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Smallholder Conflicts in Agribusiness Systems

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ABSTRACT

Conflicts arise because of deficient coordination between actors during the exchange of goods and services in agribusiness systems. The aim of the study was to assess conflicts at the smallholder level by reviewing literature resources. From the systemic analysis, it is evident that price imposition is the main conflict that smallholders face during commercialization with suppliers and agro-industries. Conflicts arise due to the high bargaining power of large corporations. The concentration of companies in input supply and processing markets also generates conflict environments during transactions. Collective forms and the use of contracts are conflict mitigation alternatives in agrifood chains.

***Keywords**: Transaction; supplier; food industry; market; price.*

1 Introduction

In recent years, agribusiness systems have focused on increasing their competitiveness to achieve a product in line with market demands. In this context, agri-food chains with a predominance of small-scale production, typical of developing countries (Lowder et al., 2021), present gaps to be solved at organizational, economic, institutional, technological and commercial levels (Daum et al., 2020; Hussain et al., 2022; Osmani et al., 2021; Tabe-Ojong et al., 2022).

A central axis for improving competitiveness is to achieve efficient coordination between specialised actors in the systems (Belaya and Hanf, 2016; Zylbersztajn, 2017). However, farmers face various conflicts during coordination with their interacting agents, a situation that limits the development mainly of smallholders in structural, commercial and social terms (di Marcantonio et al., 2020; Gerard et al., 2022; Grasse, 2022; Sebhatu et al., 2020). In the same vein, agribusiness systems that are "less specialised" in production are more vulnerable to global problems such as food security, sustainability, global warming, pandemics and war (Bilali, 2021; da Silveira Bueno et al., 2021).

For this reason, the scientific community is concerned with analysing and responding to the conflicts faced by smallholders in agri-food chains (Abubakari et al., 2020; Ahmad and Afzal, 2022; Maloku et al., 2021). Figure 1 shows the number of original articles published in the Scopus database during the period 1985-2022, based on the search concepts "agribusiness-conflicts-smallholder". From the data analysed, Figure 1 (a) shows a significant increase in the number of articles published from 2015 to the present. In the last two periods, a total of 285 articles were published, while during the years 1985 and 2014, only 34 articles were published. Figure 1 (b) shows that the conflicts most researched by the scientific community are related to governance, rural development, sustainability, land use and food security.

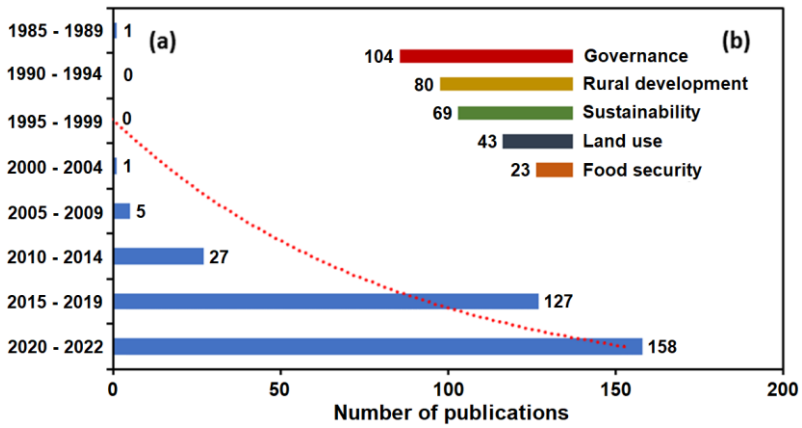

Figure 1. Number of scientific articles published (a) by period and (b) by topics of interest, for the study of conflicts of smallholders in agribusiness systems, years 1985-2022. Source: Scopus data (2022).

Furthermore, few review articles have been published under the agribusiness approach. Therefore, based on the systemic approach, an analysis of the conflicts between smallholders and their interacting agents in agribusiness systems will be conducted through a review of scientific documents. Results obtained will allow a better understanding of the coordination of economic actors in agri-food chains.

2 Theorical framework

Agribusiness systems are designed with the goal of enabling the flow of a product and service according to consumer tastes and preferences. Systems are made up of economic agents that fulfil specific roles such as operational and transactional activities, depending on the organizational designs and arrangements within the system (Ménard, 2014). To achieve this, economic agents must interact efficiently throughout the different production stages of the systems (Beber et al., 2021; Neves et al., 2019; Senesi et al., 2017). However, the complexity of markets in agri-food chains generates inefficient forms of coordination between actors due to information asymmetry and opportunism (Perito et al., 2017; Wangu et al., 2021; Williamson, 2008). In this framework, information asymmetry is an obstacle and conflict generator in agro-industrial systems, causing high exchange costs or positive transaction costs, based on the theoretical-conceptual analysis of the Transaction Cost Economics (Williamson, 2008).

The existence of conflicts seems inevitable due to the complexity of the relationships between the actors in the systems (Belaya and Hanf, 2016). The concept of conflict has been defined by many authors, however, for the focus of this study, conflict is defined as a situation that arises when an agent in a stage or channel perceives the actions of its interacting agent as inappropriate behaviour to prevent or impede the achievement of its goals, objectives or effective performance (Coughlan et al., 2002; Gaski, 1984). Conflicts between actors can have positive, negative or neutral effects on the efficiency and performance of the whole system. In turn, a very indifferent and passive channel may be masking major differences in motivation and intention (Coughlan et al., 2002).

In this framework, agri-food systems with predominantly smallholder or livestock farmers face problems when trading with their input suppliers backwards, and their customers, such as industrial companies, forwards. (González-Ramírez et al., 2020; Osmani et al., 2021; Villacis et al., 2022). During the exchange, conflicts appear due to the lack of transparency during the transaction because of the unknown market by one of the parts (producers) which generates the appropriation of the value of the product by the other parts (suppliers and customers). In transactions between agents, there also appears the power that is defined by the ability of a dominant firm to mediate rewards, punishments, prescribe a specific behaviour, knowledge or expertise over the more dependent firm (Belaya and Hanf, 2016). Therefore, market imperfections and failures encourage value capture and the generation of transaction costs in agribusiness systems (Zylbersztajn, 1996).

Conflicts should be resolved as soon as possible, as their existence impedes the functioning of food chains. In this sense, actors develop strategies to mitigate their structural problems and improve their competitive position in the markets. In this situation, smallholders and their interacting agents seek to align themselves by designing different models or forms of organization to cope with market demands (Ménard, 2014). In this framework, several authors have also developed application methodologies for the analysis and strategic management of agribusiness systems with the purpose of improving their competitiveness (Neves et al., 2020; Senesi et al., 2016). Thus, both the study of the complexity of agribusiness systems and their conflicts are topics of interest to the academic community.

3 Methodology

The methodology for this article was divided into two stages: the first stage consisted of a search for information on the concepts under study (Clay and Feeney, 2019), and the second stage involved content analysis based on data processing using bibliometric analysis software (Misra and Mention, 2022). The concepts "agribusiness - conflicts - smallholder" were set up as search topics (all fields) in the Scopus database. Data collection took place in May 2022. The search was filtered by subject area (agriculture, economics and business), document type (article) and language (English). A total of 319 scientific papers published since 1989 were obtained. The data of the documents were downloaded in a CSV file, exporting the information about the citation of the article, abstract and keywords. This information was used for data processing and next content analysis according to the object of study.

The bibliometric analysis was performed using the VOSviewer software, following the co-occurrence analysis route, unit of analysis: keywords and counting method: fractional counting. The processing of keywords was performed considering a minimum occurrence of five times, without considering words alluding to a country or geographical region, as well as "literature review". Likewise, several words that have the same meaning or are already considered by another word were replaced ("agricultural development", "agricultural intensification", "agricultural land", "agricultural market", "agricultural production" and "agricultural worker" by "agriculture"; "developing world" by "development"; "farmers knowledge" by "farming system"; "governance approach" by "governance"; "land grab" for "land grabbing"; "land use change" for "land use"; "land use planning" for "land use"; "land-use change" for "land use"; "oil palm" for "palm oil"; "rural area" for "rural development"; "smallholders" for "smallholder"; "supply chain management" for "supply chains"; "sustainable agriculture" for "sustainability" and "sustainable development" for "sustainability").

