

Agricultural Diversification, Value-Chain Development, and Economic Potential of Black

Currants in the United States: Lessons from Poland

Author

Liudmyla Pryimak

Affiliation

Independent Scholar, USA

Corresponding Author

Liudmyla Pryimak

Email: ludmilaprijmak754@gmail.com

Abstract

Black currants (*Ribes nigrum* L.) are recognized for their exceptional nutritional value and growing commercial importance in functional food markets, yet commercial production in the United States remains extremely limited. This study examines the economic potential of developing a sustainable black currant industry in the United States by drawing upon the successful experience of Poland, one of the world's leading producers. The objective of this study is to evaluate the economic potential and prospects for establishing a commercially viable black currant industry in the United States by analyzing Poland's industry development experience and identifying the economic, institutional, and market conditions necessary to support its long-term growth. The study employs a qualitative analytical approach combining a literature review, comparative case analysis, and secondary data analysis.

The analysis examines Poland's industry development, including production systems, value-chain integration, processing industries, market expansion, and policy support, and evaluates their applicability to the United States. The findings indicate that successful industry development depends not only on favorable agronomic conditions but also on coordinated market formation, consumer awareness, value-added processing, and institutional support. Building upon these findings, the study proposes a demonstration-based market development model designed to stimulate producer participation, strengthen value-chain integration, and expand consumer demand. The study concludes that black currants represent a promising specialty crop with considerable potential to contribute to agricultural diversification, rural economic development, and the expansion of high-value functional food industries in the United States.

Keywords: Black Currants, Agricultural Diversification, Value Chain, Specialty Crops, Market Development, Rural Economic Development.

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1. Introduction

Black currant (*Ribes nigrum L.*) is one of the most valuable berry crops of temperate regions due to its high content of vitamin C, anthocyanins, polyphenols, and other biologically active compounds. The crop is widely cultivated in European countries, particularly Poland, Ukraine, Lithuania, and the United Kingdom, where it is used both for fresh consumption and for

the production of juices, concentrates, jams, and other processed products (Brennan, 2008; FAO, 2023).

In contrast to Europe, the development of black currant production in the United States was restricted for many decades by regulatory measures associated with the spread of white pine blister rust (*Cronartium ribicola*.) Cultivation of *Ribes* species was prohibited in many states throughout much of the twentieth century, leading to the near disappearance of commercial black currant production in the country (Hummer & Dale, 2010).

Despite the gradual removal of restrictions and the introduction of new disease-resistant cultivars, black currants remain relatively unfamiliar to most American consumers. Unlike in Europe, where the flavor and aroma of black currants are widely recognized, similar flavor characteristics in the United States have traditionally been associated with other fruit crops and flavoring products. As a result, the development of stable consumer demand for black currant products remains limited.

At the same time, growing consumer interest in functional foods, natural antioxidants, and nutrient-dense berries is creating new opportunities for the expansion of black currant production in the U.S. market. Particular attention is being directed toward value-added processed products, including concentrates, juices, frozen berries, and ingredients for the food industry.

Beyond their horticultural and nutritional characteristics, specialty berry crops are increasingly attracting attention as instruments of agricultural diversification and value-chain development. In many countries, the expansion of high-value specialty crops has been associated with rural economic development, income diversification, and the creation of value-added

processing industries. As agricultural systems face growing challenges related to market volatility, climate uncertainty, and changing consumer preferences, diversification strategies have become an important component of long-term agricultural resilience.

Within this context, the development of black currants can be examined not only as a horticultural opportunity but also as a case of industry formation involving production, processing, marketing, and consumer market creation. The experience of Poland provides a useful example of how a specialty crop can evolve into an integrated value chain supported by nursery production, processing industries, and stable consumer demand. These broader economic dimensions are particularly relevant when considering the prospects for industry development in the United States.

The central analytical question addressed in this study is not simply whether black currants can be cultivated successfully in the United States, but under what economic and institutional conditions a commercially sustainable black currant industry can emerge. Particular attention is therefore given to the interaction between production capacity, value-chain development, consumer demand formation, and agricultural diversification as mutually reinforcing components of industry development.

