

**SAMARQAND AGROINNOVATSIYALAR VA TADQIQOTLAR INSTITUTI
HUZURIDAGI
ILMIY DARAJALAR BERUVCHI DSc.08/2025.27.12.I.07.02 RAQAMLI
ILMIY KENGASH**

SAMARQAND AGROINNOVATSIYALAR VA TADQIQOTLAR INSTITUTI

ISMOYILOV AZAMAT ISROYILOVICH

**QISHLOQ XO'JALIGI ISHLAB CHIQRISHIDA KOOPERATSIYA
MUNOSABATLARI VA UNING IQTISODIY TAHLILI (FERMER XO'JALIKLARI
MISOLIDA)**

08.00.04 – Qishloq xo'jaligi iqtisodiyoti

**Iqtisodiyot fanlari bo'yicha falsafa doktori (PhD) dissertatsiyasi
AVTOREFERATI**

Samarqand-2026

UO'K: 338.43:639.3
(575.1)

**Iqtisodiyot fanlari bo'yicha falsafa doktori (PhD)
dissertatsiyasi avtoreferati mundarijasi**

**Оглавление автореферата диссертации доктора философии (PhD) по
экономическим наукам**

**Contents of dissertation abstract of doctor of philosophy (PhD)
on economic sciences**

Ismoyilov Azamat Isroyilovich

Qishloq xo'jaligi ishlab chiqarishida kooperatsiya munosabatlari va uning
iqtisodiy tahlili (former xo'jaliklari
misolida).....3

Исмаилов Азамат Исраилович

Кооперативные отношения в сельскохозяйственном производстве и
их экономический анализ (на примере фермерских
хозяйств).....26

Ismoyilov Azamat Isroyilovich

Cooperation relations in agricultural production and its economic analysis
(in case of farms).....48

E'lon qilingan ishlar ro'yxati

Список опубликованных работ

List of published works.....58

**SAMARQAND AGROINNOVATSIYALAR VA TADQIQOTLAR INSTITUTI
HUZURIDAGI
ILMIY DARAJALAR BERUVCHI DSc.08/2025.27.12.I.07.02 RAQAMLI
ILMIY KENGASH**

SAMARQAND AGROINNOVATSIYALAR VA TADQIQOTLAR INSTITUTI

ISMOYILOV AZAMAT ISROYILOVICH

**QISHLOQ XO'JALIGI ISHLAB CHIQRISHIDA KOOPERATSIYA
MUNOSABATLARI VA UNING IQTISODIY TAHLILI (FERMER XO'JALIKLARI
MISOLIDA)**

08.00.04 – Qishloq xo'jaligi iqtisodiyoti

**Iqtisodiyot fanlari bo'yicha falsafa doktori (PhD) dissertatsiyasi
AVTOREFERATI**

Samarqand-2026

Falsafa doktori (PhD) dissertatsiyasi mavzusi O'zbekiston Respublikasi Oliy ta'lim, fan va innovatsiyalar vazirligi huzuridagi Oliy attestatsiya komissiyasida B2023.4.PhD/Iqt3425 raqam bilan ro'yxatga olingan.

Dissertatsiya Samarqand agroinnovatsiyalar va tadqiqotlar institutida bajarilgan.

Dissertatsiya avtoreferati uch tilda (o'zbek, ingliz, rus (rezyume)) ilmiy kengash veb-sahifasida (samaguni.uz) va «ZiyoNet» Axborot-ta'lim portalida (www.ziynet.uz) joylashtirilgan.

Ilmiy rahbar:	Babaxolov Sherzod Baxtiyorovich iqtisodiyot fanlari falsafa doktori, dotsent
Rasmiy opponentlar:	Axrorov Farxod Baxridinovich iqtisodiyot fanlari doktori, professor Oripov Maxmud Ashurovich iqtisodiyot fanlari nomzodi, dotsent
Yetakchi tashkilot:	Toshkent davlat agrar universiteti

Dissertatsiya himoyasi Samarqand agroinnovatsiyalar va tadqiqotlar instituti huzuridagi DSc.08/2025.27.12.I.07.02 raqamli ilmiy kengashning «_____» _____ 2026-yil soat _____dagi majlisida bo'lib o'tadi. (Manzil: 141001, Samarqand viloyati, Oqdaryo tumani, Dahbet qo'rg'oni, A.Temur ko'chasi, 7-uy,. Tel. +998 66 492 81 16, e-mail: info@samaguni.uz).

Dissertatsiya bilan Samarqand agroinnovatsiyalar va tadqiqotlar institutining Axborot-resurs markazida tanishish mumkin (_____ raqami bilan ro'yxatga olingan). (Manzil: 141001, Samarqand viloyati, Oqdaryo tumani, Dahbet qo'rg'oni, A.Temur ko'chasi, 7-uy,. Tel. +998 66 492 81 16). Dissertatsiya avtoreferati 2026 yil «___»_____kuni tarqatildi

(2026 yil _____dagi №____raqamli reyestr bayonnomasi).

Sh.T.Hasanov
Ilmiy darajalar beruvchi Ilmiy kengash
raisi, i.f.d., professor

Sh.B.Babaxolov
Ilmiy darajalar beruvchi ilmiy kengash
kotibi, i.f.f.d., (PhD)

O.Murtazayev
Ilmiy darajalar beruvchi Ilmiy kengash
qoshidagi Ilmiy seminar raisi, i.f.d.,
professor

KIRISH (Falsafa doktori (PhD) dissertatsiyasi annotatsiyasi)

Dissertatsiya mavzusining dolzarbligi va zarurati. Rivojlanayotgan mamlakatlarda qishloq xo'jaligi kichik fermer xo'jaliklari yetakchi o'rinni egallaydi. Dunyoda ekin maydonlarining atigi 12 foizi ular hissasiga to'g'ri kelsa-da, global qishloq xo'jaligi mahsulotlarining 80 foizidan ortig'ini yetishtirib beradi. Biroq, ushbu xo'jaliklarda ishlab chiqarish, sotish va resurslarni kiritishda transaksion xarajatlarning yuqoriligi, bozor infratuzilmasining yetishmasligi, tavakkalchilikning kuchliligi hamda davlat qo'llab-quvvatlash mexanizmlarining sustligi tufayli barqaror daromad shakllantirishda jiddiy muammolarga duch kelinmoqda¹. Bunday sharoitda fermer xo'jaliklari o'rtasida kundalik amaliyotda bir-biriga yordamga asoslangan gorizontallik hamkorlik shakllari muhim omilga aylanmoqda. Shu bilan, rivojlanayotgan mamlakatlarda fermer xo'jaliklari o'rtasida norasmiy va rasmiy kooperativ hamkorlik shakllari ishlab chiqarish xarajatlarini kamaytirish, resurslardan samarali foydalanish va mahsulotni bozorga yetkazishni osonlashtirishda muhim vosita sifatida xizmat qiladi, bu esa barqaror daromadni ta'minlash va qishloq hududlarining ijtimoiy-iqtisodiy rivojlanishi uchun strategik ahamiyatga ega.

Dunyoning yetakchi ilmiy markazlari va muassasalari fermer xo'jaliklari o'rtasida shakllanadigan rasmiy va norasmiy kooperativ guruhlarining qishloq xo'jaligi mahsulotlari ishlab chiqarish xarajatlariga, mahsulot sifatiga va daromadga ta'sirini aniqlash va baholash bo'yicha keng ko'lamli ilmiy-tadqiqot ishlarini olib bormoqda. Bu tadqiqotlar fermerlar o'rtasida hamkorlikning iqtisodiy samaradorligini, resurslardan samarali foydalanishni, ishlab chiqarish jarayonlarining muvofiqlashuvini va bozorda raqobatbardoshlikni oshirish imkoniyatlarini o'rganishga qaratilgan. Xususan, qishloq xo'jaligi mahsulotlari ishlab chiqarishda kooperatsiya munosabatlari urug'lik va texnika resurslarini birgalikda ishlatish, suv va o'g'it bilan ta'minlash, mahsulotni yig'ish, saqlash va tashish jarayonlarini muvofiqlashtirish hamda bozorga chiqish va sotuv kanallarini kengaytirish orqali xarajatlarni optimallashtirish, mahsulot sifati va daromad barqarorligini ta'minlash imkoniyatlarini yaratadi. Shuningdek, tadqiqotlar fermer xo'jaliklari o'rtasidagi kooperatsiya munosabatlarining mahalliy va mintaqaviy iqtisodiy rivojlanishdagi ijtimoiy ahamiyatini ilmiy jihatdan tahlil qilib, samarali kooperatsiya mexanizmlarini ishlab chiqish va ularni amaliyotga joriy etish uchun muhim ilmiy asos bo'lib xizmat qiladi.

O'zbekistonda fermer va dehqon xo'jaliklari qishloq xo'jaligi mahsulotlarini yetishtirishda hal qiluvchi o'rin egallaydi. Mamlakatimizda qishloq hududi aholisining qariyb uchdan bir qismining daromad manbai aynan qishloq xo'jaligi faoliyatidan keladigan daromadlar hisoblanadi. Bozor iqtisodiyoti chuqurlashib borishi bilan fermerlar oldida mahsulotni nafaqat miqdor, balki sifat bo'yicha ham raqobatbardosh yetishtirish vazifasi paydo bo'lmoqda. Biroq, ishlab chiqarish zanjiridagi subyektlar

¹ World Bank. (2024). *World Development Report 2024: Agriculture in transition economies*.

(urug'lik yetkazib beruvchilar, xizmat ko'rsatuvchilar, saqlash va qayta ishlash korxonalari, tayyorlov tashkilotlari, xaridorlar) bilan iqtisodiy munosabatlarning yetarlicha shakllanmaganligi natijasida fermer xo'jaliklarida ishlab chiqarish xarajatlari oshib, faoliyatdan keladigan daromadlar esa past bo'lib qolmoqda. Bu borada, global iqlim o'zgarishi, suv tanqisligi, pandemiya kabi omillar fonida norasmiy kooperatsiya fermer xo'jaliklarining moslashuvchanligini oshiruvchi, risklarni kamaytiruvchi va resurslardan optimal foydalanish imkonini beruvchi omillarni tahlil etgan holda ilmiy-amaliy asoslangan tavsiyalar ishlab chiqish dolzarblik kasb etmoqda.

O'zbekiston Respublikasining 2024-yil 8-noyabrdagi O'RQ-995-son "Qishloq xo'jaligi kooperativi to'g'risida"gi qonuni, O'zbekiston Respublikasi Prezidentining 2019-yil 14-martdagi PF-4239-son "Meva-sabzavotchilik sohasida qishloq xo'jalik kooperatsiyasini rivojlantirish chora-tadbirlari to'g'risida"gi, 2019-yil 23-oktyabrdagi PF-5853-son "O'zbekiston Respublikasi qishloq xo'jaligini rivojlantirishning 2020–2030-yillarga mo'ljallangan strategiyasini tasdiqlash to'g'risida"gi Farmonlari, 2017-yil 10-oktyabrdagi PQ-3318-son "Fermer, dehqon xo'jaliklari va tomorqa yer egalari faoliyatini yanada rivojlantirish bo'yicha tashkiliy chora-tadbirlar to'g'risida"gi, 2020-yil 6-maydagi PQ-4704-son "Respublikada kartoshka yetishtirishni kengaytirish va urug'chiligini yanada rivojlantirish chora-tadbirlari to'g'risida"gi qarorlari hamda mazkur faoliyatga tegishli boshqa me'yoriy-huquqiy hujjatlarda belgilangan vazifalarni amalga oshirishga dissertasiya tadqiqoti muayyan darajada xizmat qiladi.

Muammoning o'rganilganlik darajasi. Qishloq xo'jaligi ishlab chiqarishida kooperatsiya munosabatlari, uning tashkiliy-huquqiy asoslari, iqtisodiy samaradorligi va fermer xo'jaliklari faoliyatiga ta'siri masalalari O'zbekiston olimlari, jumladan Sh.T.Hasanov, N.Djanibekov, D.Xolmirzayev, D.Niyozov, N.R.Mullaboyev, S.N.Xamrayeva² va boshqalar tomonidan keng tadqiq etilgan. Ushbu tadqiqotlar qishloq xo'jaligi kooperatsiyasi sohasidagi institusional asoslar, integrasiya jarayonlari, iqtisodiy va ijtimoiy samaradorlikni tahlil qilishga qaratilgan.

Aynan kartoshka yetishtirishning iqtisodiy samaradorligini oshirish va tarmoqda kooperatsiya munosabatlarini takomillashtirish yo'nalishida S.J.Saidjonov, B.T.Hasanov va Sh.A.Sherqobilov³ tadqiqotlar olib borishgan.

² Hasanov, Sh. T. (2019). Qishloq xo'jaligida kooperatsiya munosabatlarini rivojlantirishning iqtisodiy asoslari. Samarqand: Samarqand iqtisodiyot va servis instituti.; Djanibekov, O., & Sanayev, G'. N. (2019). Qishloq xo'jaligida institutsional islohotlar va kooperatsiya. O'zbekiston qishloq xo'jaligi, 4, 21–28.; Xolmirzayev, D. (2018). Agrar sohada kooperatsiya va integratsiya masalalari. Iqtisodiy tahlil, 1, 60–66.; Niyozov, D. (2017). Qishloq xo'jaligi ishlab chiqarishida kooperatsiya munosabatlari. Ilmiy axborotnoma, 5, 55–61.; Mullaboyev, N. R. (2021). Kooperatsiya va qishloq hududlari rivoji. Hududiy iqtisodiyot, 1, 73–80.; Xamrayeva, S.N., & Fayziyeva, Sh.Sh. (2020). Qishloq xo'jaligi kooperativlarining ijtimoiy-iqtisodiy ahamiyati. Iqtisodiyot va jamiyat, 2, 88–94.

³ Саиджонов С.Ж. Картошкачиликнинг ривожланиши ва уни иқтисодий самарадорлигини ошириш: авт. ... дисс. и.ф.н. – Т.: 2009 й.; Ҳасанов Б.Т. Озиқ-овқат таъминотида картошка етиштириш қиймат занжири субъектлари фаолиятини такомиллаштириш (Самарқанд вилояти мисолида): авт. ... дисс. и.ф.ф.д. – Т.: Қарши, 2024 й.; Ш.А.Шерқобилов. Картошкачиликни

Ushbu tadqiqotlar kartoshka ishlab chiqarishning iqtisodiy potentsiali, hosildorlik va daromadni oshirish mexanizmlari hamda fermer xo'jaliklari o'rtasida kooperatsiya jarayonlarini rivojlantirishning samarali usullarini aniqlashga qaratilgan. Shuningdek, ular kartoshkachilik qiymat zanjiridagi resurslardan samarali foydalanish, texnika va mahsulot logistikasi, shuningdek kooperativ tuzilmalar orqali bozorga chiqish imkoniyatlarini takomillashtirish yo'nalishlarini ilmiy asoslagan.

Shuningdek xorijiy olimlardan J.Bijman, M.Burress, V.Valentinov, J.Nilsson, M.Fulton, K.Zeuli, M.M.Islam, P.P.Barman, X.Xu, Y.B.Cui, Z.J.Li⁴ kabi tadqiqotchilarning ilmiy ishlarida fermer xo'jaliklari o'rtasida shakllanadigan kooperativ tuzilmalarning samaradorligi va iqtisodiy ahamiyatiga oid e'tiborga molik natijalar olingan. Ushbu tadqiqotlarda asosan kooperatsiyaning iqtisodiy mohiyati va fermer xo'jaliklarining bozor munosabatlariga integrasiyasiga e'tibor qaratilgan. Ammo, ushbu tadqiqotdan farqli ravishda, ilmiy ishda kooperatsiya asosida resurslardan samarali foydalanish, ishlab chiqarish xarajatlarini kamaytirish, daromad barqarorligini ta'minlash hamda qishloq hududlarining ijtimoiy-iqtisodiy rivojlanishidagi roli ilmiy jihatdan tahlil qilingani ushbu yo'nalishning dolzarbligini va qishloq xo'jaligini rivojlantirishda amaliyotga tatbiq etish imkoniyatlarini namoyon etadi.

Tadqiqotning respublika fan va texnologiyalari rivojlanishining asosiy ustuvor yo'nalishlariga mosligi. Dissertasiya respublika fan va texnologiyalari rivojlanishining I. "Demokratik va huquqiy jamiyatni ma'naviy -axloqiy hamda madaniy-ma'rifiy rivojlantirish, innovasion iqtisodiyotni shakllantirish" ustuvor yo'nalishiga muvofiq bajarilgan.

Dissertasiya mavzusining dissertasiya bajarilayotgan oliy ta'lim muassasasining ilmiy-tadqiqot ishlari rejaları bilan bog'liqligi. Dissertasiya Samarqand agroinnovasiyalar va tadqiqotlar institutining agrar iqtisodiyotni barqaror rivojlantirishning ustuvor yo'nalishlariga mos ilmiy-tadqiqot ishlari rejasi doirasida bajarilgan.

Tadqiqotning maqsadi qishloq xo'jaligida kooperatsiya munosabatlarini iqtisodiy baholash va uni takomillashtirish bo'yicha ilmiy-uslubiy taklif va amaliy tavsiyalar ishlab chiqishdan iborat.

барқарор ривожлантиришнинг иқтисодий асосларини такомиллаштириш: авт. ... дисс. и.ф.ф.д. – Т.: – Тошкент, 2025 й. – 56 б.

⁴ Bijman, J., & Iliopoulos, C. (2014). Farmers' cooperatives in the EU: Policies, strategies, and organization. *Annals of Public and Cooperative Economics*, 85(4), 497–508.; Burress, M., & Cook, M. (2009). A primer on cooperative life cycles. *Journal of Cooperatives*, 23, 1–22.; Valentinov, V. (2007). Why are cooperatives important in agriculture? *Journal of Institutional Economics*, 3(1), 55–69.; Nilsson, J. (2001). Organisational principles for cooperative firms. *European Review of Agricultural Economics*, 28(3), 329–352.; Fulton, M., & Hueth, B. (2009). Cooperative conversions, failures and restructurings. *American Journal of Agricultural Economics*, 91(5), 1305–1311.; Zeuli, K., & Cropp, R. (2004). *Cooperatives: Principles and practices in the 21st century*. Madison: University of Wisconsin Extension. Pillay, T. V. R., & Kutty, M.N. (2005). *Aquaculture: Principles and practices*. Oxford: Blackwell Publishing. Shamsuzzaman, M. M., & Islam, M.M. (2018). Barman, P.P., & Al-Mamun, M.A. (2016). Smallholder aquaculture and rural livelihoods. *World Development*, 79, 21–36.; Xu, X., Cui, Y. B., Li, Z. J., & Wang, S. (2019). Agricultural cooperatives and farmer income. *China Agricultural Economic Review*, 11(2), 258–274.

Tadqiqotning vazifalari:

qishloq xo'jaligi rivojlanishida kooperatsiya munosabatlari va ularning xususiyatlarini ilmiy-nazariy jihatdan asoslash;

qishloq xo'jaligi mahsulotlari ishlab chiqarishda kooperatsiya munosabatlarini iqtisodiy baholashda mavjud uslubiy yondashuvlarni tadqiq etish;

Samarqand viloyatida qishloq xo'jaligi mahsulotlarini ishlab chiqarishning holati va tendensiyalarini aniqlash;

fermer xo'jaliklari o'rtasida kooperatsiya munosabatlari va ularga ta'sir etuvchi iqtisodiy omillarni baholash;

qishloq xo'jaligida kooperatsiya jarayoni va uning samaradorligiga ta'sir qiluvchi omillar o'rtasidagi bog'liqlik va munosabatlarni statistik testlar yordamida aniqlash;

fermer xo'jaliklarida kartoshka ishlab chiqarishda kooperatsiya ta'sirini iqtisodiy jihatdan tahlil qilish;

qishloq xo'jaligi subyektlari o'rtasida kooperatsiya munosabatlarini takomillashtirish bo'yicha ilmiy asoslangan taklif va tavsiyalar ishlab chiqish;

Samarqand viloyatida kartoshka mahsulotlarini yetishtirish va qishloq xo'jaligi kooperatsiyasini rivojlantirish istiqbollari prognozlash.

Tadqiqotning obyekti sifatida respublikamizdagi kartoshkachilikka ixtisoslashgan xo'jalik yurituvchi subyektlar va monografik tadqiqotlar o'tkazish uchun Samarqand viloyatidagi kartoshka ishlab chiqaruvchi xo'jaliklar tanlab olingan.

Tadqiqotning predmetini qishloq xo'jaligida kooperatsiya munosabatlarini shakllantirish va rivojlantirish jarayonida yuzaga keladigan keladigan ijtimoiy-iqtisodiy munosabatlar majmuini tashkil etadi.

Tadqiqotning usullari. Dissertasiya ishida mantiqiy, taqqoslama tahlil, statistik va ekonometrik modellashtirish, logistik regressiya (Conditional Logit Regression Model), yashirin guruh modeli (Latent class model), Tobit modeli hamda "ARIMA" modeli va boshqa usullardan foydalanilgan.

