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Improving The Financial Support Mechanism for Agricultural Enterprises in Uzbekistan

Boboyeva Shoiria Shoniyozyovna¹

1. Independent Researcher, Tashkent State University of Economics, Tashkent, Uzbekistan

* Correspondence: -

Abstract: This article examines the financial support mechanisms available to agricultural enterprises in Uzbekistan, with particular attention to preferential lending, subsidies, leasing, insurance, guarantees and digital monitoring. Using official statistics and analytical material compiled in the author's dissertation research, the study compares agricultural output, credit allocation and investment indicators for 2024–2025 and develops a differentiated support framework. In 2025, the output of agriculture, forestry and fisheries reached UZS 538,919.7 billion, while bank loans issued to agriculture amounted to UZS 22,597.1 billion. The outstanding agricultural credit portfolio increased from UZS 50,303.2 billion in 2024 to UZS 61,055.1 billion in 2025, whereas the sector's share of newly issued bank loans declined from 7.1% to 5.8%. The analysis shows that support should be evaluated not merely by disbursement volumes but by its effects on liquidity, cost reduction, production continuity and financial sustainability. The proposed framework combines enterprise diagnostics, targeted selection of instruments, digital verification and outcome-based monitoring. Illustrative financing scenarios are clearly distinguished from realized national statistics.

Keywords: agricultural enterprises, financial support, preferential loans, subsidies, credit portfolio, financial sustainability, leasing, insurance, digital monitoring, Uzbekistan

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1. Introduction

Agriculture contributes to food security, employment, rural development and macroeconomic resilience. International assessments emphasize that the composition of public support, and not only its level, shapes the productivity, sustainability and resilience of the sector [1], [2]. In Uzbekistan, the Strategy for the Development of Agriculture for 2020–2030 identifies increasing the investment attractiveness of the sector and the gradual diversification of public expenditure on agricultural support among its priority directions [3]. Post-reform agriculture in Uzbekistan is characterized by a dual structure of small household (dehqon) farms and larger farmer enterprises with different resources and production patterns [4], while experience with land consolidation shows that new farm structures may continue to face barriers inherited from the previous system unless reforms are linked to supporting institutions [5].

Agricultural enterprises face distinctive financial constraints arising from seasonal production cycles, weather variability, collateral requirements, uneven cash flows and the long payback periods of technological modernization. Information asymmetry between lenders and borrowers may lead banks to ration credit rather than raise interest rates, so that even creditworthy producers can remain under-financed [6]. Screening, incentive and enforcement problems explain many distinctive features of rural credit markets, including

the coexistence of formal and informal lenders [7], and the organization of financial intermediation, competition and regulation shapes how rural households manage risk [8]. Whether such market failures justify public intervention depends on identifying the specific failure that an instrument is meant to correct [9]. A systematic review of evidence from 31 developing and underdeveloped countries synthesizes the constraints to agricultural finance into a unified framework and argues that they require coordinated rather than isolated policy responses [10]. The choice of instrument also matters: modelling of agricultural supply chain finance shows that the relative merits of interest subsidies and direct subsidies depend on cost differences among farmers and on market conditions, and that subsidies do not automatically benefit farmers, consumers or society [11], and reviews of subsidized agricultural finance recommend carefully designed subsidies combined with long-term institutional development [12]. Risk is a further binding constraint: field experiments show that uninsured risk, rather than a lack of cash alone, can limit farm investment [13], while the development value of index insurance depends on product quality and on public investment in the information needed to reduce basis risk [14]. Consequently, support policy must combine short-term working-capital provision with longer-term investment and risk-sharing instruments.

The author's dissertation research emphasizes that agricultural financial support is a comprehensive mechanism rather than an isolated subsidy or credit facility [15]. Its effectiveness should be assessed through production continuity, profitability, productivity, financial stability, investment activity and competitiveness. In practice, however, agricultural support is often assessed by the volume of funds disbursed, while its accessibility, targeting and outcomes receive less attention. The aim of this study is therefore to analyze the financial support of agricultural enterprises in Uzbekistan and to propose a targeted mechanism for its improvement. Specifically, the study seeks to (i) describe the scale and structure of agricultural activity, (ii) assess available credit and investment resources, (iii) compare alternative forms of financial assistance, and (iv) propose a targeted, transparent and digitally monitored support mechanism. The conceptual argument draws on agricultural development theory and the literature on information asymmetry and rural credit constraints.