Figure 2 plots the co-occurrence between 87 keywords using the network visualisation (a) and the overlay visualisation (b). The size of the circles and their label represent the number of occurrences of each keyword, while the relationships between keywords are defined by their proximity (circle and label). It also finds that the five most relevant keywords were agriculture (38 occurrences), smallholders (30), sustainability (25), food security (22) and land use (21).

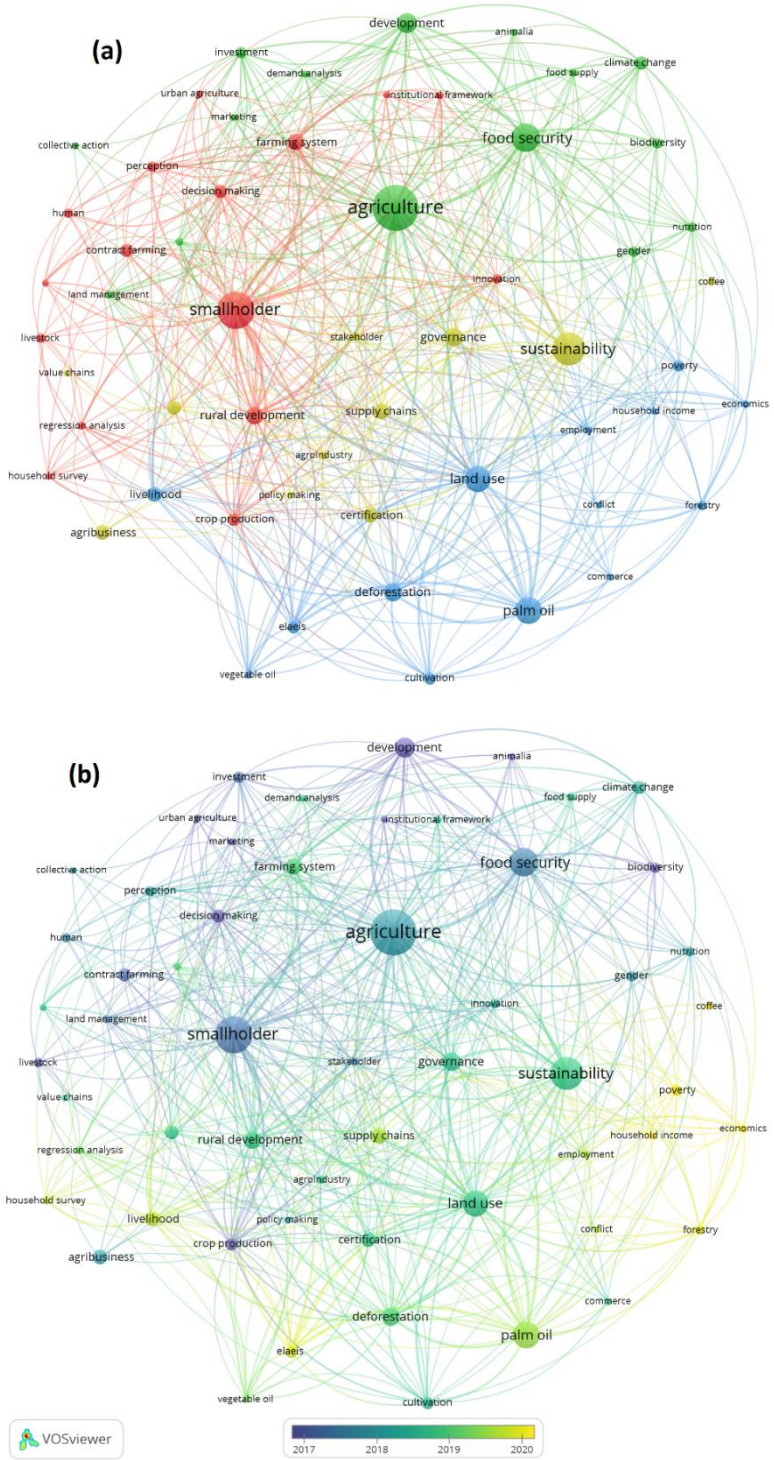

Figure 2. Co-occurrence analysis between all keywords (a) network visualization, (b) overlay visualization. Source: VOSviewer data (2022).

In Figure 2 (a), the analysis of network visualization reveals four clusters formed for the following keywords: 1) "agriculture" associated with "food security"; 2) "smallholders" associated with "rural development" and "farming systems"; 3) "land use" with "palm oil" and "deforestation"; and 4) "sustainability" with "governance" and "supply chain".

The first cluster shows a strong relationship between the concepts of agriculture and food security based on the search criteria. In this line, the processed documents reveal that agriculture and livestock farming present conflicts that hinder food supply and limit food security in the main regions around the world (Haile et al., 2022; Lee et al., 2022; Osuna and Barrantes, 2020).

The second cluster reveals the relationship between the performance of smallholders in agribusiness systems with the agronomic management of fields and the adoption of agricultural technologies (Grasse, 2022; Kibriya et al., 2016).

The third cluster provides evidence that the term land use is linked to deforestation and agro-industrial crops such as oil palm (Ayompe et al., 2021; Ordway et al., 2019; Tabe-Ojong et al., 2022). Finally, the last cluster reveals the strong relationship between the different models and forms of governance in food supply chains and agribusiness systems on the sustainability of smallholders (Almeida and de Souza, 2021; Cunico et al., 2021; Gerard et al., 2021; Grashuis and Su, 2019; Lemos and Zylbersztajn, 2018; Salcido et al., 2020). Thus, based on the systemic approach, it is possible to perform a qualitative analysis for each search topic in function of the bibliographic resources.

Figure 2 (b) is the overlay visualization of the "keywords" from the bibliometric analysis of the data. This graph reveals the performance of the topics as a function of time. The type of colour reflects the most recent appearance of the topics in the scientific documents, yellow towards 2020, green towards 2019-2018, and blue towards 2017. The yellow circles for the words "economics", "poverty", "forestry" and "palm oil" reflect the execution of scientific studies in the last two years related to the oil palm industry, mainly from Southeast Asian regions. Likewise, the terms "sustainability", "land use" and "deforestation" of green circles are also issues of current relevance to the academic community when researching the performance of smallholders in agribusiness systems, as verified in published articles (Ayompe et al., 2021; Pappa et al., 2019).

4 Conflicts at the smallholder level

Several studies show the presence of conflicts in agribusiness systems due to a number of factors such as organizational complexity, institutional framework and technological development (Abubakari et al., 2020; Belaya and Hanf, 2016; Casali et al., 2020; Solano Gaviño, Castro Santander, and Palau, 2021). The bibliometric review also reveals that conflicts appear at various levels, in different forms and under different circumstances. In this framework, when mapping an agribusiness system, conflicts can be found at the level of transactions between economic agents (Figure 3). Therefore, taking farmers and their performance as the unit of analysis, the review of bibliographic resources reveals the appearance of conflicts during the exchange of property rights with their interacting agents.

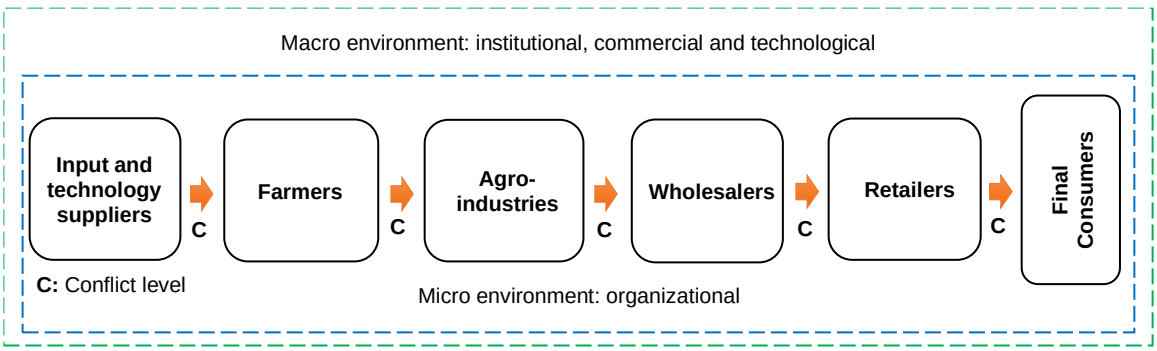

Figure 3. Conflicts between the agents of agribusiness systems.