This study contributes to the literature in three ways. First, it extends existing discussions of black currant production beyond agronomic considerations by examining the crop through the perspectives of agricultural diversification, value-chain development, and rural economic resilience. Second, it utilizes the Polish black currant industry as a comparative case to identify transferable principles of specialty crop industry formation. Third, it proposes a demonstration-

based market formation model designed for contexts in which consumer demand remains underdeveloped, highlighting the importance of market creation as a prerequisite for sustainable industry growth.

2. Methodology

2.1 Methodological Approach

This study employs a qualitative analytical approach combining a literature review, comparative case analysis, and secondary data evaluation. The analysis draws upon scientific publications, industry reports, statistical data, and policy documents related to black currant production, specialty crop development, and agricultural diversification.

A comparative case-study approach is used to examine the development of the black currant industry in Poland and to identify factors that may be relevant to industry development in the United States. Poland was selected as the primary reference case because of its leading position in global black currant production and its well-developed value-chain system encompassing nursery production, commercial cultivation, processing industries, and consumer markets (Brennan, 2008; Hummer & Dale, 2010; Grand View Research, 2024).

The study further incorporates secondary data from the Food and Agriculture Organization (FAO), state agricultural agencies, published industry analyses, and relevant scientific literature. The research focuses on identifying the economic, institutional, and market conditions that may facilitate the emergence of a sustainable specialty crop industry.

The proposed market formation model is developed through the synthesis of findings from the literature, comparative industry analysis, and practical observations derived from fruit and berry nursery production and grower advisory activities.

The comparative use of the Polish case is intended to achieve analytical rather than statistical generalization. Poland serves as a reference case because it represents a mature specialty crop industry characterized by an integrated value chain, established consumer demand, and developed processing capacity. The comparison therefore aims to identify transferable mechanisms of industry formation rather than to imply direct equivalence between Polish and U.S. production systems.

2.2 Conceptual Foundation

The development of new agricultural crops depends not only on their biological characteristics but also on a combination of economic, technological, and market-related factors. Even crops with high nutritional value and significant production potential may fail without supporting infrastructure and consistent market demand (Henderson & Van En, 2007; FAO, 2023).

In this study, the prospects for black currant (*Ribes nigrum* L.) development in the United States are examined through the value chain concept, which encompasses all major stages of industry development, including nursery production, establishment of commercial plantations, crop production, processing, and market distribution (Porter, 1985; Hummer & Dale, 2010).

In addition to the value chain perspective (Porter, 1985), the study incorporates concepts of agricultural diversification and economic resilience. Contemporary agricultural development increasingly emphasizes the ability of farming systems to diversify production, create value-added

activities, and strengthen market adaptability in response to changing consumer preferences, market volatility, and supply chain disruptions (FAO, 2023).

Within this perspective, the development of black currants is analyzed not only as the introduction of a new crop but also as a process of industry formation involving production, processing, marketing, and consumer market creation.

2.3 Analytical Framework

Rather than examining these dimensions independently, the present study treats them as interdependent components of a single industry formation process. Accordingly, the analytical framework is designed to evaluate how biological, economic, institutional, and market-related factors jointly influence the emergence and long-term sustainability of a specialty crop industry (Porter, 1985; FAO, 2023).

The analytical framework consists of five interconnected components.

2.3.1 Agronomic Suitability

This component evaluates the biological characteristics of black currant, its adaptability to the climatic and environmental conditions of selected regions of the United States, yield potential, disease resistance, and opportunities for mechanized production (Hummer & Dale, 2010).

2.3.2 Nursery Production Capacity

This component examines the role of high-quality planting material as the foundation for establishing new plantations and expanding the cultivated area of the crop (Hummer & Dale, 2010).

2.3.3 Processing and Value Addition

This component analyzes opportunities for utilizing black currants in the production of juices, concentrates, jams, frozen products, and other value-added goods (Brennan, 2008).

