



Contract Farming in the Agricultural Sector: A Narrative Review of Historical Development, Typologies, and Multidimensional Outcomes

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Article History:

Received: 07. 7.2026

Accepted: 05. 8.2026

Online First: 18.9.2026

Citation:

Sanjar,S. (2026). Contract Farming in the Agricultural Sector: A Narrative Review of Historical Development, Typologies, and Multidimensional Outcomes.*Kdz Uni Int J Islam Stud and Soc Sci*;3(3):370-385

e-ISSN: 3078-3895

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Abstract

Contract farming has documented origins in the colonial period of the late nineteenth century and spread widely from the 1980s, alongside market liberalization. Today it is used in many countries to reduce production and marketing uncertainty. This narrative review synthesizes the literature on the concept, historical development, typologies, and reported advantages and disadvantages of contract farming. It responds to three gaps in earlier reviews: a concentration on economic outcomes, a regional or commodity-specific focus, and limited incorporation of recent evidence. Twenty-nine sources published between 1963 and 2025 were retained through a structured search of Google Scholar, Scopus, and JSTOR and analyzed thematically. The findings are interpreted through a contingency framework in which contract design, bargaining power, the institutional environment, market conditions, and product characteristics jointly shape outcomes. The reviewed studies report income gains, improved access to inputs, and technology transfer, but also unequal bargaining power, uneven distribution of benefits, land concentration, and environmental pressure from input-intensive production. Five patterns emerge: outcomes are conditional rather than inherent; bargaining asymmetries persist; environmental effects are under-researched; evidence on long-term effects is thin; and productivity gains do not automatically become profits. Recommendations are addressed to governments, farmer organizations, agribusiness firms, development agencies, and researchers.

Keywords: contract farming, production contracts, smallholders, bargaining power, narrative review.

Introduction

Globalization has accelerated structural change in economic policy and in agricultural production systems. Under neoliberal policy regimes and deepening market integration, agricultural structures, farming practices, and attitudes toward contract-based production have all been reshaped. Faced with intense competition and rising uncertainty, farmers and agribusinesses must look for durable competitive advantages beyond conventional production methods if they are to remain viable (Rehber, 2007; Silva, 2005). Innovative contractual arrangements have become one of the main instruments for managing that uncertainty (Eaton & Shepherd, 2001; Rehber, 2007), and contract farming is increasingly treated as a condition of staying viable in competitive and volatile markets (Aydın, 2007). Contractual organization is now widely regarded as a determinant of competitiveness,

both for individual farm businesses and for national agricultural sectors (Rehber, 2007; Silva, 2005). A sound understanding of its historical development, its forms, and the factors that shape its outcomes is therefore needed.

Scholarly views on contract farming diverge considerably. On the optimistic side, Moore (1994) described it as a pathway toward commercialization and industrialization, particularly in developing and underdeveloped countries, because it can supply capital and management support to small family farms and agricultural workers. Roy (1963) and Doye et al. (1992) observed that where access to inputs, services, and technical knowledge is severely limited, contract farming can widen that access and ease marketing bottlenecks. Patrick (2004) argued that it allows smallholders to move from subsistence production toward high-value, export-oriented agriculture. Evidence from transition economies points the same way: Swinnen and Maertens (2006) reported that between 60% and 85% of corporate farms in the Czech Republic, Slovakia, and Hungary sold their output under production contracts in the late 1990s, and that the share of food-processing companies contracting with producers in Armenia, Georgia, Moldova, Ukraine, and Russia rose from 25% in 1997 to nearly 75% in 2003.

A critical tradition questions this optimism. Oral (2006) argued that, as implemented under globalized conditions, contract farming works mainly as a capitalist instrument: it allows large agribusiness firms to control production decisions and so facilitates the exploitation of farmers in underdeveloped and developing countries. Clapp (1994) likewise characterized it as a key mechanism of capitalist agrarian restructuring. Duygumaz (1985) observed that the structure of contract farming varies widely and that its problems have to be judged within specific economic and market conditions; he identified farmers' weak bargaining power as their central difficulty and advocated producer unions. Aydın (2007) raised environmental concerns, warning that polluting, chemical-intensive production could be relocated to developing countries, with damaging effects on soil, water, and cropping patterns.

