



Cluster Farming in Ethiopia: A Comprehensive Review of Adoption Practices, Socioeconomic Impacts, and Policy Directions

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Abstract

This comprehensive review examines the adoption practices, socioeconomic impacts, and policy directions of cluster farming in Ethiopia. As a critical component of the Agricultural Commercialization Clusters (ACC) initiative, cluster farming aims to transition smallholder farmers from subsistence to commercial agriculture, thereby enhancing productivity and market integration. The review highlights the significant role of agriculture in Ethiopia's economy, the challenges faced by the sector, and the potential benefits of cluster farming.

Key findings indicate that participation in cluster farming is positively associated with increased incomes, improved food security, and enhanced livelihoods. However, barriers such as limited access to credit, inadequate infrastructure, and gender disparities impede broader adoption. The review suggests that effective policy frameworks and coordinated interventions are essential for maximizing the benefits of cluster farming. By embedding climate-smart practices and strengthening institutional support, Ethiopia can foster sustainable agricultural transformation and promote inclusive rural development. This review provides valuable insights for policymakers, researchers, and development partners seeking to leverage cluster farming for the benefit of smallholder farmers and the wider economy.

Keyword: Frameworks, Inclusive, Strengthening, Farming

1. Introduction

According to the World Bank (2023), Ethiopia has a population of approximately 126.5 million, making it the second most populous country in Africa after Nigeria. The economy remains among the fastest-growing in the region, with an estimated real GDP growth rate of 8.1% in fiscal year 2023/24. Despite this progress, the country continues to face significant development challenges, with a per capita gross national income (GNI) of only US \$1,020—underscoring ongoing efforts to achieve lower-middle-income status by 2025. Agriculture remains the backbone of Ethiopia's economy, serving as the primary source of employment, a major driver of poverty reduction, and the foundation for national food security and export earnings. Data from the National Bank of Ethiopia (NBE, 2019) indicate that the sector accounts for more than 33.3% of gross domestic product (GDP) and about 68% of total employment. This central role has made agricultural development a core priority in Ethiopia's policy agenda, with strategies designed to enhance the sector's productivity,

resilience, and contribution to inclusive economic growth (Derebe *et al.*, 2019) ^[19].

Despite its pivotal role, the agricultural sector continues to experience low productivity due to technological and socio-economic constraints. Factors such as inefficient farm management, limited use of modern inputs, reliance on traditional farming techniques, weak extension services, poor infrastructure, inadequate access to credit and markets, and policy shortcomings have constrained output per hectare (FAO & WFP, 2012; Tadie *et al.*, 2019). Addressing these constraints is critical for ensuring food security, raising rural incomes, and sustaining economic growth.

In Ethiopia, agricultural production is predominantly undertaken by subsistence and smallholder farmers (Boere *et al.*, 2016; Getahun, 2020) ^[10, 27]. Consequently, Smallholder commercialization is a critical driver in transforming the Country's subsistence agriculture (Getahun, 2020) ^[27]. The transition from subsistence to commercial agriculture is crucial for poverty reduction, food security, and improved nutrition among farm households (Mamo *et al.*, 2017;

Gidelew *et al.*, 2022)^[35, 29]. Smallholder commercialization enhances the diversity of marketed commodities nationally, promotes comparative advantage-based specialization regionally, and enables economies of scale (Barrett, 2008; Jaleta *et al.*, 2009)^[8, 32]. This process is linked to increased productivity, greater specialization, and higher incomes at the micro level, while also improving food security and allocative efficiency at the macro level (Fafchamps, 2005; Bernard *et al.*, 2008)^[23, 9]. Transforming traditional subsistence farming into commercial agriculture through the adoption of modern technologies and market-oriented production systems is widely recognized as one of the most effective strategies for reducing rural poverty in developing countries (Carletto *et al.*, 2017)^[11]. In this context, the Government of Ethiopia introduced the Agricultural Commercialization Clusters (ACC) Initiative under the Growth and Transformation Plan I (GTP I) as a mechanism to integrate priority interventions with specific geographies, focusing on a limited number of high-value commodities (Dejene, 2019)^[18]. The approach builds on lessons from previous agricultural initiatives and aims to accelerate rural industrialization by fostering spatially concentrated, commodity-based agricultural development.