2.3.4 Market Development and Consumer Demand

This component assesses the factors influencing consumer awareness, market expansion, and the integration of black currant products into the U.S. food industry (Grand View Research, 2024; USDA, 2024).

2.3.5 Agricultural Diversification and Economic Resilience

This component evaluates the potential contribution of black currants to agricultural diversification, value-chain expansion, rural economic development, and the resilience of farming systems. Particular attention is given to the role of specialty crops in creating new market opportunities, supporting value-added processing activities, and reducing dependence on a limited number of agricultural commodities (FAO, 2023; European Commission, 2021).

Collectively, these five components constitute an analytical framework for evaluating the conditions under which a specialty crop can evolve into a sustainable industry. Rather than treating production, processing, market development, and diversification as isolated factors, the framework conceptualizes them as mutually reinforcing dimensions of industry formation (Porter, 1985).

The proposed analytical framework provides a comprehensive basis for evaluating the conditions necessary for the emergence of a new berry market niche in the United States. Beyond crop production considerations, the framework also highlights the importance of value-chain development, agricultural diversification, and economic resilience in supporting the long-term

sustainability of a specialty crop industry. The approach therefore enables an assessment of black currants not only as a horticultural opportunity but also as a potential contributor to rural development and agricultural innovation.

3. The Polish Experience as a Reference Case

Consistent with the analytical framework developed in the previous section, Poland is examined as a reference case for identifying the economic, institutional, and market mechanisms that have supported the emergence of a competitive black currant industry. Rather than presenting Poland as a model for direct replication, the analysis focuses on identifying transferable mechanisms of industry formation that may inform the development of a sustainable specialty crop sector in the United States.

Poland is one of the world's leading producers of black currants (*Ribes nigrum* L.) and plays a central role in the global market for processed black currant products (Brennan, 2008). The country produces substantial quantities of black currants annually, with the majority of production destined for the manufacture of concentrates, juices, frozen products, and other value-added goods (FAO, 2023).

The Polish experience demonstrates that successful industry development is based on the integration of high-productivity production systems, a well-developed processing sector, modern nursery production, and stable domestic and international demand (Gordon et al., 1993; FAO, 2023). Beyond its role as a major producer, Poland provides an important example of how specialty crop

industries can evolve through the coordinated development of production, processing, logistics, and market institutions. The black currant sector illustrates a broader process of agricultural diversification in which a specialty crop becomes embedded within a functioning value-chain system. As a result, industry competitiveness is generated not solely through farm-level productivity but through the integration of multiple economic activities that create value throughout the supply chain.

Importantly, the Polish experience should not be interpreted as a model to be replicated in its entirety. Rather, it serves as an analytical reference illustrating how coordinated development across multiple stages of the value chain can support the emergence of a competitive specialty crop industry. The relevance of the Polish case lies not in institutional similarity to the United States, but in the transferable mechanisms linking production, processing, market development, and consumer demand.

3.1 Structural Characteristics of the Polish Industry

The Polish black currant industry possesses several structural characteristics that have supported its long-term competitiveness and market development.

- **High Productivity.** Modern cultivars and advanced production technologies enable high yields on commercial plantations (Brennan, 2008).
- **Mechanized Harvesting.** The widespread use of mechanical berry harvesters reduces labor requirements, improves harvesting efficiency, and lowers production costs (Brennan, 2008).

- **Processing-Oriented Production.** A substantial proportion of production is directed toward value-added processing, including concentrates, juices, purees, frozen berries, and other processed products (FAO, 2023).
- **Developed Infrastructure.** Specialized processing facilities, logistics systems, and marketing networks support efficient domestic distribution and exports to the European Union, Asia, and North America (FAO, 2023).
- **Nursery Production Capacity.** Certified nurseries provide high-quality planting material that supports commercial plantation establishment, varietal improvement, and long-term industry expansion (Hummer & Dale, 2010).

3.2 Economic Drivers of Industry Development

The long-term development of the Polish black currant industry has been supported by several mutually reinforcing economic factors.

1. Stable Demand for Processed Products

Black currant concentrates and juices are widely utilized in the food, pharmaceutical, and cosmetic industries, creating stable demand for processed products (FAO, 2023).