Based on the systemic approach, conflict environments arise mainly because of coordination failures between actors at the level of the organizational environment (Senesi et al., 2017). In this context, conflicts are influenced by the macro environment of the systems, such as the institutional environment (rules of the game), the business environment (consumption trends) and the technological environment (level of innovation) (Neves et al., 2020). Furthermore, micro-environmental factors such as relationships between agents, organizational structure and scale of production also lead to the emergence of conflicts.

Farmers are key players in the food sector, supplying raw materials to agro-industries and fresh produce to different markets. "Smallholders" refers to small farmers, pastoralists, fishers and foresters with limited resources: financial, material, technological, etc. (Food and Agriculture Organization-FAO, 2019). Depending on the country or region, smallholders are generally defined by their land size or number of animals. For instance, in Peru, a small farmer or small livestock farmer is one who owns less than 5 hectares of land or fewer than 10 head of livestock (Instituto Nacional de Estadística e Informática, 2013).

Pröll et al. (2022), Sano et al. (2022) and Shokoohi et al. (2019) report that smallholders are the agents with the lowest bargaining power within agribusiness systems because of limited production volume, low productivity, deficient access to financial credit, market information asymmetry, limited technological infrastructure, among

others. In this sense, the low power of smallholders is a disadvantage factor when it comes to the exchange of goods/services, backwards with their input and technology suppliers, and forwards with packing companies and agro-industries. As a result, during commercialization, smallholders are more vulnerable when negotiating prices, quality, volume and certifications. In this environment, high inter-exchange costs are generated during transactions. Thus, conflicts may arise due to misalignment of transactions between agents (Zylbersztajn, 1996).

4.1 Conflicts between input suppliers-smallholders

Smallholders interact with input suppliers to supply seeds, seedlings, genetics, agrochemicals, fertilisers, technological equipment, farm machinery, materials and infrastructure (Figure 4). The supply of inputs depends on the farmer's activity in the agribusiness system: production of cereals, fruits, vegetables, meat, milk, eggs and fibres. Smallholders purchase inputs according to their requirement, financial availability and quantity offered by suppliers. During transactions, governance structures via prices (spot market) and contracts are most used by smallholders (Ménard, 2014; Williamson, 2008).

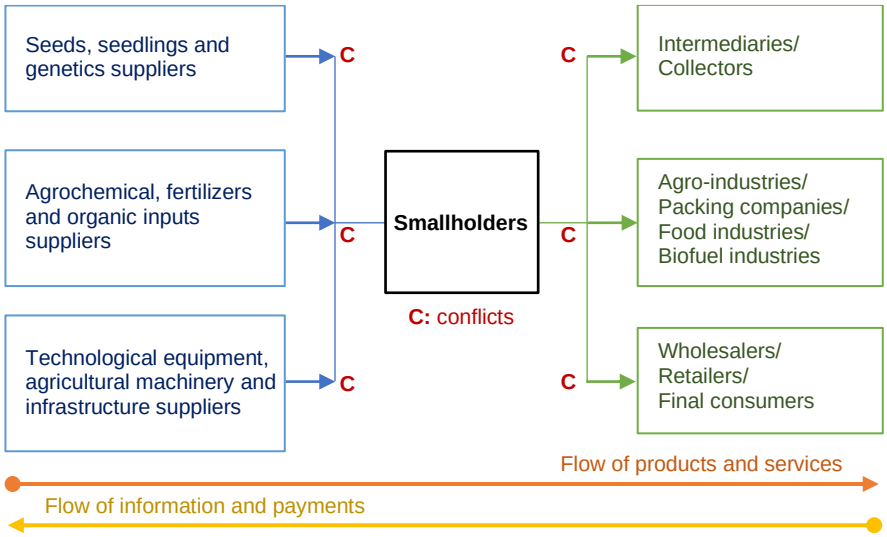

Figure 4. Flows and conflicts between smallholders and their interacting agents.

The first conflict appears during the interaction between the smallholder and his seeds, seedlings and genetics supplier. The imposition of selling prices by the supplier is one of the main conflicts faced by smallholders now of commercialization. Rutsaert et al. (2021) argue that the concentration of suppliers generates unfair competition and deficient access to the input market. In this context, suppliers are the agents that exert the most power over demanders (Zylbersztajn, 1996). According to the type of supplier, the assets involved during the transactions are of high specificity (Solano Gaviño, Castro Santander, Perales Dávila, et al., 2021). In general, large suppliers invest heavily in research, technological development and infrastructure, such as technology centres in plant or animal genetics. The high specificity of the inputs determines the elevated prices in the markets, as well as the high bargaining power of the large suppliers (Williamson, 1991). Therefore, at the global level and especially in developing countries, large suppliers dominate the market and set up their own governance structure according to their interests, such as the spot market or contracts (Cunico et al., 2021).

During post-sale, conflict arises because of the low-quality of inputs at the time of use in the field or on the farm. Opportunism on the part of suppliers arises from the information asymmetry of smallholders (Williamson, 1996). In this context, distrust weakens relationship building and limits the performance of actors, as in the Kenyan mango agribusiness system (Mutonyi et al., 2018). Small "non-specialised" companies often offer inputs (e.g., seeds) at cheaper prices but of lower quality. These types of suppliers have a limited technological infrastructure in contrast to large suppliers and supply scarcely any accompaniment to smallholders during the planting season of the crop or livestock breeding. Furthermore, the shortage of suppliers also means that smallholders have less choice when buying (Rutsaert et al., 2021), and therefore end up buying from small suppliers. In this sense, limited access to quality inputs is characteristic of the most remote and isolated production areas (Branca et al., 2021).

The next conflict occurs during the sourcing of synthetic and organic fertilisers, agrochemicals and veterinary inputs for crop cultivation or livestock breeding. The cause of the conflicts is also the low bargaining power of smallholders vis-à-vis chemical input suppliers during commercialization (Fu et al., 2020). In countries where no industrial park exists for the production of inputs, suppliers are mainly distribution companies of large firms, such as Bayer, BASF, The Mosaic Company, Nutrien Ltd. etc. Benson and Mogues (2018), Sunyigono et al. (2021) and

Zavale et al. (2020) report that the scarcity of agrochemical suppliers and their limited presence in the different production sites lead to the concentration of the input market. The suppliers have a high investment in technological infrastructure to produce inputs, so they manage the quality and selling prices in the markets. However, the products on offer, mainly low-priced ones, are not specialised for each type of crop. Chemical inputs can be used on a variety of agricultural crops. As such, the use of non-specialised inputs can affect agronomic management and crop productivity in the field (Villacis et al., 2022).

Turbulence in input markets has created an uncertain environment for farmers. The abrupt changes in the markets are because of the Covid-19 pandemic, the war problems in Europe, the container crisis, the shortage of raw materials in the supply chains, among others (Ababulgu et al., 2022; Bonilla Cedrez et al., 2020). Prices of most agrochemicals and fertilisers have risen considerably globally, but especially for importing countries in the South American, African and Asian regions. As a result, rising input prices have increased agricultural production costs by 70 to 100 % (Sapbamrer et al., 2022). This situation complicates access to inputs for farmers, independent of their size and financial capacity. Bonilla-Cedrez et al. (2021), Mthembu et al. (2022) and Prosper Bright et al. (2021) mention that the limited use of inputs due to excessive costs is reducing the productivity and competitiveness of smallholders. Consequently, low farm productivity is limiting the supply and raising the prices of agricultural commodities and food products. In this context, the soaring prices of commodities such as soya, maize and wheat are causing food shortages in different markets around the world (The Economist, 2022).

At this stage, the final conflict arises during the interaction between smallholders and machinery, technological equipment and infrastructure suppliers. The imperfect market due to the high concentration of supplier companies and the low power of smallholders also generate conflict environments. In general, the goods or services exchanged are of high value, therefore, suppliers manage their prices and conditions at the time of purchase-sale. Large suppliers usually have offices or subsidiaries in all production sites for the distribution of their products according to the agro-industrial sector. However, the presence of supplier companies is scarce in places with difficult access, such as the Andean region of South America. For this reason, there is a gap in technological infrastructure when comparing the coastal regions with the remote regions of the highlands and jungle (Solano Gaviño, Castro Santander, Perales Dávila, et al., 2021). In this sense, it is possible to appreciate the implementation of innovative drip irrigation systems by large agro-industrial exporters in Peru versus the still existing flood irrigation systems of smallholders in the inter-Andean valleys.

