Value chain coordination and standards: the case of greenhouse vegetables in Albania

Remzi Keco[1] and Irena Gjika[2*]

[1]*Agricultural University of Tirana, Street Paisi Vodica 1025, Tirana, Albania*
[2]*Technical University of Cartagena, Plaza del Cronista Isidoro Valverde 30203, Murcia, Spain*
Corresponding author: irenagjika2012@gmail.com

Abstract

Keco, R. & Gjika, I. (2021). Value chain coordination and standards: the case of greenhouse vegetables in Albania. *Bulg. J. Agric. Sci., 27 (3)*, 469–478

Greenhouse vegetables have been one of the fastest growing and best performing Albanian agrifood subsectors. This paper analyses the current state of coordination and recent developments in the greenhouse vegetable value chain, based on a structured farm survey. The results show that vertical cooperation is not sustainable and most greenhouse vegetable farmers do not use written contracts. Furthermore, most farmers do not carry out soil or water analysis. Albanian farmers do not trust the quality of inputs while claiming that (input) prices are unfair and unreasonable. This is, to a large extent, a result of "spot market" coordination, which cannot guarantee traceability and standards compliance; therefore Contract Farming is the adequate tool to address these gaps.

Key words: value chain governance; standards; greenhouse vegetables; descriptive analysis

Introduction

Agriculture is one of the main sectors that impact the development of the Albanian economy. The sector's contribution to Gross Domestic Product (GDP) is about 22% and today this sector remains one of the largest employers in Albania, representing 38.2% of total employees (INSTAT, 2017). Despite recent growth, Albanian agriculture still faces various challenges including high fragmentation, weak market institutions, low impetus of alignment with the EU's food standards and national food safety control system, difficult access to credit, among other issues (FAO, 2020).

The agrifood sector with the greatest export potential is horticulture, which is also considered as the most competitive in terms of share of total agrifood exports, accounting for more than one-fifth of the total according to FAO (2020). After a prolonged period of slow growth in output and productivity, in which the increase in output just kept pace with increasing domestic demand, fresh fruit and vegetable production and productivity started to grow faster due to increased investments in production and post-harvesting facilities along with increased professionalism and networking of Albanian and international wholesale traders. The core part of exported horticulture products consists of greenhouse vegetables (ibid).

In recent years, as Southeast Europe has seen newly emerging economies, including Albania, there is a new attitude in favour of the sustainable use of protected cultivation. Covering not only protects the crop from external natural hazards, but also allows for artificial manipulation of the micro-environment to optimize plant performance, extend production duration, induce earliness of flowering, and improve production and product quality (Gruda & Tanny, 2014; 2015). Various structures are adopted depending on the crop, climatic region, and expected benefits. High tunnels are covered by impermeable transparent plastic film, which may include roof and side vents to allow natural ventilation of the interior by wind or other buoyancy forces (Gruda & Popsimonova, 2016; 2017).

The cultivated surface area of greenhouse vegetables has tripled between the years 2000 and 2016 in Albania. Also, production amounted to 119 Mt in 2016 which represents a tripling compared to 2000. Export from the greenhouse sector has increased substantially during recent years, from being quasi-nonexistent in early 2000. Main exported vegetables are tomatoes and cucumbers, and the export takes place with a rather stable international demand for these products. It is interesting to highlight that Albania is an international/ regional player for those two vegetables products (Skreli & Imami, 2018).

As production continues to grow, access to market is and will become even more difficult for domestic producers—especially for small farms. As a consequence, farmers have to implement strategies that increase access to market. In this context, is important to establish long-term relationships and contractual arrangements with buyers (in other words to improve vertical cooperation).

Export markets, particularly EU markets, are highly demanding in terms of standards. Under these circumstances, one important pre-condition for future development of this sector is the availability of greenhouse vegetables produced compliant to standards. On the other hand, providing continuous, safe, and ample raw materials is vital for the establishment of a sound food industry. That is why the vertical relationship between farms (i.e. farmers and producers) and processors or traders of agricultural commodities is very important.

Therefore, the general objective of this study is to provide an overview of the greenhouse vegetables value chain in Albania by analysing the current state of coordination and recent developments.

More specifically, the study:
– examines the vegetable sector trends and prospects focusing on greenhouse production by involving production, international trade, and market trends;
– analyses the greenhouse vegetables value chain governance and coordination prospects including standards compliance.

