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"GLOBAL RAQAMLI INTEGRATSIYALASHUV: 2030-YILGACHA YASHIL IQTISODIYOTGA O'TISHDA TEXNOLOGIK VA INDUSTRIAL SANOATNI RIVOJLANTIRISH ORQALI MIKRO VA MAKROIQTISODIY BARQAROR O'SISHNI TA'MINLASH DOLZARBLIGI"

"GLOBAL DIGITAL INTEGRATION: THE RELEVANCE OF ENSURING MICRO AND MACROECONOMIC SUSTAINABLE GROWTH THROUGH TECHNOLOGICAL AND INDUSTRIAL DEVELOPMENT IN THE TRANSITION TO A GREEN ECONOMY BY 2030"

«ГЛОБАЛЬНАЯ ЦИФРОВАЯ ИНТЕГРАЦИЯ: АКТУАЛЬНОСТЬ ОБЕСПЕЧЕНИЯ УСТОЙЧИВОГО МИКРО- И МАКРОЭКОНОМИЧЕСКОГО РОСТА ЧЕРЕЗ РАЗВИТИЕ ТЕХНОЛОГИЧЕСКОЙ И ИНДУСТРИАЛЬНОЙ ПРОМЫШЛЕННОСТИ В ПЕРЕХОДЕ К ЗЕЛЁНОЙ ЭКОНОМИКЕ К 2030 ГОДУ»

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05.01.00 – Axborot texnologiyalari, boshqaruv va kompyuter grafikasi
05.01.01 – Muhandislik geometriyasi va kompyuter grafikasi. Audio va video texnologiyalari
05.01.02 – Tizimli tahlil, boshqaruv va axborotni qayta ishlash
05.01.03 – Informatikaning nazariy asoslari
05.01.04 – Hisoblash mashinalari, majmualari va kompyuter tarmoqlarining matematik va dasturiy ta’minoti
05.01.05 – Axborotlarni himoyalash usullari va tizimlari. Axborot xavfsizligi
05.01.06 – Hisoblash texnikasi va boshqaruv tizimlarining elementlari va qurilmalari
05.01.07 – Matematik modellashtirish
05.01.11 – Raqamli texnologiyalar va sun’iy intellekt
05.02.00 – Mashinasozlik va mashinashunoslik
05.02.08 – Yer usti majmualari va uchish apparatlari
05.03.02 – Metrologiya va metrologiya ta’minoti
05.04.01 – Telekommunikasiya va kompyuter tizimlari, telekommunikasiya tarmoqlari va qurilmalari. Axborotlarni taqsimlash
05.05.03 – Yorug‘lik texnikasi. Maxsus yoritish texnologiyasi
05.05.05 – Issiqlik texnikasining nazariy asoslari
05.05.06 – Qayta tiklanadigan energiya turlari asosidagi energiya qurilmalari
05.06.01 – To‘qimachilik va yengil sanoat ishlab chiqarishlari materialshunosligi
05.08.03 – Temir yo‘l transportini ishlatish
05.09.01 – Qurilish konstruksiyalari, bino va inshootlar
05.09.04 – Suv ta’minoti. Kanalizatsiya. Suv havzalarini muhofazalovchi qurilish tizimlari
10.00.06 – Qiyosiy adabiyotshunoslik, chog‘ishtirma tilshunoslik va tarjimashunoslik
10.00.04 – Yevropa, Amerika va Avstraliya xalqlari tili va adabiyoti
08.00.01 – Iqtisodiyot nazariyasi
08.00.02 – Makroiqtisodiyot
08.00.03 – Sanoat iqtisodiyoti
08.00.04 – Qishloq xo‘jaligi iqtisodiyoti
08.00.05 – Xizmat ko‘rsatish tarmoqlari iqtisodiyoti
08.00.06 – Ekonometrika va statistika
08.00.07 – Moliya, pul muomalasi va kredit
08.00.08 – Buxgalteriya hisobi, iqtisodiy tahlil va audit
08.00.09 – Jahon iqtisodiyoti
08.00.10 – Demografiya. Mehnat iqtisodiyoti
08.00.11 – Marketing
08.00.12 – Mintaqaviy iqtisodiyot
08.00.13 – Menejment
08.00.14 – Iqtisodiyotda axborot tizimlari va texnologiyalari
08.00.15 – Tadbirkorlik va kichik biznes iqtisodiyoti
08.00.16 – Raqamli iqtisodiyot va xalqaro raqamli integratsiya
08.00.17 – Turizm va mehmonxona faoliyati