2. Materials and Methods

The research uses documentary analysis, comparative economic-statistical analysis, structural analysis and descriptive financial ratios. The empirical basis comprises official sector statistics [16], data on bank lending and investment, and policy scenarios developed by the author, as compiled in the author's dissertation research [15]. The figures are reconstructed from these sources; they are not presented as the results of independent field experiments.

Key indicators include total agricultural output, producer-category shares, annual bank-credit disbursements, the outstanding credit stock, investment volume and output-to-financial-resource ratios. Credit disbursement flows and outstanding loan stocks are treated as distinct measures. Annual changes in each indicator were calculated as

$$\Delta X = (X_t / X_{t-1} - 1) \times 100\%, \quad (1)$$

where X_t and X_{t-1} are the values of the indicator in 2025 and 2024, respectively. The scale ratio of output to a financial resource was calculated as

$$R = Q / F, \quad (2)$$

where Q is the annual output of agriculture, forestry and fisheries and F is the amount of the respective financial resource. The ratio R is a descriptive scale indicator and not an estimate of the marginal return on financing.

Scenario results concerning water-saving technologies and blended subsidy-loan packages are presented as the author's analytical estimates, not as measured nationwide causal impacts.

3. Results

3.1. Agricultural output and the composition of producers

In 2025, the gross output of agriculture, forestry and fisheries amounted to UZS 538,919.7 billion. Dehqon (peasant) farms and households accounted for 62.3% of this volume, farmer enterprises for 29.4% and agricultural organizations for 8.3% (Table 1). This distribution demonstrates the importance of differentiating support instruments by the legal form, scale and financial capacity of beneficiaries.

Table 1. Agricultural output by producer category in Uzbekistan, 2025

Producer category	Share in total output, %	Estimated volume, UZS billion
Dehqon (peasant) farms and households	62.3	335,547.0
Farmer enterprises	29.4	158,442.4
Agricultural organizations	8.3	44,929.9
Total	100.0	538,919.7

Source: compiled by the author based on [15], [16].

The structure shown in Table 1 reveals a pronounced concentration of agricultural production among household and peasant producers. Their 62.3% share corresponds to approximately UZS 335.5 trillion of total output. Farmer enterprises contribute almost one-third of the national total, whereas agricultural organizations account for a smaller, but economically significant, segment. These categories should not be treated as interchangeable beneficiaries of public support: their legal status, access to collateral, accounting practices and ability to prepare bankable investment proposals may differ considerably [4], [15].

The composition of production also has implications for the design of financial assistance. Small producers may need simplified applications, small-ticket seasonal finance and access to insurance, while larger agricultural enterprises may be better positioned to use equipment leasing, investment loans and structured guarantees. The table describes the distribution of output, not the distribution of public subsidies or access to finance; consequently, it cannot by itself establish whether support is equitably allocated.

3.2. Agricultural lending and the credit portfolio

Agricultural bank loans issued in 2025 totaled UZS 22,597.1 billion, compared with UZS 20,326.0 billion in 2024 (Table 2). At the same time, the agricultural share of total lending fell from 7.1% to 5.8%, indicating that the sector's relative share declined despite growth in its nominal lending volume. The outstanding agricultural credit portfolio rose from UZS 50,303.2 billion to UZS 61,055.1 billion over the same period [16].

Table 2. Agricultural bank loans issued in Uzbekistan, 2024–2025

Year	Loans issued, UZS billion	Share in total loans issued, %
2024	20,326.0	7.1
2025	22,597.1	5.8
Change, 2025 vs 2024	+2,271.1 (+11.2%)	–1.3 p.p.

Source: compiled by the author based on [15], [16]; changes calculated using Eq. (1).

Table 2 identifies two simultaneous developments. The nominal amount of new agricultural lending increased by UZS 2,271.1 billion, or approximately 11.2%, between

2024 and 2025. Nevertheless, agriculture's share of total bank loans declined by 1.3 percentage points, from 7.1% to 5.8%. This distinction matters because growth in nominal financing does not necessarily indicate an improvement in the sector's position within the overall credit market [1].

The observed decline in relative share should be interpreted cautiously. It may reflect faster credit expansion in other sectors rather than an absolute reduction in agricultural financing. Moreover, aggregate disbursement data do not reveal the number of borrowers, interest rates, collateral requirements, loan maturities or the proportion of financing reaching smaller enterprises. A comprehensive assessment therefore requires both volume indicators and borrower-level accessibility measures [15], [16].