Cluster farming, central to the ACC model, coordinates the cultivation of contiguous plots by groups of farmers using harmonized crop choices, production calendars, and technology packages. By aggregating smallholder production, it seeks to achieve economies of scale, lower per-unit mechanization costs, improve access to extension and financial services, and strengthen farmers' bargaining power in markets. International experience, including examples from Kenya, Rwanda, and parts of Asia, suggests that well-managed cluster farming can boost competitiveness, attract investment, and promote sustainable rural transformation (Anderson & Reynolds, 2009)^[4].

Enhancing the performance of cluster farming through the ACC framework is therefore not only essential for transforming Ethiopian agriculture from subsistence to commercial production, but also critical for feeding a fast-growing population, increasing farmer incomes, and integrating Ethiopia's agriculture into competitive value chains. However, while promising, the Ethiopian experience with cluster farming remains in an early stage, with fragmented evidence on adoption, impacts, and long-term sustainability. This review seeks to address this gap by compiling and analyzing existing literature on cluster farming in Ethiopia, with a focus on adoption practices, socioeconomic and productivity impacts, and policy and institutional directions for scaling and sustainability. By situating Ethiopia's experience within its policy context and drawing lessons from international practices, the review provides insights for policymakers, researchers, and development partners seeking to leverage cluster farming for inclusive and sustainable agricultural transformation.

2. Overview of Cluster Farming in Ethiopia

The concept of clusters was first introduced by Michael Porter in *The Competitive Advantage of Nations* (1990), describing geographically concentrated groups of interconnected companies and related institutions within specific sectors that leverage shared resources and linkages to enhance competitiveness. Such clusters foster collaboration, knowledge exchange, and innovation through geographic proximity, leading to economies of scale and agglomeration (Porter, 1990; Krugman, 1990)^[38, 33]. Clusters

may form organically, as in the Maharashtra grape cluster in India, or through external facilitation, as in the Bio Bio blueberry cluster in Chile (Roy & Thorat, 2008; Zeng, 2008)^[41, 47]. From a smallholder farmer perspective, agricultural clusters enhance efficiency, effectiveness, and flexibility by linking producers with institutions in a robust organizational framework (Porter, 1998). By fostering collective action, clusters generate economies of scale that lower input costs, strengthen bargaining power, facilitate information exchange, and reduce transaction costs between farmers and buyers (Holtzman *et al.*, 1997; Reardon *et al.*, 2009; Roy & Thorat, 2008)^[41, 30, 40]. While industrial clusters typically operate at the higher end of markets, agricultural clusters in developing economies are increasingly contributing to high-value exports such as horticulture, livestock, cut flowers, and organic products—now comprising nearly half of developing-country agricultural exports, compared to 21% for traditional tropical commodities like coffee, cacao, tea, and cotton (World Bank, 2007). Evidence from West Java, Indonesia, shows that agro-clusters can enhance employment opportunities and promote output specialization (Dadan *et al.*, 2015)^[13]. Although diversification is often encouraged to boost production and reduce farm-business risks (Alphonse *et al.*, 2017)^[3], specialization within clusters can allow farmers to concentrate skills, capital, and knowledge on commodities where they hold a comparative or competitive advantage (Castle *et al.*, 1987)^[12].

In Ethiopia, cluster farming typically involves 30–200 smallholder farmers with adjacent plots who voluntarily pool at least 0.25 ha each, ensuring a minimum of 15 ha per cluster to maximize economies of scale (ATA, 2019a; Tabe-Ojong & Dureti, 2023)^[20]. Participants commit to cultivating priority crops and applying recommended agronomic practices, while the model engages stakeholders across the value chain—from research and input supply to production, transport, storage, marketing, and consumption—thereby fostering backward and forward linkages (ATA, 2019b). These clusters provide shared access to modern technologies (e.g., joint investment in tractors), enhance bargaining power in price negotiations, and improve market access, including opportunities for contract farming with large processors (Louhichi *et al.*, 2019; ATA, 2019b)^[34].