Tadqiqotning ilmiy yangiligi:

kartoshka ishlab chiqaruvchi fermer xo'jaliklarining kooperatsiyaga kirishishga moyillik darajasini past ($0 \leq 0,36$), o'rta ($0,37 \leq 0,57$) va yuqori ($0,58 \leq 1$) mezonlar asosida baholash bo'yicha uslubiy yondashuv ishlab chiqilgan;

kartoshkachilikka ixtisoslashgan fermer xo'jaliklarida norasmiy kooperatsiya munosabatlariga bo'lgan moyillik yerni tayyorlash (+19.9%), ekish (+17.6%), yig'im-terim (+22.7%) hamda iqlim o'zgarishi ta'siri (+14.4%) kabi omillar bilan bog'liqligi "LOGIT" modeli yordamida asoslangan;

davlat imtiyozli dasturlari asosida kartoshkachilikka ixtisoslashgan fermer xo'jaliklarining norasmiy kooperatsiyadan rasmiy kooperatsiyaga bosqichma-bosqich o'tishini rag'batlantiruvchi hamkorlik mexanizmining tashkiliy-iqtisodiy tuzilmasi asoslangan;

Samarqand viloyati fermer xo'jaliklarida o'zaro hamkorlik munosabatlari rivojlanishi hisobga olingan holda kartoshka ishlab chiqarish dinamikasining 2032-yilgacha bo'lgan prognoz parametrlari ishlab chiqilgan.

Tadqiqotning amaliy natijalari quyidagilardan iborat:

kartoshka yetishtiruvchi fermer xo'jaliklari o'rtasida kooperatsiyaga kirishish darajasini baholash mezonlari ishlab chiqilgan va past, o'rta va yuqori darajadagi kooperatsiya munosabatlariga kirgan fermerlarda kooperatsiyada ishtirok barcha faoliyat turlari bo'yicha ishlab chiqarish hajmiga sezilarli ta'sir ko'rsatishi asoslangan;

fermer xo'jaliklarining kooperatsiya munosabatlariga kirishi kartoshka ekinini ekishda ekin maydonini tayyorlash agregatlari mavjudligi bilan 9%, kartoshkani ekish agregatlari mavjudligi bilan 7%, hosilni terish agregatlari mavjudligi bilan 9% va sug'orishda suv nasoslari mavjudligi bilan 6%ga oshishi ilmiy asoslangan;

fermer xo'jaliklarining kartoshka ishlab chiqarish jarayonlarida kooperatsiya munosabatlariga kirishi — urug' xaridi, ekish maydonini tayyorlash va hosilni yig'ishtirishda hamda ishlab chiqarish jarayonlari bo'yicha o'zaro maslahatlashuv orqali kartoshka hosildorligini 1,8–2,3 tonnaga oshirishi ilmiy asoslangan;

Tadqiqot natijalarining ishonchliligi respublika va xorijlik agrar-iqtisodchi olimlarning agrar islohotlar va fermerlar hamda qishloq xo'jaligida kooperatsiyani rivojlantirish masalalariga oid ilmiy-uslubiy tadqiqotlariga tayanalganligi, qo'llangan ma'lumotlarning uzoq muddatli va rasmiy statistik manbalardan olinganligi hamda fermer xo'jaliklari o'rtasida kooperatsiya munosabatlarini rivojlantirish bo'yicha amalga oshirilgan ilmiy tadqiqotlar va ularning metodologiyasi atroflicha o'rganilganligi bilan izohlanadi.

Tadqiqot natijalarining ilmiy va amaliy ahamiyati. Tadqiqot jarayonida olingan ilmiy va uslubiy-amaliy natijalar qishloq xo'jaligida amalga oshirilayotgan islohotlar, mavjud resurslardan va infratuzilmadan kooperatsiya asosida o'zaro manfaatli hamda tejamli foydalanish evaziga mahsulot ishlab chiqarish samaradorligini oshirish, agrar sohaga oid ilmiy, uslubiy-amaliy va huquqiy-me'yoriy asoslarni takomillashtirish, shuningdek qo'llanilgan zamonaviy matematik va iqtisodiy modellar yordamida qishloq xo'jaligi mahsulotlari hajmini aniqlash, bashorat qilish va strategik rejalashtirish imkoniyatlarini yaratishda muhim ahamiyat kasb etadi.

Amaliy jihatdan ushbu natijalar fermer xo'jaliklari o'rtasida o'zaro hamkorlik (kooperatsiya)ni tashkil etish va samarali rivojlantirish, shuningdek oliy o'quv yurtlarida "Qishloq xo'jaligi ishlab chiqarish iqtisodiyoti" va "Institusional iqtisodiyot" fanlarini ta'lim jarayonida keng qo'llashda amaliy yo'nalish va qo'llanma sifatida foydalanilishi mumkin.

Tadqiqot natijalarining joriy qilinishi. Qishloq xo'jaligida kooperatsiya munosabatlarini iqtisodiy baholash va uni takomillashtirish yo'llari bo'yicha olingan ilmiy taklif va amaliy natijalar asosida:

kartoshka ishlab chiqaruvchi fermer xo'jaliklarining o'zaro kooperatsiyaga kirishish munosabatlarini baholovchi ko'rsatkichlar me'zonlari ishlab chiqilgan. Ushbu yangilik bo'yicha taklif Samarqand viloyati qishloq xo'jaligi boshqarmasining qishloq xo'jaligida kooperatsiya munosabatlarini rivojlantirish bo'yicha ishlab chiqilgan chora-tadbirlar rejasi asosida amaliyotga joriy etilgan (2026-yil 2-fevral) hamda O'zbekiston Respublikasi Qishloq xo'jaligi vazirligi tomonidan tasdiqlangan (O'zbekiston Respublikasi Qishloq xo'jaligi vazirligining 2026-yil 13-fevraldagi 06/26-2-10-05/17-son ma'lumotnomasi). Natijada, Samarqand viloyati Toyloq tumanidagi kartoshka ishlab chiqaruvchi fermer xo'jaliklarining past ($0 \leq 0,36$), o'rta ($0,37 \leq 0,57$) va yuqori ($0,58 \leq 1$) mezonlari asosida kooperatsiyaga ishtirok etish salohiyatini aniq baholash imkoni ilmiy asoslangan;

qishloq xo'jaligi mahsulotlarini ishlab chiqarishda ishtirok etuvchi subyektlar o'rtasida o'zaro kooperatsiya munosabatlariga moyillikni asoslash, sektorda kompleks integrasion jarayonlarni rivojlantirish bo'yicha ilmiy-uslubiy yondashuvlar O'zbekiston Respublikasi Qishloq xo'jaligi vazirligi amaliyotga qabul qilingan (O'zbekiston Respublikasi Qishloq xo'jaligi vazirligining 2026-yil 13-fevraldagi 06/26-2-10-05/17-son ma'lumotnomasi). Ushbu yangilik bo'yicha taklif Samarqand viloyati qishloq xo'jaligi boshqarmasining qishloq xo'jaligida kooperatsiya munosabatlarini rivojlantirish bo'yicha ishlab chiqilgan chora-tadbirlar rejasi asosida amaliyotga joriy etilgan (2026-yil 2-fevral). Natijada Samarqand viloyatining uchta tumani Toyloq, Jomboy va Bulung'ur tumanlarida yer tayyorlash, yekish, yig'im-terim, iqlim o'zgarishi kabi omillarning 1 birlikka oshishi fermer xo'jaliklarining kooperatsiya munosabatlariga kirishish moyilligini o'rtacha 18,7 foizga oshirishi asoslagan;

davlat tomonidan amalga oshirilayotgan imtiyozli dasturlar doirasida kartoshkachilikka ixtisoslashgan fermer xo'jaliklarining norasmiy kooperatsiyadan rasmiy kooperatsiya shakllariga bosqichma-bosqich o'tishini rag'batlantiruvchi hamkorlik mexanizmining tashkiliy-iqtisodiy tuzilmasi ilmiy asoslanib, amaliyotga joriy yetish bo'yicha taklif yetilgan. Ushbu taklif O'zbekiston Respublikasi Qonunining 2024-yil 8-noyabrda O'RBQ-995-sonli "Qishloq xo'jaligi kooperativi to'g'risida"gi 3-moddasida o'z tasdig'ini topgan hamda Qishloq xo'jaligi vazirligi tomonidan qishloq xo'jaligi tizim tashkilotlarida amaliyotga joriy yetilgan (O'zbekiston Respublikasi Qishloq xo'jaligi vazirligining 2026-yil 13-fevraldagi 06/26-2-10-05/17-son ma'lumotnomasi). Ushbu yangilik bo'yicha taklif Samarqand viloyati qishloq xo'jaligi boshqarmasining qishloq xo'jaligida kooperatsiya munosabatlarini rivojlantirish bo'yicha ishlab chiqilgan chora-tadbirlar rejasi asosida amaliyotga joriy etilgan (2026-yil 2-fevral). Natijada, Kooperatsiya munosabatlariga kirgan fermer xo'jaliklarida kooperatsiya munosabatlariga kirmaganlarga qaraganda kartoshka hosildorligi o'rtacha 2-3 tonna yuqoriligi aniqlandi;

Samarqand viloyati fermer xo'jaliklarida o'zaro hamkorlik munosabatlarining rivojlanish tendensiyalari hisobga olingan holda, kartoshka hosildorligining 2032-yilgacha bo'lgan prognoz ko'rsatkichlari ishlab chiqilgan. Ushbu taklif Qishloq xo'jaligi vazirligi hamda vazirlik tarkibidagi "Agrar sohani iqtisodiy rivojlantirish va moliyalashtirish departamenti" tomonidan amaliyotga joriy yetilgan (O'zbekiston Respublikasi Qishloq xo'jaligi vazirligining 2026-yil 13-fevraldagi 06/26-2-10-05/17-son ma'lumotnomasi). Toyloq tumani hokimligining 2026-yil 1-martdagi kartoshka yetishtiruvchi fermer xo'jaliklari kooperatsiya munosabatlarini shakillantirishni amalga oshirishga qaratilgan chora-tadbirlar rejasi asosida fermer xo'jaliklarida joriy etilgan. Natijada, Samarqand viloyatida kartoshkachilikka ixtisoslashgan fermer xo'jaliklarda 2032-yilga kelib 316,1 s/ga dan 359,9 s/ga o'sishi yoki 43,8 foizdan, aksincha 13,9 foizga oshishi prognoz qilingan.

Tadqiqot natijalarining aprobasiyasi. Tadqiqot natijalari 3 ta xalqaro va 3 ta respublika ilmiy-amaliy konferensiyalarda muhokama qilingan va ijobiy baholangan.

Tadqiqot natijalarining e'lon qilinishi. Dissertasiya mavzusi bo'yicha jami 9 ta ilmiy ish e'lon qilingan. Ularning 2 tasi O'zbekiston Respublikasi Oliy attestasiya komissiyasi tomonidan tavsiya etilgan ilmiy jurnallarda, 1 tasi xorijiy jurnallarda chop etilgan ilmiy maqolalar, 4 tasi respublika va 2 tasi xalqaro konferensiyalardagi ma'ruzalar tezislari to'plamlarida nashr etilgan.

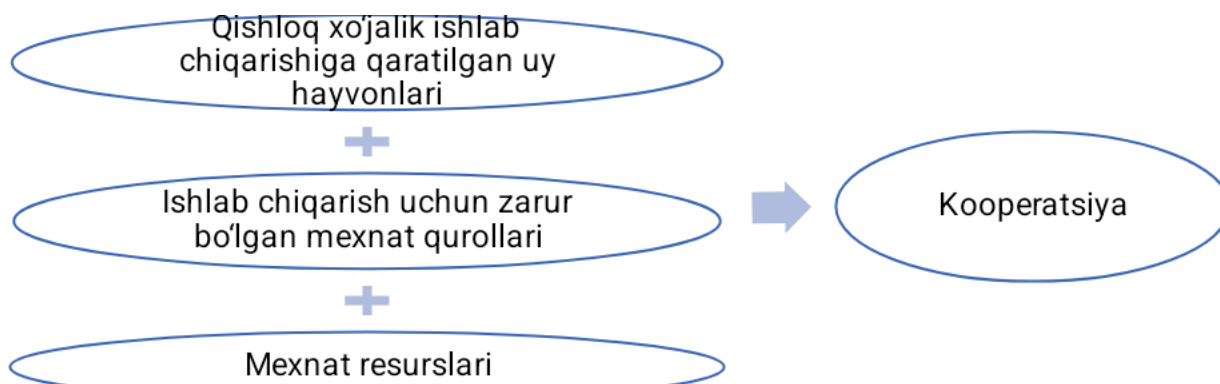
Dissertasiyaning tuzilishi va hajmi. Dissertasiya kirish, 3 ta bob, xulosa, foydalanilgan adabiyotlar ro'yxati hamda ilovalardan iborat bo'lib, o'z ichiga 22 ta jadval va 11 ta rasmni olgan. Umumiy hajmi 133 betdan iborat.

DISSERTATSIYANING ASOSIY MAZMUNI

Dissertatsiyaning kirish qismida mavzuning dolzarbligi, muammoning o'rganilganlik darajasi, uning maqsadi va vazifalari, ilmiy yangiligi, amaliy ahamiyati bayon etilib, tadqiqot natijalarining ishonchliligi, tatbiq etilganligi, aprobatsiyasi, e'lon qilinganligi hamda uning tarkibiy tuzilishi va hajmi bo'yicha ma'lumotlar keltirilgan.

Dissertatsiyaning **"Qishloq xo'jaligi ishlab chiqarishida kooperatsiya munosabatlari va uning tashkiliy-huquqiy asoslari"** deb nomlangan birinchi bobida qishloq xo'jaligi ishlab chiqarishida, xususan kartoshka yetishtirish tarmog'ida kooperatsiya munosabatlarining shakllanishi va rivojlanish xususiyatlari keng yoritilgan. Kartoshka mahsulotining agrotexnik, texnologik va infratuzilmaviy jihatdan boshqa ekin turlaridan farqlanishi, uni yetishtirish, saqlash jarayonlarida yuqori xarajat va tavakkalchiliklarning mavjudligi hisobga olingan holda, ishlab chiqarishni barqaror tashkil etishda kooperatsiyaning zarurligi nazariy jihatdan asoslab berilgan.

Shuningdek, kartoshka yetishtirishda sifatli urug'lik, maxsus texnika, sovutkichli omborlarga bo'lgan ehtiyoj alohida ta'kidlanib, ushbu resurslardan individual fermer xo'jaliklari tomonidan samarali foydalanish imkoniyatlari cheklanganligi ko'rsatib berilgan. Shu munosabat bilan, ishlab chiqarish samaradorligini oshirish maqsadida zamonaviy texnologiyalarni jamoaviy asosda joriy etish, texnika va infratuzilmadan birgalikda foydalanish orqali xarajatlarni kamaytirish imkoniyatlari tahlil qilingan.



1-rasm. O'zbekiston hududida dehqonlarning kooperatsiya munosabatlariga kirishishining tarixiy formatsion usuli⁵.

Dunyo amaliyotida qishloq xo'jaligi kooperatsiyalarining rivojlanish tendensiyalari, ayniqsa intensiv ishlab chiqarish texnologiyalarini qo'llash orqali yuqori natijalarga erishayotgan mamlakatlar tajribasi o'rganilgan. Shuningdek, O'zbekiston hududida dehqonlarning kooperatsiya munosabatlariga kirishishining tarixiy formatsion usuli (1-rasmga qarang)da Chor Rossiyasi tomonidan tashkil qilingan koopertivlarni yuritish hamda yerga ishlov berishda dehqonlar tomonidan kooperatsiya munosabatlariga kirishishi tasvirlangan.

Bunday formatsion usulda uy hayvonlariga ega bo'lmagan dehqonlar mehnat qurollari hamda ish kuchlari orqali (hashar) o'zaro kooperatsiya munosabatlariga kirishgan. Bu esa, usha davr uchun dehqonlarning mehnat samaradorligini oshishiga xizmat qilgan. Bugungi kunda, fermer xo'jaliklari o'rtasida kooperatsion munosa-batlarni iqtisodiyotiga ta'sirini tahlil qilishda bir nechta yondashuvlar va tadqiqot modellari mavjud bo'lib, ular o'ziga xos xususiyati bilan ifodalanadi (1-jadvalga qarang).

1-jadval.

Kartoshkachilikda kooperatsiyaning o'ziga xos xususiyati⁶

№	Xususiyatlari	Tavsifi	Ilmiy manba
1	Fermerlar ehtiyojiga yo'naltirilganlik	Qishloq xo'jalik kooperatsiyalari a'zolarining ishlab chiqarish, marketing va xizmatga bo'lgan ehtiyojiga bevosita yo'naltiriladi	Bijman et al. (2012), <i>Annals of Public and Cooperative Economics</i>
2	Bozor risklarini kamaytirish	Kooperatsiyalar mahsulotni kollektiv sotish orqali narxning o'zgaruvchanligidan himoya yaratadi	Chaddad & Iliopoulos (2013), <i>Agricultural Economics</i>
3	Ko'lam iqtisodiyotiga erishish	Texnika, urug'lik, agroximik vositalarni birgalikda xarid qilish orqali ishlab chiqarish tannarxi kamaytiriladi	Cook & Burrell (2009), <i>Journal of Cooperatives</i>
4	A'zolik asosida o'zaro ishonchga tayanadi	Ko'p hollarda mahalliy fermerlar o'rtasida mavjud bo'lgan ishonch kooperativning asosiy	Valentinov (2007), <i>Journal of Institutional Economics</i>

⁵ Muallifning ilmiy izlanishlari asosida tuzilgan

⁶ Muallifning ilmiy izlanishlari asosida tuzilgan

		harakatlantiruvchi kuchiga aylanadi	
5	Qayta ishlash va saqlash infratuzilmasini yaratish	Qishloq xo'jalik mahsulotlarini saqlash va qayta ishlash bo'yicha umumiy quvvatlar yaratiladi	Mazzarol et al. (2011), <i>International Journal of Rural Management</i>
6	Davlat bilan yaqin hamkorlik	Ko'pchilik mamlakatlarda kooperativlar davlat subsidiyalari, grantlar va qishloq rivojlantirish dasturlarida ishtirok etadi	OECD (2021), <i>Agricultural Policy Monitoring and Evaluation</i>
7	Bilim almashinuvi va maslahat xizmati	Kooperativlar doirasida tajriba almashish, agronomik va menejment bo'yicha treninglar yo'lga qo'yiladi	Fulton & Hueth (2009), <i>American Journal of Agricultural Economics</i>
8	Yagona brend ostida mahsulot sotish	Kooperativlar o'z mahsulotini brendlab, eksport yoki yirik chakana tarmoqlarga yetkazadi	Iliopoulos & Chaddad (2012), <i>Strategic Management Journal</i>
9	Mahalliy ijtimoiy-iqtisodiy barqarorlik	Ish o'rinlari yaratish, kambag'allikni kamaytirish va migratsiyani cheklashda muhim rol o'ynaydi	Zeuli & Cropp (2004), <i>Cooperatives: Principles and Practices in the 21st Century</i>
10	O'zini-o'zi boshqarish	Qishloq xo'jalik kooperativlari davlatdan mustaqil, o'z a'zolari tomonidan boshqariladi	Hansmann (1996), <i>The Ownership of Enterprise</i>

Dunyo olimlari tomonidan fermer xo'jaliklari o'rtaasida kooperatsiya munosabatlarni iqtisodiy ta'sirini baholashda parametrik va noparametrik modellaridan foydalanishgan (2-jadvalga qarang).

2-jadval.

Kooperatsiya munosabatlaiga ta'sirini baholashda qo'llaniladigan uslublar va ularning bog'liqlik xususiyatlari⁷

T/r	Tavsifi	FA	LCA	LR	Tobit	ARIMA
1.	Parametrik metod	+	+	+	+	+
2.	Chetlanishlarni hisobga olishda	+	+	+	+	+
3.	Hisoblashda qo'llanilish jihati:					
-	Kooperatsiyani ifodalovchi ko'rsatkichlarni indekslash	+	-	-	-	-
-	Fermer xo'jaliklarini kooperatsiyaga moyilligini baholashda	-	+	+	+	-
-	Kartoshka ishlab chiqarish hosildorligiga omillar ta'sirini baholashda	+	+	+	+	-
-	2032-yilgacha vaqt qatorlaridagi (time series) kelajak qiymatlarni bashorat qilishda	-	-	-	-	+
4.	Ma'lumotlardan foydalaniladi:					
-	Kross kesimidagi	+	+	+	+	-
-	Davrli (vaqtli) qatorlar	-	-	-	-	+
5.	Dastlabki metodni qo'llashda talab etiladigan ma'lumotlar					

⁷ Adabiyotlardan foydalangan holda muallif ishlanmasi.

-	Kooperatsiyani ifodalovchi ko'rsatkichlar	+	+	+	+	+
-	Kartoshka hosili va unga ta'sir etuvchi sifat va miqdor ko'rsatkichlar	+	+	+	+	+

2-jadvalda keltirilgan natijalarga ko'ra, kooperatsiya munosabatlarini tahlil qilishda qo'llanilgan modellar bir-birini to'ldiruvchi metodologik yondashuvlar sifatida namoyon bo'ladi. Barcha modellar parametrik usullarga mansub bo'lib, ular statistik baholash va iqtisodiy talqin qilish imkonini beradi. Hisoblashlar jarayonida ehtimollik va regressiya asosidagi yondashuvlardan foydalanilgan bo'lib, bu tadqiqot natijalarining ilmiy ishonchliligini oshiradi.