2. Competitive Production Economics

High yields combined with mechanized production contribute to competitive production costs and improve international market competitiveness (Brennan, 2008).

3. Industry Support Programs

Government initiatives and European funding programs have supported berry production through investments in processing facilities, storage infrastructure, technological modernization, and innovation (European Commission, 2021).

4. Development of the Nursery Sector

The availability of high-quality planting material has facilitated the rapid establishment of commercial plantations and the adoption of improved cultivars (Hummer & Dale, 2010).

5. Farm Income Diversification

Black currants constitute an important component of diversified berry farming systems alongside raspberries, strawberries, and blueberries, thereby reducing production risks and strengthening farm income stability (Henderson & Van En, 2007).

3.3 Implications for the United States

The Polish experience suggests that the competitiveness of black currants as a commercial crop depends not only on favorable biological characteristics but also on the coordinated development of a complete value chain encompassing nursery production, commercial cultivation, processing industries, logistics, and market development. These observations provide an analytical basis for evaluating the prospects of establishing a sustainable black currant industry in the United States while taking into account local climatic, institutional, and economic conditions.

3.4 Lessons for Specialty Crop Industry Development

A particularly important lesson from the Polish experience is that successful specialty crop industries emerge through the integration of production, processing, logistics, marketing, and nursery development within a coordinated industry structure. Such integration reduces dependence on a single market channel, enables producers to participate in multiple stages of value creation, and increases opportunities for value-added production.

More broadly, the Polish experience demonstrates that the long-term competitiveness of specialty crops depends not only on biological productivity but also on the coordinated development of production capacity, processing industries, market institutions, and consumer demand. These complementary elements strengthen economic resilience, promote agricultural diversification, support rural economic development, and facilitate the creation of sustainable value chains capable of adapting to changing market conditions.

The lessons derived from Poland therefore extend beyond black currants. They provide broader insights into how emerging specialty crops can establish sustainable market positions through coordinated industry development, institutional support, and value-chain integration.

4. Economic Potential of Black Currants in the United States

The analytical framework developed in Section 2 and the evidence derived from the Polish reference case provide a basis for evaluating the prospects of establishing a sustainable black currant industry in the United States. Rather than focusing solely on crop production, the following

analysis examines market opportunities, value creation, agricultural diversification, and the enabling conditions necessary for long-term industry development.

4.1 Market Opportunities and Consumer Demand

Black currants possess considerable potential for development in the United States due to growing consumer demand for functional foods rich in antioxidants, vitamins, and other bioactive compounds. Current market trends indicate favorable conditions for the emergence of a new berry market niche focused on value-added products.

American consumers are placing increasing emphasis on healthy diets and disease prevention. Markets for functional foods and superfoods continue to demonstrate steady growth. Growing consumer interest in health-promoting foods, natural antioxidants, and functional food products creates favorable conditions for introducing black currant-based products into the U.S. specialty food market (McDougall et al., 2005; Cortez & Gonzalez de Mejia, 2019). Due to their exceptionally high levels of vitamin C, anthocyanins, and flavonoids, black currants align well with these consumer preferences and have the potential to become valuable ingredients in the food, nutraceutical, and cosmetic industries (McDougall et al., 2005; Cortez & Gonzalez de Mejia, 2019).

The U.S. frozen berry market represents a large and expanding segment of the food industry. Blueberries, raspberries, strawberries, and blackberries currently dominate the market; however, consumer interest in novel and specialty berries continues to increase. Black currants may occupy a promising niche because of their distinctive flavor profile, nutritional characteristics, and functional properties. According to Grand View Research (2024), the U.S. frozen fruit market was valued at USD 5.37 billion in 2023 and is projected to reach USD 7.95 billion by 2030, with a compound annual growth rate (CAGR) of 5.72%.

These trends indicate that the principal challenge is not the absence of market opportunities but the limited consumer familiarity with black currant products. Consequently, industry development depends less on expanding production capacity than on reducing market uncertainty through consumer education, product demonstration, and gradual demand formation. Market creation therefore becomes a prerequisite for investment in commercial production rather than its consequence.