These two bodies of literature are more than descriptive alternatives; they rest on different assumptions about power, institutions, and market structure. Optimistic accounts tend to treat contract farming as a neutral institutional innovation that can be adapted to local conditions through good design. Critical accounts place it within broader structures of unequal exchange, in which asymmetries in land, capital, and legal enforcement disadvantage smallholders whatever the design of the contract. Both perspectives also share a limitation: they often generalize from particular cases without stating the conditions under which their claims hold. Swinnen and Maertens (2006) document high contract adoption in transition economies, but their findings may not carry over to countries with weaker legal institutions or more fragmented landholdings. Oral's (2006) critique is grounded mainly in the Turkish context, which raises the question of how far it applies to other political economies. The debate is therefore less about whether contract farming is inherently good or bad than about the conditions under which particular outcomes arise. This review adopts that conditional view as its central analytical premise.

Several reviews already exist. Prowse (2012) surveyed the developing-country literature on contract farming, but before most of the recent empirical work appeared. Ton et al. (2017, 2018) carried out a systematic review and meta-analysis of income effects for smallholders in low- and middle-income countries; they found positive pooled effects, but ones that are probably overstated because of publication and survivor bias. More

specialized reviews have addressed smallholder participation in cattle contract farming (Chuma et al., 2024) and the links between large-scale agricultural investment, contract farming, and livelihoods in Tanzania (Ndimbo & Haulle, 2024). These are valuable contributions, yet together they leave three gaps. First, the most comprehensive syntheses concentrate on income, so social, institutional, and environmental effects are seldom weighed against economic ones within one analytical structure. Second, existing reviews are bounded by commodity, by country, or by income group, which limits comparison across contexts, and Turkish-language scholarship (Aydın, 2007; Duygumaz, 1985; Oral, 2006) has largely remained outside the international debate. Third, recent empirical studies from Africa, South Asia, and Southeast Asia have not yet been integrated with the older conceptual and typological literature.

This review addresses these gaps in four steps. It (1) traces the historical development of contract farming, distinguishing what is well documented from what remains uncertain; (2) maps the typologies proposed in the literature; (3) synthesizes reported advantages and disadvantages separately for economic, social, institutional, and environmental dimensions; and (4) applies a contingency framework to explain why reported outcomes differ. It asks under what conditions the advantages and disadvantages described in the literature appear. The aim is not only to summarize what is known but to show where findings agree, where they diverge, and where further evidence is needed.

Material and Method

Review design

This study is a narrative review with a structured search. It is not a systematic review in the PRISMA sense: no protocol was registered, no formal risk-of-bias instrument was applied, and no flow diagram is reported. The procedure was nevertheless documented in four stages (search, screening, data extraction, thematic synthesis) so that it can be repeated.

Search strategy

Three databases were searched: Google Scholar, Scopus, and JSTOR. The search covered publications from 1963 to 2025. The start year corresponds to Roy's (1963) monograph, one of the earliest comprehensive treatments of contract farming, and the end year captures the most recent empirical contributions. The English search string combined the following terms: ("contract farming" OR "agricultural production contracts" OR "outgrower schemes") AND ("historical development" OR "evolution" OR "typology" OR "classification" OR "advantages" OR "disadvantages" OR "impacts" OR "outcomes"). Because Turkish-language sources were eligible, the Turkish terms "sözleşmeli tarım", "sözleşmeli üretim", and "sözleşmeli çiftçilik" were searched separately.

Eligibility criteria

Titles and abstracts were screened against predefined criteria. A source was eligible if it (a) was a peer-reviewed journal article, an academic book or book chapter, a conference paper, or an institutional report from a recognized organization such as the FAO or a national research or professional body; (b) explicitly addressed the concept, historical

development, typology, or socio-economic and environmental effects of contract farming; and (c) was written in English or Turkish. Editorials, opinion pieces, commentaries lacking empirical or theoretical substance, conference abstracts without full texts, and sources that mentioned contract farming only in passing were excluded. Three non-peer-reviewed items (an extension bulletin, a trade-publication chapter, and a press report) were kept as supplementary grey literature because they were the only available sources for a small number of descriptive claims, chiefly about the Turkish context; they are identified as such in Table 1 and are not used to support analytical conclusions.

Data extraction and analysis

Full texts were retrieved and read. In total, 29 sources were retained: 28 addressed contract farming directly, and one (Williamson, 1985) was retained as a theoretical reference for the conceptual framework. Table 1 shows their composition. For each source, the author, year, geographic focus, method, type of contract examined, and reported outcomes were recorded on a standardized coding sheet. Content was then coded manually under five themes: definition and concept, historical evolution, typology, advantages, and disadvantages. Within the last two themes, sub-codes separated economic, social, institutional, and environmental effects. Screening and coding were done by a single reviewer, so inter-coder reliability could not be assessed. Because the review is qualitative and interpretive, no quantitative synthesis was attempted. As it relies only on published material, ethical approval was not required.