Shuningdek, modellar foydalanadigan ma'lumotlar turi ham farqlanishi ko'rsatilgan. LCA, Logit va Tobit modellarida asosan qisqa davrdagi ko'p o'zgaruvchili (cross-section) va dastlabki so'rov ma'lumotlaridan foydalanilgan bo'lsa, ARIMA modelida davriy, ya'ni vaqt qatorlari ma'lumotlari asos bo'lib xizmat qilgan. Bu esa, tadqiqotda mikro va makro darajadagi tahlillar uyg'un holda olib borilganini ko'rsatadi.

Fermer xo'jaliklari o'rtasida kooperatsiyani, ya'ni umumiy xususiyatni ifodalovchi o'zgaruvchilardan indeks ko'rsatkichini yaratishda tasodifiy tanlanma usulidan foydalanilgan holda 168 ta fermer xo'jaliklari subyektlaridan ijtimoiy so'rovnoma o'tkazildi. So'rovnomada Samarqand viloyatining uchta tumani Bulung'ur, Jomboy va Tayloq tumanlari fermer xo'jaliklari ishtirok etdi (3-jadvalga qarang).

3-jadval.

Kartoshka yetishtirishda fermer xo'jaliklari tomonidan kooperatsiya munosabatlarini ifodalovchi o'zgaruvchilarning statistikasi⁸

Ko'rsatkichlar	Kooperatsiya munosabat, %
Yer tayyorlash jarayonida o'zaro texnik yordam ko'rsatish (Land preparation)	55,4
Suv inshootlaridan birgalikda foydalanish (Water)	55,4
Kartoshka urug'lik materiallarini birgalikda xarid qilish (Seed)	48,8
Yig'im-terim mavsumida o'zaro texnik yordam ko'rsatish (Harvest)	44,0
Kartoshka ishlab chiqarish jarayonida maslahatlashuv (Advice)	39,3
Mahsulotni saqlash va saqlash omborlarini ijaraga olish (Save)	35,7
Birgalikda ug'it xarid qilish va qo'llash (Fertilizer)	32,7

Izoh: So'rovnomada ishtirok etgan jami fermer xo'jaliklari soniga nisbatan olingan.

3-jadvalda qishloq xo'jaligi subyektlarining kooperatsiya asosida o'zaro hamkorlik munosabatlari statistik tavsifi yoritilgan bo'lib, dunyo tajribasi bilan solishtirganda ushbu natijalar, qishloq xo'jaligida kooperatsiyaning ishlab chiqarish jarayonlaridagi muhimlik darajasini tadqiq qilish imkonini beradi. 168 ta fermer xo'jaliklari subyektlari yer tayyorlash jarayonida o'zaro

⁸ Muallifning so'rovnoma ma'lumotlari asosida

texnik yordam ko'rsatish va suv inshootlaridan birgalikda foydalanishda mos ravishda 55,4 foizi hamkorlik qilishadi. Shuningdek, kartoshka urug'lik materialini birgalikda xarid qilish 48,8 foiz, hosilni yig'ish mavsumida o'zaro texnik yordam ko'rsatish 44 foiz, ishlab chiqarish jarayonida agrotexnologik maslahatlashish 39,3 foiz, mahsulotni saqlash 35,7 foiz va o'g'it xarid qilishda 32,7 foiz fermerlar kooperatsiya munosabatiga kirishgan. Ushbu ma'lumotlar asosida, Omilli tahlil modelidan foydalanilgan holda Samarqand viloyati fermer xo'jaliklarida kartoshka yetishtirishda kooperatsiya munosabatlari indeksi ishlab chiqildi (4-jadvalga qarang).

4-jadval.

Omili tahlil modeli test natijalari⁹

№	Indeks	Shartlar va test natijalari		
		KMO $\geq$ 0,50	p=0,000	Det>0,00001
1.	Kooperatsiyalashuv indeksi	0,826	0,000	0,426

4-jadvalga ko'ra, "Kooperatsiyalashuv indeksi"ni ishlab chiqishda (i) KMO(Kaiser-Meyer-Olkin Measure), (ii) Bartlet test(Bartlett test, χ^2) va (iii) Korrelyasion matrisa(Correlation matrix) test tahlil shartlarini qanoatlantirdi va Omil tahlil modelidan foydalanishdan dalolat beradi. Shu o'rinda, fermer xo'jaliklari o'rtasida kartoshka yetishtirishda kooperatsiya munosabatlarini guruhlashda Yashirin guruh modeli (Latent class model)dan foydalangan holda guruhlarga ajratildi va guruhlarga ajratishda Akaike axborot mezoni (AIC) va Bayes axborot mezoni (BIC)dan foydalanib, eng kichik qiymatlari olindi (5-jadvalga qarang).

5-jadval.

Yashirin guruh modeli uchun kooperatsiya munosabatlarini ifodalovchi o'zgaruvchilarni guruhlashda Akiyaki-Bays (AIC, BIC) mezolari¹⁰

T/r	Ko'rsatkichlar	AIC	BIC	Entropiya
1.	Kooperatsiya munosabatlarini ifodalovchi o'zgaruvchilarni guruhlash	1595.812	1617.681	-
		1519.035	1565.894	0.596
		1458.131	1529.983	0.675
		1424.256	1505.178	0.665

Tahlil natijasiga ko'ra, Yashirin guruh modelidan foydalanilgan holda fermer xo'jaliklari subyektlari o'rtasida kartoshka yetishtirishda kooperatsiya munosabatlariga kirishishning past, o'rta va yuqori guruhlari ishlab chiqildi (2-rasmga qarang).

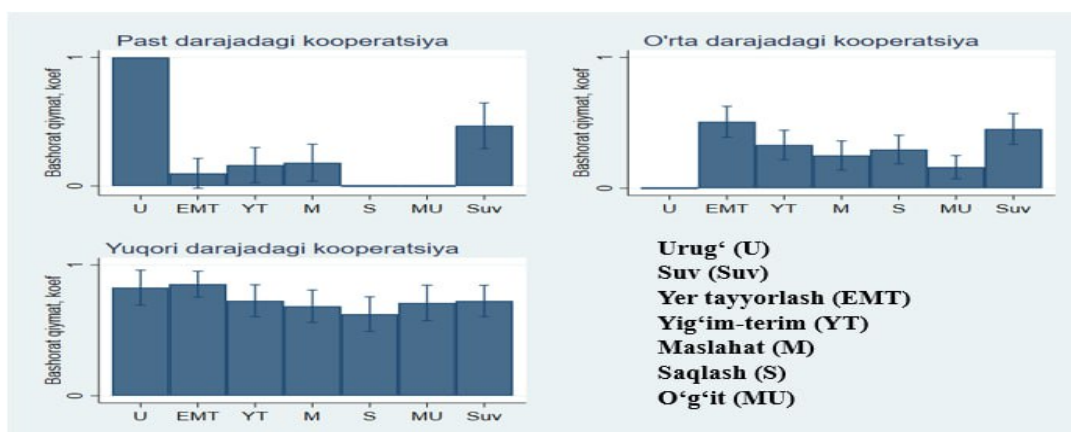
2-rasmga ko'ra, past darajada kooperatsiyaga kirgan fermer xo'jaliklarida asosan kartoshka urug'lik materiallarini birgalikda xarid qilish jarayonida ko'proq kooperatsiya munosabatiga kirishgan. Bu borada, past darajada kooperatsiya munosabatlarini amalga oshiruvchi fermer xo'jaliklari faqat ushbu omil kartoshkani hosildorligini oshirish va/yoki xarajat sarfini kamaytiruvchi omil sifatida ko'rishgan. Vaholanki, fermer

⁹ Muallifning so'rovnoma ma'lumotlari asosida

¹⁰ Muallifning so'rovnoma ma'lumotlari asosida

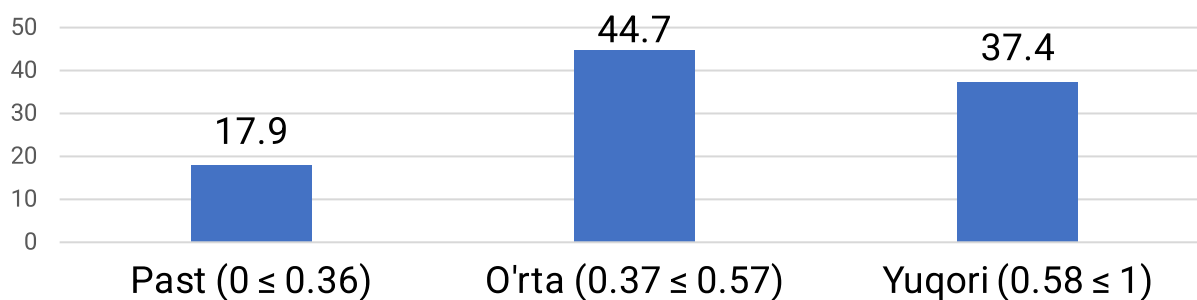
xo'jaliklari tomonidan barcha agrotexnologik jarayonlarda birgalikda kooperatsiya munosabatlarning shakllanishi muhim ahamiyatga ega.

Xususan, yer tayyorlash jarayonida o'zaro texnik yordam ko'rsatish, suv inshootlaridan birgalikda foydalanish, kartoshka urug'lik materiallarini birgalikda xarid qilish, yig'im-terim mavsumida o'zaro texnik yordam ko'rsatish, kartoshka ishlab chiqarish jarayonida maslahatlashuv, mahsulotni saqlash va saqlash omborlarini ijaraga olish hamda birgalikda ug'it xarid qilish va qo'llash shular jumlasidan.



2-rasm. Fermer xo'jaliklarida kooperatsiya munosabatlariga guruhlar ichida kirishi¹¹

Shu o'rinda, guruhlar o'rtasida kartoshka ishlab chiqarishda hosildorlik bilan qanday bog'langanligi va guruhlarining chegaralarini aniqlashda Kooperatsiyalashuv indeksi¹²ni ifodalovchi ko'rsatkichdan foydalanildi (3-rasmga qarang).



3-rasm. Ishlab chiqilgan mezon asosida fermer xo'jaliklarining kooperatsiyalashuv ko'rsatkichi¹², %da

Tahlil natijalariga ko'ra, fermer xo'jaliklari o'rtasida kartoshka yetishtirishda kooperatsiya munosabatlarida "past" darajada bo'lgan xo'jalik subyektlari 17,9 foizni tashkil etib, ularning hamkorlik mexanizmlarining cheklanganligini ifodalaydi. Shuningdek, fermer xo'jaliklarining 44,7 foizi "o'rta" darajada, qisman, ammo barqaror kooperatsiyaga va 37,4 foizi "yuqori" darajada, ko'p yo'nalishli va tizimli kooperatsiya munosabatlariga kirishgan.

¹¹ So'rovnoma ma'lumotlari asosida muallif tahlili.

¹² So'rovnoma ma'lumotlari asosida muallif tahlili.

Xulosa qilib aytganda, nazariy tushunchalar, xorij tajribalarini taqqoslama tahlili asosida o'tkazgan tadqiqotimiz qishloq xo'jaliklari subyektlari o'rtasida kooperatsiya munosabatlari faoliyatga ijobiy ta'siri ilmiy asoslanib, kooperatsiya munosabatlariga kirishishning "past", "o'rta" va "yuqori" mezonlari ishlab chiqildi. Shu boisdan, ushbu amaliyotni Samarqand viloyatining fermer xo'jaliklariga tadbiq etish, ilmiy va amaliy jihatdan asoslash muhim hisoblanadi.

Dissertatsiyaning "Qishloq xo'jaligida kooperatsiya munosabatlarining fermer xo'jaliklari faoliyatiga ta'sirini iqtisodiy baholash" deb nomlangan ikkinchi bobida Samarqand viloyatida fermer xo'jaliklari ishlab chiqarishning tashkiliy-iqtisodiy va qishloq xo'jaligida fermer xo'jaliklari kooperatsiyasining holati tahlili yoritilgan hamda faoliyatda kooperatsiya munosabatlariga ta'sir etuvchi omillarga iqtisodiy baho berilgan.

Olib borilgan tadqiqotlarga asosan fermerlar tomonidan kartoshka ishlab chiqarish hajmini oshirish imkoniyatlari mavjud. Bu borada, xo'jalik subyektlari o'rtasida kooperatsiya munosabatlarini shakllantirish va mustahkamlash muhim ahamiyatga egaligini tahlil natijalari ko'rsatmoqda. Vaholanki, fermer xo'jaliklari subyektlari o'rtasida kooperatsiya munosabatlariga kirishga ta'sir etuvchi omillarni iqtisodiy baholash muhimligini ko'rsatmoqda (6-jadvalga qarang).

6-jadval.

Fermer xo'jaliklarini norasmiy kooperatsiya munosabatlariga kirish ehtimolini iqtisodiy baholash¹³ (logit modeli)

T/r	Ko'rsatkichlar	Nisbiy ehtimollik koeffitsiyenti (odds ratio)	Delta metod	
		Koef. (St.Xat.) Muh.	Mar/Eff (st.xat) Muh.	
1.	Yer tayyorlash	2.275 (.818)**	0.199(0.087)**	
2.	Ekish	2.068(.845)*	0.176(0.099)*	
3.	Yig'g'im terim	2.551(1.04)**	0.227(0.099)**	
4.	Suv nasosi	2.205(.728)**	0.192(0.080)**	
5.	Iqlim o'garishi ta'siri	1.813(.625)*	0.144(0.084)*	
6.	Kartoshka maydoni	2.391(.527)***	0.211(0.055)***	
7.	Talim	4.056(1.05)***	0.340(0.061)***	
8.	Tajriba	1.116(.035)***	0.027(0.008)***	
9.	Yosh	.981(.017)	-0.005(0.004)	
	Constant	.0009(.0001)***		
-	O'rtacha qiymati	0.458	Standart og'ishi	0.499
-	Psevdo R-kvadrat	0.523	Kuzatuvlar soni	367
-	Chi-kvadrat statistikasi	264.748	Prob > chi2	0.000
-	Akaike mezoni. (AIC)	265.401	Bayes mezoni (BIC)	312.265

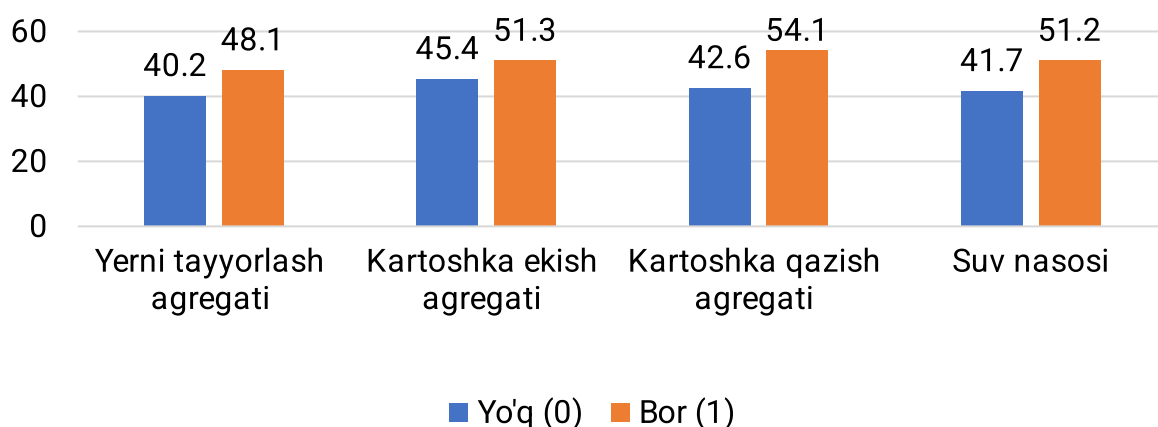
*** $p < .01$, ** $p < .05$, * $p < .1$

¹³ So'rovnoma ma'lumotlari asosida muallif tahlili.

6-jadval tahlil natijasiga ko'ra, yer tayyorlash, ekish, yeg'im terim jarayonlari, suv nasosining mavjudligi, iqlim o'zgarishlari ta'siri, kartoshka ekin maydonining kengayishi, ta'lim darajasining o'sishi, fermermer xo'jaliklarining tajribasining ortib borishi fermerlarning norasmiy kooperatsiya munosabatlariga kirish ehtimoliga ijobiy ta'sir ko'rsatgan, biroq fermer xo'jalik rahbarining yosh ko'rsatkichining o'sishi salbiy ta'sirga ega.

Shuningdek, fermer xo'jaliklarida texnologik resurslardan foydalanish holati bilan norasmiy kooperatsiyaga moyillik o'rtasidagi bog'liqlik o'rganildi (4-rasmga qarang).

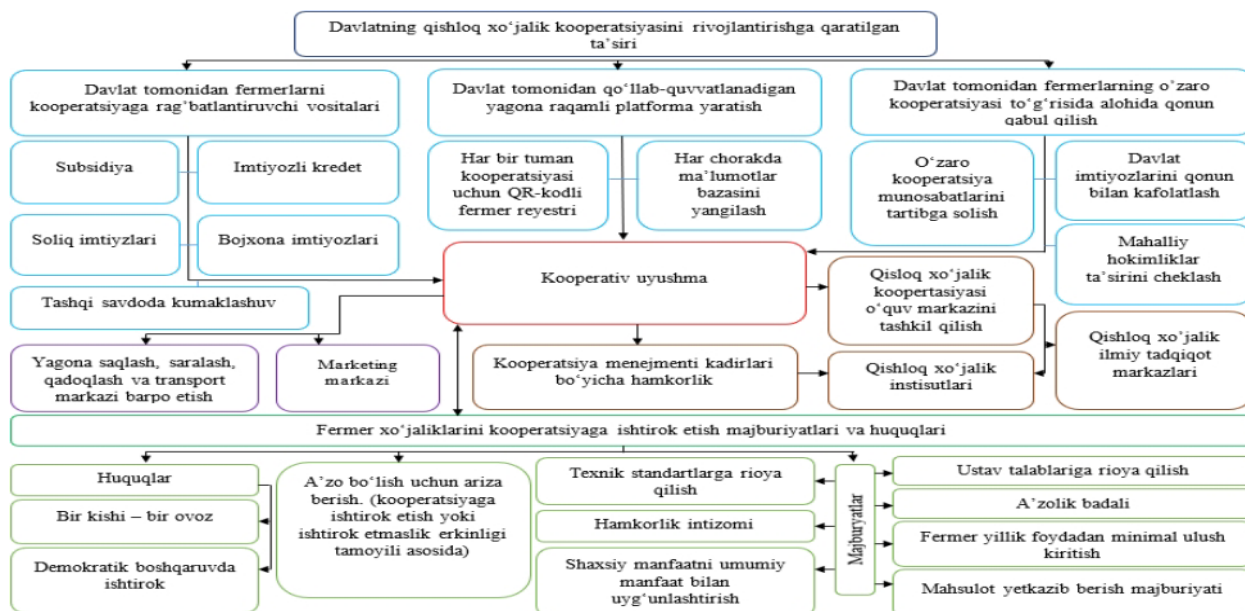
To'rtta asosiy texnologik resurs turi, yer tayyorlash agregati, kartoshka ekish agregati, kartoshka qazish agregati va suv nasosidan foydalanish holatlari bo'yicha fermerlar ikki guruhga ajratildi, ya'ni fermer xo'jaliklarida texnologik resurs mavjud bo'lmasa – 0 va aksinch 1. Natijalar shuni ko'rsatadiki, barcha texnologik resurslar mavjud bo'lgan fermer xo'jaliklari subyektlarining norasmiy kooperatsiyaga moyillik darajasi mavjud bo'lmaganlarga nisbatan yuqoriroq.



4-rasm. Fermer xo'jaliklarida texnologik resurslardan foydalanishning norasmiy kooperatsiyaga moyillik ta'sirini baholash¹⁴ (% da)

Olingan tahlil natijalari asosida kooperativ tuzilma va fermer xo'jaliklari o'rtasidagi rasmiy kooperatsiyaning tashkil etish mexanizmi ishlab chiqildi (5-rasmga qarang).

¹⁴ So'rovnoma ma'lumotlari asosida muallif tahlili.



5-rasm. Rasmiy qishloq xo'jalik kooperatsiyasini tashkil qilish mexanizmi¹⁵

Mexanizmning yuqori qismida davlatning qishloq xo'jaligi kooperatsiyasini rivojlantirishga qaratilgan ta'siri markaziy o'rin egallaydi. Bu ta'sir uchta asosiy yo'nalishda namoyon bo'ladi:

Birinchi yo'nalish, davlat tomonidan fermerlarni kooperatsiyaga jalb etuvchi iqtisodiy rag'batlantirish vositalari.

Ikkinchi yo'nalish, davlat tomonidan qo'llab-quvvatlanadigan yagona raqamli platformani yaratish.

Uchinchi yo'nalish, normativ-huquqiy asoslarni mustahkamlash.

Markaziy qismida kooperativ uyushma joylashgan bo'lib, u rasmiy kooperatsiyaning asosiy tashkiliy bo'g'inidir.

Quyi qismida fermer xo'jaliklarining kooperatsiyaga ishtirok etishdagi huquqlari va majburiyatlari keltirilgan.

Xulosa qilib aytganda, fermer xo'jaliklarining kooperatsiyaga kirish ehtimoli asosan texnologik resurslarga bo'lgan ehtiyoj bilan belgilanishini ko'rsatdi. Fermer xo'jaliklari norasmiy kooperatsiya orqali qisqa muddatli samaradorlikni oshirayotgan bo'lsa-da, uning institutsional imkoniyatlari cheklangan. Shu bois norasmiy hamkorlik tajribalarini rasmiy kooperatsiya shakliga o'tkazish qishloq xo'jaligi ishlab chiqarishining rivojlantiradi va raqobatbardoshligi oshadi.