4.2 Economic Potential and Value Creation

Beyond market demand, black currants possess several economic characteristics that support their commercial viability within value-added agricultural systems.

- **High Productivity.** Modern cultivars can achieve relatively high yields under commercial production systems (Brennan, 2008).
- **Versatile Utilization.** Black currants can be processed into juices, concentrates, jams, frozen products, dietary supplements, functional beverages, and cosmetic ingredients.
- **High Value Addition.** Processed products generally generate higher economic returns than fresh-market sales, creating opportunities for increased profitability throughout the value chain.
- **Suitability for Mechanization.** Black currants are well adapted to mechanized harvesting and crop management, reducing labor requirements and production costs (Hummer & Dale, 2010).

The development of black currants may also stimulate broader food-system innovation by supporting new functional foods, nutraceutical products, specialty beverages, and premium

processed goods. Such activities expand agricultural value chains and facilitate the transition from primary production toward knowledge-intensive and value-added food industries. From a strategic perspective, value-chain expansion strengthens agricultural competitiveness while improving the long-term economic sustainability of rural regions.

4.3 Contribution to Agricultural Diversification and Rural Development

Beyond their direct market potential, black currants may contribute to broader agricultural and rural development objectives. The introduction of specialty crops can diversify farm income sources, reduce dependence on a limited number of commodity crops, and create opportunities for value-added processing activities. Such diversification may enhance the resilience of rural economies by expanding employment opportunities across production, processing, distribution, agritourism, and related service sectors (USDA, 2024).

In addition, specialty crop industries often stimulate local entrepreneurship and encourage innovation in food manufacturing and marketing. Consequently, the economic significance of black currants should be evaluated not only in terms of farm-level profitability but also in relation to their contribution to regional economic development, agricultural diversification, and structural transformation (Henderson & Van En, 2007; European Commission, 2021).

4.4 Enabling Conditions for Industry Development

Several factors support the potential development of black currants in the United States. These include strong consumer purchasing power, a well-developed market for organic and functional foods, growing interest in natural antioxidants, and public support for agricultural diversification and specialty crop innovation (USDA, 2024; Grand View Research, 2024). The increasing

emphasis on value-added agricultural production also creates opportunities for integrating black currants into existing processing and food manufacturing systems (Mordor Intelligence, 2024).

Despite these favorable conditions, several constraints remain. These include limited consumer awareness, the need to establish reliable supply chains, the availability of high-quality planting material, and the requirement for region-specific agronomic research (USDA, 2024).

Nevertheless, these constraints do not represent permanent structural barriers. Rather, they identify areas in which coordinated industry development, market formation, producer support, and institutional collaboration are required. These enabling conditions and remaining challenges provide the foundation for the demonstration-based market development model proposed in the following section.

5. Market Development as a Prerequisite for Industry Formation

The preceding analysis demonstrates that the successful development of a black currant industry depends not only on agronomic suitability or production capacity but also on the existence of a functioning market. While the Polish experience illustrates the evolution of a mature specialty crop industry supported by established consumer demand, the United States presents a fundamentally different developmental context. Consequently, industry formation in the United States requires a strategy that places market development and demand creation at the beginning of the development process rather than treating them as outcomes of production expansion.

5.1 Why the United States Requires a Different Development Strategy

Poland represents one of the world's most successful examples of commercial black currant industry development. A key factor underlying this success was that black currants had long been

familiar to consumers before the emergence of a modern commercial berry industry. The fruit had traditionally formed part of local diets, while processed black currant products enjoyed stable consumer demand. Under such conditions, the expansion of nursery production, commercial plantations, mechanized harvesting, and processing industries represented a natural response to an already established market (FAO, 2023).