Table 1. Composition of the 29 retained sources

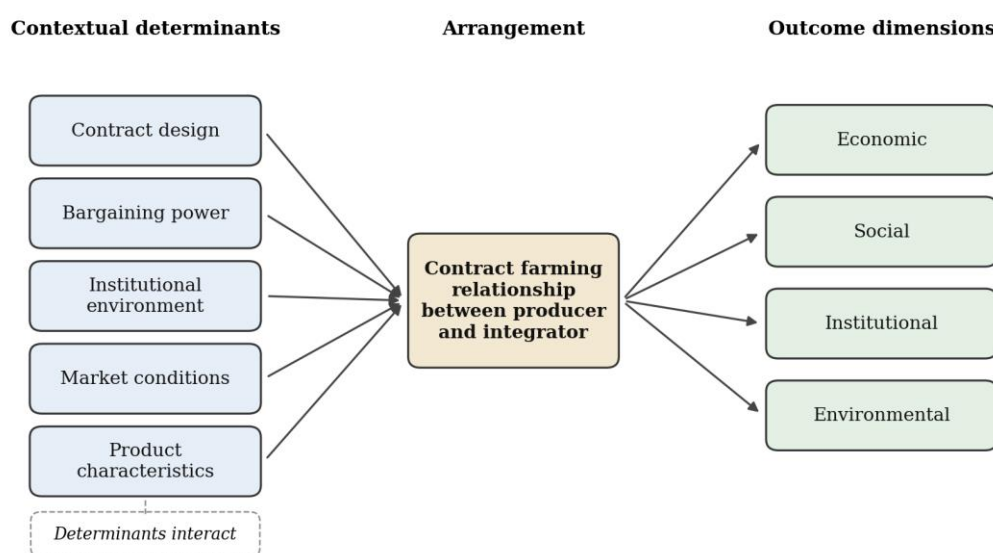
By source type	
Peer-reviewed journal articles (including review articles)	13
Academic books and book chapters (including one theoretical reference)	6
Institutional reports	6
Conference paper	1
Supplementary grey literature	3
By publication period	
1963–1999	8
2000–2009	8
2010–2022	3
2023–2025	10
Total	29

The distribution in Table 1 has a consequence worth stating at the outset. Foundational conceptual and typological work dates mostly from before 2010, while most of the empirical evidence on outcomes is from 2023 to 2025; the intervening period is thinly represented in the corpus. This is treated as a limitation in Section 7.7.

Conceptual Framework

The outcomes reported in the contract farming literature are heterogeneous, and a framework is needed to interpret them. This review adopts a contingency framework. Its central premise is that contract farming is not a uniform institutional form whose effects can be predicted in advance. Outcomes instead depend on the interaction of five analytically distinct but empirically linked factors: contract design, bargaining power, the institutional environment, market conditions, and product characteristics. The framework draws on transaction cost economics (Williamson, 1985) to interpret contract design and enforcement, on agrarian political economy (Clapp, 1994; Watts, 1994) to interpret power relations, and on recent empirical studies (Barik et al., 2024; Ndimbo & Haulle, 2024; Kiprop et al., 2025). Figure 1 summarizes it.

Figure 1. Contingency framework of contract farming outcomes



Source: developed by the author for this review.

Contract design covers the provisions of the agreement between producer and integrator: how price is determined (fixed, linked to the spot market, or formula-based), quality and quantity specifications, duration and renewal, exclusivity, the way inputs are provided (credit, cash, or in kind), and dispute resolution. Contracts with transparent pricing formulas, reasonable quality tolerances, and clear dispute procedures tend to produce more equitable outcomes than contracts with vague or one-sided terms (Eaton & Shepherd, 2001; Rehber, 2007). Design is not chosen in a vacuum, however; it reflects the relative bargaining power of the parties.

Bargaining power is the capacity of farmers and integrators to influence contract terms and enforce compliance. Farmers' power depends on how well they are organized, on access to alternative buyers, on information about prices and standards, on legal literacy, and on their assets, particularly land and capital. The power of integrators derives from capital, control of processing and distribution infrastructure, information advantages, and the ability to source from many producers. Where farmers are unorganized, lack alternative buyers, and have little legal recourse, bargaining power tilts strongly toward integrators, a condition documented in several settings (Duygumaz, 1985; Oral, 2006; Barik et al., 2024). In Tanzania the asymmetry has been linked to land transfer from poorer to wealthier farmers (Ndimbo & Haulle, 2024).