Dissertatsiyaning **“Qishloq xo'jaligi ishlab chiqarishida kooperatsiya va uning rivojlantirish istiqbollari”** deb nomlangan uchinchi bobida qishloq xo'jaligida kooperatsiya jarayoni va unga ta'sir etuvchi omillar ta'siri hamda Samarqand viloyatida kartoshka mahsulotlarini yetishtirishni rivojlantirish istiqbollari tahlili amalga oshirilgan.

Qishloq xo'jaligida hosildorlikning barqaror oshishi nafaqat agrotexnologik omillar, balki institutsional muhit bilan ham chambarchas

¹⁵ Tahlil natijalari asosida muallif tomonidan ishlab chiqilgan.

bog'liq. So'nggi yillarda Yevropa va Osiyo mamlakatlari misolida olib borilgan tadqiqotlar shuni ko'rsatmoqdaki, fermerlar kooperatsiyasi hosildorlikka bevosita ta'sir etuvchi muhim institut sifatida namoyon bo'lmoqda. Kooperativlar orqali ishlab chiqaruvchilar yuqori sifatli urug'lik, zamonaviy agrotexnika, ilmiy asoslangan ekish va yetishtirish texnologiyalariga yaxshiroq kirish imkoniga ega bo'ladi, bu esa bevosita hosil hajmining oshishida aks etadi. Bunda hosildorlik ko'rsatkichi ma'lum chegaralar bilan cheklangan (masalan, manfiy bo'lishi mumkin emas yoki kuzatuvlar past qiymatlarda jamlangan) sharoitda omillarning ta'sirini aniqlash muhim ahamiyatga ega. Kartoshka hosildorligiga ta'sir etuvchi omillarni baholashda tobit regressiya modelidan foydalanildi va Delta usuli asosida hisoblangan marginal ta'sirlar keltirilgan bo'lib, ular kartoshka hosildorligiga omillarning yo'nalishi va muhimligini ifodalaydi (7-jadvalga qarang).

7-jadval ma'lumotlariga ko'ra, urug' xaridida kooperatsiya omili bo'yicha koeffitsient 2,396 ga teng va statistik 1 foiz ($*** p < .01$) likda muhim ahamiyatga ega. Urug' xaridini kooperatsiya asosida amalga oshirgan fermer xo'jaliklarida kartoshka hosildorligi oshishiga sezilarli darajada ijobiy ta'sir ko'rsatadi. Amaliy jihatdan bu sifatli urug'ga birgalikda kirish imkoniyati, xarajatlarni kamaytirish va urug' tanlashdagi axborot ustunligi bilan izohlanadi. Delta usuli bo'yicha ham ushbu omilning ijobiy ta'siri tasdiqlanadi. Yer tayyorlash omili bo'yicha koeffitsient 1,835 ga teng bo'lib, u ham statistik jihatdan ahamiyatlidir. Bu yer tayyorlash ishlarining o'z vaqtida va sifatli bajarilishi kartoshka hosildorligini oshirishda muhim rol o'ynashini anglatadi.

7-jadval.

**Kartoshka hosildorligiga ta'sir etuvchi omillarni iqtisodiy baholash
(tobit modeli)¹⁶**

T/r	Ko'rsatkichlar	Nisbiy ehtimollik koeffitsiyenti	Delta metod
		Koef. (St.Xat.) Muh.	Mar/Eff (st.xat) Muh.
1.	Urug'xaridida kooperatsiya	2.396 (.619)***	2.396 (0.619)***
2.	Yer tayyorlash	1.835 (.506)***	1.835 (0.506)***
3.	Yig'im terim	1.885 (.52)***	1.885 (0.520)***
4.	O'zaro maslahatlashuv	2.094 (.535)***	2.094 (0.535)***
5.	O'g'it xaridida kooperatsiya	1.595 (.533)***	1.595 (0.533)***
6.	Kartoshka maydoni	.431 (.219)*	0.431 (0.219)*
7.	Jins	1.034 (.595)*	1.034 (0.595)*
8.	Talim	1.012 (.3)***	1.012 (0.300)***
9.	Tajriba	.12 (.044)***	0.120 (0.044)***
10.	Yosh	-.016 (.022)	-0.016 (0.022)
	Constant	19.784 (1.169)***	
-	Xatolik hadining	18.588 (1.372)	

¹⁶ So'rovnoma ma'lumotlari asosida muallif tahlili.

	dispersiyasi			
-	Bog'liq o'zgaruvchining o'rtacha qiymati	28.739	Bog'liq o'zgaruvchining standart og'ishi	5.445
-	R-kvadrat	0.075	Kuzatuvlar soni (N)	367
-	Chi-kvadrat statistikasi	170.355	Prob > chi2	0.000
-	Akaike mezoni. (AIC)	2138.072	Bayes mezoni (BIC)	2184.93

*** $p < .01$, ** $p < .05$, * $p < .1$

Yer tayyorlash jarayoni texnika va mehnat talab qilgani sababli, ushbu bosqichda yaxshi tashkil etilgan ishlar hosilning o'sishiga ijobiy ta'sir ko'rsatadi. Yig'im-terim omili bo'yicha koeffitsient 1,885 ni tashkil etib, yuqori statistik ahamiyatga ega. Bu natija yig'im-terim jarayonining to'g'ri tashkil etilishi hosil yo'qotishlarini kamaytirishini va natijada umumiy hosildorlik oshishini bildiradi. Ayniqsa, yig'im-terim texnikasidan samarali foydalanish va ishlarni qisqa muddatda yakunlash hosil sifatini saqlab qolishga xizmat qiladi. Shuningdek, o'zaro maslahatlashuv omili bo'yicha koeffitsient 2,094 ga teng bo'lib, u kartoshka hosildorligiga kuchli ijobiy ta'sir ko'rsatadi. Bu fermerlar o'rtasida tajriba va bilim almashinuvi, agrotexnik tadbirlarni muhokama qilish va muammolarga birgalikda yechim topish hosildorlikni oshirishini ko'rsatadi. Mazkur omil bilim va axborotning ishlab chiqarishdagi rolini yaqqol namoyon etadi. O'g'it xaridida kooperatsiya munosabati ham 1 foiz (***) $p < .01$) likda statistik muhim ahamiyatga ega. Bu o'g'itlarni birgalikda xarid qilish orqali sifatli o'g'itlarga kirish imkoniyati kengayishini, narxlarning nisbatan arzonlashishini va o'g'itlardan to'g'ri foydalanish hosildorlikka ijobiy ta'sir ko'rsatishini ifodalamoqda.

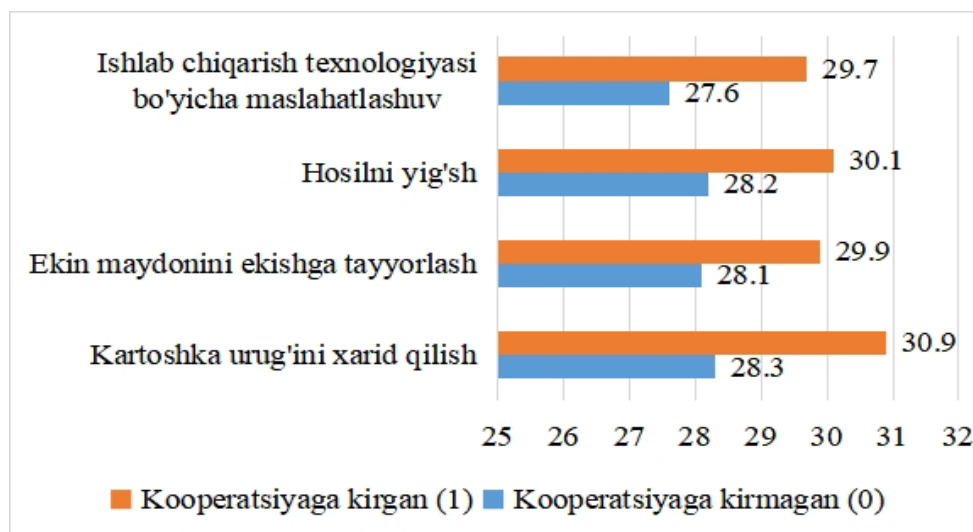
Umumiy olganda, kartoshka hosildorligi asosan kooperatsiya bilan bog'liq omillar, ishlab chiqarish jarayonining texnologik bosqichlari hamda inson kapitali omillari ta'sirida shakllanishini ko'rsatadi. Ayniqsa urug' va o'g'it xaridida kooperatsiya, o'zaro maslahatlashuv va ta'lim darajasi kartoshka hosildorligini oshirishda eng muhim omillar sifatida namoyon bo'ladi.

7-rasm kooperatsiya faoliyatlarining kartoshka hosildorligiga marginal ta'sirini foizlarda ifodalaydi va kooperatsiyaga kirgan fermerlar bilan kirmagan fermerlar o'rtasidagi farqni yaqqol ko'rsatib beradi. Diagrammada to'rtta asosiy yo'nalish bo'yicha natijalar taqdim etilgan bo'lib, har bir holatda kooperatsiyaga kirgan fermer xo'jaliklarida hosildorlik darajasi yuqoriroq ekanligi kuzatiladi.

Ishlab chiqarish texnologiyasi bo'yicha maslahatlashuv yo'nalishida kooperatsiyaga kirmagan fermerlarda kartoshka hosildorligi o'rtacha 27,6 foizni tashkil etgan bo'lsa, kooperatsiyaga kirgan fermerlarda bu ko'rsatkich 29,7 foizni tashkil etgan. Ya'ni, texnologik masalalarda o'zaro maslahatlashuv hosildorlikni taxminan 2,1 foiz punktga oshirgan. Bu holat bilim va tajriba almashinuvi agrotexnik tadbirlarni to'g'ri va o'z vaqtida

amalga oshirishga xizmat qilishini ko'rsatadi.

Kooperatsiyaga kirmagan fermerlarda hosildorlik 28,2 foiz darajasida bo'lgan bo'lsa, kooperatsiyaga kirgan fermerlarda ushbu ko'rsatkich 30,1 foizni tashkil etgan. Farq 1,9 foiz punktni tashkil etib, yig'im-terim jarayonida birgalikda ishlash, texnika va ishchi kuchini muvofiqlashtirish hosil yo'qotishlarini kamaytirishini ko'rsatadi. Ekin maydonini ekishga tayyorlash yo'nalishida kooperatsiyaga kirmagan fermerlarda hosildorlik 28,1 foiz bo'lgan, kooperatsiyaga kirgan fermerlarda esa 29,9 foizga yetgan. Ushbu 1,8 foiz punktlilik farq yer tayyorlash ishlarining sifatli va o'z vaqtida bajarilishi kartoshka hosildorligiga ijobiy ta'sir ko'rsatishini tasdiqlaydi. Bu jarayonda, texnika va resurslardan birgalikda foydalanish muhim ahamiyat kasb etadi. Kartoshka urug'ini xarid qilish bo'yicha kooperatsiya eng katta ta'sir ko'rsatgan yo'nalishlardan biri sifatida namoyon bo'ladi. Kooperatsiyaga kirmagan fermerlarda hosildorlik 28,3 foizni tashkil etgan bo'lsa, kooperatsiyaga kirgan fermerlarda bu ko'rsatkich 30,9 foizga yetgan. Natijada, farq 2,6 foiz punktni tashkil etib, urug'ni birgalikda xarid qilish orqali sifatli va mos urug'likka kirish imkoniyati oshishini hamda bu hosildorlikka sezilarli ta'sir ko'rsatishini ko'rsatadi. (6-rasmga qarang)



6-rasm. Kooperatsiya faoliyatlarining kartoshka hosildorligiga marginal ta'siri¹⁷ (% da)

2020–2024-yillar davomida O'zbekiston Respublikasida barcha toifadagi xo'jaliklarda yetishtirilgan kartoshka, O'zbekiston Respublikasi Milliy statistika qo'mitasining yillik yakuniy rasmiy ma'lumotlariga ko'ra izchil o'sish tendensiyasiga ega. Shuningdek, kartoshkaning ichki bozor talabini qondirishdagi roli hamda aholi jon boshining o'sishi bilan o'zaro bog'liq nisbati oshib borayotganini ko'rishimiz mumkin. Xususan, 2024-yilda kartoshka ishlab chiqarish hajmi 3,72 mln tonnani tashkil etgan. Umuman olganda, 2020–2024-yillar davomida kartoshka ishlab chiqarish hajmining barqaror oshib borishi ushbu mahsulotning O'zbekiston qishloq

¹⁷ So'rovnoma ma'lumotlari asosida muallif tahlili.

xo'jaligi tizimidagi strategik ahamiyati kuchayib borayotganini hamda respublika oziq-ovqat xavfsizligini ta'minlashda muhim rol o'ynayotganini tasdiqlaydi.

2010-2025-yillar davomida Samarqand viloyatida kartoshka yetishtirish miqdoriy va sifat jihatdan sezilarli o'zgargan.

8-jadval.

Samarqand viloyatida kartoshka yetishtirish bilan bog'liq statistik tahlili¹⁸ (2010-2025 yy.)

T/r	Yillar	Fermer xo'jaliklari soni	Kartoshka ekin maydoni	Yalpi hosil	Hosildorlik
1.	2010	4 685	1 598,0	32 199,7	201,5
2.	2011	4 760	1 714,0	34 811,3	203,1
3.	2012	5 176	2 307,0	49 785,1	215,8
4.	2013	1 910	1 774,0	41 795,4	235,6
5.	2014	1 913	1 807,0	43 133,1	238,7
6.	2015	2 266	2 103,0	54 425,6	258,8
7.	2016	3 770	3 175,0	83 089,8	261,7
8.	2017	4 128	3 151,0	83 060,4	263,6
9.	2018	4 054	3 011,0	80 333,5	266,8
10.	2019	2 156	2 559,0	68 658,0	268,3
11.	2020	2 381	2 444,0	68 065,4	278,5
12.	2021	2 444	3 557,0	102 299,3	287,6
13.	2022	2 491	5 521,0	157 072,5	284,5
15.	2023	2 088	5 964,0	172 896,4	289,9
15.	2024	2 050	5 778,0	175 940,1	304,5
16.	2025	2092	5859,0	180 515,8	308,1
<i>2025-yil 2010-yilga nisbatan o'zgarishi</i>					
Mutloq (+/-)		-2 593	4 261	148 316	107
Nisbiy (%)		44,6	3,7 martaga oshgan	5,6 martaga oshgan	152,9

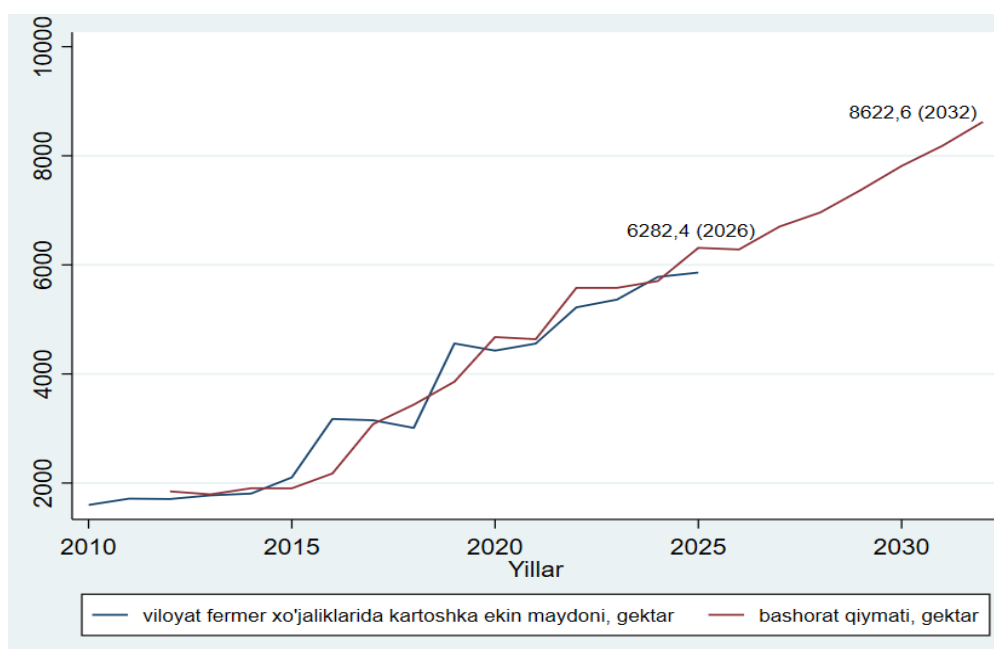
Tahlil natijalariga ko'ra, 2010–2025-yillar davomida Samarqand viloyatida kartoshka yetishtirish jarayonlari ekstensiv rivojlanishdan ko'ra intensiv rivojlanish bosqichiga o'tganini ko'rsatadi. Fermer xo'jaliklari sonining qisqarishi ishlab chiqarish hajmiga salbiy ta'sir ko'rsatmagan. Aksincha, ekin maydonlarining kengayishi va hosildorlikning oshishi hisobiga kartoshka ishlab chiqarish hajmi sezilarli darajada ko'paygan. Ushbu tendensiyalar viloyatda kartoshka yetishtirishning iqtisodiy va ishlab chiqarish salohiyati oshib borayotganini hamda kelgusida uni barqaror rivojlantirish uchun muhim empirik asos mavjudligini ko'rsatadi.

Samarqand viloyatida kartoshka ishlab chiqarish faoliyatini kelajak uchun prognozini amalga oshirishda ARIMA modelidan foydalanildi. ARIMA modeli yillar davomida o'zgaruvchini o'zgarishini yoki vaqt qatorlarini prognozini amalga oshirishda eng samarali yondashuvdir. Samarqand viloyatida kartoshka yetishtiruvchi fermer xo'jaliklari sonini ifodalovchi o'zgaruvchi uchun ARIMA(1,2,1) model, kartoshka ekin maydonini hajmini

¹⁸ Statistik ma'lumotlar asosida muallif hisob-kitobi

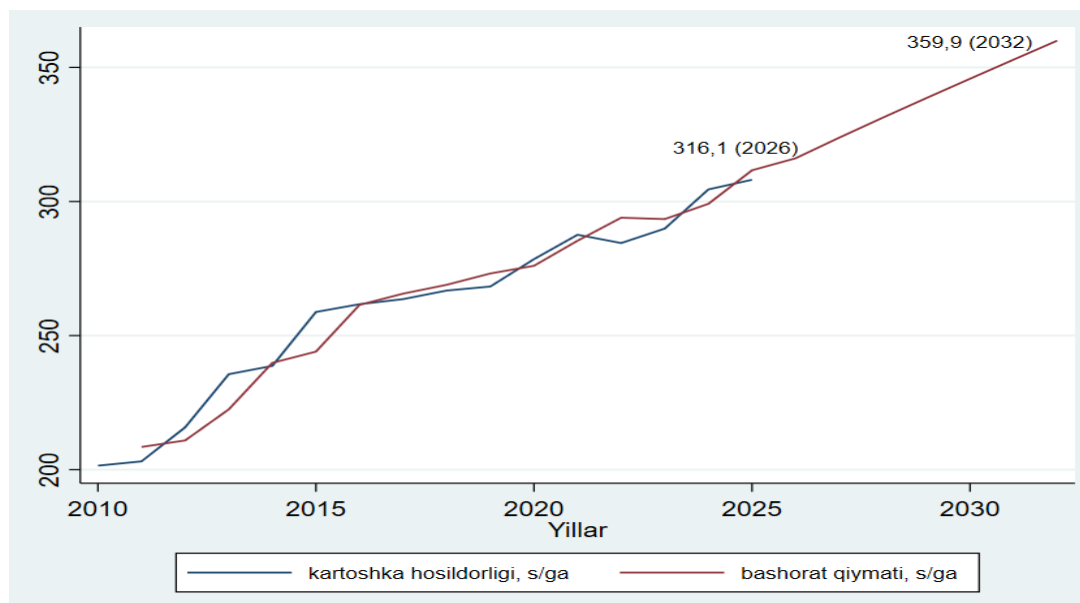
ifodalovchi o'zgaruvchi uchun ARIMA(2,2,1) model va yetishtirilgan kartoshka mahsuloti hajmini ifodalovchi o'zgaruvchi uchun ARIMA(1,1,1) model tanlab olindi. Tanlangan model asosida, Samarqand viloyatida kartoshka ekin maydonlari hajmi 2032-yilgacha oshib boradi (7-rasmga qarang).

7-rasmda Samarqand viloyatida fermer xo'jaliklarida kartoshka ekin maydonlarining 2010–2025 yillardagi dinamikasi hamda 2032-yilgacha bo'lgan prognoz ko'rsatkichlariga ko'ra, kartoshka ekin maydoni 2010-yilda taxminan 1,6 ming gektar bo'lgan bo'lsa, 2025-yilda 5,9 ming gektar ga yetgan. Prognoz natijalariga ko'ra, kartoshka ekin maydoni 2026-yilda 6282,4 gektar, 2032-yilga kelib esa 8622,6 gektar ni tashkil etishini tahlil natijalari ko'rsatmoqda. Bu 2026-yilga nisbatan ekin maydonlarining qariyb 37 foizga kengayishini anglatadi.