The paper is structured as follows: the next section consists of the literature review. The third section indicates the methods and procedures; the fourth consists of the sector background description, followed by the analysis of results. Summing-up, the last section shows the study conclusions.

Literature Review

Albania faces serious problems with the national system of food safety in terms of legislation, infrastructure, institutional capacity, and enforcement, thus creating real and per-

ceived safety risks for consumers. Several studies (Imami et al., 2011; Zhllima et al., 2015; Vercuni et al., 2016) document concerns of average consumers about food safety, displaying distrust in the public institutions in charge of the enforcement of safety standards. While Albanian consumers are worried about food safety standards, recent research shows that they are not familiar with international food standards such as ISO, HACCP, or Global GAP (Haas et al., 2019).

Despite legal and institutional changes, many farmers still lack information or awareness related to standards. The lack of standards awareness results in non-compliance, which implies reduced access to market (especially in the case of exports). Awareness-raising and standard compliance can be reached, improved, and maintained through effective vertical cooperation. Improving vertical cooperation (through Contract Farming (CF)) is a necessity to improve access to market, especially for small farms.

The theoretical literature points out that CF is positioned between spot market transactions and vertical integration and it combines the advantages of both strict quality control and high coordination with flexibility and lower specific investment (spot market transactions). Specifically, according to FAO (2013), CF refers to "*agricultural production carried out according to an agreement between a buyer and farmers, which establishes conditions for the production and marketing of a farm product or products*".

In the context of developing countries, CF has received considerable attention both from practitioners and researchers. Some of the reasons for such degree of popularity are that CF can help farmers to commercialise their products, leads to higher incomes (thanks to increased productivity), leads to the modernization of the agricultural sector (thanks to the introduction of innovations), and if reaching scale, this can contribute to rural and national economic development (Goldsmith, 1985; Key & Runsten, 1999; Miyata et al., 2009). Grosh (1994) and Katchova & Miranda (2004) argue that CF can serve as an institutional solution to problems of market failures in the access to services (such as credit, insurance, and information). As a result, this form of relationship governance solves a number of productivity constraints for small farmers.

Transaction Cost Economics (TCE) has become one of the leading theoretical approaches for studying governance arrangements of trading relationships (David & Han, 2004). Based on the work by Coase (1937), Williamson (1979) developed the TCE framework, which claims that differences in transaction costs influence a producer's decision to engage in relational governance. The theory indicates that firms will tend to integrate in the presence of high uncertainty, large specific investments, and frequent transactions. Another the-

oretical approach is contract enforcement theories, which focus on the incentives to honour contracts (Klein, 1996). These incentives can be public (such as forms of legal redress), private (the match between the contents of the contract and market conditions at the time of exchange), or a mixture of both. Gow et al. (2000) posit that at any point in time during a contract, both parties assess the costs and benefits of breaking their deal resulting in the decision to stick with or to leave the agreement.

Strong and mutually beneficial agreements allow information, skills, and services to flow along the value chain. The benefits of long-term relationships are that such linkages can create an adequate framework for cooperation and information sharing, mutual learning, and provide competitive advantages to partners (Morgan & Hunt, 1994). On the other hand, the sustainability of relationships requires a willingness to be flexible by all involved parties. As a result, vertical commercial relationships are key factors affecting the way that market systems function.

To build long-term, win-win market linkages between producers and their buyers, it is important to consider several factors in addition to who producers link with or the type of contracting arrangement they enter into. Critical factors to establish successful, long-term agreements are: a) Relationships. Commercial relationships should be beneficial to both sides and built on trust while recognizing the informal rules and norms that impacts the relationship itself; b) Trust. Trust is critical to honor contractual agreements; and c) Information. When information flows freely through the linkages, both sides are better informed and able to make improvements that cater more to each other's needs.

The number of empirical studies on this issue in Albania is limited. Older studies such as Imami et al. (2013) and Xhoxhi (2016) show that written agreements are uncommon while verbal agreements are more frequent, whereas spot market transactions dominate the mode of exchange between farmers and buyers. Being a transition country, Albania is characterized by inefficient formal institutions and weak law enforcement, resulting in a lack of contractual enforcement, and thus discouraging the wide use of contracts (ISETN, 2017).

