Minimal (drought-tolerant)	Spring/ autumn, seedlings	3–4 t/ha (dry mass) / 60–70 kg oil/ha	June–July	Up to 20 years without replanting
Calendula	Neutral, loamy soil	Moderate	In spring with seeds	8–12 c/ha	June–September	Harvested multiple times per season
Thyme	Dry, light, pH 6–8	Low	In spring seeds/ seedlings	5–8 c/ha	June–July	Winters well, honey plant
Sage	Light, well-drained	Moderate	In spring with seedlings	6–9 c/ha	June–August	Perennial, aromatic
Nettle	Moist, fertile	High	Self-sowing / rhizomes	10–15 c/ha	May–July	Requires care when collecting
Oregano	Light, sandy	Low	Seeds/ seedlings	4–7 c/ha	June–August	Perennial, honey plant
Valerian	Moist, clayey soil	High	Spring (by seedlings)	10–14 c/ha (roots)	October	Harvesting roots in the 2nd year

Source: [10]

wild plants to cultivated species. In recent years, there has been a growing interest among farmers in the targeted cultivation of this crop, driven not only by its economic attractiveness but also by its export potential.

The cultivation of chamomile has significant potential due to favourable soil and climatic conditions, growing demand for natural products and export opportunities. As of 2022, the area under medicinal plants in Ukraine amounted to 1.8 thousand hectares, of which a significant part is allocated to chamomile.

The yield of chamomile depends on the variety, sowing time and agronomic practices. Studies have shown that the autumn sowing of the highly productive Perlyna Lisostepu variety at a seeding rate of 6.0 kg/ha provides the highest yields. With successful sales of products, the level of profitability can reach 146% [12].

From one hectare, you can collect raw materials worth from 50 thousand UAH (0.5 tons of chamomile flowers) to 300 thousand UAH. Ukraine is one of the leading exporters of chamomile in the world, second only to India and Chile. As of June 2024, Ukraine has made 5,371 export shipments of chamomile. The main sales markets are European countries, in particular Poland, Germany and Bulgaria.

High-quality medicinal chamomile can cost $10/kg, but only if you grow the raw materials that the market needs. Therefore, you always need quality information about the needs of the market and about the medicinal plants being grown. Not requiring significant costs (25–35 thousand UAH/ha) and being undemanding to soils, chamomile has a yield of

up to 10 centners/ha of dry inflorescences. But it is especially profitable to export it, because traders buy it at a price of up to 200 UAH/kg [13].

Chamomile is a promising crop for cultivation in Ukraine. Its high profitability, stable demand in the domestic and foreign markets, and the ability to use modern agronomic practices make it attractive for agricultural businesses.

In addition to chamomile, peppermint (Mentha × piperita L.) is another popular and sought-after crop among both wild and specialised crops. This crop occupies an important place in the structure of growing medicinal and essential oil plants in Ukraine due to its high content of essential oil, in particular menthol, which is widely used in the pharmaceutical, food, perfumery and cosmetic industries. Mint, like chamomile, is characterised by stable demand in the domestic and foreign markets. In addition, mint demonstrates high profitability even on small plots, which is important for farmers focused on niche crops.

There are 42 types of mint in the world, not counting numerous hybrids. About 70% of the world's mint production is in the United States of America. In Ukraine, the potential of this crop has so far been realized by only 10%. At the same time, growing mint in Ukrainian conditions has significant economic potential: an area of 1 hectare is enough to start a business. The main investments fall on the first year of planting a plantation – then the costs decrease significantly, and profitability increases. The amount of necessary investments depends on the chosen cultivation technology – in open or closed ground.

The mint market in Ukraine remains under-saturated, which opens up ample opportunities for sales. The main sales channels are vegetable and fruit shops, supermarkets, catering establishments, confectioneries, beauty salons and SPA centres, landscape agencies, flower shops, and pharmaceutical companies.

With an average yield of 15–20 centners per hectare of dry aerial parts of peppermint, the income can reach UAH 60–80 thousand per hectare. The cost of growing it in the first year is up to UAH 50–60 thousand (depending on the area), but in the future, these costs can be almost halved [14].

In recent years, lavender has gained particular popularity among farmers and consumers as a promising niche crop that combines high decorative, aromatic and medicinal properties. Its cultivation has become not only a fashion trend, but also an economically attractive business that allows farmers to diversify their income sources. Lavender is widely used in the production of aromatic products ranging from soaps and perfumes to moth repellents. Its growing popularity is not only due to the demand for natural products, but also to the relative accessibility of starting a business on small areas with moderate investment.