8-rasmga ko'ra, kartoshka hosildorligi 2010-yilda 201,5 s/ga ni tashkil etgan bo'lsa, 2025-yilda esa 308,1 s/ga ga yetgan. Bu davr mobaynida hosildorlikning mutlaq o'sishi 106,6 s/ga ni tashkil etib, barqaror o'sish tendensiyasi shakllanganini ko'rsatadi. Prognoz natijalariga ko'ra, kartoshka hosildorligi 2026-yilda 316,1 s/ga, 2032-yilga kelib esa 359,9 s/ga ga yetishi kutilmoqda. Bu 2026-yilga nisbatan 43,8 s/ga yoki qariyb 14 foizga o'sishni tahlil natijalari ko'rsatmoqda.

7-rasm. Kartoshka ekin maydonlari dinamikasi va 2032-yilgacha bo'lgan prognoz ko'rsatkichlari



8-rasm. Kartoshka hosildorligi dinamikasi va 2032-yilgacha bo'lgan prognoz ko'rsatkichlari.

XULOSALAR

1. Tadqiqotda kartoshka yetishtiruvchi fermer xo'jaliklari o'rtasida kooperatsiya munosabatlarini baholash uchun past ($0 \leq 0,35$), o'rta ($0,36 \leq 0,56$) va yuqori ($0,57 \leq 1$) darajalarni qamrab oluvchi kooperatsiya mezonlari tizimi ishlab chiqildi, bu fermerlarning hamkorlikka tayyorlik darajasini aniq tasniflash imkonini berdi.

2. Logit regressiya modeli natijalariga ko'ra, yer tayyorlash, ekish, yig'im-terim, sug'orish, urug' va resurslar bilan bog'liq texnologik jarayonlarda hamkorlik fermer xo'jaliklarining norasmiy kooperatsiyaga kirish ehtimolini 17–23 foiz punktgacha oshirishi ilmiy jihatdan asoslandi.

3. Texnologik agregatlar va infratuzilma vositalarining mavjudligi fermerlar o'rtasida hamkorlik munosabatlarini kuchaytirib, kartoshka ekish agregati mavjud bo'lgan xo'jaliklarda kooperatsiyaga moyillik 45 foizdan 52 foizgacha, suv nasosi mavjudligida esa 42 foizdan 51 foizgacha oshishi aniqlandi.

4. Tobit modeli asosida o'tkazilgan tahlillar kooperatsiyaga kirish kartoshka hosildorligiga sezilarli ta'sir ko'rsatishini ko'rsatib, urug' xaridida kooperatsiya 2,0–2,3 s/ga, yer tayyorlash va yig'im-terim jarayonlarida esa 1,8–2,0 s/ga hosildorlik o'sishini ta'minlashi aniqlangan.

5. Samarqand viloyatida 2010–2025 yillarda fermer xo'jaliklari soni 44,6 % ga qisqarganiga qaramay, kartoshka ekin maydonlari 3,7 baravar, yalpi hosil hajmi esa 5,6 baravar oshgani ishlab chiqarishning intensiv rivojlanish yo'liga o'tayotganini tasdiqladi.

6. ARIMA modeli asosida tuzilgan prognozlarga ko'ra, 2032-yilga kelib kartoshka ekin maydonlari 8,6 ming gektarga, hosildorlik esa 360 s/ga ga yetishi kutilmoqda, bu esa kooperatsiya va texnologik yangilanishlarni yanada chuqurlashtirish zaruratini ko'rsatadi.

7. Tadqiqot natijalari norasmiy kooperatsiya fermer xo'jaliklari uchun

qisqa muddatli samaradorlikni ta'minlayotgan bo'lsa-da, texnika, moliya va bozor infratuzilmasiga barqaror kirishni ta'minlash uchun rasmiy kooperatsiya institutlarini shakllantirish zarurligini ilmiy asoslab berdi.

8. Taklif etilgan rasmiy qishloq xo'jalik kooperatsiyasini tashkil etish mexanizmi davlat qo'llab-quvvatlovi, huquqiy kafolatlar va integratsiyalashgan boshqaruv orqali fermer xo'jaliklarining ishlab chiqarish samaradorligini oshirish, transaksion xarajatlarni kamaytirish hamda qishloq xo'jaligi mahsulotlarining raqobatbardoshligini kuchaytirishga xizmat qilishi asoslandi.

**SCIENTIFIC COUNCIL № DSc.08/2025.27.12.I.07.02 FOR AWARDING OF
THE SCIENTIFIC DEGREES AT SAMARKAND AGROINNOVATIONS AND
RESEARCH UNIVERSITY**

SAMARKAND AGROINNOVATIONS AND RESEARCH UNIVERSITY

ISMOYILOV AZAMAT ISROYILOVICH

**COOPERATION RELATIONS IN AGRICULTURAL PRODUCTION AND ITS
ECONOMIC ANALYSIS (IN CASE OF FARMS)**

08.00.04 – Agricultural economics

ABSTRACT
of the Dissertation of Doctor of Philosophy (PhD) in Economic Sciences

Samarkand – 2026

The theme of the doctoral dissertation (PhD) was registered at the Supreme Attestation Commission under Ministry of higher education, science and innovations of the Republic of Uzbekistan under the number B2023.4.PhD/Iqt3425.

The dissertation is prepared at Samarkand agroinnovations and research university.

The abstract of the dissertation is posted in three languages (Uzbek, English and Russian (Summary)) on the website of the Scientific Council and Information educational portal “ZiyoNET” (www.ziynet.uz).

Scientific supervisor:	Hasanov Shavkat Tursunkulovich Doctor of economic sciences, professor
Official opponents:	Akhrov Farhod Bakhridinovich Doctor of Economic Sciences, Professor Oripov Makhmud Ashurovich Candidate of Economic Sciences, Associate Professor
Leading organization:	Tashkent State Agrarian University

The defense of the dissertation will be held on “_____”, 2026 at _____ in the Session of the Scientific Council DSc.08/2025.27.12.I.07.02 at the Samarkand Agroinnovations and Research University. Address: 141001, Samarkand Region, Akdarya District, Dahbet Settlement, A.Temur Street, 7. Phone: (998 66) 492-81-16; Email: info@samaguni.uz.

The doctoral dissertation is available at the Information Resource Center of Samarkand Agroinnovations and Research University (registered under № _____). Address: 141001, Samarkand Region, Akdarya District, Dahbet Settlement, A.Temur

Street, 7. Phone: (998 66) 492-81-16; Email: info@samaguni.uz.

The abstract of the dissertation is distributed on “_____” _____, 2026
(Registry protocol №_____ of “_____” _____, 2026).

Sh.T.Hasanov

Chairman of the Scientific Council
for awarding scientific degrees,
a.t., DSc, Professor

Sh.B.Babakholov

Secretary of the Scientific Council
for awarding scientific degrees,
PhD

O.Murtazaev

Chairman of the Scientific
Seminar under the Scientific
Council for awarding scientific
degrees, DSc, Professor

INTRODUCTION (Doctor of Philosophy (PhD) dissertation abstract)

Relevance and actuality of the dissertation theme. In developing countries, smallholder farms occupy a central position in agricultural production. Despite cultivating only 12 percent of the world’s agricultural land, they produce more than 80 percent of global agricultural output. Nevertheless, these farms face serious difficulties in securing stable income due to high transaction costs in production, marketing, and input supply, inadequate market infrastructure, high exposure to risks, and weak state support mechanisms¹⁹. In this context, horizontal cooperation based on mutual assistance among farmers in everyday agricultural practice is becoming increasingly important. Both informal and formal cooperative arrangements among farms in developing countries serve as effective instruments for reducing production costs, improving resource-use efficiency, and facilitating access to markets. Therefore, cooperation is of strategic importance for ensuring stable farm income and supporting the socio-economic development of rural areas.

Leading research centres and institutions worldwide are conducting extensive studies to assess the effects of formal and informal cooperative groups among farmers on production costs, product quality, and income in agriculture. These studies examine the economic efficiency of farmer cooperation, the efficient use of resources, the coordination of production processes, and opportunities to strengthen market competitiveness. In

¹⁹ World Bank. (2024). *World Development Report 2024: Agriculture in transition economies*.

agricultural production, cooperative relations enable farmers to optimize costs and enhance income stability through the joint use of seeds and machinery, coordinated access to water and fertilizers, the organization of harvesting, storage, and transportation, and the expansion of market and sales channels. At the same time, research on cooperative relations provides an important scientific basis for understanding their social significance in local and regional economic development and for designing effective cooperation mechanisms for practical implementation.

In Uzbekistan, farms and dehqan households play a crucial role in agricultural production. Nearly one-third of the income of the rural population is generated from agricultural activities. With the deepening of market reforms, farmers are increasingly required to produce agricultural goods that are competitive not only in quantity but also in quality. However, the insufficient development of economic relations among actors in the production chain – including seed suppliers, service providers, storage and processing enterprises, procurement organizations, and buyers – leads to higher production costs and lower farm income. Against the background of global climate change, water scarcity, and pandemics, it is therefore highly relevant to develop scientifically and practically grounded recommendations by analysing informal cooperation as a mechanism for improving farm adaptability, reducing risks, and ensuring the optimal use of resources.

This dissertation research contributes, to a certain extent, to the implementation of the tasks defined in the Law of the Republic of Uzbekistan No. ZRU-995 dated November 8, 2024, “On Agricultural Cooperatives”; the Decree of the President of the Republic of Uzbekistan No. PF-4239 dated March 14, 2019, “On Measures to Develop Agricultural Cooperation in the Fruit and Vegetable Sector”; the Decree No. PF-5853 dated October 23, 2019, “On Approval of the Strategy for the Development of Agriculture of the Republic of Uzbekistan for 2020–2030”; the Resolution No. PQ-3318 dated October 10, 2017, “On Organizational Measures for the Further Development of the Activities of Farms, Dehqan Households and Owners of Household Plots”; the Resolution No. PQ-4704 dated May 6, 2020, “On Measures to Expand Potato Production and Further Develop Seed Production in the Republic”; and other relevant regulatory and legal acts in this field.

The extent of the study of the research problem. Cooperative relations in agricultural production, their organizational and legal foundations, economic efficiency, and impact on farm performance have been extensively studied by Uzbek scholars, including Sh. T. Hasanov, N. Djanibekov, D. Kholmiraev, D. Niyozov, N. R. Mullaboev, S. N. Khamraeva, and others²⁰. Their research focuses on the institutional foundations of

²⁰ Hasanov, Sh. T. (2019). Qishloq xo'jaligida kooperatsiya munosabatlarini rivojlantirishning iqtisodiy asoslari. Samarqand: Samarqand iqtisodiyot va servis instituti.; Djanibekov, O., & Sanayev, G'. N. (2019).

agricultural cooperation, integration processes, and the assessment of its economic and social efficiency.

The issues of improving the economic efficiency of potato production and developing cooperative relations in this sector have been specifically examined by S. J. Saidjonov, B. T. Hasanov, and Sh. A. Sherqobilov²¹. Their studies address the economic potential of potato production, mechanisms for increasing productivity and income, and effective approaches to developing cooperation among farms. They also substantiate ways to improve resource-use efficiency in the potato value chain, machinery and product logistics, and market access through cooperative structures.

Notable findings on the efficiency and economic significance of cooperative structures among farms have also been obtained by foreign researchers, including J. Bijman, M. Burress, V. Valentinov, J. Nilsson, M. Fulton, K. Zeuli, M. M. Islam, P. P. Barman, X. Xu, Y. B. Cui, Z. J. Li²², and others. These studies primarily focus on the economic essence of cooperation and the integration of farms into market relations. In contrast, this dissertation provides a scientific analysis of cooperation as a mechanism for improving resource-use efficiency, reducing production costs, ensuring income stability, and supporting the socio-economic development of rural areas. This highlights the relevance of the research topic and its potential for practical application in agricultural development.

Compliance of the research with the priority areas of national science and technology development. The dissertation was conducted in accordance with Priority Area I of national science and technology development: "Spiritual, moral, cultural and educational development of a

Qishloq xo'jaligida institutsional islohotlar va kooperatsiya. O'zbekiston qishloq xo'jaligi, 4, 21–28.; Xolmirzayev, D. (2018). Agrar sohada kooperatsiya va integratsiya masalalari. Iqtisodiy tahlil, 1, 60–66.; Niyozov, D. (2017). Qishloq xo'jaligi ishlab chiqarishida kooperatsiya munosabatlari. Ilmiy axborotnoma, 5, 55–61.; Mullaboyev, N. R. (2021). Kooperatsiya va qishloq hududlari rivoji. Hududiy iqtisodiyot, 1, 73–80.; Xamrayeva, S.N., & Fayziyeva, Sh.Sh. (2020). Qishloq xo'jaligi kooperativlarining ijtimoiy-iqtisodiy ahamiyati. Iqtisodiyot va jamiyat, 2, 88–94.

²¹ Саиджонов С.Ж. Картошкачиликнинг ривожланиши ва уни иқтисодий самарадорлигини ошириш: авт. ... дисс. и.ф.н. – Т.: 2009 й.; Ҳасанов Б.Т. Озиқ-овқат таъминотида картошка етиштириш қиймат занжири субъектлари фаолиятини такомиллаштириш (Самарқанд вилояти мисолида): авт. ... дисс. и.ф.ф.д. – Т.: Қарши, 2024 й.; Ш.А.Шерқобилов. Картошкачиликни барқарор ривожлантиришнинг иқтисодий асосларини такомиллаштириш: авт. ... дисс. и.ф.ф.д. – Т.: – Тошкент, 2025 й. – 56 б.

²² Bijman, J., & Iliopoulos, C. (2014). Farmers' cooperatives in the EU: Policies, strategies, and organization. *Annals of Public and Cooperative Economics*, 85(4), 497–508.; Burress, M., & Cook, M. (2009). A primer on cooperative life cycles. *Journal of Cooperatives*, 23, 1–22.; Valentinov, V. (2007). Why are cooperatives important in agriculture? *Journal of Institutional Economics*, 3(1), 55–69.; Nilsson, J. (2001). Organisational principles for cooperative firms. *European Review of Agricultural Economics*, 28(3), 329–352.; Fulton, M., & Hueth, B. (2009). Cooperative conversions, failures and restructurings. *American Journal of Agricultural Economics*, 91(5), 1305–1311.; Zeuli, K., & Cropp, R. (2004). *Cooperatives: Principles and practices in the 21st century*. Madison: University of Wisconsin Extension. Pillay, T. V. R., & Kutty, M.N. (2005). *Aquaculture: Principles and practices*. Oxford: Blackwell Publishing. Shamsuzzaman, M. M., & Islam, M.M. (2018). Analysing fish production and sustainability. *Aquaculture Economics & Management*, 22(1), 102–121.; Barman, P.P., & Al-Mamun, M.A. (2016). Smallholder aquaculture and rural livelihoods. *World Development*, 79, 21–36.; Xu, X., Cui, Y. B., Li, Z. J., & Wang, S. (2019). Agricultural cooperatives and farmer income. *China Agricultural Economic Review*, 11(2), 258–274.

democratic and law-governed society, and the formation of an innovative economy.”

Connection of the dissertation topic with the research plans of the higher education institution. The dissertation was carried out within the research plan of Samarkand Institute of Agroinnovations and Research, in line with the priority areas for the sustainable development of the agrarian economy.

The aim of the research is to develop scientific-methodological proposals and practical recommendations for the economic evaluation and improvement of cooperative relations in agriculture.

The objectives of the research are:

- to provide a scientific and theoretical justification of cooperative relations and their specific characteristics in agricultural development;

- to examine existing methodological approaches to the economic assessment of cooperative relations in agricultural production;

- to identify the current state and development trends of agricultural production in Samarkand region;

- to assess cooperative relations among farms and the economic factors influencing them;

- to determine, using statistical tests, the relationships between agricultural cooperation processes and the factors affecting their efficiency;

- to analyse the economic impact of cooperation on potato production in farms;

- to develop scientifically grounded proposals and practical recommendations for improving cooperative relations among agricultural entities;

- to forecast the prospects for potato production and the development of agricultural cooperation in Samarkand region.

The object of the research comprises economic entities specializing in potato production in the Republic of Uzbekistan, with potato-producing farms in Samarkand region selected for monographic study.

The subject of the research is the system of socio-economic relations that arise in the formation and development of cooperative relations in agriculture.

Research methods. The dissertation employs logical and comparative analysis, statistical and econometric modelling, the Conditional Logit Regression Model, the Latent Class Model, the Tobit model, the ARIMA model, and other methods.

The scientific novelty of the research consists of the following:

- a methodological approach has been developed to assess the propensity of potato-producing farms to participate in cooperation according to low ($0 \leq 0,36$), medium ($0,37 \leq 0,57$), and high ($0,58 \leq 1$) levels;

- using the LOGIT model, it has been scientifically substantiated that the propensity of potato-specialized farms to participate in informal

cooperative relations is associated with land preparation (+19.9%), planting (+17.6%), harvesting (+22.7%), and the impact of climate change (+14.4%);

the organizational and economic structure of a cooperation mechanism designed to stimulate the gradual transition of potato-specialized farms from informal to formal cooperation through state preferential programmes has been substantiated;

forecast parameters for potato production dynamics in farms of Samarkand region up to 2032 have been developed, taking into account the development of mutual cooperation relations among farms.

The practical results of the research are as follows:

the criteria have been developed for assessing the degree of participation in cooperation among potato-producing farms, and it has been demonstrated that participation in cooperation at low, medium, and high levels significantly affects production volumes across all types of farm activities;

it has been scientifically substantiated that the probability of farms entering cooperative relations increases by 9 % when land preparation machinery is available, by 7 % when potato planting machinery is available, by 9 % when harvesting machinery is available, and by 6 % when water pumps for irrigation are available;

it has been scientifically substantiated that participation in cooperative relations in potato production processes, including seed procurement, land preparation, harvesting, and mutual consultation on production activities, increases potato yield by 1,8–2,3 tons.

Reliability of the research results. The reliability of the research results is explained by the fact that the study is based on scientific and methodological research conducted by national and foreign agricultural economists on agrarian reforms and the development of cooperation among farmers and in agriculture; the data used were obtained from long-term and official statistical sources; and scientific studies and their methodologies related to the development of cooperative relations among farms were comprehensively examined.

Scientific and practical significance of the research results. The scientific, methodological, and practical results obtained in the course of the research are of significant importance for improving the efficiency of agricultural production through ongoing reforms in agriculture and the mutually beneficial and cost-effective use of existing resources and infrastructure on the basis of cooperation. They are also important for improving the scientific, methodological, practical, legal, and regulatory foundations of the agrarian sector, as well as for creating opportunities to determine, forecast, and strategically plan agricultural production volumes using modern mathematical and economic models.

From a practical perspective, these results can be used as practical guidance and methodological support for organizing and effectively

developing mutual cooperation among farms, as well as in the teaching process of higher education institutions in such subjects as “Economics of Agricultural Production” and “Institutional Economics.”

Implementation of the research results. Based on the scientific proposals and practical findings obtained on the economic evaluation and improvement of cooperative relations in agriculture:

the criteria were developed for assessing the participation of potato-producing farms in mutual cooperative relations. This proposal was introduced into practice under the action plan of the Samarkand Regional Department of Agriculture for the development of cooperative relations in agriculture (February 2, 2026), and approved by the Ministry of Agriculture of the Republic of Uzbekistan (Reference No. 06/26-2-10-05/17 dated February 13, 2026). As a result, a scientifically grounded approach was developed to accurately assess the cooperation potential of potato-producing farms in Taylak district of Samarkand region according to low ($0 \leq 0,36$), medium ($0,37 \leq 0,57$), and high ($0,58 \leq 1$) levels;

scientific and methodological approaches to substantiating the propensity of agricultural production entities to engage in mutual cooperative relations and to developing complex integration processes in the sector were accepted for practical application by the Ministry of Agriculture of the Republic of Uzbekistan (Reference No. 06/26-2-10-05/17 dated February 13, 2026). The proposal related to this novelty was introduced into practice under the action plan developed by the Samarkand Regional Department of Agriculture for the development of cooperative relations in agriculture (February 2, 2026). As a result, it was substantiated that a one-unit increase in such factors as land preparation, planting, harvesting, and climate change increases the propensity of farms to enter cooperative relations by an average of 18,7% in 3 districts of Samarkand region: Taylak, Jambay, and Bulungur;

the organizational and economic structure of a cooperation mechanism aimed at encouraging the gradual transition of potato-specialized farms from informal cooperation to formal cooperative forms within the framework of state preferential programmes was scientifically substantiated, and a proposal for its practical implementation was developed. This proposal was reflected in Article 3 of the Law of the Republic of Uzbekistan No. ZRU-995 dated November 8, 2024, “On Agricultural Cooperatives,” and was implemented in agricultural system organizations by the Ministry of Agriculture (Reference No. 06/26-2-10-05/17 dated February 13, 2026). The proposal related to this novelty was also introduced into practice under the action plan developed by the Samarkand Regional Department of Agriculture for the development of cooperative relations in agriculture (February 2, 2026). As a result, it was found that potato yields in farms participating in cooperative relations were, on average, 2–3 tons higher than in farms not participating in such

relations;

forecast indicators of potato yield up to 2032 were developed, taking into account the development trends of mutual cooperation relations among farms in Samarkand region. This proposal was implemented by the Ministry of Agriculture and its Department for Economic Development and Financing of the Agrarian Sector (Reference No. 06/26-2-10-05/17 dated February 13, 2026). It was also introduced in farms under the action plan of the Taylak District Hokimiyat dated March 1, 2026, aimed at establishing cooperative relations among potato-producing farms. As a result, it was forecast that by 2032 potato yield in potato-specialized farms of Samarkand region would increase from 316,1 centners per hectare to 359,9 centners per hectare, representing an increase of 43,8 centners per hectare, or 13,9 %.