Agricultural suppliers offer a wide range of equipment and machinery for farmers. However, few suppliers sell technological equipment that is tailor-made for smallholders. For the most part, the agricultural equipment and machinery on offer is mainly designed for medium and large-scale farmers. Limited access to small-scale machinery and technological equipment by smallholders reduces the proper agricultural management of crops. In that sense Hoque et al. (2021), Takeshima and Liu (2020) and Zeleke et al. (2021) evidence that the use of technology for production at any scale improves the productivity of agricultural fields and livestock farms. Alternatively, farmers prefer to rent machinery on an as-needed basis rather than buy because of its expensive price and high maintenance cost, as in the case of tractors for agricultural use (Takeshima, 2017). Smallholders often use the services of private companies or agro-industrial corporations for the use of agricultural tractors, combine harvesters, and crop spraying machines. In this context, failures also occur during negotiation because of rental price, service performance, contract conditions, among others. Therefore, conflicts arise due to deficient coordination between farmers and services suppliers.

4.2 Conflicts between smallholders-intermediaries/agro-industries/distributors

Smallholders engage in transactions with various agents to market their harvested products. These agents include packaging companies, agro-industries, food industries, collectors, intermediaries, wholesale/retail distributors and final consumers (Figure 4). The diversity of actors with whom smallholders interact depends on the trade flow of the product within the agribusiness system (Adams et al., 2022). For instance, in the case of commercialisation of fresh vegetables and fruits, smallholders can sell their harvest to packaging companies, wholesale distributors and retailers. However, if the trade flow is a processed product, the farmer sells his harvest to the agro-industrial company (directly) or through an intermediary-collector (García et al., 2021; Osuna and Barrantes, 2020; Salcido et al., 2020).

In this context, the major conflict arises between the smallholder and the processing company or food industry. Chizari et al. (2018), Ito and Zylbersztajn (2018) and Shokoohi et al. (2019) mention that market concentration in agribusiness systems such as dairy and citrus, leads to industries imposing their own pricing systems and buying conditions on their raw material suppliers. In this situation, farmers often confront the industry over the (uncompetitive) price paid during the purchase-sale. Both the price and the quality of the raw material is set by the companies to manufacture high-value products for the market. Industries value quality significantly by paying more for high quality raw materials, in most cases. Against this background, quality is still a constant challenge in smallholder agriculture, as is the case in the coffee and cocoa agro-industry sector in South American countries

(Villacis et al., 2022). In cases, the raw materials on offer lack the quality and freshness demanded by industrial companies. As a result, smallholders are often susceptible to the less competitive prices on the market.

Heterogeneity at the organisational level of smallholders limits their productive performance in agribusiness systems. Cavicchioli (2018), Shokoohi et al. (2019) and Stalgiene et al. (2017) argue that the atomisation and fragmentation of smallholders are factors that further encourage the concentration of large industries in processing markets. Likewise, the disorganization of farmers increases the power of industries to impose the terms of purchase of raw materials. In this context, institutional and legal gaps in the states lead to deregulation of markets and unfair competition between economic actors, especially in regions where small-scale production predominates (Solano Gaviño, Castro Santander, and Palau, 2021).

Another conflict arises when the smallholder and the intermediary exchange goods. The intermediaries are agents who often commercialize with smallholders in food chains (Michelson et al., 2018). The intermediary is also known as a collector in those areas with limited access and little presence of industrial companies. Naseer et al. (2019) and Yaseen et al. (2020) evidence that intermediation in the food chain is crucial for the development of production areas, such as in the citrus industry sector in South Asia. However, the bargaining power of intermediaries is often high, which is why they fix the price and quality now of commercialization of harvested products and can lead to conflicts with farmers (von Oppenkowski et al., 2019). Low quality and small production volumes result in low prices paid for products during commercialization. Therefore, intermediaries are also agents that detract from the competitiveness of smallholders, as is the case in the oil palm sector (Ayompe et al., 2021; Ordway et al., 2019). The non-existence of commercialization alternatives and the informality of the market are aspects that allow the appearance and growth of intermediaries in small-scale production areas. In general, this situation is limiting the competitiveness of agribusiness systems.

Conflicts occur between smallholders and wholesalers/retailers in the negotiation of prices during commercialization. Arinloye et al. (2015), Flores and Villalobos (2018) and Zhang et al. (2019) mention that agribusiness systems with fresh products flow use wholesale and retail channels, as these are higher value markets for smallholders. However, distributors often manage their own purchasing conditions. In this context, coordination failures lead to conflicts because of opportunism due to farmers' lack of knowledge of market dynamics (Osmani et al., 2021). Therefore, distributors often pay a price below the market standard to smallholders. Among other factors, low product quality is often the main cause for capturing less competitive prices. Smallholders lack the implementation of Good Agricultural Practices (GAP) in their fields (Wosene and Gobie, 2022), however, GAP is essential to obtain a quality fresh product according to the demands of customers (Kotey et al., 2021). Likewise, the quality related to the perishability of the product is also determinant for accepting the terms of negotiation. The price system is the one most used by the agents during the transaction, nevertheless, this structure often does not value the quality of the fresh products at the time of commercialization.

Finally, conflicts arise at the level of smallholders and final consumers. Interactions between the two actors take place mostly in so-called rural or communal markets (Lee et al., 2022). According to Abate et al. (2022) and Haile et al. (2022) the direct connection of farmers to consumer markets allows them to earn higher incomes. However, the misalignment of transactions can lead to losses for smallholders during commercialization. The causes of the conflict are also low selling prices. Consumers tend to appreciate agricultural or livestock products according to a quality attribute such as colour, size, weight, calibre, freshness, and more. Nevertheless, smallholders hardly sort their lots by attributes as they prefer to sell their produce by volume and not by quality. Furthermore, small-scale agriculture is characterized by a lack of varietal standardization of crops, mainly due to deficient agronomic management. Therefore, factors decide an environment of conflict in the final market for the products of the agribusiness system.

4.3 Strategies for the sustainability of smallholders

There are various strategies for smallholders to mitigate conflicts and increase their competitive position vis-à-vis their interacting agents (Table 1). Collective forms are presented as a possibility to increase the bargaining power of smallholders when buying inputs and during the sale of harvested products. In this sense, scientific studies show the positive impacts of the adoption of associative and cooperative models by smallholders in the agribusiness systems of dairy, meat, fresh fruit, cereals, etc. (Bagchi et al., 2021; Kehinde and Ogundeji, 2022; Liu et al., 2019; Ma and Abdulai, 2017). Partnerships between actors for the commercialisation of end products are also an important mechanism to cope with market turbulence due to global problems, e.g., Covid 19 (Lopez-Ridaura et al., 2021). In this sense, collective organisations are a strategy to increase the competitiveness of smaller companies in food chains (Neves et al., 2019; Wangu et al., 2021). Both associations and cooperatives improve the insertion of small holders into food chains through joint purchase-sale, optimising commercialization processes and minimising the occurrence of conflicts.

Table 1.
Conflict mitigation strategies in agribusiness systems.

Level	Strategies	References
Organizational	Associations, cooperatives, horizontal organisations, consortia and other collective forms.	Bagchi et al. (2021), Kehinde and Ogundeji (2022), Liu et al. (2019), Lopez-Ridaura et al. (2021), Ma and Abdulai (2017)
	Formal and informal contracts, vertical/horizontal integration	Bagchi et al. (2021), Kaur et al. (2021), Meemken and Bellemare (2020), Mishra et al. (2018), Vabi Vamuloh et al. (2019)
Institutional	Public policies, laws and regulations for the promotion of agro-industrial enterprises	Derville and Fink-Kessler (2019), Haddad et al. (2017), Neves et al. (2019), Ramírez-Mejía et al. (2022)
	Free Trade Agreements-FTAs and trade agreements	Ahmed et al. (2021), Amare et al. (2019), Darmanto et al. (2021), Narisa et al. (2013), Prina (2013), Timsina and Culas (2020)

Another alternative to improve the position of smallholders is the use of formal and informal contracts for the provision of inputs and technology, especially for the purchase of high-value goods. (Meemken and Bellemare, 2020; Vabi Vamuloh et al., 2019). Contracts between two actors are a governance structure that serves to make the negotiation topics transparent during commercialization (Ménard, 2014; Williamson, 2008). The contract model is being used by farmers and industries in various production areas, such as in the potato agro-industrial sector in South Asia (Behera et al., 2022). In general, the use of contracts by smallholders improves their conditions for buying inputs and selling harvested products, increasing their competitiveness in the agribusiness system (Kaur et al., 2021; Mishra et al., 2018).