Table 3. Agricultural output and outstanding agricultural credit portfolio, 2024–2025 (UZS billion)

Year	Agricultural output	Outstanding loan portfolio
2024	467,041.5	50,303.2
2025	538,919.7	61,055.1
Change, 2025 vs 2024	+71,878.2 (+15.4%)	+10,751.9 (+21.4%)

Source: compiled by the author based on [15], [16]; changes calculated using Eq. (1).

Table 3 compares an annual production flow with an outstanding loan stock at two points in time. Agricultural output rose by UZS 71,878.2 billion, or about 15.4%, while the outstanding agricultural credit portfolio increased by UZS 10,751.9 billion, or about 21.4%. The faster growth of the loan portfolio merits attention because repayment obligations and the capacity to generate operating cash flows may evolve at different rates.

These indicators should not be interpreted as a direct estimate of the productivity of borrowed capital. Output represents production during a year, whereas the loan portfolio is a balance of obligations at a particular reporting date. In addition, nominal changes may reflect price movements as well as real activity. For financial-support policy, the useful next step is to examine debt-service coverage, overdue loans and profitability at the enterprise level [15].

3.3. Financial resources relative to agricultural output

Table 4 relates selected financial resources to the annual agricultural output using Eq. (2).

Table 4. Selected financial resources relative to agricultural output, 2025

Financial indicator	Amount, UZS billion	Ratio to output, %	Output per UZS 1 of resource (R), UZS
Bank loans issued to agriculture	22,597.1	4.2	23.8
Outstanding agricultural loan portfolio	61,055.1	11.3	8.8
Investment in fixed capital in agriculture, forestry and fisheries	51,181.1	9.5	10.5
Foreign investment and loans in agriculture	38,833.2	7.2	13.9

Source: calculated by the author based on [15], [16].

Table 4 provides a descriptive comparison of financial magnitudes against annual agricultural output. Newly issued agricultural loans represented approximately 4.2% of

reported output, whereas the outstanding credit balance corresponded to 11.3%. Fixed-capital investment and foreign investment or loan measures are also substantial relative to the production base, indicating that support policy must consider both operating liquidity and long-term capital formation [15], [16].

The final column is a scale ratio, not a causal return on investment. For example, UZS 23.8 of output per soum of newly issued credit does not mean that an additional soum of credit creates UZS 23.8 of production. Some financing measures overlap, have different time horizons or cover different institutional categories. Their value lies in highlighting the breadth of financial channels that require coordinated oversight.

3.4. Financial support instruments and planned allocations

Support currently combines bank loans, preferential financing, subsidies and equipment provision (Table 5). The author's research also identifies planned 2026 financing for water-saving technologies; planned amounts should not be interpreted as realized disbursements.

Table 5. Selected financial support amounts and planned allocations (UZS billion; years vary)

Financing direction	Amount, UZS billion
Bank loans issued in 2025	22,597.1
Preferential (soft) loans allocated in 2024	18,000.0
Cost of machinery and equipment units delivered in 2024	3,600.0
Planned loans for water-saving technologies in 2026	2,600.0
Planned subsidies for water-saving technologies in 2026	800.0
Subsidies allocated in 2024	176.0

Source: compiled by the author based on [15].

The amounts in Table 5 relate to different years, instruments and policy purposes and should not be added together as a single annual support budget. The table juxtaposes actual bank lending and previously reported preferential financing with prospective allocations for water-saving technologies. This distinction is particularly important when discussing implementation capacity and the likely timing of benefits [15].

Water-saving investments typically require upfront expenditure before their benefits become visible in lower resource use or improved crop performance. A combined financing instrument may therefore be more appropriate than a stand-alone loan: targeted grants or subsidies can reduce initial costs, while loans spread the remaining expenditure over the useful life of equipment. Evaluation should track completed installations, operational use and measured water savings, rather than merely approved applications [2], [11].

3.5. Blended subsidy–loan financing scenarios

The author's research proposes differentiated packages linking subsidies and preferential credit. For an illustrative UZS 100 million investment, the proposed subsidy share ranges from 20% to 30%, with the balance financed by preferential loans (Table 6). These figures are policy-design scenarios, not observed loan outcomes [11], [15].

Table 6. Illustrative blended financing scenarios for a UZS 100 million investment

Scenario	Subsidy, UZS million	Preferential loan, UZS million	Note
20% subsidy model	20.0	80.0	Lower limit of general investment support
27.5% central model	27.5	72.5	Near the center of the 25– 30% range
30% subsidy model	30.0	70.0	High water scarcity and priority technologies

Source: author's scenario calculations [15].