Approbation of the research results. The research findings were presented, discussed, and positively evaluated at 3 international and 3 national scientific-practical conferences.

Publication of the research results. A total of 9 scientific works have been published on the dissertation topic, including 2 articles in scientific journals recommended by the Higher Attestation Commission of the Republic of Uzbekistan, 1 article in a foreign journal, 4 conference papers in national proceedings, and 2 conference papers in international proceedings.

Structure and volume of the dissertation. The dissertation consists of an introduction, 3 chapters, a conclusion, a list of references, and appendices. It contains 22 tables and 11 figures, with a total volume of 133 pages.

MAIN CONTENT OF THE DISSERTATION

In the **introduction** of the dissertation, the relevance of the topic, the degree of research of the problem, the purpose and objectives of the study, its scientific novelty and practical significance are presented. In addition, information is provided on the reliability, implementation, approbation, and publication of the research results, as well as on the structural composition and volume of the dissertation.

The first chapter of the dissertation, entitled **“Cooperative relations in agricultural production and their organizational and legal foundations,”** provides a comprehensive analysis of the formation and development characteristics of cooperative relations in agricultural production, particularly in the potato-growing sector. Taking into account the agro-technical, technological, and infrastructural differences of potato production compared to other crops, as well as the high costs and risks associated with its cultivation and storage, the necessity of cooperation for ensuring sustainable production is theoretically substantiated.

Furthermore, special emphasis is placed on the need for high-quality seed potatoes, specialized machinery, and refrigerated storage facilities in potato production. It is shown that the opportunities for individual farms to use these resources efficiently are limited. In this regard, the possibilities of reducing costs through the collective introduction of modern technologies and joint use of machinery and infrastructure, aimed at improving production efficiency, are analyzed.

The chapter also examines global trends in the development of agricultural cooperatives, with particular attention to the experiences of countries that have achieved high results through the application of intensive production technologies. In addition, the historical formative approach to farmers' engagement in cooperative relations in Uzbekistan is illustrated (see Figure 1), depicting the operation of cooperatives established during the Tsarist Russian period and the participation of peasants in cooperative practices related to land cultivation.

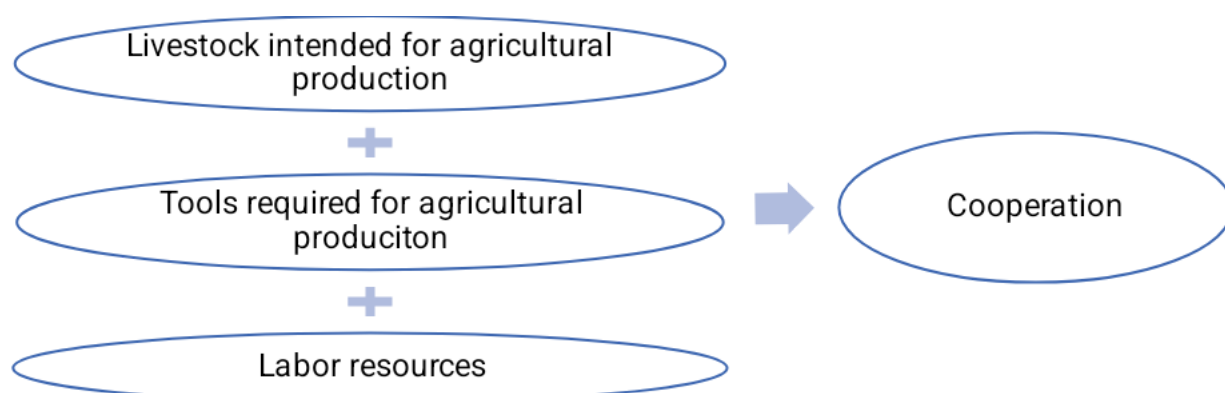


Figure 1. Historical formative approach to farmers' engagement in

cooperative relations in the territory of Uzbekistan

Under this formative approach, peasants who did not own draft animals entered into cooperative relations through the joint use of labor tools and collective labor (hashar). This practice contributed to increased labor productivity among peasants at that time.

Table 1.

Specific characteristics of cooperation in potato production²³

Nº	Characteristics	Description	Source
1	Farmer-oriented approach	Agricultural cooperatives are directly oriented toward meeting members' production, marketing, and service needs.	Bijman et al. (2012), <i>Annals of Public and Cooperative Economics</i>
2	Reduction of market risks	Through collective marketing of products, cooperatives provide protection against price volatility.	Chaddad & Iliopoulos (2013), <i>Agricultural Economics</i>
3	Achieving economies of scale	Joint procurement of machinery, seeds, and agrochemical inputs reduces production costs.	Cook & Burress (2009), <i>Journal of Cooperatives</i>
4	Based on mutual trust through membership	In many cases, the trust that already exists among local farmers becomes the main driving force of the cooperative.	Valentinov (2007), <i>Journal of Institutional Economics</i>
5	Establishing processing and storage infrastructure	Shared facilities for the storage and processing of agricultural products are established.	Mazzarol et al. (2011), <i>International Journal of Rural Management</i>
6	Close cooperation with the state	In many countries, cooperatives participate in state subsidy schemes, grants, and rural development programs.	OECD (2021), <i>Agricultural Policy Monitoring and Evaluation</i>
7	Knowledge exchange and advisory services	Within cooperatives, experience exchange as well as agronomic and management training programs are organized.	Fulton & Hueth (2009), <i>American Journal of Agricultural Economics</i>
8	Marketing products under a single brand	Cooperatives brand their products and supply them to export markets or large retail chains.	Iliopoulos & Chaddad (2012), <i>Strategic Management Journal</i>
9	Local socio-economic stability	They play an important role in job creation, poverty reduction, and limiting migration.	Zeuli & Cropp (2004), <i>Cooperatives: Principles and Practices in the 21st Century</i>
10	Self-governance	Agricultural cooperatives are independent of the state and are managed by their own members.	Hansmann (1996), <i>The Ownership of Enterprise</i>

At present, in analyzing the economic impact of cooperative relations

²³ Compiled by the author based on scientific research

among farms, several approaches and research models are applied, each characterized by its specific features (see Table 1).

Scholars worldwide have applied both parametric and non-parametric models to assess the economic impact of cooperative relations among farms (see Table 2).

In addition, differences in the types of data used by the models are highlighted. While the LCA, Logit, and Tobit models primarily rely on short-term, multivariate cross-sectional data and primary survey data, the ARIMA model is based on periodic, that is, time-series data. This indicates that the study integrates micro- and macro-level analyses in a complementary manner.

Table 2.

Methods used to assess the impact of cooperative relations and their interrelationships²⁴

T/r	Description	FA	LCA	LR	Tobit	ARIMA
1.	Parametric method	+	+	+	+	+
2.	Taking deviations into account	+	+	+	+	+
3.	Aspect of application in calculations:					
-	Indexing indicators representing cooperation	+	-	-	-	-
-	In assessing farms' propensity to participate in cooperation	-	+	+	+	-
-	In assessing the impact of factors on potato production yields	+	+	+	+	-
-	In forecasting future values of time series up to 2032	-	-	-	-	+
4.	Data used:					
-	Cross-sectional	+	+	+	+	-
-	Times series	-	-	-	-	+
5.	Data required for applying the initial method:					
-	Indicators representing cooperation	+	+	+	+	+
-	Potato yield and the qualitative and quantitative indicators affecting it	+	+	+	+	+

To construct an index indicator representing cooperation—that is, a common characteristic among farms—a random sampling method was employed, and a social survey was conducted among 168 farm entities. The survey involved farms from three districts of Samarkand region: Bulungur, Jomboy, and Tayloq (see Table 3).

Table 3 presents the statistical description of mutual cooperative relations among agricultural entities. When compared with international experience, these results make it possible to examine the significance of cooperation in agricultural production processes. Among the 168 surveyed farm entities, 55,4 percent cooperate in providing mutual technical assistance during land preparation and in the joint use of water facilities. In

²⁴ Author's elaboration based on the literature.

addition, 48,8 percent of farmers engage in joint procurement of seed potatoes, 44,0 percent provide mutual technical assistance during the harvesting season, 39,3 percent cooperate through agro-technological consultations in the production process, 35,7 percent cooperate in product storage, and 32,7 percent participate in cooperation when purchasing fertilizers.

Table 3.

Statistics of variables representing cooperative relations among farms in potato production²⁵

Variables	Kooperatsiya munosabat, %
Land preparation	55,4
Joint use of water facilities	55,4
Joint procurement of seed potato material	48,8
Mutual technical assistance during the harvesting season	44,0
Consultation during the potato production process	39,3
Product storage and rental of storage facilities	35,7
Joint purchase and application of fertilizers	32,7

Based on these data, a cooperation relations index for potato production among farms in Samarkand region was developed using the Factor Analysis model (see Table 4).

According to Table 4, in developing the Cooperation Index, the test conditions of (i) the KMO (Kaiser–Meyer–Olkin measure), (ii) the Bartlett test (χ^2), and (iii) the correlation matrix were satisfied, indicating the appropriateness of applying the Factor Analysis model.

Table 4.

Statistic test results of the Factor Analysis model²⁶

№	Index	Conditions and test results		
		KMO $\geq$ 0,50	p=0,000	Det>0,00001
1.	Cooperation index	0,826	0,000	0,426

At this stage, cooperative relations among farms in potato production were classified into groups using the Latent Class Model. In determining the optimal grouping, the Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC) were applied, and the model with the lowest values of these criteria was selected (see Table 5).

Table 5.

Akaike–Bayesian (AIC, BIC) criteria for grouping variables representing cooperative relations in the Latent Class Model²⁷

T/r	Variables	AIC	BIC	Entropy
1.	Grouping variables representing cooperative relations	1595.812	1617.681	-
		1519.035	1565.894	0.596

²⁵ Based on the author's survey data

²⁶ Based on the author's survey data

²⁷ Based on the author's survey data

		1458.131	1529.983	0.675
		1424.256	1505.178	0.665

Based on the results of the analysis, the application of the Latent Class Model made it possible to classify farm entities into low, medium, and high groups according to their level of engagement in cooperative relations in potato production (see Figure 2).

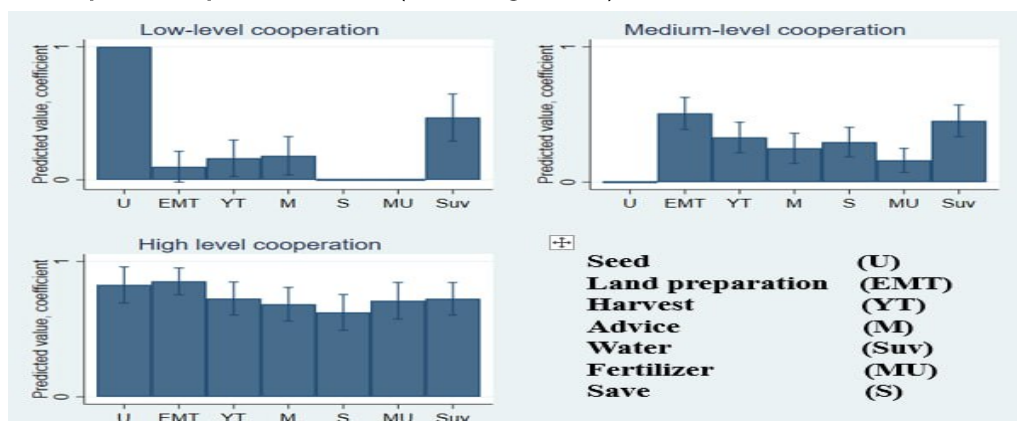


Figure 2. Intra-group participation of farms in cooperative relations²⁸

According to Figure 2, farms with a low level of cooperation mainly engage in cooperative relations in the joint procurement of seed potato material. In this regard, farms practicing low-level cooperation consider this single factor as a means of increasing potato yields and/or reducing production costs. However, the formation of cooperative relations across all agrotechnological processes is of critical importance for farms.

In particular, such cooperation includes mutual technical assistance during land preparation, joint use of water facilities, joint procurement of seed potato material, mutual technical assistance during the harvesting season, consultation during the potato production process, product storage and rental of storage facilities, as well as joint purchase and application of fertilizers.

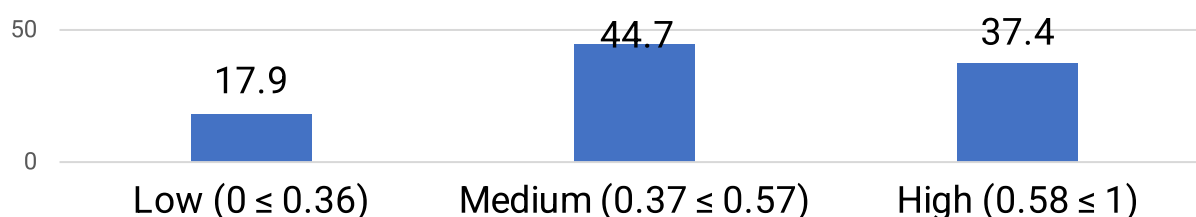


Figure 3. Cooperation index of farms based on the developed criteria, %²⁹

At this point, to identify cooperation relationships between groups and to determine group boundaries, an indicator representing the Cooperation Index was employed (see Figure 3).

²⁸ Author's analysis based on survey data.

²⁹ Author's analysis based on survey data.

According to the results of the analysis, farms with a low level of engagement in cooperative relations in potato production account for 17,9 percent, indicating the limited nature of their cooperation mechanisms. At the same time, 44,7 percent of farms are involved in medium-level cooperation, characterized by partial but stable cooperative relations, while 37,4 percent participate at a high level, reflecting diversified and systematic cooperative engagement.

In conclusion, based on theoretical concepts and a comparative analysis of international experience, the study scientifically substantiates the positive impact of cooperative relations on the performance of agricultural entities. As a result, low, medium, and high criteria for engagement in cooperative relations were developed. Therefore, applying and scientifically justifying this approach in farms of Samarkand region is of both scientific and practical importance.

The second chapter of the dissertation, entitled “**Economic assessment of the impact of cooperative relations in agriculture on farm performance**”, analyzes the organizational and economic structure of farm production in Samarkand region and examines the current state of farm cooperation in agriculture. In addition, an economic assessment is provided of the factors influencing cooperative relations in farm activities.

Based on the research conducted, there are opportunities for farmers to increase potato production. In this regard, the results of the analysis show that the formation and strengthening of cooperative relations between economic entities is of great importance. However, the economic assessment of the factors influencing the entry into cooperative relations between agricultural entities shows the importance of this (see Table 6).

Table 6.

Economic assessment of farms' likelihood of engaging in informal cooperative relations³⁰ (logit model)

T/r	Variables	Relative probability coefficient (odds ratio)	Delta method	
		Coef. (St. err.) Sig.	Mar/Eff (st. err.) Sig.	
1.	Land preparation	2.275 (.818)**	0.199(0.087)**	
2.	Planting	2.068(.845)*	0.176(0.099)*	
3.	Harvesting	2.551(1.04)**	0.227(0.099)**	
4.	Water pump	2.205(.728)**	0.192(0.080)**	
5.	Climate change	1.813(.625)*	0.144(0.084)*	
6.	Potato land	2.391(.527)***	0.211(0.055)***	
7.	Education	4.056(1.05)***	0.340(0.061)***	
8.	Experience	1.116(.035)***	0.027(0.008)***	
9.	Age	.981(.017)	-0.005(0.004)	
	Constant	.0009(.0001)***		
-	Mean	0.458	St. deviation	0.499

³⁰ Author's analysis based on survey data.

-	Pseudo R-squared	0.523	Observations	367
-	Chi-squared statistics	264.748	Prob > chi2	0.000
-	Akaike criteria (AIC)	265.401	Bayes criteria (BIC)	312.265

According to the analysis of Table 6, land preparation, planting, harvesting processes, the presence of a water pump, the impact of climate change, the expansion of potato cultivation area, the increase in education level, and the increasing experience of farmers' farms had a positive impact on the likelihood of farmers entering into informal cooperative relationships, but an increase in the age of the farm manager had a negative impact.

In addition, the relationship between the use of technological resources by farms and their propensity to engage in informal cooperation was examined (see Figure 4).

Based on the use of four main types of technological resources—land preparation equipment, potato planting equipment, potato harvesting equipment, and water pumps—farmers were divided into two groups: 0 if the technological resource was not available at the farm and 1 if it was available.

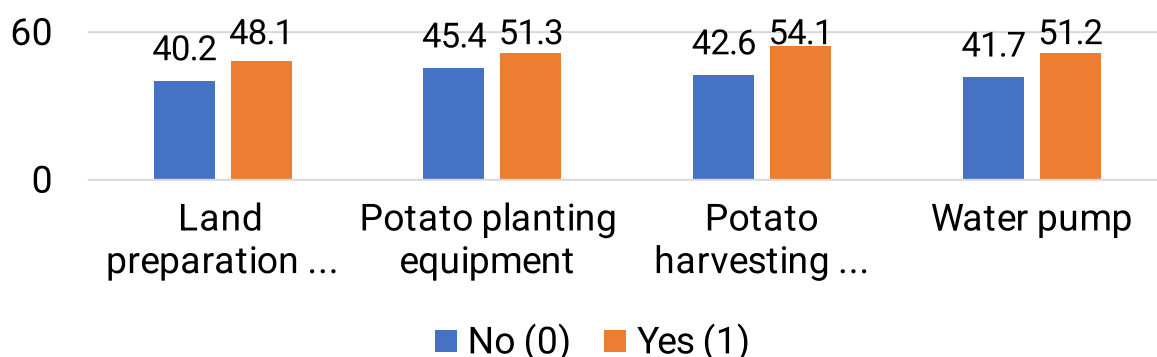
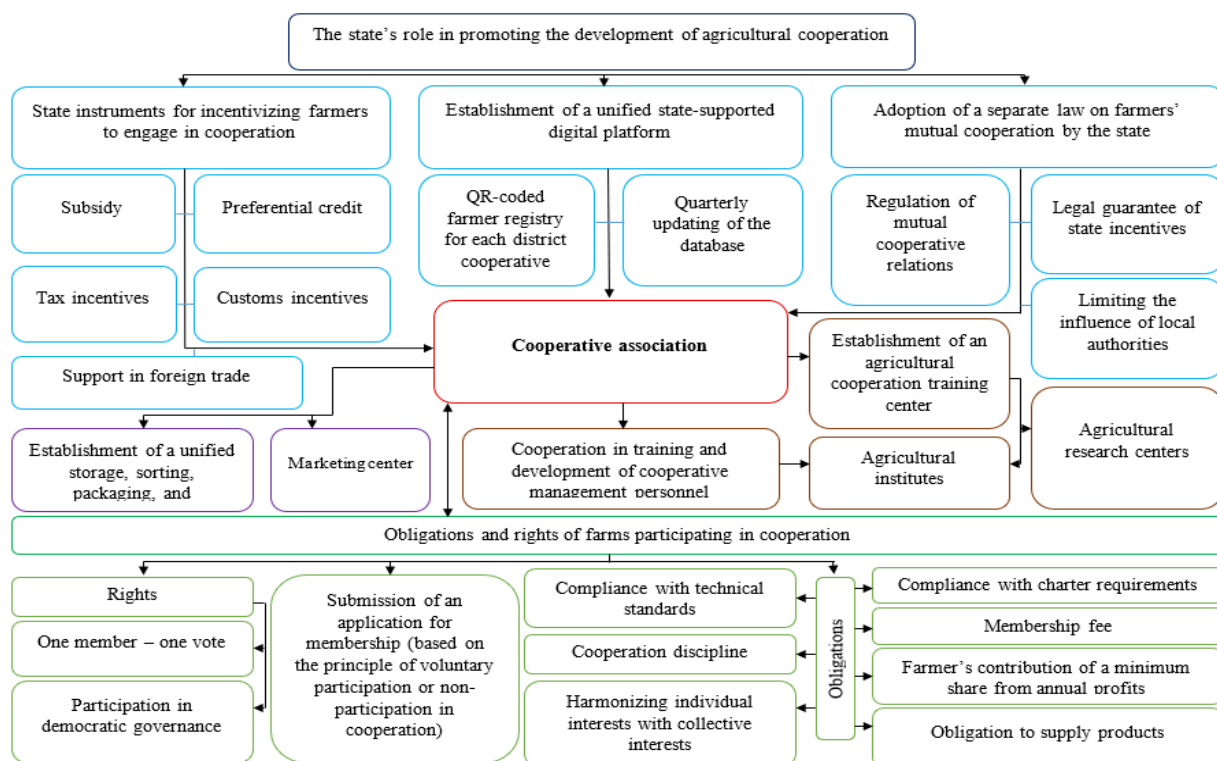


Figure 4. Assessment of the impact of technological resource use on farms' propensity for informal cooperation, %³¹

³¹ Author's analysis based on survey data.

Based on the results of the analysis, a mechanism for organizing formal cooperation between the cooperative structure and farms was developed



(see Figure 5).

Figure 5. Mechanism for establishing formal agricultural cooperatives

The upper part of the mechanism is dominated by the state's influence on the development of agricultural cooperation. This influence is manifested in three main directions:

The first direction is the state's economic incentives to attract farmers to cooperation.