The situation in the United States differs substantially. Owing to long-standing restrictions on the cultivation of *Ribes* spp. associated with concerns over white pine blister rust (*Cronartium ribicola*), black currants remained largely absent from the experience of most American consumers for many decades (Hummer & Dale, 2010; USDA, 2024). Consequently, unlike Central and Eastern Europe, where consumer familiarity already exists, the principal challenge in the United States is not simply increasing production but creating a market for products that remain unfamiliar to many consumers.

This distinction illustrates two different pathways of industry development. In mature agricultural industries, production expansion generally follows existing consumer demand. By contrast, the establishment of a new specialty crop industry requires market formation through consumer awareness, product acceptance, and demand creation before substantial investments in commercial production and processing become economically justified.

5.2 Building Consumer Demand

One promising pathway involves increasing public awareness of the nutritional and functional characteristics of black currants. Their exceptionally high concentrations of vitamin C, anthocyanins, and other bioactive compounds correspond closely with current consumer preferences for healthy diets, functional foods, and natural wellness products (Cortez & Gonzalez

de Mejia, 2019). Additional opportunities arise from incorporating black currants into juices, concentrates, jams, frozen products, nutraceutical ingredients, functional beverages, and other value-added products.

Several complementary initiatives may facilitate gradual market formation. Demonstration plantings, farmers' markets, tasting events, educational programs for growers and consumers, promotional campaigns, and the expansion of processed product offerings can increase consumer familiarity with black currants while reducing uncertainty regarding market acceptance (Hummer & Dale, 2010). Rather than functioning solely as marketing activities, these initiatives contribute to the gradual establishment of a sustainable consumer base capable of supporting future industry expansion.

5.3 From Market Formation to Industry Development

Market development extends beyond increasing consumer demand. Consumer education, product demonstrations, and direct engagement with potential buyers reduce uncertainty for producers, processors, investors, and other participants throughout the value chain. As market confidence increases, opportunities emerge for expanding nursery production, establishing commercial plantations, investing in processing industries, and developing specialized distribution networks.

From this perspective, demand creation functions as a catalyst for broader industry formation. Market development stimulates investment, encourages coordination among value-chain participants, and creates conditions under which commercial production becomes

economically viable. Rather than representing the final stage of industry development, market formation serves as the mechanism through which subsequent production, processing, and commercialization become possible.

5.4 Implications for Sustainable Industry Development

From a broader economic perspective, the sequence of industry development in the United States is likely to differ fundamentally from the historical Polish experience. Rather than beginning with large-scale production, successful industry formation may initially depend on the creation of consumer awareness and market demand, followed by the gradual expansion of nursery production, commercial cultivation, processing capacity, and supporting infrastructure.

This market-first strategy may also contribute to broader objectives of agricultural diversification and economic resilience. By supporting the emergence of new specialty crop industries, market-development initiatives can expand rural income opportunities, encourage value-added production, reduce dependence on a limited number of agricultural commodities, and strengthen the adaptability of agricultural systems under changing market conditions.

In this context, consumer awareness and market development should be understood not merely as promotional activities but as fundamental economic drivers of future black currant industry formation in the United States. The analysis therefore suggests that, for emerging specialty crops with limited consumer recognition, sustainable industry development depends on the successful integration of market creation, value-chain development, and commercial production into a coordinated long-term growth strategy.

6. A Demonstration-Based Industry Formation Model for Black Currant Development in the United States

The preceding analysis demonstrates that the principal constraint to black currant industry development in the United States is not biological feasibility but the absence of an established market. Unlike Poland, where consumer demand historically preceded commercial production, the successful introduction of black currants in the United States requires a strategy that simultaneously develops consumer awareness, producer participation, and value-chain capacity. In response to this challenge, this study proposes a demonstration-based industry formation model designed to facilitate the coordinated emergence of a sustainable specialty crop industry.

Rather than functioning as a conventional marketing strategy, the proposed model integrates market formation, nursery development, commercial production, processing activities, and value-chain expansion into a single sequential industry-development process.

6.1 Core Components of the Demonstration-Based Model

The proposed model consists of five mutually reinforcing components.

• Demonstration Farm

A demonstration farm provides the physical platform for introducing black currants under local production conditions. It enables cultivar evaluation, consumer education, grower training, and practical demonstration of cultivation techniques.