On the institutional environment side, public policies are crucial for the development of smallholders in agri-food chains. (Neves et al., 2020). The implementation of clear "rules of the game" encourages agricultural and livestock production (Ramírez-Mejía et al., 2022). Therefore, the establishment and enforcement of laws and regulations makes commercialization between economic actors transparent (Williamson, 1991). Likewise, the institutional framework of the states promotes fair competition between agents and the development of markets. Amare et al. (2019), Narisa et al. (2013), Prina (2013) and Timsina and Culas (2020) mention that the signing of trade agreements is important for the promotion and insertion of agro-industrial products in different international markets. Therefore, the implementation of a proper institutional environment will strengthen the participation of smallholders in each agribusiness system.

4 Conclusions

Conflicts arise during the performance of economic actors in agribusiness systems. Deficient coordination between the actors is the main input for the occurrence of conflicts. The misalignment in supplier-smallholder-agroindustry transactions shows the major conflicts at the organisational level. In this context, smallholders are the most vulnerable and susceptible agents in the food chain. Therefore, the main conflicts affecting smallholders were analysed based on a review of bibliographical resources.

The imposition of prices during the purchase-sale of goods and services are the main conflicts faced by smallholders. Conflicts between suppliers and farmers occur due to the high bargaining power of large suppliers, the asymmetry of market information, the limited accessibility and low presence of distributors in the production regions, the fluctuation of markets due to global problems, among others. Conflicts between smallholders and industry arise because of the low purchase prices imposed by large companies during commercialization. In this context, the concentration of processing markets leads to a misalignment of coordination between actors. During the smallholder-distributor transaction, conflicts arise over low sales prices due to low quality and small lots offered. Therefore, conflicts have been discouraging the productive growth of smallholders in agribusiness systems.

Associative or collective forms of smallholders are presented as solutions to mend fences with their interacting agents. Likewise, the use of contracts is a tool that makes negotiations during commercialization more transparent. In the same vein, the implementation of an adequate institutional environment promotes and fosters the development of farmers, as well as strengthens the competitiveness of the members of the agribusiness systems.

Finally, the present study will serve for the implementation of projects and management plans for smallholder development. The results will also serve for the establishment of public policies with the aim of improving and increasing the competitiveness of smallholder agriculture within agribusiness systems, especially in developing

countries. Future research should focus on assessing the impacts of conflicts on smallholder performance and on analysing conflict mitigation strategies by product/service line in agribusiness systems.

References

Ababulgu, N., Abajobir, N., Wana, H. (2022). The embarking of COVID-19 and the perishable products' value chain in Ethiopia. *Journal of Innovation and Entrepreneurship*, **11**(1): 34. https://doi.org/10.1186/s13731-022-00224-5.

Abate, D., Mitiku, F., Negash, R. (2022). Commercialization level and determinants of market participation of smallholder wheat farmers in northern Ethiopia. *African Journal of Science, Technology, Innovation and Development*, **14**(2): 428–439. https://doi.org/10.1080/20421338.2020.1844854.

Abubakari, M., Twum, K. O., Asokwah, G. A. (2020). From conflict to cooperation: The trajectories of large scale land investments on land conflict reversal in Ghana. *Land Use Policy*, **94**: 104543. https://doi.org/10.1016/j.landusepol.2020.104543.

Adams, A., Caesar, L. D., Asafu-Adjaye, N. Y. (2022). What Informs Farmers' Choice of Output Markets? The Case of Maize, Cowpea and Livestock Production in Northern Ghana. *International Journal of Rural Management*, **18**(1): 56–77. https://doi.org/10.1177/0973005221994425.

Ahmad, D., Afzal, M. (2021). Impact of violent conflicts and environmental hazards on pastoral sustainable development in Punjab, Pakistan. *Environment, Development and Sustainability*, **24**(9): 11260–11281. https://doi.org/10.1007/S10668-021-01907-X.

Ahmed, A., Hong, Q. J., Tahir, H. (2021). Effect of trade liberalization on asymmetric countries for homogenous and differentiate product: Case of pakistan-china free trade agreement. *Journal of International Logistics and Trade*, **19**(1): 33–48. https://doi.org/10.24006/JILT.2021.19.1.033.

Almeida, B. U. R. de O., de Souza, J. P. (2021). Milk agri-industrial system packaging and transactions: transaction attributes, dimensions and governance structure. *Custos e @gronegócio Online*, **17**(3): 343–373. www.custoseagronegocioonline.com.br.

Amare, M., Mariara, J., Oostendorp, R., Pradhan, M. (2019). The impact of smallholder farmers' participation in avocado export markets on the labor market, farm yields, sales prices, and incomes in Kenya. *Land Use Policy*, **88**: 104168. https://doi.org/10.1016/j.landusepol.2019.104168.

Arinloye, D.-D. A. A., Pascucci, S., Linnemann, A. R., Coulibaly, O. N., Hagelaar, G., Omta, O. S. W. F. (2015). Marketing Channel Selection by Smallholder Farmers. *Journal of Food Products Marketing*, **21**(4): 337–357. https://doi.org/10.1080/10454446.2013.856052.

Ayompe, L. M., Nkongho, R. N., Masso, C., Egoh, B. N. (2021). Does investment in palm oil trade alleviate smallholders from poverty in Africa? Investigating profitability from a biodiversity hotspot, Cameroon. *Plos One*, **16**(9): e0256498. https://doi.org/10.1371/journal.pone.0256498.

Bagchi, N. S., Mishra, P., Behera, B. (2021). Value chain development for linking land-constrained farmers to markets: Experience from two selected villages of West Bengal, India. *Land Use Policy*, **104**: 105363. https://doi.org/10.1016/j.landusepol.2021.105363.

Beber, C. L., Lakner, S., Skevas, I. (2021). Organizational forms and technical efficiency of the dairy processing industry in Southern Brazil. *Agricultural and Food Economics*, **9**(1): 23. https://doi.org/10.1186/s40100-021-00195-3.

Behera, H. C., Kodirekkala, K. R., Sinha, A. A. (2022). Small and Marginal Farmers' Participation in Potato Contract Farming in West Bengal, India. *Journal of Asian and African Studies*, **57**(3): 604–624. https://doi.org/10.1177/00219096211025074.

Belaya, V., Hanf, J. H. (2016). Conflict resolution in vertical collaborations in the agri-food sector. *International Journal on Food System Dynamics*, **7**(1): 24–35. https://doi.org/10.18461/ijfsd.v7i1.713.

Benson, T., Mogues, T. (2018). Constraints in the fertilizer supply chain: evidence for fertilizer policy development from three African countries. *Food Security*, **10**(6): 1479–1500. https://doi.org/10.1007/S12571-018-0863-7.

Bilali, H. el. (2021). Climate change and agriculture in Burkina Faso. *Journal of Aridland Agriculture*, **7**: 22–47. https://doi.org/10.25081/JAA.2021.V7.6596.

Bonilla Cedrez, C., Chamberlin, J., Guo, Z., Hijmans, R. J. (2020). Spatial variation in fertilizer prices in Sub-Saharan Africa. *Plos One*, **15**(1): e0227764. https://doi.org/10.1371/journal.pone.0227764.

Bonilla-Cedrez, C., Chamberlin, J., Hijmans, R. J. (2021). Fertilizer and grain prices constrain food production in sub-Saharan Africa. *Nature Food*, **2**(10): 766–772. https://doi.org/10.1038/S43016-021-00370-1.

Branca, G., Cacchiarelli, L., D'amico, V., Dakishoni, L., Lupafya, E., Magalasi, M., Perelli, C., Sorrentino, A. (2021). Cereal-legume value chain analysis: A case of smallholder production in selected areas of Malawi. *Agriculture (Switzerland)*, **11**(12): 1217. https://doi.org/10.3390/AGRICULTURE11121217.