Building on this operational framework, the Ethiopian government has institutionalized cluster farming through the Agricultural Commercialization Cluster (ACC) initiative, part of its Agriculture-Led Industrialization Strategy (ADLI). The ACC promotes geographically concentrated production zones to strengthen integration across priority value chains, enhance productivity and quality, and improve coordination among public agencies, private actors, and NGOs (ATA, 2015). Implemented in four regions—Amhara, Oromia, SNNPR, and Tigray—the program has established 29 clusters focusing on commodities such as teff, wheat, maize, horticultural crops, coffee, sesame, and livestock products (ATA, 2015). Designed as Centers of Excellence, these clusters aim to serve as replicable models for scaling best practices and accelerating Ethiopia's transition toward a market-oriented agricultural sector (Louhichi *et al.*, 2019)^[34]. Ultimately, the ACC initiative embodies Porter's theoretical framework of clusters, demonstrating the potential of localized collaboration and resource sharing to boost competitiveness, promote specialization, and drive inclusive rural transformation.

3. Adoption Practices and Influencing Factors of Cluster Farming in Ethiopia

Adoption of cluster farming in Ethiopia is influenced by a combination of socioeconomic, institutional, market, and agro-ecological factors. Across multiple studies, participation is positively associated with male household headship, larger farm size, higher education, greater farming experience, access to credit, cooperative membership, frequent extension contact, availability of agricultural inputs, market information, training opportunities, and favorable climate change perceptions (Hussen & Geleta, 2021; Degefu *et al.*, 2024; Fola *et al.*, 2025; Milkias & Beri, 2024; Sultan, 2024; Degefu, 2023; Agazhi *et al.*, 2025) [31, 16, 25, 42, 1]. These attributes enhance human capital, institutional engagement, and resource capacity, thereby increasing the likelihood of participation. In contrast, greater distance to markets, cooperatives, or road infrastructure, engagement in off-farm activities, and in some cases high livestock ownership reduce adoption by limiting market access, diverting resources, or competing for land (Hussen & Geleta, 2021; Degefu *et al.*, 2024; Agazhi *et al.*, 2025) [31, 15, 1]. Evidence thus suggests that scaling up cluster farming requires integrated interventions that strengthen education, credit provision, cooperative services, extension systems, and rural infrastructure, while addressing gender disparities and tailoring institutional support to local contexts.

4. Socioeconomic and Productivity Impacts of Cluster farming in Ethiopia

Empirical evidence consistently demonstrates that cluster farming enhances smallholder productivity, commercialization, and livelihoods in Ethiopia. Participation has been shown to increase commercialization indices, market surplus, and crop prices, with greater gains for medium and large farms (Dureti *et al.*, 2023) [20], and to raise annual crop income from USD 731 for non-participants to USD 1,106 for participants, while increasing the proportion of output sold from 36 percent for non-participants to 50 percent for participants (Gidelew *et al.*, 2025) [28]. Asset accumulation also improves, with participants' holdings valued at ETB 8,014.13 (USD 148.69) more than non-participants (Getachew *et al.*, 2023). Productivity impacts are substantial: wheat yields and net benefits increased by up to 46.79% and 102.49%, respectively (Degefu *et al.*, 2024; Sura, 2023) [16], while teff yields rose by 208 kg/ha (Tesfaye, 2022) [44]. Technical efficiency gains are also reported—cluster farmers averaged 74% compared to 60% for non-participants, with potential gains of 33% for non-adopters (Fola *et al.*, 2025) [25]. Beyond output, cluster farming improves food consumption, dietary diversity, household savings, asset ownership, and children's school enrollment (Degefu *et al.*, 2025; Endaznow, 2020) [16, 22]. Collectively, these findings underscore cluster farming's role in boosting productivity, market integration, and welfare, supporting policies that integrate input provision, market access, cooperative networks, and climate-resilient practices to sustain adoption and scale impacts.

5. Policy and Institutional Directions

The potential of cluster farming to enhance productivity, commercialization, and rural welfare in Ethiopia depends largely on the strength of its policy and institutional frameworks. The ACC initiative, embedded within the country's Agriculture Led Industrialization Strategy (ADLI), reflects the government's commitment to geographically

concentrated, value chain-oriented agricultural development. By integrating research, input supply, extension, marketing, and financial services, the ACC model aligns with international best practices in fostering economies of scale, improving market access, and promoting specialization.