The institutional environment comprises the formal and informal rules that govern contractual relations. Formal institutions include contract law, property rights, land tenure, courts and dispute resolution, and regulatory oversight of agribusiness. Informal institutions include norms of trust and reciprocity, community enforcement, and local power structures. The quality of this environment determines whether contracts can be enforced, whether farmers have recourse in cases of breach, and whether safeguards such as environmental and labor standards are monitored. Where enforcement is weak, farmers may hesitate to contract or may enter agreements they cannot enforce, which increases their vulnerability (Chuma et al., 2024).

Market conditions refer to the structure and dynamics of the markets in which contracts operate: the degree of competition among buyers, price volatility in spot markets, the availability of alternative outlets, and the level of demand for the product. Where a single integrator dominates local purchasing, farmers have few alternatives and are more exposed to unfavorable terms; where several buyers compete, farmers may negotiate better terms or change buyer. Market conditions also affect how attractive a contract is relative to spot sales. When spot prices are high and volatile, contracts may be tempting to breach, and when prices are low and uncertain they may offer valuable stability. This is a point the literature on side-selling and contract compliance raises (Prowse, 2012).

Product characteristics are the biophysical and economic attributes of the contracted crop or livestock product: perishability, storage needs, capital intensity, economies of scale, potential for quality differentiation, and length of the production cycle. Perishable products (fresh vegetables, dairy) make farmers depend more on a reliable outlet. Capital-intensive products (poultry, tree crops) demand upfront investment that smallholders may be able to finance only through contract-based credit. Products with strong quality differentiation, such as export-grade fruit, may require technical assistance from the integrator. These attributes mediate the effects of the other four factors (Eaton & Shepherd, 2001; Kohls & Uhl, 1985).

The five factors do not act independently. A well-designed contract may fail to produce equitable outcomes if farmers lack the power to enforce it, and strong farmer organizations may be insufficient where a single buyer dominates the market. The institutional

environment conditions the effectiveness of both design and bargaining power, since without enforceable contract law even carefully drafted contracts mean little. Product characteristics shape how much is at stake and how urgent coordination is. In this review the framework serves two purposes: Section 6 organizes outcomes by dimension (economic, social, institutional, environmental), and Section 7 uses the five determinants to interpret why those outcomes differ across countries, crops, and periods.

The Contract Farming Model and Its Historical Development

Definition and rationale

The definition proposed by Roy (1963) remains among the most cited. Contract farming, in his formulation, is an arrangement between farmers and other firms, either oral or written, that specifies one or more conditions for the production or marketing of an agricultural product. Put operationally, it is agricultural production carried out under a prior agreement between a producer and a buyer, in which both sides fix the terms of production and delivery. More precisely, it involves a commitment between grower and purchaser about which product will be cultivated, in what quantity and to what quality, and it often includes advance agreement on the timing and place of delivery and, sometimes, on price (Silva, 2005).

The rationale for such arrangements lies in the particular vulnerabilities of agriculture. Farming is more exposed than most sectors to droughts, floods, unpredictable weather, and disease, and differences in soil and climate make standardization difficult. When farmers decide independently what and how much to grow, supply and demand can easily fall out of balance. For seasonal crops, year-round demand creates storage needs that fall hardest on small producers (Aydm, 2007). By giving farmers access to inputs, information, capital, and technology through an integrator, contract farming addresses several of these difficulties. It is also credited with encouraging crop specialization and strengthening the role of agriculture in trade and economic growth (Eaton & Shepherd, 2001; Silva, 2005).

Historical trajectory

The history of contract farming reaches from pre-industrial arrangements between landowners and tenants to modern agreements between farmers and agribusiness buyers, and its exact origin is disputed. Two of the earliest cases usually cited come from the colonial period: the contracts used by the Japanese colonial administration for sugar production in Taiwan after 1885, and the arrangements of American banana companies in Central America around the turn of the twentieth century (Watts, 1994). These are best read as the earliest well-documented examples rather than as proof of a single point of origin, since informal contractual practices almost certainly preceded them and the diversity of earlier institutional forms makes a firm starting date hard to fix. In industrialized economies, contract farming became common in the 1930s and 1940s, notably in the vegetable canning industry of North America and the seed industry of Western Europe (Watts, 1994). Its pace and form differed between countries, reflecting

differences in agricultural structure, legal frameworks, and market conditions (Rehber, 2007).