Casali, M., De Mendonça, B. S., De Brito, M. M., Rojas Dos Santos, M. G., Loesia Lima, P. G., Da Silva Siqueira, T. T., Damasceno, J. C., Bánkuti, F. I. (2020). Information asymmetry among dairy producers in Paraná, Brazil. *Semina: Ciencias Agrarias*, **41**(1): 293–304. https://doi.org/10.5433/1679-0359.2020v41n1p293.

Cavicchioli, D. (2018). Detecting market power along food supply chains: evidence and methodological insights from the fluid milk sector in Italy. *Agriculture (Switzerland)*, **8**(12): 191. https://doi.org/10.3390/agriculture8120191.

Chizari, A. H., Shokoohi, Z., Salami, H. (2018). Estimating market power in Iranian dairy processing Industry with dynamic imperfect competition model. *Journal of Agricultural Science and Technology*, **20**: 1–12.

Clay, P. M., Feeney, R. (2019). Analyzing agribusiness value chains: a literature review. *International Food and Agribusiness Management Review*, **22**(1): 31–46. https://doi.org/10.22434/IFAMR2018.0089.

Coughlan, A., Anderson, E., Stern, L., El-Ansary, A. (2002). *Canais de marketing e distribuição*. Bookman.

Cunico, E., de Souza, J. P., de Alencar Schiavi, S. M. (2021). Analysis of governance structure and transaction costs in a fish farming agroindustrial system. *Revista Em Agronegocio e Meio Ambiente*, **14**(Supl. 1): 1–20. https://doi.org/10.17765/2176-9168.2021v14Supl.1.e8302.

da Silveira Bueno, R., Marchetti, L., Cocozza, C., Marchetti, M., Salbitano, F. (2021). Could cattle ranching and soybean cultivation be sustainable? A systematic review and a meta-analysis for the amazon. *IForest*, **14**(3): 285–298. https://doi.org/10.3832/IFOR3779-014.

Darmanto, E. B., Handoyo, R. D., Wibowo, W. (2021). The impact of Asean-China Free Trade Area (ACFTA) agreement on Indonesia's major plantation export commodities. *Business: Theory and Practice*, **22**(1): 91–97. https://doi.org/10.3846/btp.2021.11012.

Daum, T., Adegbola, Y. P., Kamau, G., Kergna, A. O., Daudu, C., Zossou, R. C., Crinot, G. F., Houssou, P., Mose, L., Ndirpaya, Y., Wahab, A. A., Kirui, O., Oluwole, F. A. (2020). Perceived effects of farm tractors in four African countries, highlighted by participatory impact diagrams. *Agronomy for Sustainable Development*, **40**(6): 47. https://doi.org/10.1007/s13593-020-00651-2.

Derville, M., Fink-Kessler, A. (2019). Institutional insights into contract theories: A comparative approach to the French and German dairy industries under liberalization. *European Journal of Comparative Economics*, **16**(1): 81–104. https://doi.org/10.25428/1824-2979/201901-81-104.

di Marcantonio, F., Ciaian, P., Fałkowski, J. (2020). Contracting and Farmers' Perception of Unfair Trading Practices in the EU Dairy Sector. *Journal of Agricultural Economics*, **71**(3): 877–903. https://doi.org/10.1111/1477-9552.12388.

Flores, H., Villalobos, J. R. (2018). A modeling framework for the strategic design of local fresh-food systems. *Agricultural Systems*, **161**: 1–15. https://doi.org/10.1016/j.agsy.2017.12.001.

Food and Agriculture Organization-FAO. (2019). *Developing sustainable value chains for small-scale livestock producers* (G. Leroy & M. Fernando, Eds.). FAO Animal Production and Health Guidelines No. 21. https://doi.org/10.4060/CA5717EN.

Fu, S., Zhan, Y., Ouyang, J., Ding, Y., Tan, K. H., Fu, L. (2020). Power, supply chain integration and quality performance of agricultural products: evidence from contract farming in China. *Production Planning and Control*, 1–17. https://doi.org/10.1080/09537287.2020.1794074.

García, J. S. A., Hurtado-Salazar, A., Ceballos-Aguirre, N. (2021). Current overview of hass avocado in colombia. Challenges and opportunities: A review. *Ciencia Rural*, **51**(8). https://doi.org/10.1590/0103-8478cr20200903.

Gaski, J. F. (1984). The Theory of Power and Conflict in Channels of Distribution. *Journal of Marketing*, **48**(3): 9–29. https://doi.org/10.1177/002224298404800303.

Gerard, A., Lopez, M. C., Kerr, J., Bizoza, A. R. (2022). Relational contracts and value chain governance: exporter approaches to overcoming transaction costs in Rwanda's coffee sector. *Journal of Agribusiness in Developing and Emerging Economies*. https://doi.org/10.1108/JADEE-07-2021-0176.

González-Ramírez, M. G., Santoyo-Cortés, V. H., Arana-Coronado, J. J., Muñoz-Rodríguez, M. (2020). The insertion of Mexico into the global value chain of berries. *World Development Perspectives*, **20**: 100240. https://doi.org/10.1016/J.WDP.2020.100240.

Grashuis, J., Su, Y. (2019). A review of the empirical literature on farmer cooperatives: performance, ownership and governance, finance, and member attitude. *Annals of Public and Cooperative Economics*, **90**(1): 77–102. https://doi.org/10.1111/apce.12205.

Grasse, D. (2022). Oil crops and social conflict: evidence from Indonesia. *Journal of Conflict Resolution*, 002200272210848. https://doi.org/10.1177/00220027221084826.

Haddad, N. O., Ton, G., Sraïri, M. T., Bijman, J. (2017). Organisational challenges of Moroccan dairy cooperatives and the institutional environment. *International Journal on Food System Dynamics*, **8**(3): 236–249. https://doi.org/10.18461/IJFSD.V8I3.835.

Haile, K., Gebre, E., Workye, A. (2022). Determinants of market participation among smallholder farmers in Southwest Ethiopia: double-hurdle model approach. *Agriculture & Food Security*, **11**(1): 18. https://doi.org/10.1186/s40066-022-00358-5.

Hoque, M. A., Hossain, M. M., Ziauddin, A. T. M., Krupnik, T. J., Gathala, M. K. (2021). Furrow design for improving crop establishment of two-wheel tractor operated strip tillage planters in loam and clay loam soils. *International Journal of Agricultural and Biological Engineering*, **14**(3): 130–139. https://doi.org/10.25165/J.IJABE.20211403.5906.

Hussain, A., Khan, S., Liaqat, S., Shafiullah, S. (2022). Developing Evidence Based Policy and Programmes in Mountainous Specific Agriculture in Gilgit-Baltistan and Chitral Regions of Pakistan. *Pakistan Journal of Agricultural Research*, **35**(1): 181–196. https://doi.org/10.17582/journal.pjar/2022/35.1.181.196.

Instituto Nacional de Estadística e Informática. (2013). *IV Censo Nacional Agropecuario 2012*. http://censos.inei.gob.pe/Cenagro/redatam/.

Ito, N. C., Zylbersztajn, D. (2018). Vertical integration in the Brazilian orange juice sector: Power and transaction costs. *International Food and Agribusiness Management Review*, **21**(1): 1–16. https://doi.org/10.22434/IFAMR2016.0071.

Kaur, P., Singla, N., Singh, S. (2021). Role of Contract Farming in Crop Diversification and Employment Generation: Empirical Evidence from Indian Punjab. *Millennial Asia*, **12**(3): 350–366. https://doi.org/10.1177/09763996211051300.

Kehinde, A. D., Ogundeji, A. A. (2022). The simultaneous impact of access to credit and cooperative services on cocoa productivity in South-western Nigeria. *Agriculture & Food Security*, **11**(1): 11. https://doi.org/10.1186/s40066-021-00351-4.

Kibriya, S., Savio, G., Price, E., King, J. (2016). The role of conflict in farmers' crop choices in north Kivu, Democratic Republic of the Congo. *International Food and Agribusiness Management Review*, **19**(3): 99–118.

Kotey, M. A., Adams, F., Nimoh, F., Osei Mensah, J., Etuah, S., Edwin, C. (2021). Choice of marketing outlets among smallholder cowpea farmers in Ghana. *World Journal of Entrepreneurship, Management and Sustainable Development*, *ahead-of-print*(ahead-of-print). https://doi.org/10.1108/WJEMSD-07-2020-0088.