Ma’lumot uchun, OAK
Rayosatining 2024-yil 28-avgustdagi 360/5-son qarori bilan “Dissertatsiyalar asosiy ilmiy natijalarini chop etishga tavsiya etilgan milliy ilmiy nashrlar ro‘yxati”ga texnika va iqtisodiyot fanlari bo‘yicha “Muhandislik va iqtisodiyot” jurnali ro‘yxatga kiritilgan.

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THE ROLE OF INVESTMENT RISK MANAGEMENT IN ENHANCING FINANCIAL EFFICIENCY IN AGRICULTURE

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Abstract. Agriculture is one of the most risk-sensitive sectors of the economy due to climate change, natural disasters, market volatility, and financial uncertainty. Effective investment risk management plays a crucial role in improving financial efficiency and ensuring sustainable agricultural development. This paper examines the impact of investment risk management on financial efficiency in agriculture. The findings indicate that agricultural insurance, diversification strategies, digital technologies, and financial planning can help reduce investment losses and improve profitability. The study concludes that strengthening agricultural risk management systems can enhance investor confidence and improve the efficiency of agricultural investments.

Keywords: agriculture, investment risk, risk management, financial efficiency, agricultural insurance, profitability, sustainable development.

Annotatsiya. Qishloq xo‘jaligi iqlim o‘zgarishi, tabiiy ofatlar, bozor beqarorligi va moliyaviy noaniqliklar tufayli iqtisodiyotning risklarga eng ta’sirchan tarmoqlaridan biri hisoblanadi. Investitsiya risklarini samarali boshqarish moliyaviy samaradorlikni oshirish va qishloq xo‘jaligining barqaror rivojlanishini ta’minlashda muhim rol o‘ynaydi. Mazkur maqolada investitsiya risklarini boshqarishning qishloq xo‘jaligidagi moliyaviy samaradorlikka ta’siri o‘rganilgan. Tadqiqot natijalari qishloq xo‘jaligi sug‘urtasi, diversifikatsiya strategiyalari, raqamli texnologiyalar va moliyaviy rejalashtirish investitsiya yo‘qotishlarini kamaytirish hamda rentabellikni oshirishga yordam berishini ko‘rsatadi. Tadqiqotda qishloq xo‘jaligi risklarini boshqarish tizimlarini takomillashtirish investorlar ishonchini mustahkamlashi va qishloq xo‘jaligiga yo‘naltirilgan investitsiyalar samaradorligini oshirishi mumkinligi xulosa qilingan.

Kalit so‘zlar: qishloq xo‘jaligi, investitsiya riski, risklarni boshqarish, moliyaviy samaradorlik, qishloq xo‘jaligi sug‘urtasi, rentabellik, barqaror rivojlanish.

Аннотация. Сельское хозяйство является одной из наиболее подверженных рискам отраслей экономики вследствие изменения климата, стихийных бедствий, рыночной нестабильности и финансовой неопределённости. Эффективное управление инвестиционными рисками играет важную роль в повышении финансовой эффективности и обеспечении устойчивого развития сельского хозяйства. В данной статье рассматривается влияние управления инвестиционными рисками на финансовую эффективность в сельском хозяйстве. Результаты исследования показывают, что сельскохозяйственное страхование, стратегии диверсификации, цифровые технологии и финансовое планирование могут способствовать сокращению инвестиционных потерь и повышению рентабельности. В исследовании сделан вывод о том, что укрепление системы управления сельскохозяйственными рисками может повысить доверие инвесторов и эффективность инвестиций в сельское хозяйство.