In developing countries, the Green Revolution and later market liberalization brought contract farming to the center of agricultural development discourse (Rehber, 2007). From the 1980s in particular, as state involvement in input supply and marketing receded, contract farming was promoted as an institutional innovation for raising agricultural productivity, often within rural development and settlement schemes (Prowse, 2012; Rehber, 2007). Its recent diffusion is visible in the empirical literature from Africa (Challa et al., 2025; Kiprop et al., 2025; Ndip & Sakurai, 2025), South Asia (Barik et al., 2024; Kumar et al., 2025), Southeast Asia (Nguyen et al., 2024), and the transition economies of Central and Eastern Europe (Swinen & Maertens, 2006).

A wide set of actors is involved: local governments, private domestic firms, multinational corporations, and international financial and development agencies. Institutions such as the United States Agency for International Development (USAID), the World Bank, the Asian Development Bank, and the Commonwealth Development Corporation have provided financial and technical support to contract farming programs, typically with the aims of raising farm productivity, improving market access, upgrading product quality, and promoting sustainable practices. In principle, such programs can contribute to rural development by raising farm incomes (Silva, 2005).

Typologies of Contract Farming

Contract farming takes many organizational forms, which differ in decision-making authority, risk allocation, and contractual terms. Three typologies recur in the literature. The first distinguishes contracts by the degree of management involved:

- **Limited management contracts.** The integrator supplies the inputs specified in the agreement, and the farmer's responsibility is confined to production with those inputs.
- **Full management contracts.** These are based on a predetermined production volume, and both parties take measures to reduce market uncertainty.

The second, by Kohls and Uhl (1985), divides production contracts into three categories:

Market specification contracts are usually signed at planting and fix the quantity and price the integrator will buy. The farmer keeps most managerial decisions, which are limited only by the product specifications.

Resource-providing contracts oblige the integrator to supply production resources and to provide managerial guidance and oversight. Prices are generally tied to spot markets, so income guarantees for the producer are minimal.

Management and income guarantee contracts combine the features of the previous two.

The third and most detailed typology is that of Eaton and Shepherd (2001), who identified five models on the basis of empirical observation:

Centralized model. A central processor or packer buys specified products (for example tree crops, poultry, or dairy) from many small farmers. Coordination is vertical, with quota allocation and strict quality control. The sponsor's involvement ranges from minimal input provision to extensive control of production, and government participation is generally limited.

Nucleus estate model. A variant of the centralized model in which the central firm also operates its own plantation.

Multipartite model. A private firm works together with government agencies or non-governmental organizations.

Informal model. Simple, informal contracts between individuals or small firms, usually for seasonal products and with limited formal enforcement.

Intermediary model. Intermediaries such as collectors or farmer committees stand between producers and integrators.

This diversity shows that contract farming is not a single model but a flexible arrangement that adapts to local crops, market structures, and institutional environments.

Reported Outcomes of Contract Farming

Contract farming has been applied widely, particularly in developing regions, since the 1980s, and its effects differ across stakeholder groups, crops, and institutional contexts. Guided by the framework in Section 3, this section organizes the reported effects into four dimensions. Advantages and disadvantages are examined separately within each dimension so that distinct causal mechanisms are not conflated.

Economic effects

Advantages. The most frequently cited economic benefit is risk reduction. By fixing prices and quality standards in advance, contracts shield producers from price volatility and demand shocks and protect integrators from supply shortages (Silva, 2005). Cost predictability follows: producers can plan input purchases and labor with more certainty, and integrators can forecast procurement costs. Recent studies report income gains. In Kenya, contract farming was associated with a household income increase of up to 74% among smallholder poultry farmers (Kiprop et al., 2025). In Ethiopia, malt barley contracts raised income by an average of US\$744.63 per household and were accompanied by greater fertilizer use and higher land productivity (Challa et al., 2025). In India, contract farming in onion, okra, and pomegranate production ensured higher returns for smallholders and gave access to high-end markets (Kumar et al., 2025). At the aggregate level, the meta-analysis by Ton et al. (2018) puts the pooled income effect at roughly 23% to 55% after a partial correction for publication bias, though the authors stress that this is likely an upper bound.