Lee, H. B., McNamara, P. E., Bhattacharyya, K. (2022). Does linking women farmers to markets improve food security? Evidence from rural Bangladesh. *Agriculture & Food Security*, **11**(1): 33. https://doi.org/10.1186/s40066-022-00373-6.

Lemos, F. K., Zylbersztajn, D. (2018). International demand shaping governance mechanisms in Brazilian beef agri-systems: The case of the three main processors. *International Journal on Food System Dynamics*, **9**(2): 178–196. https://doi.org/10.18461/IJFSD.V9I2.926.

Liu, Y., Ma, W., Renwick, A., Fu, X. (2019). The role of agricultural cooperatives in serving as a marketing channel: evidence from low-income regions of Sichuan province in China. *International Food and Agribusiness Management Review*, **22**(2): 265–282. https://doi.org/10.22434/IFAMR2018.0058.

Lopez-Ridaura, S., Sanders, A., Barba-Escoto, L., Wiegel, J., Mayorga-Cortes, M., Gonzalez-Esquivel, C., Lopez-Ramirez, M. A., Escoto-Masis, R. M., Morales-Galindo, E., García-Barcena, T. S. (2021). Immediate impact of COVID-19 pandemic on farming systems in Central America and Mexico. *Agricultural Systems*, **192**: 103178. https://doi.org/10.1016/j.agsy.2021.103178.

Lowder, S. K., Sánchez, M. V., Bertini, R. (2021). Which farms feed the world and has farmland become more concentrated? *World Development*, **142**: 105455. https://doi.org/10.1016/J.WORLDDEV.2021.105455.

Ma, W., Abdulai, A. (2017). The economic impacts of agricultural cooperatives on smallholder farmers in rural China. *Agribusiness*, **33**(4): 537–551. https://doi.org/10.1002/agr.21522.

Maloku, S., Çera, G., Poleshi, B., Lushi, I., Metzker, Z. (2021). The effect of relationship quality on contract farming: The mediating role of conflict between trading partners in albania. *Economics and Sociology*, **14**(3): 283–296. https://doi.org/10.14254/2071-789X.2021/14-3/15.

Meemken, E. M., Bellemare, M. F. (2020). Smallholder farmers and contract farming in developing countries. *Proceedings of the National Academy of Sciences of the United States of America*, **117**(1): 259–264. https://doi.org/10.1073/pnas.1909501116.

Ménard, C. (2014). Embedding organizational arrangements: towards a general model. *Journal of Institutional Economics*, **10**(4): 567–589. https://doi.org/10.1017/S1744137414000228.

Michelson, H., Boucher, S., Cheng, X., Huang, J., Jia, X. (2018). Connecting supermarkets and farms: the role of intermediaries in Walmart China's fresh produce supply chains. *Renewable Agriculture and Food Systems*, **33**(1): 47–59. https://doi.org/10.1017/S174217051600051X.

Mishra, A. K., Kumar, A., Joshi, P. K., D'Souza, A. (2018). Production Risks, Risk Preference and Contract Farming: Impact on Food Security in India. *Applied Economic Perspectives and Policy*, **40**(3): 353–378. https://doi.org/10.1093/aepp/ppy017.

Misra, A., Mention, A.-L. (2022). Exploring the food value chain using open innovation: a bibliometric review of the literature. *British Food Journal*, **124**(6): 1810–1837. https://doi.org/10.1108/BFJ-04-2021-0353.

Mthembu, B. E., Mkhize, X., Arthur, G. D. (2022). Effects of COVID-19 Pandemic on Agricultural Food Production among Smallholder Farmers in Northern Drakensberg Areas of Bergville, South Africa. *Agronomy*, **12**(2): 531. https://doi.org/10.3390/AGRONOMY12020531.

Mutonyi, S., Beukel, K., Hjortsø, C. N. (2018). Relational factors and performance of agrifood chains in Kenya. *Industrial Marketing Management*, **74**: 175–186. https://doi.org/10.1016/J.INDMARMAN.2018.03.004.

Narisa, T., Narong, S., Somporn, I., Praderm, C., Naludhsorn, C., Nisita, S., Mai, C. (2013). The Impacts of Thailand-China FTA for Agricultural Products on Thai Garlic Production: A Case Study of Chiang Mai and Si Sa Ket Provinces. *Thai Journal of Agricultural Science*, **46**(1): 37–51. www.thaiagj.org.

Naseer, M. A. U. R., Mehdi, M., Ashfaq, M., Hassan, S., Abid, M. (2019). Effect of marketing channel choice on the profitability of citrus farmers: Evidence form Punjab-Pakistan. *Pakistan Journal of Agricultural Sciences*, **56**(4). https://doi.org/10.21162/PAKJAS/19.8671.

Neves, M. F., Gray, A., Valerio, F. R., Martinez, L. F., Rodrigues, J. M., Kalaki, R. B., Marques, V. N., Cambaúva, V. (2020). Food and agribusiness in 2030: a roadmap. In *Food and agribusiness in 2030: a roadmap*. Wageningen Academic Publishers. https://doi.org/10.3920/978-90-8686-907-7.

Neves, M. F., Kalaki, R. B., Rodrigues, J. M., Gray, A. W. (2019). Strategic planning and management of food and agribusiness chains: The chainplan method (framework). *Revista Brasileira de Gestao de Negocios*, **21**(4). https://doi.org/10.7819/rbgn.v21i4.4012.

Ordway, E. M., Naylor, R. L., Nkongho, R. N., Lambin, E. F. (2019). Oil palm expansion and deforestation in Southwest Cameroon associated with proliferation of informal mills. *Nature Communications*, **10**(1): 114. https://doi.org/10.1038/s41467-018-07915-2.

Osmani, M., Kolaj, R., Borisov, P., Arabska, E. (2021). Competitiveness between figures and metaphors; are farmers' apple producers enough competitive? *Bulgarian Journal of Agricultural Science*, **27**: 31–43.

Osuna, A. N., Barrantes, D. L. M. (2020). Small-scale milk production systems in Colombia: a regional analysis of a potential strategy for providing food security. *Future of Food: Journal on Food, Agriculture and Society*, **8**(4): 1–10. https://doi.org/10.17170/kobra-202010131948.

Pappa, I., Illiopoulos, C., Massouras, T. (2019). On sustainability of a dairy sector in crisis. *International Journal on Food System Dynamics*, **10**(2): 130–150. https://doi.org/10.18461/ijfsd.v10i2.08.

Perito, M. A., de Rosa, M., Bartoli, L., Chiodo, E., Martino, G. (2017). Heterogeneous organizational arrangements in agrifood chains: A governance value analysis perspective on the sheep and goat meat sector of Italy. *Agriculture (Switzerland)*, **7**(6): 47. https://doi.org/10.3390/agriculture7060047.

Prina, S. (2013). Who benefited more from the North American free trade agreement: Small or large farmers? Evidence from Mexico. *Review of Development Economics*, **17**(3), 594–608. https://doi.org/10.1111/rode.12053.

Pröll, S., Grüneis, H., Sinabell, F. (2022). Market Concentration, Producer Organizations, and Policy Measures to Strengthen the Opportunities of Farmers for Value Addition—Empirical Findings from the Austrian Meat Supply Chain Using a Multi-Method Approach. *Sustainability*, **14**(4), 2256. https://doi.org/10.3390/su14042256.

Prosper Bright, M., Terrence Kudzai, N., Ngavaite, C. (2021). The impact of COVID-19 on agricultural extension and food supply in Zimbabwe. *Cogent Food and Agriculture*, **7**(1): 1918428. https://doi.org/10.1080/23311932.2021.1918428.

Ramírez-Mejía, D., Levers, C., Mas, J.-F. (2022). Spatial patterns and determinants of avocado frontier dynamics in Mexico. *Regional Environmental Change*, **22**(1): 28. https://doi.org/10.1007/s10113-022-01883-6.

Rutsaert, P., Chamberlin, J., Oluoch, K. O., Kitoto, V. O., Donovan, J. (2021). The geography of agricultural input markets in rural Tanzania. *Food Security*, **13**(6): 1379–1391. https://doi.org/10.1007/s12571-021-01181-9.