However, to fully realize these benefits, several policy and institutional adjustments are needed. First, strengthening extension services and ensuring regular, tailored farmer engagement is critical, as frequent extension contact has been shown to significantly improve adoption rates. Second, expanding access to rural finance through both formal credit and cooperative-based savings schemes can address capital constraints that limit technology uptake. Third, enhancing market infrastructure by reducing distances to aggregation centers, improving road networks, and facilitating contract farming arrangements can increase farmers' market participation and bargaining power. Fourth, addressing gender disparities in participation through targeted training, land rights enforcement, and women-focused cooperatives can ensure more equitable benefits from CF. Finally, institutionalizing climate-smart practices within cluster operations such as improved water management, drought-tolerant varieties, and integrated pest management can strengthen resilience to environmental shocks, a growing concern in Ethiopia's agricultural policy discourse.

To sustain and scale the model, coordination among the Ministry of Agriculture, regional bureaus, the ATA, cooperatives, and private sector actors should be deepened. This requires clear role delineation, performance monitoring, and mechanisms for sharing best practices across regions. By embedding cluster farming in a coherent policy framework that links productivity gains with market integration and resilience building, Ethiopia can accelerate its agricultural transformation agenda while ensuring inclusive and sustainable rural development.

6. Conclusions

Cluster farming in Ethiopia represents a transformative approach to enhancing agricultural productivity and commercialization among smallholder farmers. By fostering collaboration among farmers and integrating essential support services, the ACC initiative aims to address the longstanding challenges of low productivity and market access.

The evidence presented in this review highlights the positive socioeconomic impacts of cluster farming, including increased incomes, improved food security, and enhanced livelihoods for participating households. However, to fully realize the potential of this approach, it is crucial to address existing barriers, such as access to credit, infrastructure deficits, gender disparities and frequency of extension contact.

Policy frameworks must be strengthened to ensure that extension services are responsive and tailored to the needs of farmers. Additionally, integrating climate-smart practices will be vital in building resilience against environmental shocks, thus sustaining agricultural growth in the face of changing climatic conditions.

Ultimately, the success of cluster farming in Ethiopia hinges on a coordinated effort among government agencies, private sector actors, and development partners. By prioritizing integrated interventions and inclusive policies, Ethiopia can accelerate its agricultural transformation agenda, paving the way for sustainable rural development and improved livelihoods for millions of smallholder farmers.