In the meantime, recent research has shown that farmers who use contracts/agreements show higher levels of satisfaction with the trading relationship than do farmers selling on the spot market. Additnally, those farmers operating with agreements are under higher levels of exercisable power over product quality (Keco et al., 2019). Intermediaries' bargaining power negatively affects the relationship between farmers' specific investments and CF participation. Farmers with high specific investment are reluctant to contract with buyers who have power because having contracts with such buyers implies that they can extract higher values from the farmers' specific investments. Other strong predictors of contracting decisions are farmers' trust in the intermediary, the intermediary's advice to the farmer, and the intermediary's specific investment (Xhoxhi et al., 2019).

Given the small farm size and the critical level of food safety and quality standards in Albania, there is a growing need to enhance vertical and horizontal cooperation in export oriented sectors. There are cases where downstream agribusiness agents, who normally oppose farmers' countervailing power, instead support and even initiate cooperatives and farmer groups in order to implement food safety standards. The emerging cooperation among farmers not only enhances their participation in the value chain but also generates mutual trust (Imami et al., 2021). On the other hand, findings from Xhoxhi et al. (2020) highlight that intermediaries tend to exercise power over margins and product quality-related activities of farmers which consecuently decreases the likelihood of engaging in CF. Nonetheless, a farmer's commitment to the intermediary and investment in specific assets increased the likelihood of participation in CF (ibid).

Methods and Procedures

The study is partly qualitative and partly quantitative. This allows for better understanding of the status and dynamics of the relevant product chain, while combining secondary and primary data analysis.

The secondary data was retrieved from the Ministry of Agriculture and Rural Development (MARD), Albanian Institute of Statistics (INSTAT), UNSTAT COMTRADE (for international trade), and EUROSTAT (for production and international trade). In addition, a review of other relevant studies and reports was carried out. The constraint faced is that for some indicators (related to domestic production and trade) there are no available statistics, while for some others there are no recent statistics. However, regarding international trade, the latest data are available and were analysed. When applicable, data from other countries or regions were collected for comparative analysis purposes.

The primary data collection consisted of a structured survey and semi-structured in-depth interviews carried out with key informants, representing value chain actors and sector experts. A snowball survey was used to identify the main actors and experts in the vegetable value chain for the semi-structured interviews. In the context of limited resource and time availability, only a limited number of interviews with key informed value chain players/stakeholders were carried out.

Greenhouse vegetable producers/farmers surveys took place during November-December 2016 in Berat and Lushnja, the most productive greenhouse vegetable areas in Albania, respectively. 242 farmers were randomly interviewed by well-trained master's students. The margin of error based on the current sample size is 6.3% with a 95% confidence interval.

The average age of the household head (HH) engaged in greenhouse tomato production is 43.9 years (Table 1). Interviewed farmers are characterized by low education level. Farming is the main employment for the majority of farmers in the sample as shown in Table 1. These farmers have on average 17.1 years of experience in farming and 8.1 years of experience in cultivation of greenhouse tomatoes. The average farm size is 14.5 dynym (1.45 Ha), which correleates with the typical farm size in Albania (about 1.2 Ha), and the average area under greenhouse cultivation is 2.8 dynym (0.28 Ha).

Secondary data analysis has been subject to standard descriptive analysis including tables and graphs depicting historical trends. Comparison of production and consumption trends with world, European, and in some cases with neighbouring countries was done when applicable/necessary in the following chapter. Regarding value chain governance analysis in the chapter of results, statistical data sourced by the structured survey have likewise been subject to standard descriptive analysis to point out value chain governance, the sustainability of business linkages, production standards, and quality of inputs perceived by farmers.

Sector Background

There has been a marked improvement in the performance of the vegetable sector in recent years, especially in the case of greenhouse vegetables. The surface area of greenhouses has almost doubled since 2005 (Table 2), reaching about 1405 hectares in 2016. The increased greenhouse area coupled with improved production technologies has resulted in a significant increase in production, enabling a surplus for the key vegetables produced under greenhouses (most notably tomatoes). Specifically, as shown in Table 2, the total greenhouse vegetable domestic production has tripled since 2000 (39 MT) compared to production quantities in 2016 (an estimated value of 119 MT).

Despite the increase, Albania lags behind other countries in the region. The share of land area under greenhouses to total cultivated land in Albania is lower than Greece or North Macedonia (where it exceeds 10%), and also lower than other countries of Southeast Europe where it is approximately 5.15% of the total vegetable cultivated land area (Gruda & Popsimonova, 2017).