Salcido, G. T., Moreno, A. S., Muñoz, N. B. (2020). Analysis of two models of governance: Local agro-food systems of blackberry in Mexico and Colombia. *Estudios Geograficos*, **81**(289): e049. https://doi.org/10.3989/ESTGEOGR.202063.063.

Sano, Y., Sato, T., Kawasaki, K., Suzuki, N., Kaiser, H. M. (2022). Estimating the degree of market power in the vegetable market in Japan. *Agricultural and Resource Economics Review*, **51**(1): 20–44. https://doi.org/10.1017/age.2021.12.

Sapbamrer, R., Chittrakul, J., Sirikul, W., Kitro, A., Chaiut, W., Panya, P., Amput, P., Chaipin, E., Sutalangka, C., Sidthilaw, S., Promrak, P., Kamolsan, P., Hongsibsong, S. (2022). Impact of COVID-19 Pandemic on Daily Lives, Agricultural Working Lives, and Mental Health of Farmers in Northern Thailand. *Sustainability (Switzerland)*, **14**(3): 1189. https://doi.org/10.3390/SU14031189.

Sebhatu, K. T., Gezahegn, T. W., Berhanu, T., Maertens, M., van Passel, S., D'Haese, M. (2020). Conflict, fraud, and distrust in Ethiopian agricultural cooperatives. *Journal of Co-Operative Organization and Management*, **8**(1). https://doi.org/10.1016/J.JCOM.2020.100106.

Senesi, S., Dulce, E., Daziano, M., Ordóñez, I., Mogni, L. (2016). *La soja en Argentina: un sistema de agronegocios clave y competitivo*. La Lucila: Marcos Fabrizio Daziano.

Senesi, S. I., Daziano, M. F., Chaddad, F. R., Palau, H. (2017). Ownership versus management: the role of farming networks in Argentina. *International Food and Agribusiness Management Review*, **20**(2): 221–238. https://doi.org/10.22434/IFAMR2016.0030.

Shokoohi, Z., Chizari, A. H., Asgari, M. (2019). Investigating bargaining power of farmers and processors in Iran's dairy market. *Journal of Agricultural and Applied Economics*, **51**(1): 126–141. https://doi.org/10.1017/AAE.2018.26.

Solano Gaviño, J. C., Castro Santander, P. O., Palau, H. (2021). Arreglos organizacionales: aproximación productor-industria en el subsistema agroindustrial lácteo del norte de Perú. *Revista Nor@ndina*, **4**(1): 37–47. https://doi.org/10.37518/2663-6360X2021v4n1p37.

Solano Gaviño, J. C., Castro Santander, P. O., Perales Dávila, N. E., Palau, H., Senesi, S. (2021). Sistema de agronegocios de la uva de mesa de Perú. Situación actual frente a la demanda del mercado asiático. *Revista Nor@ndina*, **4**(1): 25–36. https://doi.org/10.37518/2663-6360X2021v4n1p25.

Stalgiene, A., Jedik, A., Viira, A.-H. (2017). Market power in Lithuanian, Latvian and Estonian dairy sectors: the case of raw milk market. *Transformations in Business and Economics*, **16**(2): 89–105.

Sunyigono, A. K., Suprapti, I., Arifiyanti, N. (2021). Inter-market variability of smallholder beef cattle farming in east java indonesia. *Agraris*, **7**(2): 176–190. https://doi.org/10.18196/AGRARIS.V7I2.7621.

Tabe-Ojong, M. P., Ordway, E. M., Nkongho, R. N., Molua, E. L. (2022). Oil palm expansion among non-industrial producers in Cameroon: Potentials for synergy between agro-economic gains and ecological safeguards. *Forest Policy and Economics*, **135**: 102645. https://doi.org/10.1016/J.FORPOL.2021.102645.

Takeshima, H. (2017). Custom-hired tractor services and returns to scale in smallholder agriculture: a production function approach. *Agricultural Economics (United Kingdom)*, **48**(3): 363–372. https://doi.org/10.1111/AGEC.12339.

Takeshima, H., Liu, Y. (2020). Smallholder mechanization induced by yield-enhancing biological technologies: Evidence from Nepal and Ghana. *Agricultural Systems*, **184**. https://doi.org/10.1016/J.AGSY.2020.102914.

The Economist. (2022). *The coming food catastrophe*. https://www.economist.com/leaders/2022/05/19/the-coming-food-catastrophe.

Timsina, K. P., Culas, R. J. (2020). Impacts of Australia's free trade agreements on trade in agricultural products: an aggregative and disaggregative analysis. *Australian Journal of Agricultural and Resource Economics*, **64**(3): 889–919. https://doi.org/10.1111/1467-8489.12377.

Vabi Vamuloh, V., Panwar, R., Hagerman, S. M., Gaston, C., Kozak, R. A. (2019). Achieving Sustainable Development Goals in the global food sector: A systematic literature review to examine small farmers engagement in contract farming. *Business Strategy and Development*, **2**(4): 276–289. https://doi.org/10.1002/BSD2.60.

Villacis, A. H., Alwang, J. R., Barrera, V., Dominguez, J. (2022). Prices, specialty varieties, and postharvest practices: Insights from cacao value chains in Ecuador. *Agribusiness*, **38**(2): 426–458. https://doi.org/10.1002/AGR.21730.

von Oppenkowski, M., Hassler, M., Roesler, T. (2019). Informal markets and global value chains – the disembedding of Romanian dairy smallholders. *European Planning Studies*, **27**(5): 995–1012. https://doi.org/10.1080/09654313.2019.1584607.

Wangu, J., Mangnus, E., van Westen, A. C. M. (2021). Recognizing determinants to smallholders' market orientation and marketing arrangements: building on a case of dairy farming in rural Kenya. *Land*, **10**(6): 572. https://doi.org/10.3390/LAND10060572.

Williamson, O. E. (1991). Comparative Economic Organization: The Analysis of Discrete Structural Alternatives. *Administrative Science Quarterly*, **36**(2). https://doi.org/10.2307/2393356.

Williamson, O. E. (1996). *The Mechanisms of Governance*. Oxford University Press.

Williamson, O. E. (2008). Outsourcing: transaction cost economics and supply chain management. *Journal of Supply Chain Management*, **44**(2): 5–16. https://doi.org/10.1111/j.1745-493X.2008.00051.x.

Wosene, G., Gobie, W. (2022). Value chain analysis of tomato: The case of Bure, Jabitehinan and North Mecha districts of Amhara regional state, Ethiopia. *Journal of Agriculture and Food Research*, **7**: 100272. https://doi.org/10.1016/j.jafr.2022.100272.

Yaseen, A., Israr, M., Khan, A. B., Javed, A., Ahmad, N., Ullah, Z. (2020). The decision to participate in high value marketing channels: An analysis of smallholder farmers in Pakistani citrus industry. *Sarhad Journal of Agriculture*, **36**(1): 198–209. https://doi.org/10.17582/journal.sja/2020/36.1.198.209.

Zavale, H., Matchaya, G., Vilissa, D., Nhemachena, C., Nhlengethwa, S., Wilson, D. (2020). Dynamics of the fertilizer value chain in Mozambique. *Sustainability (Switzerland)*, **12**(11): 4691. https://doi.org/10.3390/SU12114691.

Zeleke, B. D., Geleto, A. K., Komicha, H. H., Asefa, S. (2021). Determinants of adopting improved bread wheat varieties in Arsi Highland, Oromia Region, Ethiopia: A Double-Hurdle Approach. *Cogent Economics and Finance*, **9**(1): 1932040. https://doi.org/10.1080/23322039.2021.1932040.

Zhang, X., Qing, P., Yu, X. (2019). Short supply chain participation and market performance for vegetable farmers in China. *Australian Journal of Agricultural and Resource Economics*, **63**(2): 282–306. https://doi.org/10.1111/1467-8489.12299.

Zylbersztajn, D. (1996). Governance structures and agribusiness coordination: A transaction cost economics approach. In R. Goldberg (Ed.), *Research in Domestic and International Agribusiness Management* (Vol. 12, pp. 245–310). Harvard University.

Zylbersztajn, D. (2017). Agribusiness systems analysis: origin, evolution and research perspectives. *Revista de Administração*, **52**(1): 114–117. https://doi.org/10.1016/j.rausp.2016.10.004.