7. References

1. Agazhi ZD, Mada M, Alemu M. Does cluster farming improve efficiency? A case of wheat farmers in Arsi Zone of Oromia Region, Ethiopia. *J Prod Anal.* 2025. <https://doi.org/10.1007/s11123-025-00766-2>
2. Agricultural Transformation Agency. Agricultural Commercialization Clusters (ACC) Initiative. Briefing document. 2015.
3. Alphonse N, Morris O, Omondi Z, Xu L, Li GJ, Pan S. Direct factors influencing farmers' participation in crop intensification program in Rwanda. *J Integr Agric.* 2017;16(6):1406–16. [https://doi.org/10.1016/S2095-3119\(16\)61555-1](https://doi.org/10.1016/S2095-3119(16)61555-1)
4. Anderson JR, Reynolds L. The economics of agricultural commercialization in developing countries: What works and what doesn't. Washington (DC): World Bank; c2009.
5. ATA-Ethiopian Agricultural Transformation Agency. Annual Report 2010 (2017–18). Addis Ababa: ATA; c2019a. Available from: www.ata.gov.et
6. ATA-Ethiopian Agricultural Transformation Agency. Agricultural Commercialization Clusters. 2025. Available from: <https://ati.gov.et/acc/> [Accessed 2025 Aug 13].
7. ATA-Ethiopian Agricultural Transformation Agency. Agricultural Commercialization Clusters, Program Appraisal Document (2019/20–2023/24). Addis Ababa: ATA; c2019b. Unpublished internal document.
8. Barrett CB. Smallholder market participation: Concepts and evidence from eastern and southern Africa. *Food Policy.* 2008;33(4):299–317. <https://doi.org/10.1016/j.foodpol.2007.10.005>
9. Bernard T, Taffesse AS, Gabre-Madhin E. Impact of cooperatives on smallholders' commercialization behavior: Evidence from Ethiopia. *Agric Econ.* 2008;39(2):147–61. <https://doi.org/10.1111/j.1574-0862.2008.00324.x>
10. Boere E, Mosnier A, Bocqueho G, Krisztin T, Havlik P. Developing country-wide farm typologies: An analysis of Ethiopian smallholders' income and food security. 2016.
11. Carletto C, Corral P, Guelfi A. Agricultural commercialization and nutrition revisited: Empirical evidence from three African countries. *Food Policy.* 2017;67:106–18. <https://doi.org/10.1016/j.foodpol.2016.09.020>
12. Castle EN, Becker MH, Nelson AG. Farm business management: The decision making process. New York: MacMillan; 1987.
13. Dadan W, Rico L, Wim H. The effects of agro-clusters on rural poverty: A spatial perspective for west java of Indonesia. Paper presented at: 150th EAAE Seminar; c2015 Oct 22–23; Edinburgh, UK.
14. Dawit M, Gemechu B. Factors influencing participation decision of smallholder farmers on cluster farming: The case of wheat technologies in Dawoo District, South-West Shewa Zone, Oromia Region, Ethiopia. *Middle East Res J Econ Manag.* 2024;4(1):1–7.
15. Degefu S. Impact of cluster farming on smallholder wheat farmers productivity: The case of Lemu-Bilbilo and Hetosa districts of Arsi Zone, Ethiopia [Thesis]. Haramaya (ET): Haramaya University; c2023.
16. Degefu S, Andualem H, Sileshi M, Ogeto M, Bacsı Z. Impact of cluster farming on technical efficiency and food security among smallholder wheat producers in Southeastern Ethiopia. *Discov Food.* 2025;5:129. <https://doi.org/10.1007/s44187-025-00399-2>
17. Degefu S, Demelash M, Tsegae T. Determinants of smallholder wheat farmers' participation in cluster farming in Lemu-Bilbilo and Hetosa Districts of Arsi Zone, Ethiopia. *Discov Agric.* 2024;2:93. <https://doi.org/10.1007/s44279-024-00111>
18. Dejene M. Cluster farming as new approach in Ethiopia. Conference Paper. 2019.
19. Derebe E, Gosaye E, Bailu E. Analysis of technical efficiency and its potential determinants among smallholder tomato farmers in Siltie Zone, Southern Ethiopia. *J Econ Struct.* 2019. <https://dx.doi.org/10.17582/journal.sja/2021/37.3.818.829>
20. Dureti GG, Tabe-Ojong MPJ, Owusu-Sekyere E. The new normal? Cluster farming and smallholder commercialization in Ethiopia. *Agric Econ.* 2023;54(6):900–20. <https://doi.org/10.1111/agec.12790>
21. Endalew B, Elias A, Yasunobu K. Impact of cluster farming on smallholder farmers' teff commercialization in Ethiopia. *Agric Biosci.* 2024;5:18. <https://doi.org/10.1186/s43170-024-00220-7>
22. Endaznow W. Contributions of cluster farming to the livelihood of farmers: A comparative study at Siyadebrina Wayu Woreda, North Shewa, Ethiopia [Thesis]. Addis Ababa: Addis Ababa University; c2020.
23. Fafchamps M. Market institutions in sub-Saharan Africa: Theory and evidence. Cambridge (MA): MIT Press; c2005.
24. FAO. Analysis of price incentives for wheat in Ethiopia for the time period 2005–2012. Rome: FAO/MAFAP; c2014.
25. Fola M, Tsegaye G, Zawde S, Matsalo M. Effect of maize cluster farming on smallholder farmers' technical efficiency: Evidence from Southern Ethiopia. *BMC Agric.* 2025;1(4). <https://doi.org/10.1186/s44399-025-00006-w>
26. Getachew NT, Mengistu KA, Zekariyas SN, Kedir JI. Impact of wheat cluster farming practice on smallholder's asset building in Arsi Zone of Ethiopia. *J Bus Econ Dev.* 2023;8(1):1–11. <https://doi.org/10.11648/j.jbed.20230801.12>
27. Getahun A. Smallholder farmers agricultural commercialization in Ethiopia: a review. *Agric For Fish.* 2020;9(3):74–81.
28. Gidelew GE, Alemu BA, Kassie KE. The crop commercialization impact of cluster farming initiative in Northwestern Ethiopia. *Front Sustain Food Syst.* 2025;9:1548304. <https://doi.org/10.3389/fsufs.2025.1548304>
29. Gidelew GE, Tefera TL, Aweke CS. From staple food to market-oriented crop: Commercialization level of smallholder teff growers in Jamma District, Ethiopia. *CABI Agric Biosci.* 2022;3:53. <https://doi.org/10.1186/s43170-022-00123-5>
30. Holtzman J, Abbott R, Shaffer D, Koskella R. Innovative approaches to agribusiness development in Sub-Saharan Africa. Vol. 2: Secondary Research Findings. USAID Technical Paper No. 79; 1997.
31. Hussien CH, Geleta FT. Factors affecting smallholder farmers' participation in cluster crop production: Evidence from selected districts of West Shewa Zone, Oromia, Ethiopia. *Sarhad J Agric.* 2021;37(3):818–29.