The second direction is the creation of a single digital platform supported by the state.

The third direction is the strengthening of the regulatory framework.

In the central part is the cooperative association, which is the main organizational unit of formal cooperation.

The lower part presents the rights and obligations of farms in participating in cooperation.

In conclusion, the study shows that farms' propensity of engaging in cooperation is largely determined by their need for technological resources. Although farms enhance short-term efficiency through informal cooperation, its institutional capacity remains limited. Therefore, transforming informal cooperation practices into formal cooperative structures will contribute to the development of agricultural production and increase its competitiveness.

The third chapter of the dissertation, entitled "Cooperation in agricultural production and its development prospects," analyzes the

process of cooperation in agriculture, the effects of factors influencing this process, and the prospects for the development of potato production in Samarkand region.

Sustained growth in agricultural productivity is closely linked not only to agrotechnological factors but also to the institutional environment. Recent studies conducted in European and Asian countries demonstrate that farmer cooperation has emerged as a key institution with a direct impact on productivity. Through cooperatives, producers gain improved access to high-quality seeds, modern agricultural machinery, and scientifically grounded planting and cultivation technologies, which is directly reflected in increased output levels.

In this context, it is particularly important to identify the effects of influencing factors under conditions where productivity indicators are bounded (for example, they cannot be negative or observations are clustered at lower values). To assess the factors affecting potato yields, a Tobit regression model was employed, and marginal effects calculated using the Delta method are presented. These results indicate the direction and statistical significance of the factors influencing potato productivity (see Table 7).

Table 7.
Economic assessment of factors affecting potato yield (Tobit model)³²

	Variables	Nisbiy ehtimollik koeffitsiyenti	Delta method	
		Coef. (St.err.) Sig.	Mar/Eff (st.err) Sig.	
1.	Cooperation in seed purchasing	2.396 (.619)***	2.396 (0.619)***	
2.	Land preparation	1.835 (.506)***	1.835 (0.506)***	
3.	Harvesting	1.885 (.52)***	1.885 (0.520)***	
4.	Mutual consultation	2.094 (.535)***	2.094 (0.535)***	
5.	Cooperation in fertilizer purchasing	1.595 (.533)***	1.595 (0.533)***	
6.	Potato land	.431 (.219)*	0.431 (0.219)*	
7.	Sex	1.034 (.595)*	1.034 (0.595)*	
8.	Education	1.012 (.3)***	1.012 (0.300)***	
9.	Experience	.12 (.044)***	0.120 (0.044)***	
10.	Age	-.016 (.022)	-0.016 (0.022)	
	Constant	19.784 (1.169)***		
-	Dispersion of error	18.588 (1.372)		
-	Mean of dependent variable	28.739	Standard deviation of dependent variable	5.445
-	R-squared	0.075	Observations (N)	367
-	Chi-squared statistics	170.355	Prob > chi2	0.000
-	Akaike criteria. (AIC)	2138.072	Bayes criteria (BIC)	2184.9

³² Author's analysis based on survey data.

				3
--	--	--	--	---

*** $p < .01$, ** $p < .05$, * $p < .1$

According to the data presented in Table 7, the coefficient of the variable cooperation in seed purchasing equals 2,396 and is statistically significant at the 1 percent level ($p < 0,01$). This indicates that potato farms that procure seeds through cooperative arrangements experience a significant positive effect on potato yield. From a practical perspective, this result can be explained by collective access to high-quality seeds, cost reduction, and informational advantages in seed selection. The positive impact of this factor is also confirmed by the results obtained using the delta method.

The coefficient of the land preparation variable is 1,835 and is also statistically significant. This finding implies that timely and high-quality land preparation plays an important role in increasing potato yields. Since land preparation is both capital- and labor-intensive, well-organized activities at this stage contribute positively to crop growth and productivity.

The harvesting variable has a coefficient of 1,885 and demonstrates a high level of statistical significance. This result suggests that proper organization of the harvesting process reduces yield losses and consequently increases overall productivity. In particular, efficient use of harvesting machinery and the completion of harvesting operations within a short time frame help preserve crop quality.

In addition, the coefficient of the mutual consultation variable is 2,094, indicating a strong positive effect on potato yield. This finding highlights that knowledge sharing and experience exchange among farmers, joint discussion of agronomic practices, and collective problem-solving significantly enhance productivity. This factor clearly demonstrates the crucial role of knowledge and information in agricultural production.

Cooperation in fertilizer procurement is also statistically significant at the 1 percent level ($p < 0,01$). This result indicates that joint fertilizer purchasing expands access to high-quality fertilizers, lowers prices, and promotes more efficient fertilizer use, all of which positively affect potato yield.

Overall, the results show that potato productivity is largely shaped by cooperation-related factors, technological stages of the production process, and human capital variables. In particular, cooperation in seed and fertilizer procurement, mutual consultation, and education level emerge as the most important determinants of increased potato yields.

Figure 7 illustrates the marginal effects of cooperative activities on potato yield expressed in percentage terms, clearly demonstrating the difference between farmers who participate in cooperation and those who do not. The diagram presents results across four main dimensions, showing that in each case, cooperating farmers achieve higher productivity levels.

In the area of consultation on production technology, non-cooperating farmers achieved an average potato yield of 27,6 percent, whereas cooperating farmers reached 29,7 percent. Thus, mutual consultation on technological issues increased productivity by approximately 2,1 percentage points. This result confirms that knowledge and experience sharing facilitates the timely and proper implementation of agrotechnical measures, ultimately improving agricultural performance.

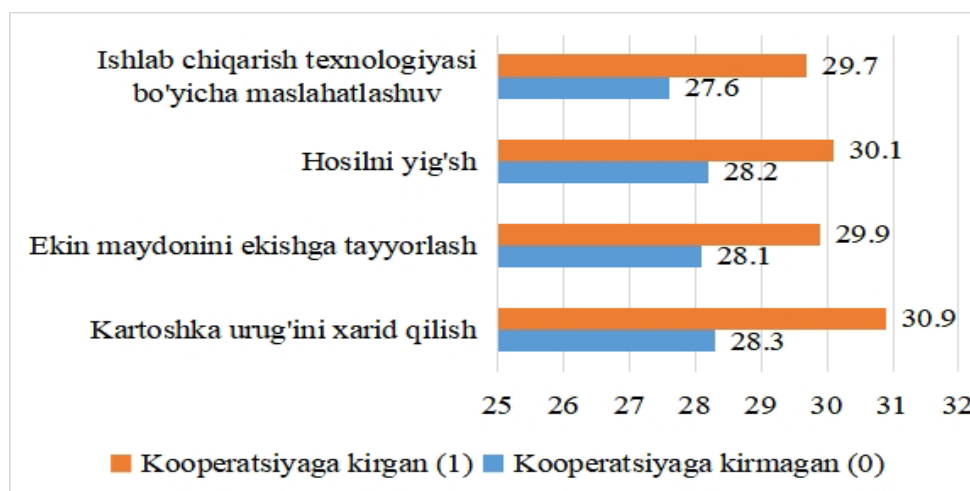


Figure 6. Marginal effects of cooperative activities on potato yield, %³³

Among non-cooperating farmers, potato productivity amounted to 28,2 percent, whereas among cooperating farmers this figure reached 30,1 percent. The resulting difference of 1,9 percentage points indicates that joint participation in harvesting activities, coordination of machinery, and labor sharing significantly reduce post-harvest losses.

In the area of land preparation for planting, productivity among non-cooperating farmers was 28,1 percent, while cooperating farmers achieved 29,9 percent. This 1,8 percentage point difference confirms that timely and high-quality land preparation positively affects potato productivity. In this process, collective use of machinery and shared access to production resources play a crucial role.

Cooperation in potato seed procurement emerges as one of the activities with the largest marginal impact on productivity. While non-cooperating farmers recorded an average yield of 28,3 percent, cooperating farmers achieved 30,9 percent. The resulting 2,6 percentage point difference demonstrates that joint seed purchasing improves access to high-quality and well-adapted seed material, which in turn has a substantial positive effect on potato yield.

Table 8.

Statistical analysis of potato production in Samarkand region³⁴
(2010-2025 yy.)

	Years	Number of farms	Potato land	Total yield	Productivity
--	-------	-----------------	-------------	-------------	--------------

³³ Author's analysis based on survey data.

³⁴ Statistik ma'lumotlar asosida muallif hisob-kitobi

1.	2010	4 685	1 598,0	32 199,7	201,5
2.	2011	4 760	1 714,0	34 811,3	203,1
3.	2012	5 176	2 307,0	49 785,1	215,8
4.	2013	1 910	1 774,0	41 795,4	235,6
5.	2014	1 913	1 807,0	43 133,1	238,7
6.	2015	2 266	2 103,0	54 425,6	258,8
7.	2016	3 770	3 175,0	83 089,8	261,7
8.	2017	4 128	3 151,0	83 060,4	263,6
9.	2018	4 054	3 011,0	80 333,5	266,8
10.	2019	2 156	2 559,0	68 658,0	268,3
11.	2020	2 381	2 444,0	68 065,4	278,5
12.	2021	2 444	3 557,0	102 299,3	287,6
13.	2022	2 491	5 521,0	157 072,5	284,5
15.	2023	2 088	5 964,0	172 896,4	289,9
15.	2024	2 050	5 778,0	175 940,1	304,5
16.	2025	2092	5859,0	180 515,8	308,1
<i>Change in 2025 compared to 2010</i>					
Absolute (+/-)		-2 593	4 261	148 316	107
Relative (%)		44,6	Increased by 3,7 times	Increased by 5,6 times	152,9

According to the official annual statistical data of the National Statistics Committee of the Republic of Uzbekistan, potato production across all categories of farms in Uzbekistan exhibited a consistent upward trend during the period 2020–2024. At the same time, the role of potatoes in meeting domestic market demand has strengthened, alongside a growing relationship with population growth. In particular, potato production reached 3,72 million tons in 2024.

Overall, the steady increase in potato production between 2020 and 2024 confirms the growing strategic importance of this crop within Uzbekistan’s agricultural system and highlights its significant contribution to ensuring national food security.

During the period 2010–2025, potato production in Samarkand region underwent notable quantitative and qualitative changes, reflecting both expansion in production volume and improvements in production practices.

The results of the analysis indicate that during the period 2010–2025, potato production in the Samarkand region has shifted from an extensive development pattern to an intensive development stage. The reduction in the number of farms did not have a negative impact on total production volume. On the contrary, potato output increased significantly due to the expansion of cultivated areas and improvements in yield levels. These trends demonstrate the growing economic and production potential of potato farming in the region and indicate the presence of a solid empirical basis for its sustainable development in the future.

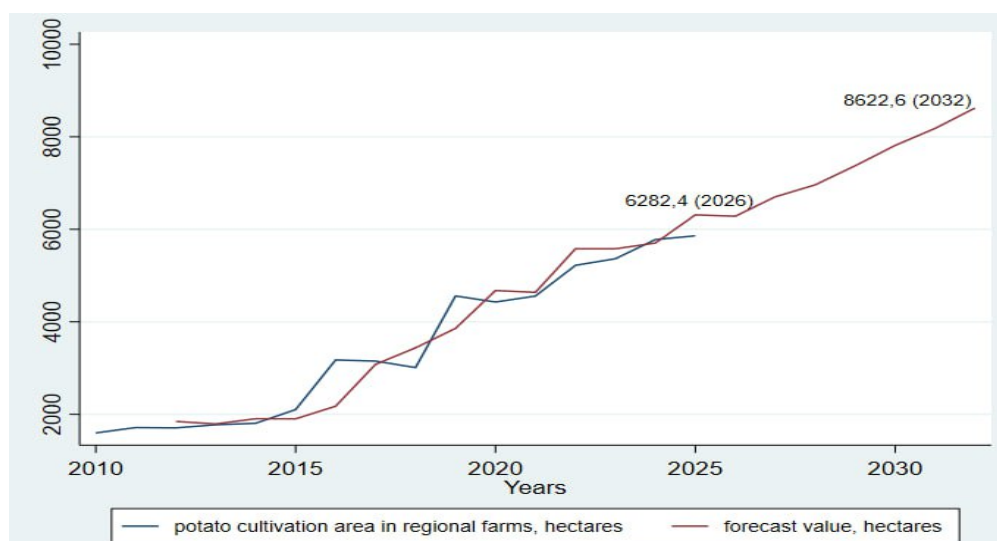


Figure 7. Dynamics of potato cultivation area and forecast indicators up to 2032

To forecast future potato production in the Samarkand region, the ARIMA model was employed. The ARIMA approach is considered one of the most effective methods for forecasting time series and variable dynamics over time. For the variable representing the number of potato-producing farms, the ARIMA(1,2,1) model was selected; for the variable representing the area under potato cultivation, the ARIMA(2,2,1) model was chosen; and for the variable representing potato production volume, the ARIMA(1,1,1) model was applied. Based on the selected models, the area under potato cultivation in the Samarkand region is projected to continue increasing until 2032 (see Figure 7).

Figure 7 illustrates the dynamics of potato cultivation areas in farm enterprises of the Samarkand region during 2010–2025, along with forecast indicators up to 2032. According to the figure, the area under potato cultivation was approximately 1,6 thousand hectares in 2010, increasing to 5,9 thousand hectares by 2025.

Based on the forecast results, the potato cultivation area is projected to reach 6282,4 hectares in 2026 and 8622,6 hectares by 2032. These projections indicate an expansion of cultivated areas by approximately 37 percent compared to 2026.

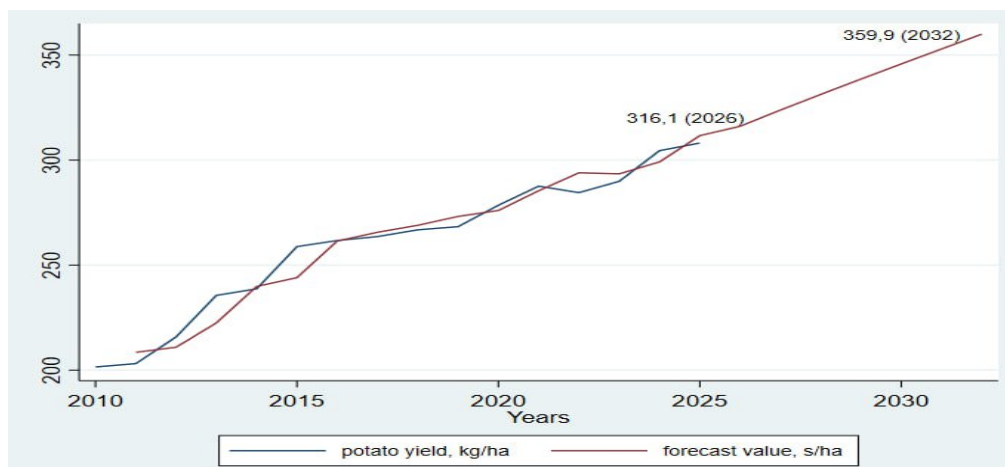


Figure 8. Dynamics of potato yield and forecast indicators up to 2032

According to Figure 8, potato yield amounted to 201.5 centners per hectare (c/ha) in 2010, increasing to 308,1 c/ha by 2025. Over this period, the absolute increase in yield reached 106,6 c/ha, indicating the formation of a stable upward growth trend. Based on the forecast results, potato yield is expected to reach 316,1 c/ha in 2026 and 359,9 c/ha by 2032. This represents an increase of 43,8 c/ha, or approximately 14 percent, compared to 2026.

CONCLUSIONS

1. To assess cooperation relationships among potato-producing farms, the study developed a system of cooperation criteria covering low ($0 \leq 0,35$), medium ($0,36 \leq 0,56$), and high ($0,57 \leq 1$) levels, enabling a clear classification of farmers' readiness to cooperate.

2. The results of the logit regression model scientifically demonstrate that cooperation in technological processes related to land preparation, planting, harvesting, irrigation, seed procurement, and resource use increases the probability of farms entering informal cooperation by 17–23 percentage points.

3. The availability of technological machinery and infrastructure facilities strengthens cooperation relationships among farmers. Specifically, the propensity to cooperate increases from 45 to 52 percent in farms equipped with potato planting machinery and from 42 to 51 percent in farms with access to water pumps.

4. Analyses conducted using the Tobit model indicate that participation in cooperation has a significant positive effect on potato yield. In particular, cooperation in seed procurement increases yield by 2,0–2,3 c/ha, while cooperation in land preparation and harvesting processes leads to yield gains of 1,8–2,0 c/ha.

5. Despite a 44,6 percent reduction in the number of farms in the Samarkand region during 2010–2025, potato cultivation areas increased by 3,7 times, and gross potato output rose by 5,6 times, confirming a transition toward an intensive development pathway.

6. According to forecasts generated using the ARIMA model, by 2032 potato cultivation areas are expected to reach 8.6 thousand hectares, while yield is projected to increase to 360 c/ha, highlighting the need to further deepen cooperation and technological modernization.

7. Although the study results show that informal cooperation provides short-term efficiency gains for farms, they also scientifically justify the

necessity of establishing formal cooperation institutions to ensure sustainable access to machinery, finance, and market infrastructure.

8. The proposed mechanism for establishing formal agricultural cooperatives, supported by state assistance, legal guarantees, and integrated governance, is substantiated as a means to increase production efficiency, reduce transaction costs, and enhance the competitiveness of agricultural products.

**НАУЧНЫЙ СОВЕТ DSc.08/2025.27.12.I.07.02 ПО ПРИСУЖДЕНИЮ
УЧЕНОЙ СТЕПЕНИ ПРИ САМАРКАНДСКОМ ИНСТИТУТЕ
АГРОИННОВАЦИЙ И ИССЛЕДОВАНИЙ**

САМАРКАНДСКИЙ ИНСТИТУТ АГРОИННОВАЦИЙ И ИССЛЕДОВАНИЙ

ИСМОИЛОВ АЗАМАТ ИСРОИЛОВИЧ

**КООПЕРАЦИОННЫЕ ОТНОШЕНИЯ В СЕЛЬСКОХОЗЯЙСТВЕННОМ
ПРОИЗВОДСТВЕ И ИХ ЭКОНОМИЧЕСКИЙ АНАЛИЗ (НА ПРИМЕРЕ
ФЕРМЕРСКИХ ХОЗЯЙСТВ)**

08.00.04 – Экономика сельского хозяйства

АВТОРЕФЕРАТ
диссертации доктора философии (PhD) по экономическим наукам

Самарканд – 2026

Тема диссертации на соискание степени доктора философии (PhD) зарегистрирована в Высшей аттестационной комиссии Министерства высшего образования, науки и инноваций Республики Узбекистан под номером B2023.4.PhD/Iqt3425.

Диссертация представлена в Самаркандский институт агроинноваций и исследований.

Аннотация диссертации размещена на трех языках (узбекском, английском, русском (резюме)) на сайте Научного совета (samaguni.uz) и на информационно-образовательном портале «Ziyonet» (www.ziyonet.uz).

Научный руководитель: **Хасанов Шавкат Турсункулович,**
доктор экономических наук, профессор

Официальные оппоненты: **Ахров Фарход Бахридинович,**
доктор экономических наук, профессор
Орипов Махмуд Ашурович,
кандидат экономических наук, доцент

Ведущая организация: **Ташкентский государственный аграрный университет**

Защита диссертации состоится на заседании Научного совета Самаркандского института агроинноваций и исследований № ДНц.08/2025.27.12.I.07.02 "_____" _____ 2026 г. в _____. (Адрес: 141001, Самаркандская область, район Окдарё, курган Дахбет, ул. А. Темура, дом 7. Тел. +998 66 492 81 16, эл. почта: info@samaguni.uz).

С диссертацией можно ознакомиться в Информационно-ресурсном центре Самаркандского института агроинноваций и исследований (регистрационный номер _____). (Адрес: 141001, Самаркандская область, район Окдарё, Дахбет-курган, улица А. Темура, дом 7. Тел. +998 66 492 81 16). Рефераты диссертации были распространены _____ года 2026 года.

(Регистрационный номер _____ от _ ...

Ш.Т. Хасанов

Председатель Ученого совета по присуждению научных степеней, доктор философии, профессор

Ш.Б. Бабахолов

Научный секретарь Ученого совета по присуждению научных степеней, доктор философии (PhD)

О. Муртазаев

Председатель Научного семинара при Ученом совете по присуждению научных степеней, доктор философии, профессор

ВВЕДЕНИЕ (Аннотация к докторской диссертации)

Актуальность и необходимость темы диссертации. Мелкомасштабное сельское хозяйство является ведущим сектором в развивающихся странах. Хотя на него приходится всего 12 процентов пахотных земель мира, оно производит более 80 процентов мировой сельскохозяйственной продукции. Однако эти хозяйства сталкиваются с серьезными проблемами в обеспечении устойчивого дохода из-за высоких транзакционных издержек на производство, сбыт и затраты на ресурсы, недостаточной рыночной инфраструктуры, высокой склонности к риску и слабых механизмов государственной поддержки.³⁵ В таких условиях важным фактором становятся формы горизонтального сотрудничества между

³⁵ World Bank. (2024). *World Development Report 2024: Agriculture in transition economies*.