Disadvantages. These gains are not universal. In Zimbabwe, Mafirakurewa et al. (2025) found that participation in the Targeted Command Agriculture Programme raised maize productivity by 0.93 tonnes per hectare but had no significant effect on profitability, and participants incurred average losses of US\$1,069.65, largely because of a currency

misalignment between input loans and farmer payments. Productivity gains therefore do not automatically translate into profit. Farmers often have weak or no bargaining power, which produces unfavorable terms and little room to renegotiate when conditions change (Duygumaz, 1985). Delivery and payment delays are common, and farmers are frequently unable to use spot or alternative markets when spot prices exceed contract prices, which creates opportunity costs (Aysu, 2002). Land fragmentation and organizational difficulties are further reported problems (Aysu, 2002). Benefits are also unevenly distributed: in West Bengal, larger and wealthier farmers captured a disproportionate share of gains while smaller farmers bore more of the production risk (Barik et al., 2024), and Ton et al. (2018) found that contract farmers tend to be larger or richer than the average farmer in their region.

Social effects

Advantages. Training and technical assistance from integrators can build human capital and help smallholders meet quality standards and adopt better practices (Moore, 1994; Roy, 1963). In some contexts contract farming has supported the modernization of smallholder agriculture and the gradual shift from subsistence to commercial production (Patrick, 2004; Watts, 1994). Contract farming is sometimes also said to build social capital through repeated interaction and collective action in farmer groups, but the reviewed sources give little direct evidence for this pathway.

Disadvantages. Contract farming can lead to a partial loss of farmer autonomy as integrators gain control over production decisions (Clapp, 1994; Oral, 2006). Large buyers with monopsony power create conditions for exploitation and rent-seeking, and deterioration in product or service quality can erode trust between the parties (Aysu, 2002). In Tanzania, large-scale contract farming has been linked to "dispossession from below," as land moved from poorer to wealthier farmers, contributing to social differentiation and rural inequality (Ndimbo & Haulle, 2024). These costs are sharpest where farmers are unorganized and lack collective bargaining structures (Duygumaz, 1985).

Institutional effects

Advantages. Contract farming can strengthen vertical coordination in agri-food value chains and reduce transaction costs and information asymmetries between producers and processors (Rehber, 2007). It can also serve as a channel for technology transfer and the diffusion of quality standards (Silva, 2005), and in some countries it has been used within rural development and settlement projects to bring smallholders into formal market structures (Watts, 1994). Governments and international donors, including USAID, the World Bank, and the Asian Development Bank, have supported such programs as a way to improve productivity and market access (Silva, 2005).

Disadvantages. The institutional environment often limits how well contract farming works. Where contract law is weak, property rights insecure, or dispute resolution inaccessible, farmers may be unable to enforce agreements or to obtain redress for

breaches (Chuma et al., 2024). Contracts are frequently incomplete: their explicit terms tell only part of the story, many contain implied provisions, and commitments are sometimes only partly honored (Aysu, 2002). Prowse (2012), examining contracts from the FAO database, similarly found that firms often omit basic details. The absence of legally recognized farmer organizations further weakens producers' position. Duygumaz (1985) treated organizational weakness as a fundamental constraint, and the more recent evidence on bargaining asymmetry (Barik et al., 2024) suggests that the problem persists.

Environmental effects

Disadvantages. Environmental concerns are prominent in the critical literature. Aydın (2007) argued that contract farming may shift environmentally problematic, chemical-intensive crops to developing countries, reducing farmland productivity and degrading soil and water. Dubbert et al. (2023) found that cashew farmers in Ghana with a high propensity to join contract farming were less likely to use sustainable farm practices, which suggests that contracts may encourage intensification at the expense of sustainability. In Senegal, Ndip and Sakurai (2025) found contract farming to be positively associated with fertilizer use, fertilizer expenditure, and tractor use; they cautioned that the environmental costs of such intensification deserve attention and that contracts could be designed to promote more sustainable intensification. Ndimbo and Haulle (2024) documented ecological degradation from excessive use of synthetic inputs in Tanzania. Contract farming may also reduce crop diversity when high-value export crops take priority over food crops for local consumption, with implications for food security (Aysu, 2002).

Advantages (conditional). The effects are not uniformly negative. Nguyen et al. (2024), using national survey data from Vietnam, found that farms with contracts had higher revenues and used less chemical fertilizer than farms without them, although the effect varied by crop and by type of contract. Their finding indicates that environmental outcomes depend on how contracts are structured. It rests on a single country, however, and the evidence on environmental effects as a whole remains limited and mixed.

Cross-dimensional summary and contextual variability

Table 2 summarizes the reported effects. The most consistent message across the four dimensions is that outcomes vary with country, crop, and institutional setting. When problems and benefits are assessed, economic and market conditions have to be considered together with time, place, and the characteristics of the contracted product. This variability supports the contingency framework adopted here: contract farming is neither inherently beneficial nor inherently harmful, and its effects depend on the interaction of contract design, bargaining power, the institutional environment, market conditions, and product characteristics.