- <https://dx.doi.org/10.17582/journal.sja/2021/37.3.818.829>
32. Jaleta M, Gebremedhin B, Hoekstra D. Smallholder commercialization: Processes, determinants and impact. ILRI Discussion Paper. 2009. Available from: <https://cgspace.cgiar.org/handle/10568/27>
 33. Krugman P. Increasing returns and economic geography. NBER Working Paper No. w3275. 1990.
 34. Louhichi K, Temursho U, Colen L, Paloma SG. Upscaling the productivity performance of the Agricultural Commercialization Cluster Initiative in Ethiopia. JRC Science for Policy Report. Publications Office of the EU; c2019.
 35. Mamo T, Getahun W, Tesfaye A, Chebil A, Solomon T, Aw Hassan A, Debele T, Assefa S. Analysis of wheat commercialization in Ethiopia: The case of SARD-SC wheat project innovation platform sites. *Afr J Agric Res*. 2017;12(10):841–9.
 36. MoFED. Growth and Transformation Plan I 2010/11–2014/15. Addis Ababa: FDRE; c2010. Available from: http://www.ethiopians.com/GTP_2015
 37. NBE (National Bank of Ethiopia). Annual Report 2018/19. Addis Ababa: NBE; c2019.
 38. Porter M. The competitive advantage of nations. New York: Free Press; 1990.
 39. Porter M. Clusters and the new economics of competition. *Harv Bus Rev*. 1998. Available from: <http://hbr.org/product/clusters-and-the-new-economics-of-competition/an/98609-PDF-ENG>
 40. Reardon T, Barrett CB, Berdegue JA, Swinnen JF. Agrifood industry transformation and small farmers in developing countries. *World Dev*. 2009;37(11):1717–27. <https://doi.org/10.1016/j.worlddev.2008.08.023>
 41. Roy D, Thorat A. Success in high-value horticultural export markets for small farmers: The case of Mahagrapes in India. *World Dev*. 2008;36(10):1874–90. <https://doi.org/10.1016/j.worlddev.2007.09.009>
 42. Sultan O. Analysis of factors affecting participation of smallholder farmers in wheat cluster farming: The case of Gasera District, Bale Zone, Oromia Region, Ethiopia. *Sci Publ Group*. 2024;12(4):95–110.
 43. Tabe-Ojong MPJ, Ordway EM, Nkongho RN, Molua EL. Oil palm expansion among non-industrial producers in Cameroon: Potentials for synergy between agro-economic gains and ecological safeguards. *For Policy Econ*. 2022;135:102645. <https://doi.org/10.1016/j.forpol.2021.102645>
 44. Tesfaye W. The impact of cluster farming on crop productivity in Amhara Regional State, Ethiopia: Evidence from Dejen Woreda [Thesis]. Addis Ababa (ET): Addis Ababa University; c2022.
 45. World Bank. The World Bank in Ethiopia. 2023. Available from: <https://www.worldbank.org/en/country/ethiopia/overview> [Accessed 2025 Aug 9].
 46. World Bank. World development report 2008: Agriculture for development. Washington (DC): World Bank; c2007.

47. Zeng D. Knowledge, technology and cluster-based growth in Africa. WBI Learning Resources Series. Washington (DC): World Bank; c2008.

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