Table 6 demonstrates how a blended instrument changes the financing burden for an illustrative UZS 100 million investment. Moving from a 20% to a 30% subsidy lowers the preferential-loan requirement from UZS 80 million to UZS 70 million. This reduces the principal that the enterprise must repay, but it also increases the direct fiscal contribution by UZS 10 million.

The appropriate subsidy share should be linked to transparent eligibility criteria rather than assigned uniformly. For instance, greater support could be considered where water scarcity or environmental benefits justify a larger public contribution, subject to budget limits and verification. These figures are alternative design assumptions, not evidence that one particular subsidy percentage has already produced superior outcomes.

A related technological scenario compares production cost and sales revenue per hectare before and after modernization (Table 7). Estimated cost declines from UZS 32.0 million to UZS 28.5 million per hectare, while revenue rises from UZS 40.0 million to UZS 47.0 million. The implied gross margin increases from UZS 8.0 million to UZS 18.5 million per hectare. These are illustrative calculations conditional on the assumed technological effects [15].

Table 7. Illustrative per-hectare effect of technological modernization (scenario)

Indicator, UZS million per hectare	Before modernization	After modernization	Change
Production cost	32.0	28.5	–3.5
Sales revenue	40.0	47.0	+7.0
Gross margin	8.0	18.5	+10.5

Source: author's scenario calculations [15].

4. Discussion

The empirical indicators suggest that expanding the nominal volume of agricultural credit alone is insufficient. The declining sectoral share of total bank lending underscores the need to improve accessibility and targeting. This interpretation is consistent with the credit-rationing argument, according to which an increase in loanable funds does not by itself remove the barriers faced by borrowers whose risks are difficult for lenders to observe [6]. A unified mechanism should therefore distinguish seasonal working-capital needs, long-term equipment and irrigation investments, climate-related exposure, and the risk profiles of smaller producers [1], [6], [10].

A practical mechanism comprises seven linked stages: (1) assessing enterprise needs and financial condition; (2) classifying applicants by production cycle, risk and repayment capacity; (3) choosing an appropriate combination of preferential credit, subsidy, guarantee, insurance and leasing; (4) legal and digital verification; (5) disbursement; (6) monitoring the use of funds; and (7) evaluating production, liquidity and repayment

outcomes before determining future eligibility. This follows the algorithmic approach developed in the author's research [15] and responds to the call for coordinated rather than isolated measures in the agricultural finance literature [10].

Subsidies may be particularly appropriate where investments generate broader social or environmental benefits, such as water conservation. Preferential loans can support commercially viable capital expenditure, while guarantees can address collateral constraints and insurance can mitigate weather and harvest risks. Experimental evidence that insurance can unlock farm investment [13] suggests that risk coverage should be an integral component of the support package rather than an optional add-on, provided that product quality and basis risk are addressed [14]. Equally, subsidies are most effective when they correct an identified market failure and are combined with institution building rather than used as a permanent substitute for commercial finance [9], [12]. The finding that the relative advantages of interest subsidies and direct subsidies are context-specific [11] supports differentiated rather than uniform subsidy rates, as in the scenarios in Table 6. A digital platform connecting applicants, banks, public agencies and insurers could reduce duplication and improve transparency, provided data quality and access for smaller enterprises are addressed [2], [11].

The analysis has limitations. The national statistics are aggregated and do not establish enterprise-level causal effects. Several scenario values represent prospective outcomes rather than verified ex-post results. Further research should assess actual recipient and non-recipient enterprises, including repayment performance, productivity, profitability and budgetary cost per unit of achieved benefit [15].

5. Conclusion

Improving financial support for agricultural enterprises in Uzbekistan requires an integrated approach linking credit access, investment subsidies, leasing, guarantees, insurance and digital monitoring. The 2024–2025 evidence documents substantial agricultural output and a growing outstanding credit portfolio, while showing a decline in agriculture's share of newly issued bank loans. The illustrative financing scenarios suggest how targeted subsidy–credit packages could help enterprises adopt cost-saving technology, but their effects must be validated with enterprise-level data.

Policy priorities should therefore include beneficiary segmentation, seasonally appropriate repayment schedules, risk-sharing mechanisms, outcome-based subsidy allocation, interoperable digital monitoring and transparent evaluation of financial sustainability. Financial support should ultimately be judged by measurable improvements in enterprise resilience and economic performance, not solely by the amount of public funding or credit distributed.

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