Ключевые слова: сельское хозяйство, инвестиционный риск, управление рисками, финансовая эффективность, сельскохозяйственное страхование, рентабельность, устойчивое развитие.

INTRODUCTION

Agriculture plays a vital role in ensuring food security, generating employment, and supporting economic growth. However, agricultural production is highly vulnerable to various risks, including climate change, droughts, floods, pest outbreaks, price fluctuations, and financial instability. These factors directly influence investment decisions and financial performance in the agricultural sector.

According to the Food and Agriculture Organization of the United Nations (FAO), agrifood systems are highly vulnerable to climate and disaster risks. The increasing frequency and intensity of extreme weather events can cause substantial losses in agricultural production and pose growing challenges to sustainable agricultural development [1].

The increasing complexity of agricultural risks requires effective management strategies to protect investments and improve financial efficiency. Consequently, agricultural risk management has become one of the key priorities for policymakers, investors, and agricultural producers.

Numerous international and local scholars have investigated the relationship between risk management and agricultural performance. The Organisation for Economic Co-operation and Development (OECD) emphasizes that agricultural risk management policies can help farmers reduce financial losses, improve resilience, and encourage long-term investment [2]. Glauber et al. explain that properly designed risk management instruments, including insurance schemes, income stabilization mechanisms, disaster assistance, and savings measures, can contribute to agricultural resilience and financial sustainability [3].

Kevin Donovan found that high levels of agricultural risk discourage farmers from investing in productive inputs and modern technologies. The study suggests that insurance mechanisms and risk reduction measures can improve agricultural productivity and investment efficiency [4]. Among Uzbek researchers, Yadgarov et al. highlight that developing agricultural insurance systems is important for ensuring financial stability and supporting investment in the agricultural sector [5]. Similarly, X. Shennayev argues that improving agricultural insurance mechanisms can strengthen risk protection and enhance the operating environment for agricultural producers [6]. S. Saidnabiyev proposes a risk-oriented model that integrates agricultural credit, insurance, and subsidization to strengthen the financial sustainability of Uzbekistan's agricultural sector [7].

Investment risk management can influence financial efficiency by reducing uncertainty and protecting agricultural producers from potential losses. First, agricultural insurance serves as an important risk mitigation instrument. Insurance can reduce financial losses caused by natural disasters, droughts, floods, and crop failures. As a result, farmers may become more willing to invest in modern technologies, high-quality seeds, irrigation systems, and advanced production methods. Second, diversification strategies can improve financial stability by reducing dependence on a single source of income. Farmers who diversify their production activities are generally less vulnerable to market and production risks. Third, digital technologies such as remote sensing, satellite monitoring, weather forecasting systems, and precision agriculture can improve risk assessment and decision-making. FAO emphasizes the integration of climate and disaster risk considerations into evidence-based interventions and agricultural decision-making [1]. Fourth, effective financial planning enables agricultural enterprises to allocate resources efficiently, manage cash flows, and maintain long-term profitability despite uncertain market conditions.

International experience suggests that advanced agricultural risk management systems may contribute to higher levels of investment efficiency. In the United States and Canada, comprehensive crop insurance programs have helped reduce farmers' exposure to production risks and may encourage investment in agricultural innovation. Similarly, European Union countries have implemented integrated risk management frameworks that combine insurance, disaster assistance, and income stabilization programs.