To implement a lavender cultivation project on a 1-hectare plot, it is necessary to invest about 73 thousand dollars. The payback period is approximately 1.5 years from the start of product sales. The maximum yield and profitability of the plantation is reached in the third year after planting, and with proper care and periodic rejuvenation of the bushes, lavender can remain productive for up to 20 years.

One hectare can produce 60–70 kg of essential oil per season. With the market price of the oil at USD 100–270 per litre, this allows for a gross income of up to UAH 500 thousand per hectare. If only raw materials are sold – without processing – the potential revenue could be around UAH 250 thousand per year (at an average price of UAH 45 per kg). In addition to oil, a valuable product of processing is also a hydrolyte sold at a price of up to 1300 UAH/l, which further increases the economic attractiveness of the crop. Among the regions of Ukraine, Kyiv, Cherkasy and Zhytomyr regions are the leaders in terms of lavender cultivation. Currently, the global market for lavender and products made from this fragrant plant is growing by 7.2% or $82 million annually [15].

Similar climatic conditions contribute to the cultivation of a number of other medicinal and aromatic herbs, such as nettle, horsetail, marshmallow, mallow, sage, calendula, lemon balm, yarrow, basil, thyme, oregano, lovage, coriander, valerian, angelica, cornflower, purple lilac, verbena, bulrush, marigold, etc. These crops are actively used in the food, cosmetic

and pharmaceutical industries, therefore, with proper product quality, there are usually no problems with their sale at a competitive market price.

As the area under medicinal plants expands, there is a need to install drying equipment. Despite the fact that growing such crops requires significant amounts of manual labour, especially at the planting and harvesting stages, stable demand and high prices make it possible to significantly increase the profitability of farms. Thus, the main goal of niche crop production is to diversify and increase agricultural income. At the same time, for the effective implementation of medicinal plant cultivation in the business practices of agricultural enterprises, it is necessary to take into account a number of economic factors that affect the profitability and sustainability of this type of activity. In this regard, it is advisable to formulate practical recommendations from an economic point of view that will help to increase the efficiency of agribusiness in the face of uncertainty and market competition.

1. Conduct an economic feasibility study before starting: calculate the business plan, taking into account the costs of seeds, cultivation, fertilisers, manual labour, drying, storage and logistics; estimate profitability based on average yields and current purchase prices for raw materials (for example, chamomile or echinacea are in stable demand); conduct a SWOT analysis to identify strengths and risks.
2. Attracting financing and support: using state or international grant programmes to support niche farming; cooperating with other producers to share investments or equipment; working with banks or credit unions that finance environmentally friendly agriculture.
3. Diversification of sales channels: do not limit yourself to selling raw materials – you can consider value-added options: drying, packaging, production of teas or tinctures; enter the farm-to-consumer market – fairs, online stores, local pharmacies, eco-shops; explore export potential, in particular to the EU, where there is a demand for organic medicinal raw materials.
4. Minimization of risks: use contract cultivation – concluding agreements with companies before sowing guarantees sales and reduces risks; choose perennial crops that yield a harvest for several years in a row (for example, lemon balm, lavender), which reduces the cost of re-sowing.
5. Use of economies of scale: to reduce the cost per unit of production, scale up production or join with other farmers in a cluster or cooperative; rational use of machinery and resources – for example, combining the cultivation of medicinal plants with other crops.
6. Investments in brand and marketing: create a brand of ecological, Ukrainian, safe products; invest in certification (organic, GMP, HACCP) to increase consumer confidence and expand sales markets.

The proposed approaches allow not only to reduce risks, but also to increase the overall profitability of the agricultural business.

Conclusions. The development of niche crop production, in particular the cultivation of medicinal crops such as chamomile, mint, lavender and other pharmaceutically valuable herbs, is a promising area for diversifying revenues in the agricultural sector of Ukraine. The growing demand for natural raw materials from the pharmaceutical, cosmetic and food industries, as well as the growing popularity of organic production, creates favourable conditions for the development of small and medium-sized businesses based on niche crops.

The analysed examples of individual crops have shown that even on relatively small areas it is possible to achieve high profitability, provided that the cultivation, processing and marketing technologies are followed. However, market volatility, lack of professional agrotechnical knowledge, and the absence of systemic government support remain the main constraints to the development of the industry.

Thus, medicinal plants can serve as an important factor in increasing the efficiency of agricultural production, reducing risks and ensuring sustainable development of rural areas. Further scientific research and development of mechanisms to stimulate the development of niche crops are relevant and necessary conditions for strengthening this area in the Ukrainian agricultural economy.

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