• Consumer Education and Product Demonstration

Public awareness is promoted through field visits, tasting events, educational programs, farmers' markets, and demonstrations of processed products, allowing consumers to become familiar with the crop and its potential applications.

• Nursery Development

The availability of high-quality planting material lowers barriers to entry for commercial growers and home gardeners while supporting the gradual expansion of cultivated areas (Hummer & Dale, 2010).

• Grower Participation

Training activities encourage producer participation by providing practical knowledge on cultivar selection, crop management, and commercial production systems.

• Value-Chain Development

The model encourages the simultaneous development of production, processing, distribution, and marketing activities, thereby strengthening coordination among industry participants.

6.2 Sequential Industry Development

The proposed model follows a sequential process in which each stage creates the conditions necessary for the next stage of industry development.

1. Demonstration and consumer education
2. Consumer awareness and product acceptance
3. Nursery expansion and grower participation
4. Commercial plantation establishment
5. Processing investment and product diversification
6. Value-chain expansion
7. Sustainable specialty crop industry

Rather than expanding production before market demand exists, this sequence gradually reduces market uncertainty while encouraging coordinated investment across multiple stages of industry development.

6.3 Practical Applications of the Model

An important component of the proposed model is the demonstration of processed black currant products that have long been established in European markets. Tastings may include juices, concentrates, jams, jellies, syrups, teas, nutraceutical products, and other value-added applications. Existing European products provide practical examples of the crop's commercial potential and help prospective producers, processors, and consumers visualize future market opportunities before a domestic processing sector has fully developed.

The demonstration farm may also function as a nursery center where visitors can purchase planting material of proven cultivars. This approach facilitates the establishment of small-scale

commercial plantations while simultaneously supporting producer training, cultivar dissemination, and early-stage industry expansion.

6.4 Implications for Sustainable Industry Development

Rather than serving solely as a production site, the demonstration farm functions as an integrated industry-development platform that coordinates consumer education, market formation, nursery development, producer participation, processing activities, and value-chain expansion.

By simultaneously addressing both demand-side and supply-side constraints, the proposed model provides a practical pathway for establishing a sustainable and economically resilient black currant industry in the United States. More broadly, the model illustrates how demonstration-based market formation can facilitate the emergence of new specialty crop industries by coordinating market creation, production development, and value-chain integration within a unified long-term development strategy.

7. Broader Economic and Policy Implications

The demonstration-based industry formation model proposed in this study extends beyond the commercial development of black currants as a single specialty crop. More broadly, it illustrates how coordinated market formation, nursery development, production, processing, and value-chain integration can contribute to sustainable agricultural transformation. Rather than emphasizing production expansion alone, the model highlights the importance of creating institutional and market conditions that enable new specialty crop industries to emerge and develop over time.

7.1 Broader Economic Implications

The economic significance of the proposed model extends beyond berry production itself. By integrating nursery operations, commercial cultivation, value-added processing, consumer education, and market development within a coordinated framework, the model creates multiple opportunities for value generation across the agricultural economy.

Potential sources of economic value include:

- sales of fresh berries through local and regional markets;
- nursery production and the supply of certified planting material;
- processing into juices, concentrates, jams, syrups, and functional food products;
- educational activities, demonstration events, and grower training;
- agritourism and direct consumer engagement.

As these activities expand, multiplier effects may emerge through increased demand for transportation, packaging, processing services, retail distribution, and agricultural support industries. Consequently, the contribution of black currants should be evaluated not only in terms of farm-level profitability but also in relation to their broader role in regional economic development, value-chain expansion, and rural entrepreneurship.

The growing availability of digital marketing platforms, online communities, and direct-to-consumer sales channels further strengthens the prospects for market development by reducing

marketing costs and facilitating consumer engagement during the early stages of industry formation.

7.2 Policy Implications

The successful establishment of a black currant industry is likely to depend not only on private investment but also on effective coordination among research institutions, extension services, nursery producers, processors, growers, and regional development agencies.