The greenhouse sector is dominated by unheated (solar) greenhouses, most of which are simple plastic greenhouses. Only about 5% of the total area of greenhouses is heated (INSTAT, 2017), which is a different picture when compared to other countries such as Macedonia. There are two reasons for the dominance of non-heated greenhouses: a) Climate – enabling approximately 9 months per year production without

Table 1. Socio-economic characteristics of the study sample

Indicator	Average	Median	St. Dev.	Min	Max
HH Age (years)	43.9	45	11.8	20	67
Farmer's level of education	Na	Lower secondary school	Na	No education	University
HH main employment	Na	Self-employed in own farm	Na	Na	Na
HH years of engagement in agriculture	17.1	20	10	1	48
HH years of experience in the sector of greenhouse tomatoes	8.1	6	6	1	26
Total agricultural land area (Dynym)	14.5	12	11.4	0.5	100
Land area cultivated with tomatoes (Dynym)	2.8	2	2.3	0.5	18

Source: Field survey. Note: Total sample=230 tomato farmers (8 female tomato producers)

Table 2. Evolution of vegetable production

Category	2000	2005	2010	2015	2016
Cultivated surface with vegetable (000 Ha)	33	33	31	37	39
– Protected/greenhouse crops surface (Ha)	462	650	828	1243	1405
Production of vegetables (000 MT)	620	685	860	1030	1129
- Of which: greenhouse vegetables (MT)	39	59	66	108	119

Source: INSTAT (2018)

heating, and b) High cost of fuel – in Albania there are no fiscal incentives in terms of subsidies or reduced taxes for buying fuel (used as an input in the agriculture sector, including greenhouses). This makes running of heated greenhouses very costly and not competitive when compared to other countries in the region which have much lower fuel costs for agriculture-related use—including heating. Furthermore, most greenhouses are small and operated by small farmers with limited financial resources who prefer opting for low cost investments (typically in this case unheated plastic greenhouses).

All of the major greenhouse vegetables have seen growth in production since 2010, particularly tomato, which is the leading greenhouse vegetable product, followed by cucumber (Figure 1).
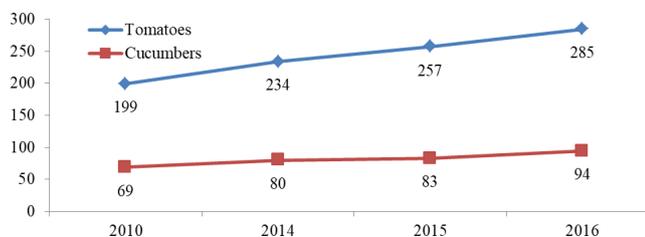

Fig. 1. Dynamics of tomato and cucumber production in Albania (MT)
Source: EUROSTAT (2017)

While Albania has a substantial trade deficit for most agricultural products, it has a positive trade balance for tomatoes and cucumbers, which in 2016 amounted to more than US$ 24.5 million and US$ 6.5 million for tomatoes and cucumbers respectively. The annual growth of exports between 2012 and 2016 was 50% for tomatoes and 67% for cucumbers (Table 3).

There is a rather stable international demand for the export of tomatoes and cucumbers. It is interesting to uncover that Albania is 'visible' as international player for these two vegetable products – it ranks 24th in the export of tomatoes and 29th in the export of cucumbers (Table 3).

Tomato is one of the main exported vegetables (followed by cucumber), with significant growth of exports in recent years – almost 10 times since 2010 (Table 4). Meanwhile, imported quantities of tomato have experienced a decrease since the late 2010s as a result of the increased domestic production (increased greenhouse area/production).

Import prices are quite higher than export prices because Albania typically imports off-season vegetables. Export prices of tomatoes have been at the level of 0.3 to 0.4 $/kg, while import prices have fluctuated from 0.5 to 0.8 $/kg (Table 4). There are several reasons behind the low declared prices. Albanian production is not standardized and it is rarely certified (e.g. GlobalGAP). Also, the supply chain is not very well-organized, relying largely on the spot market. Therefore, most greenhouse vegetables are sold in the region (e.g. Western Balkan countries or new EU countries such as Romania and Bulgaria, with low purchasing power) (Skreli & Imami, 2018).