хозяйствами, основанные на взаимопомощи в повседневной практике. Таким образом, в развивающихся странах неформальные и формальные формы кооперации между хозяйствами служат важным инструментом для снижения производственных издержек, эффективного использования ресурсов и облегчения доставки продукции на рынок, что имеет стратегическое значение для обеспечения устойчивого дохода и социально-экономического развития сельских районов. Ведущие научные центры и учреждения мира проводят обширные исследования для выявления и оценки влияния формальных и неформальных кооперативных групп, сформированных между хозяйствами, на издержки сельскохозяйственного производства, качество продукции и доход. Эти исследования направлены на изучение экономической эффективности сотрудничества между фермерами, эффективного использования ресурсов, координации производственных процессов и возможностей повышения конкурентоспособности на рынке. В частности, кооперативные отношения в производстве сельскохозяйственной продукции создают возможности для оптимизации затрат, обеспечения качества продукции и стабильности доходов за счет совместного использования семенных и технических ресурсов, координации водоснабжения и снабжения удобрениями, сбора, хранения и транспортировки продукции, а также расширения доступа к рынкам и каналам сбыта. Исследование также служит важной научной основой для научного анализа социальной значимости кооперативных отношений между фермерскими хозяйствами в местном и региональном экономическом развитии, разработки эффективных механизмов сотрудничества и их практической реализации.

В Узбекистане фермеры и крестьянские хозяйства играют решающую роль в производстве сельскохозяйственной продукции. Источником дохода почти трети сельского населения нашей страны является именно доход от сельскохозяйственной деятельности. С углублением рыночной экономики перед фермерами стоит задача производить конкурентоспособную продукцию не только по количеству, но и по качеству. Однако в результате недостаточно развитых экономических связей с участниками производственной цепочки (поставщиками семян, поставщиками услуг, предприятиями хранения и переработки, организациями по подготовке продукции, покупателями) производственные затраты в фермерских хозяйствах

растут, а доходы от деятельности остаются низкими. В этой связи, на фоне таких факторов, как глобальное изменение климата, нехватка воды, пандемии, становится крайне актуальной разработка научно и практически обоснованных рекомендаций, повышающих гибкость неформальных кооперативных фермерских хозяйств, снижающих риски и позволяющих оптимально использовать ресурсы.

Закон Республики Узбекистан от 8 ноября 2024 г. № УРК-995 «О сельскохозяйственных кооперативах», Указы Президента Республики Узбекистан от 14 марта 2019 г. № ПФ-4239 «О мерах по развитию сельскохозяйственной кооперации в плодоовощном секторе» от 23 октября 2019 г. № ПФ-5853 «Об утверждении Стратегии развития сельского хозяйства Республики Узбекистан на 2020-2030 годы» от 10 октября 2017 г. № ПК-3318 «Об организационных мерах по дальнейшему развитию деятельности крестьян, крестьянских хозяйств и землевладельцев», от 6 мая 2020 г. Диссертационное исследование в определенной степени служит выполнению задач, поставленных в Постановлении № ПК-4704 «О мерах по расширению картофелеводства и дальнейшему развитию семенного производства в Республике» и других нормативно-правовых актах, относящихся к данной деятельности.

Уровень исследования проблемы. Вопросы кооперативных отношений в сельскохозяйственном производстве, их организационно-правовой базы, экономической эффективности и влияния на деятельность хозяйств изучались узбекскими учеными, в том числе Ш.Т. Хасановым, Н. Джанибековым и Д. Холмирзаев, Д.Ниёзов, Н.Р.Муллабоев, С.Н.Хамраев,³⁶ Именно в направлении повышения экономической эффективности производства картофеля и улучшения кооперативных отношений в отрасли проводили исследования С. Дж. Саиджонов, Б. Т. Гасанов и Ш. А. Шеркобилов.³⁷

³⁶ Hasanov, Sh. T. (2019). Qishloq xo'jaligida kooperatsiya munosabatlarini rivojlantirishning iqtisodiy asoslari. Samarqand: Samarqand iqtisodiyot va servis instituti.; Djanibekov, O., & Sanayev, G'. N. (2019). Qishloq xo'jaligida institutsional islohotlar va kooperatsiya. O'zbekiston qishloq xo'jaligi, 4, 21–28.; Holmirzayev, D. (2018). Agrar sohada kooperatsiya va integratsiya masalalari. Iqtisodiy tahlil, 1, 60–66.; Niyozov, D. (2017). Qishloq xo'jaligi ishlab chiqarishida kooperatsiya munosabatlari. Ilmiy axborotnoma, 5, 55–61.; Mullaboyev, N. R. (2021). Kooperatsiya va qishloq hududlari rivoji. Hududiy iqtisodiyot, 1, 73–80.; Hamrayeva, S.N., & Fayziyeva, Sh.Sh. (2020). Qishloq xo'jaligi kooperativlarining ijtimoiy-iqtisodiy ahamiyati. Iqtisodiyot va jamiyat, 2, 88–94.

³⁷ ³⁷ Саиджонов С.Ж. Картошкачиликнинг ривожланиши ва уни иқтисодий самарадорлигини ошириш: авт. ... дисс. и.ф.н. – Т.: 2009 й.; Ҳасанов Б.Т. Озиқ-овқат таъминотида картошка етиштириш қиймат занжири субъектлари фаолиятини такомиллаштириш (Самарқанд вилояти мисолида): авт. ... дисс. и.ф.ф.д. – Т.: Қарши, 2024 й.; Ш.А.Шерқобилов. Картошкачиликни барқарор ривожлантиришнинг иқтисодий асосларини такомиллаштириш: авт. ... дисс. и.ф.ф.д. –

Эти исследования были направлены на выявление экономического потенциала производства картофеля, механизмов повышения производительности и доходов, а также эффективных методов развития кооперативных процессов между фермерскими хозяйствами. Они также научно обосновали направления повышения эффективности использования ресурсов в цепочке создания стоимости картофеля, логистики оборудования и продукции, а также возможностей доступа на рынок через кооперативные структуры. Также в научных работах зарубежных ученых, таких как Дж. Бийман, М. Бурресс, В. Валентинов, Дж. Нильссон, М. Фултон, К. Зеули, М. М. Ислам, П. П. Барман, С. Сюй, Ю. Б. Цуй, З. Дж. Ли,³⁸ были получены значимые результаты по эффективности и экономической значимости кооперативных структур, формируемых между фермерскими хозяйствами. Эти исследования в основном были сосредоточены на экономической сущности кооперации и интеграции фермерских хозяйств в рыночные отношения. Однако, в отличие от данного исследования, научная работа научно проанализировала роль кооперации в эффективном использовании ресурсов, снижении производственных издержек, обеспечении стабильности доходов и социально-экономическом развитии сельских районов, что демонстрирует актуальность этого направления и возможности его практического применения в развитии сельского хозяйства.

Соответствие исследования основным приоритетным направлениям развития науки и техники республики. Диссертация выполнена в соответствии с приоритетным направлением развития науки и техники республики I. «Духовно-нравственное и культурно-просветительское развитие демократического и правового общества,

Т.: – Тошкент, 2025 й. – 56 б.

^{38 38} Bijman, J., & Iliopoulos, C. (2014). Farmers' cooperatives in the EU: Policies, strategies, and organization. *Annals of Public and Cooperative Economics*, 85(4), 497–508.; Burrell, M., & Cook, M. (2009). A primer on cooperative life cycles. *Journal of Cooperatives*, 23, 1–22.; Valentinov, V. (2007). Why are cooperatives important in agriculture? *Journal of Institutional Economics*, 3(1), 55–69.; Nilsson, J. (2001). Organisational principles for cooperative firms. *European Review of Agricultural Economics*, 28(3), 329–352.; Fulton, M., & Hueth, B. (2009). Cooperative conversions, failures and restructurings. *American Journal of Agricultural Economics*, 91(5), 1305–1311.; Zeuli, K., & Cropp, R. (2004). *Cooperatives: Principles and practices in the 21st century*. Madison: University of Wisconsin Extension. Pillay, T. V. R., & Kutty, M.N. (2005). *Aquaculture: Principles and practices*. Oxford: Blackwell Publishing. Shamsuzzaman, M. M., & Islam, M.M. (2018). Analysing fish production and sustainability. *Aquaculture Economics & Management*, 22(1), 102–121.; Barman, P.P., & Al-Mamun, M.A. (2016). Smallholder aquaculture and rural livelihoods. *World Development*, 79, 21–36.; Xu, X., Cui, Y. B., Li, Z. J., & Wang, S. (2019). Agricultural cooperatives and farmer income. *China Agricultural Economic Review*, 11(2), 258–274.

формирование инновационной экономики».

Актуальность темы диссертации для научно-исследовательских планов высшего учебного заведения, где выполняется диссертация. Диссертация выполнена в рамках научно-исследовательского плана Самаркандского института агроинноваций и исследований в соответствии с приоритетными направлениями устойчивого развития аграрного хозяйства.

Цель исследования – разработка научно-методических предложений и практических рекомендаций по экономической оценке кооперативных отношений в сельском хозяйстве и их совершенствованию.

Задачи исследования:

научно и теоретически обосновать кооперативные отношения и их характеристики в развитии сельского хозяйства;

изучить существующие методологические подходы к экономической оценке кооперативных отношений в производстве сельскохозяйственной продукции;

определить состояние и тенденции сельскохозяйственного производства в Самаркандской области;

оценить кооперативные отношения между хозяйствами и влияющие на них экономические факторы;

Определение взаимосвязи и взаимоотношений между процессом кооперации в сельском хозяйстве и факторами, влияющими на ее эффективность, с использованием статистических тестов;

экономический анализ влияния кооперации на производство картофеля на фермах;

разработка научно обоснованных предложений и рекомендаций по совершенствованию кооперативных отношений между сельскохозяйственными субъектами;

прогнозирование перспектив выращивания картофельной продукции и развития агрокооперации в Самаркандской области.

В качестве объекта исследования для монографического исследования были выбраны хозяйствующие субъекты, специализирующиеся на картофелеводстве в нашей республике, и картофелепроизводящие хозяйства Самаркандской области.

Предметом исследования является совокупность социально-экономических отношений, возникающих в процессе формирования и развития кооперативных отношений в сельском хозяйстве.

Методы исследования. В диссертации использовались логический, сравнительный анализ, статистическое и эконометрическое моделирование, логистическая регрессия (условная логистическая регрессионная модель), модель латентных классов, модель Тобита, модель «ARIMA» и другие методы.

Научная новизна исследования:

Разработан методологический подход к оценке уровня склонности картофельных хозяйств к вступлению в кооперацию на основе низкого ($0 \leq 0,36$), среднего ($0,37 \leq 0,57$) и высокого ($0,58 \leq 1$) критериев;

Установлена корреляция склонности к неформальным кооперативным отношениям в хозяйствах, специализирующихся на выращивании картофеля, с такими факторами, как подготовка земли (+19,9%), посев (+17,6%), уборка урожая (+22,7%) и воздействие изменения климата (+14,4%) с использованием модели «LOGIT»;

Разработана организационно-экономическая структура механизма кооперации, стимулирующая постепенный переход хозяйств, специализирующихся на выращивании картофеля, от неформальной кооперации к формальной кооперации на основе государственных льготных программ;

С учетом развития кооперативных отношений в хозяйствах Самаркандской области разработаны прогнозные параметры динамики производства картофеля до 2032 года.

Практические результаты исследования следующие:

Разработаны критерии оценки уровня кооперации между картофелеводческими хозяйствами и установлено, что участие в кооперации оказывает существенное влияние на объем производства по всем видам деятельности для фермеров, вступивших в кооперативные отношения низкого, среднего и высокого уровней;

Научно доказано, что вступление фермерских хозяйств в кооперативное сотрудничество при выращивании картофеля увеличивает урожайность картофеля на 9% при наличии полевых подготовительных единиц, на 7% при наличии картофелепосадочных единиц, на 9% при наличии уборочных единиц и на 6% при наличии водяных насосов для орошения;

Научно доказано, что вступление фермерских хозяйств в кооперативное сотрудничество в процессах производства картофеля – посредством взаимных консультаций по закупке семян, полевой

подготовке и уборке урожая, а также производственным процессам – увеличивает урожайность картофеля на 1,8–2,3 тонны;

Достоверность результатов исследования объясняется тем, что они основаны на научно-методических исследованиях отечественных и зарубежных аграрных экономистов по вопросам аграрных реформ и развития сотрудничества между фермерами и сельским хозяйством, используемые данные получены из долгосрочных и официальных статистических источников, а также тщательно изучены научные исследования развития кооперативного сотрудничества между фермерскими хозяйствами и их методология.

Научно-практическое значение результатов исследования. Полученные в ходе исследования научно-методологические и практические результаты имеют большое значение для повышения эффективности производства продукции посредством проводимых в сельском хозяйстве реформ, взаимовыгодного и экономичного использования существующих ресурсов и инфраструктуры на основе сотрудничества, совершенствования научно-методологических, практических и правовых и нормативных рамок сельскохозяйственного сектора, а также создания возможностей для определения объемов сельскохозяйственной продукции, прогнозирования и стратегического планирования с использованием современных математических и экономических моделей.

На практике эти результаты могут быть использованы в качестве практического направления и руководства для организации и эффективного развития сотрудничества между фермерскими хозяйствами, а также для широкого применения предметов «Экономика сельскохозяйственного производства» и «Институциональная экономика» в высших учебных заведениях в учебном процессе.

Реализация результатов исследования. На основе полученных научных предложений и практических результатов по экономической оценке кооперативных отношений в сельском хозяйстве и путям их совершенствования:

Разработаны критерии для показателей оценки отношений картофелеводческих хозяйств, вступающих во взаимное сотрудничество. Предложение по данной инновации было реализовано на основе плана мероприятий, разработанного Самаркандским областным сельскохозяйственным управлением по развитию кооперативных отношений в сельском хозяйстве (2

февраля 2026 г.) и утвержденного Министерством сельского хозяйства Республики Узбекистан (Постановление Министерства сельского хозяйства Республики Узбекистан от 13 февраля 2026 г. № 06/26-2-10-05/17). В результате стало возможным научно точно оценить потенциал картофелеводческих хозяйств Тойлокского района Самаркандской области к участию в кооперации на основе низкого ($0 \leq 0,36$), среднего ($0,37 \leq 0,57$) и высокого ($0,58 \leq 1$) критериев;

Научно-методические подходы к обоснованию тенденции к установлению взаимовыгодных кооперативных отношений между субъектами, участвующими в производстве сельскохозяйственной продукции, и развитию комплексных интеграционных процессов в секторе были приняты Министерством сельского хозяйства Республики Узбекистан (Постановление Министерства сельского хозяйства Республики Узбекистан № 06/26-2-10-05/17 от 13 февраля 2026 г.). Предложение по данному нововведению было реализовано на практике на основе плана мероприятий, разработанного Самаркандским областным сельскохозяйственным управлением по развитию кооперативных отношений в сельском хозяйстве (2 февраля 2026 г.). В результате было установлено, что в трех районах Самаркандской области – Тойлокском, Джомбойском и Булунгурском – увеличение на 1 единицу таких факторов, как подготовка земли, посев, уборка урожая и изменение климата, повысило тенденцию хозяйств к вступлению в кооперативные отношения в среднем на 18,7 процента;

Внесено предложение о научном обосновании и внедрении в практику организационно-экономической структуры механизма кооперации, которая будет способствовать постепенному переходу хозяйств, специализирующихся на картофелеводстве, от неформальных кооперативов к формальным формам кооперации в рамках льготных программ, реализуемых государством. Это предложение подтверждено статьей 3 Закона Республики Узбекистан № О'РК-995 «О сельскохозяйственных кооперативах» от 8 ноября 2024 года и реализовано Министерством сельского хозяйства в организациях сельскохозяйственной системы (Постановление Министерства сельского хозяйства Республики Узбекистан № 06/26-2-10-05/17 от 13 февраля 2026 года). Предложение о данном нововведении было реализовано на основе плана мероприятий, разработанного Самаркандским областным сельскохозяйственным управлением по развитию кооперативных отношений в сельском

хозяйстве (2 февраля 2026 года). В результате было установлено, что урожайность картофеля в хозяйствах, вступивших в кооперативное сотрудничество, в среднем на 2-3 тонны выше, чем в тех, которые не вступили в кооперативное сотрудничество; с учетом тенденций развития кооперативного сотрудничества в хозяйствах Самаркандской области были разработаны прогнозные показатели урожайности картофеля до 2032 года. Это предложение было реализовано Министерством сельского хозяйства и «Департаментом экономического развития и финансирования аграрного сектора» в рамках министерства (Постановление Министерства сельского хозяйства Республики Узбекистан от 13 февраля 2026 г. № 06/26-2-10-05/17). В хозяйствах был внедрен план мероприятий, направленных на реализацию формирования кооперативного сотрудничества картофелеводческих хозяйств Тойлокского района хокимият от 1 марта 2026 г. В результате, к 2032 году прогнозируется увеличение площади картофелеводческих хозяйств в Самаркандской области с 316,1 с/га до 359,9 с/га, или на 43,8 процента, или, точнее, на 13,9 процента.

Аппаратизация результатов исследования. Результаты исследования обсуждались и получили положительную оценку на 3 международных и 3 республиканских научно-практических конференциях.

Публикация результатов исследования. Всего по теме диссертации опубликовано 9 научных работ. 2 из них опубликованы в научных журналах, рекомендованных Высшей аттестационной комиссией Республики Узбекистан, 1 — в научных статьях, опубликованных в зарубежных журналах, 4 — в сборниках тезисов докладов на республиканских и 2 международных конференциях.

Структура и объем диссертации. Диссертация состоит из введения, 3 глав, заключения, списка литературы и приложений, включая 22 таблицы и 11 рисунков. Общий объем составляет 133 страницы.

E'LON QILINGAN ISHLAR RO'YXATI
СПИСОК ОПУБЛИКОВАННЫХ РАБОТ
LIST OF PUBLISHED WORKS
I bo'lim (I часть; I part)

1. Ismoilov, A. Cooperative relations in potato growing on farms and their relationship with productivity. American Journal of Economics and Business Management, 2025, 8(10), 5128–5137.
<https://globalresearchnetwork.us/index.php/ajebm/article/view/4083>
2. Ismoyilov, A. Cooperative relations in potato growing on farm holdings and its relationship with productivity. In London International Monthly Conference on Multidisciplinary Research and Innovation 2025, (pp. 346–350). World Science Publishing Ltd.
<https://worldsciencepub.com/index.php/lmc/article/view/2054>
3. Ismoyilov, A. Organizational-economic and socio-demographic status of farm production in Samarkand region. In International Conference on Multidisciplinary Sciences and Innovations (ICMSI) 2025, (pp. 106–111). Scientific Conference, Germany.
<https://worldsciencepub.com/index.php/icmsi/article/view/2081>
4. Ismoyilov, A. I. Fermerlarning kooperatsiyaga kirishishlari ularni innovatsiyalarni qabul qilishiga ta'sir qiladimi? (Adabiyotlar tahlili). O'zbekiston qishloq xo'jaligini rivojlantirishda ilmiy tadqiqotlarning o'rni" mavzusidagi respublika ilmiy-amaliy konferensiya materiallar to'plami. Agro ilm, Maxsus son, 2025, 6(115), 117–118.
https://arm.ssuv.uz/journal/pdf_696f1b67500e8.pdf
5. Ismoyilov, A. I. Fermer xo'jaliklarida sabzavot mahsulotlarini yetishtirish muammolari va yechimlari. In Theoretical and Practical

Principles of Innovative Development of the Agricultural Sector in Uzbekistan 2022, (Vol. 3, pp. 112–117). Republican Scientific and Practical Conference, Samarkand Branch of Tashkent State Agrarian University. https://www.researchgate.net/publication/365265602_O'zbekistonda_agrar_sohani_innovatsion_rivojlantirishning_nazariy_va_amaliy_asoslari_2022_5

6-oktabr_Google_Scholar_indexed_wwwsamaguniuz_O'ZBEKISTON_RESPUBLIKASI_OLIIY_VA_O'RTA_MAXSUS_TA'LIM_VAZIRLIGI

6. Ismoyilov, A. I. Kooperativ munosabatlarini qishloq xo'jaligi rivojlanishidagi ahamiyati va adabiyotlar tahlili. O'zbekiston agrar fani xabarnomasi (Bulletin of the Agrarian Science of Uzbekistan), 2024, 5(17/2), 75–77. https://arm.ssuv.uz/journal/pdf_698ff57f60191.pdf

7. Ismoyilov, A. I. Fermer xo'jaliklarida ishlab chiqariladigan kartoshka hosiliga kooperatsiyaning ta'siri. O'zbekiston qishloq xo'jaligini rivojlantirishda ilmiy tadqiqotlarning o'rni" mavzusidagi respublika ilmiy-amaliy konferensiya materiallar to'plami. Agro ilm Maxsus son, 2025, 6(115), 31–33. https://arm.ssuv.uz/journal/pdf_696f1b67500e8.pdf

8. Ismoyilov, A. I. Kooperatsiya munosabatlariga kirgan va kirmagan fermer xo'jaliklarining empirik deskriptiv statistika tahlili. Yashil iqtisodiyot va taraqqiyot, 2025, 11, 1172–1176. <https://yashil-iqtisodiyot-taraqqiyot.uz/journal/index.php/GED/article/view/8168>

9. Ismoilov, A. (2025). Norasmiy kooperatsiya munosabatlarining fermer xo'jaliklari yetishtirgan mahsulot miqdoriga ta'sirini baholash. Yashil iqtisodiyot va taraqqiyot, 2025, 12, 325–331. <https://yashil-iqtisodiyot-taraqqiyot.uz/journal/index.php/GED/article/view/8176>

II bo'lim (II часть; II part)