Table 2. Summary of reported effects of contract farming by dimension

Dimension	Reported advantages	Reported disadvantages	Illustrative sources
Economic	Risk reduction; cost predictability; income gains (up to 74% in Kenya; US\$744.63 per household in Ethiopia); access to high-end markets	Weak bargaining power; payment delays; loss of spot-market opportunities; no profit gain despite higher productivity; benefits captured by larger farmers	Kiprop et al. (2025); Challa et al. (2025); Kumar et al. (2025); Mafirakurewa et al. (2025); Barik et al. (2024); Ton et al. (2018)
Social	Training and technical assistance; modernization and commercialization of smallholder farming	Loss of autonomy; monopsony and exploitation; erosion of trust; land transfer and social differentiation	Moore (1994); Patrick (2004); Oral (2006); Clapp (1994); Ndimbo & Haulle (2024)
Institutional	Vertical coordination; lower transaction costs; technology transfer; donor and state support	Weak enforcement; incomplete contracts and implied terms; weak farmer organizations	Rehber (2007); Silva (2005); Chuma et al. (2024); Aysu (2002); Prowse (2012); Duygumaz (1985)
Environmental	Lower chemical fertilizer use in some contract types (conditional and limited evidence)	Input-intensive production; lower adoption of sustainable practices; ecological degradation; reduced crop diversity	Nguyen et al. (2024); Aydın (2007); Dubbert et al. (2023); Ndip & Sakurai (2025); Ndimbo & Haulle (2024); Aysu (2002)

Discussion

The evidence synthesized above points to five patterns that merit closer interpretation.

Outcomes are conditional rather than inherent: The reviewed evidence is consistent with the premise adopted in Section 3: contract farming is neither inherently beneficial nor inherently harmful, and its results depend on the interaction of the five determinants. The Kenyan and Ethiopian studies report clear income gains, while the Zimbabwean study reports losses; the Vietnamese evidence points to lower fertilizer use, while the Ghanaian and Senegalese evidence points to more intensive input use. These differences are difficult to reconcile without attention to contract design, payment arrangements, and institutional setting. The pattern also fits the observation in the literature that different contractual models suit different product and enforcement contexts (Eaton & Shepherd, 2001; Prowse, 2012). Centralized arrangements are better suited to perishable, high-value, technically demanding products, whereas arrangements that rely on intermediaries and a limited range of inputs are described as workable where enforcement is difficult (Prowse, 2012). This context dependency challenges both the optimistic view of contract farming as a general route to agricultural modernization (Moore, 1994; Patrick, 2004) and the critical

view that treats it as inherently exploitative (Clapp, 1994; Oral, 2006). Neither position accounts well for the heterogeneity observed across countries, crops, and settings.

Bargaining power asymmetry persists: Across studies and countries, farmers' limited ability to negotiate terms, enforce compliance, or reach alternative markets undermines equitable outcomes (Duygumaz, 1985; Barik et al., 2024). The asymmetry is not just a feature of individual transactions; it is rooted in land fragmentation, limited literacy and legal awareness, weak property rights, and inadequate enforcement institutions. The meta-analytic finding that contract farmers tend to be larger or richer than their neighbors (Ton et al., 2018) points to the same structural problem from another angle, since it suggests that those with the most resources are best placed to benefit. The Tanzanian evidence adds that large-scale arrangements can reinforce inequality through land concentration (Ndimbo & Haulle, 2024). Duygumaz's (1985) call for farmer unions is now four decades old, yet the diagnosis behind it still appears in recent studies. That continuity suggests that incremental reforms which leave underlying power imbalances untouched have had limited effect.

Environmental effects are under-researched: Economic outcomes have received far more attention than environmental ones. Among the recent empirical studies in this corpus, only a few address environmental outcomes directly (Dubbett et al., 2023; Ndip & Sakurai, 2025; Nguyen et al., 2024; Ndimbo & Haulle, 2024), and their findings point in different directions. The concerns they raise are increased chemical dependency, ecological degradation, and loss of crop diversity, and they are likely to be greatest where environmental regulation and monitoring are weak. Aydın's (2007) argument that polluting production may be displaced to developing countries adds a question of environmental justice that extends beyond any single contractual relationship. Firm conclusions are difficult, partly because environmental outcomes are rarely measured in contract farming studies and partly because the counterfactual, what would have happened without a contract, is hard to establish. The Vietnamese result (Nguyen et al., 2024) shows that contract structure can matter for environmental outcomes, which makes this a priority area for further research.