Table 1
Share of Agriculture, Forestry, and Fisheries in GDP and Investment Risk Exposure in Uzbekistan, 2020–2024[1]

Year	Agriculture share in GDP (%)	Main risk factors	Risk Management Maturity Level
2020	21.6	COVID-19 disruptions, market uncertainty, drought	Low
2021	21.4	Water shortages, climate variability	Low–Moderate
2022	20.4	Rising input costs, inflation, climate risks	Moderate
2023	19.7	Drought risk, price volatility, logistics challenges	Moderate–High
2024	17.7	Climate change impacts, extreme weather events	High

The findings indicate that the share of agriculture, forestry, and fisheries in Uzbekistan's GDP decreased from 21.6% in 2020 to 17.7% in 2024. Nevertheless, the sector continued to face significant climate, market, and production risks throughout the period under review. According to the author's qualitative assessment, the maturity of agricultural risk management appears to have gradually improved, reflecting the expanding use of insurance, financial support instruments, digital monitoring technologies, and other risk mitigation practices.

OECD studies indicate that properly designed government-supported agricultural risk management instruments can strengthen farm resilience and support sustainable investment decisions [2; 3].

1 **Source:** Compiled by the author based on the National Statistics Committee of Uzbekistan and FAO reports.

International and national evidence suggests that improving agricultural risk management systems can contribute to greater financial stability, higher investment efficiency, and increased attractiveness to investors in developing economies.

CONCLUSION AND SUGGESTIONS

Investment risk management plays a critical role in enhancing financial efficiency in agriculture. Effective risk management tools can reduce uncertainty, protect agricultural producers from losses, and create favorable conditions for sustainable investment.

Based on the analysis, the following recommendations are proposed:

Expand agricultural insurance programs and increase government support for risk-sharing mechanisms.

Promote the diversification of agricultural production to reduce income volatility.

Encourage the adoption of digital technologies for agricultural risk monitoring and management.

Improve access to affordable agricultural credit and financial services.

Strengthen farmers' knowledge and skills in investment risk management through training and advisory services.

The implementation of these measures is expected to contribute to higher investment efficiency, increased investor confidence, and sustainable agricultural development.

REFERENCES

1. Food and Agriculture Organization of the United Nations. (n.d.). *Climate and disaster risk management*. Accessed July 9, 2026. https://www.fao.org/climate-change/thematic-areas/climate-and-disaster-risk-management/en

2. OECD. (2011). *Managing Risk in Agriculture: Policy Assessment and Design*. OECD Publishing, Paris. doi: 10.1787/9789264116146-en.

3. Glauber, J. W., Baldwin, K., Antón, J., & Ziebinska, U. (2021). Design principles for agricultural risk management policies. *OECD Food, Agriculture and Fisheries Papers*, No. 157. OECD Publishing, Paris. doi: 10.1787/1048819f-en.

4. Donovan, K. (2021). The equilibrium impact of agricultural risk on intermediate inputs and aggregate productivity. *The Review of Economic Studies, 88*(5), 2275–2307. doi: 10.1093/restud/rdaa084.

5. Yadgarov, A. A., Khotamov, I., Uktamov, K. F., Mahmudov, M. F., Yuldashev, G. T., & Najimadinov, R. D. (2021). Prospects for the development of agricultural insurance system. *Alinteri Journal of Agriculture Sciences, 36*(1), 602–608. doi: 10.47059/alinteri/V36I1/AJAS21085.

6. Shennayev, X. M. (2025). Issues of improving agricultural insurance in Uzbekistan. *Innovation Science and Technology, 1*(12). doi: 10.5281/zenodo.18442121.

7. Saidnabiyev, S. S. (2026). Model for improving the mechanism of financial sustainability of Uzbekistan's agricultural sector: Integration of crediting, insurance, and subsidization based on a risk-oriented approach. *The American Journal of Management and Economics Innovations, 8*(1), 39–45. doi: 10.37547/tajmei/Volume08Issue01-05.

8. National Statistics Committee of the Republic of Uzbekistan. (2026). *Gross domestic product: Production method, at current prices, annual; Gross value added of industries, at current prices, annual*. Updated January 27, 2026. https://stat.uz/en/official-statistics/national-accounts

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