Public support may therefore be directed toward:

- establishment of demonstration farms;
- evaluation and dissemination of suitable cultivars;
- grower education and extension services;
- development of nursery production capacity;
- promotion of value-added processing;
- consumer education and market development initiatives.

Rather than emphasizing long-term production subsidies, public policy may achieve greater effectiveness by supporting early-stage market formation and industry coordination capable of stimulating private investment throughout the value chain. Such an approach may accelerate the development of commercially sustainable specialty crop industries while reducing the risks associated with introducing unfamiliar agricultural products.

Overall, the proposed model demonstrates that successful specialty crop industries emerge through coordinated interactions among market formation, production capacity, nursery development, processing industries, and institutional support. Consequently, the contribution of black currants extends beyond horticultural production toward broader objectives of agricultural diversification, value-chain development, rural innovation, and sustainable regional economic growth.

8. Conclusions

This study demonstrates that the successful development of a commercially sustainable black currant (*Ribes nigrum* L.) industry in the United States depends not only on favorable agronomic conditions but also on the coordinated development of consumer demand, nursery production, commercial cultivation, processing capacity, and value-chain integration. The comparative analysis of the Polish experience indicates that long-term industry competitiveness is generated through the interaction of these complementary components rather than through agricultural production alone. At the same time, the study shows that the conditions for industry development in the United States differ substantially from those in Poland because limited consumer familiarity requires market formation to precede large-scale production.

The principal conceptual contribution of this study is the proposed demonstration-based industry formation model. Unlike conventional production-oriented approaches, the model conceptualizes market formation as the initiating mechanism of industry development. By integrating consumer education, demonstration activities, nursery development, commercial

production, processing, and value-chain participation into a coordinated sequential process, the model provides a practical framework for facilitating the emergence of new specialty crop industries under conditions of limited initial market awareness.

Rather than serving as a blueprint for direct replication, the Polish experience provides a strategic reference point for understanding how coordinated market formation, value-chain development, and institutional support can facilitate the establishment of a sustainable black currant industry in the United States. The findings therefore suggest that adapting these underlying principles offers a more appropriate pathway for industry development than directly transferring existing production systems.

The practical implications of the proposed model include the following:

1. Establish regional demonstration and nursery centers to increase consumer awareness and improve access to high-quality planting material.
2. Promote value-added processing, including juices, concentrates, functional foods, and nutraceutical products, to strengthen economic returns throughout the value chain.
3. Encourage collaboration among growers, processors, extension services, research institutions, and marketing organizations to support coordinated industry development.
4. Utilize digital marketing platforms and consumer education initiatives to accelerate market formation and product acceptance.

5. Support specialty crop diversification as part of broader rural development and agricultural innovation strategies.

The United States possesses several favorable conditions for the development of a black currant industry, including a large consumer market, growing demand for functional foods, high purchasing power, and suitable agro-climatic conditions in several regions. Rather than competing directly with established berry crops, black currants may occupy a distinct specialty-crop niche supported by value-added processing, coordinated market development, and consumer education.

This study has several limitations. The analysis is based primarily on secondary data and comparative interpretation rather than primary empirical research or economic modelling. Consequently, the proposed industry formation model should be regarded as a conceptual framework requiring further empirical validation through pilot implementation, economic assessment, and consumer market research.

Future research should evaluate the proposed model through field-based pilot projects, cost-benefit analysis, consumer acceptance studies, and long-term assessment of value-chain development under different agro-climatic and institutional conditions within the United States.

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Author Bio

Liudmyla Pryimak is an Independent Scholar and agronomist specializing in fruit and vegetable crop production. She received her education in fruit and vegetable growing and viticulture from Lviv State Agrarian University, Ukraine. Her professional experience includes nursery production, greenhouse cultivation, plant propagation, and agricultural consulting, with particular expertise in fruit crops, including black currant. Her research interests focus on agricultural diversification, specialty crop development, value-chain formation, and sustainable rural development. She is particularly interested in the introduction and commercialization of underutilized horticultural crops and the development of innovative approaches to market formation and value-added agricultural production.

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