Short-term gains and the limits of the evidence on long-term effects: A fourth pattern concerns time. Reported income gains, such as the 74% increase among Kenyan poultry farmers (Kiprop et al., 2025), are encouraging, but it is unclear whether such gains persist and whether they come with better environmental practice and farmer autonomy. The meta-analysis by Ton et al. (2018) offers a caution here: the estimated income effects are probably biased upward because studies tend to assess arrangements that have already survived their start-up years, because farmers who drop out are seldom observed, and because non-significant results are under-reported. The evidence base reviewed here appears to contain little that follows the same farmers over many seasons, with Ndip and Sakurai's (2025) panel analysis being an exception. Without longitudinal data, the durability of outcomes and possible long-run costs such as dependency, environmental degradation, and social differentiation cannot be judged. This limitation reflects how studies are designed, as they mostly capture immediate effects rather than long-term trajectories.

Productivity gains do not automatically become profits:Recent empirical work also separates productivity from profitability. Mafirakurewa et al. (2025) found that the Zimbabwean programme raised maize productivity yet produced average losses of US\$1,069.65 per participating farmer. This challenges the assumption, implicit in much earlier work, that higher output means higher farmer welfare. The case draws attention to payment mechanisms, currency stability, and pricing formulas, which evaluations focused narrowly on yield often treat as secondary. In Ethiopia, by contrast, higher productivity, greater fertilizer use, and higher income appeared together (Challa et al., 2025), which shows again that outcomes turn on contractual and institutional detail. Evaluations should therefore go beyond productivity metrics and examine how contracts allocate costs, credit, and payment risk.

Theoretical and policy implications:Taken together, these patterns suggest treating contract farming as a dynamic, context-dependent arrangement rather than a fixed institutional form. For theory, this calls for frameworks that move beyond binary assessments and combine insights from institutional economics and political economy. The contingency framework used here is one such attempt, but further work is needed to specify the mechanisms through which the five determinants interact. For policy, the implication is that neither promotion nor rejection of contract farming can be justified in general terms; interventions have to address the specific determinants, particularly bargaining power, enforcement, and payment design, that make the difference between beneficial and harmful outcomes. The recommendations in Section 8 follow from this.

Limitations:This review has several limitations. First, reliance on published sources may introduce publication bias, since studies with positive or novel results are more likely to appear in print; Ton et al. (2017, 2018) document this bias in the income literature. Second, the search was limited to three databases and two languages, and screening and coding were carried out by one reviewer without independent verification. Third, the corpus combines peer-reviewed articles with books, institutional reports, and a small amount of grey literature, and no formal quality appraisal was applied; grey sources were therefore used only for descriptive claims. Fourth, the distribution of sources over time is uneven, with few items from 2010 to 2022 (Table 1), and the recent empirical studies are concentrated geographically in Africa and South and Southeast Asia, which limits generalization. Fifth, the review does not include a meta-analysis or other quantitative synthesis, because outcome measures and study designs are too heterogeneous. Within these limits, the review offers a structured synthesis that identifies where the literature agrees, where it diverges, and which questions remain open.

Conclusion

This review has examined the concept, historical development, typologies, and multidimensional outcomes of contract farming. The earliest well-documented cases date from the colonial period of the late nineteenth century; contract farming became common in industrialized countries' food-processing sectors in the 1930s and 1940s, and it spread widely in developing and transition economies from the 1980s, though its precise origins remain uncertain. Its typological diversity, from centralized and nucleus estate models to multipartite, informal, and intermediary arrangements, reflects adaptation to different crops, markets, and institutions. The reviewed studies report advantages that include

access to credit, inputs, technical assistance, and secure markets, and income gains in several settings (Moore, 1994; Roy, 1963; Patrick, 2004; Kiprop et al., 2025; Challa et al., 2025). They also report disadvantages: power imbalances, environmental pressure, loss of farmer autonomy, and unequal distribution of risks and returns (Oral, 2006; Aydın, 2007; Barik et al., 2024; Ndimbo & Haulle, 2024; Mafirakurewa et al., 2025). Whether advantages or disadvantages prevail depends on context. Contract design, bargaining power, the institutional environment, market conditions, and product characteristics are the key mediating factors.

Acknowledgment

The authors also thank the anonymous reviewers for their helpful comments and suggestions.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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