Table 3. Greenhouse tomato and cucumber export performance

Product label	Value exported 2016 (USD 000)	Trade balance 2016 (USD 000)	Annual growth in value 2012-16	Annual growth in value 2015-16	Annual growth of world imports 2012-16	Ranking in world exports
All products	1 962 117	-2 707 173	-2%	2%	-4%	133
Agricultural products	196 002	-478 351				
Tomatoes	26 429	24 579	50%	19%	-1%	24
Cucumbers & gherkins	6796	6514	67%	67%	1%	29

Source: International Trade Centre (2018). https://www.trademap.org

Table 4. Trade balance of tomatoes by year

Year	Exports			Imports			Export/ Import Value	Export/ Import Weight
	000$	Ton	$/ kg	000$	Ton	$/kg		
2000	8	24	0.35	1170	2263	0.52	70%	1%
2005	36	123	0.29	3256	6514	0.50	1%	2%
2010	1939	6573	0.30	2870	3429	0.84	68%	192%
2014	13 265	32 992	0.40	1891	2621	0.72	701%	1259%
2015	22 252	57 547	0.39	1856	3055	0.61	1199%	1884%
2016	26 429	63 701	0.41	1850	3099	0.60	1428%	2055%

Source: UNSTAT Trade (2018)

Results

Commercial orientation – Main buyer

Small producers are linked to a range of micro, small, and medium enterprises that buy from and sell to each other, including local consolidators, wholesalers, retailers, exporters, traders, middlemen, input suppliers, and service providers. In general, Albanian greenhouse tomato farmers sell their production through wholesalers or local collectors (Table 5). In the study sample, around 20% of them sell their products to exporters (Table 5). The category of various buyers cannot be strictly defined – for example, local collectors (consolidators) often do direct exports (thus they can act also as exporters).

Table 5. Type/profile of main buyer for greenhouse tomatoes

Category of buyers	Observations	Frequency
Local Collector	136	59%
Wholesaler	125	54%
Exporter	46	20%
Processor	2	1%
Retailer	11	5%
Direct Selling	3	1%
Total Sample	231	

Source: Field survey; Note: Farmers could choose more than one option

The export channel may also be named the export-coordinated channel. This is particularly true as long as consolidators/wholesalers are also input (seedling) providers. Field surveys show that some (leading) consolidators/wholesalers deal repeatedly with a core group of farmers, although there is quite some flexibility in the relationships with farmers. There are farmers who enter and exit relationships with buyers, but there is a core group of farmers with whom buyers have more stable relationships. The latter sell inputs to this group of farmers with occasionally late payments, offer advice and technical information, and buy the farmers' produce.

Sustainability of the exchange relationship

As shown in the above table, the most common method of distributing tomatoes is via the local collector (Table 5). The second most common method–through the wholesaler-includes different types of buyers. The study takes into consideration that a sustained exchange relationship is characterised by producers that sell their production to the same buyer and that a non-sustained exchange relationship comprises producers that sell their products in the spot market to different (types of) buyers. The latter represents 70% of the

study sample (Table 6). Commonly these farmers don't make arrangements/agreements before the exchange with the buyer. The remaining 30% of the sample perceived benefits from long-term relationships and have established such linkages, creating an adequate framework for cooperation and information sharing in a sustainable way.

Table 6. Sustainability of exchange relationship between tomato farmers and their main buyer

Producer-Buyer Relationship	Observations	Frequency
Sustained exchange relationship	68	30%
Non-sustained exchange relationship	161	70%

Source: Field survey

To build long-term, win-win market linkages between producers and their buyers, it is important to consider several factors in addition to whom producers link with or the type of contracting arrangement they enter into. Tomato farmers were asked to give the main reasons why they trade their production with the same buyer (considered as a successful or sustained linkage). Table 7 shows their responses, with the main reason being market reliability. Other reasons include: on-time payment, fair prices, and trust. Further reasons included statements such as: "I sell to the same main buyers because of custom, contractual relation, or distance."

Table 7. Main reasons why the farmer sells at the same buyer

Reasons	Observations	Frequency
1.Market/trade reliability	76	33%
2.On-time payment	38	13%
3.Fair price	23	10%
4.Trust	18	8%

Source: Field survey

Current forms of vertical coordination with focus on contracting

Market linkages can range from informal agreements with local traders to formal contracts with consolidators/exporters. A formal, written agreement that stipulates all or basic aspects of the relationship can reduce misunderstandings, as it outlines expectations and builds security.

Regarding the type of agreements between greenhouse vegetable farmers and buyers, this study as well as previous studies conducted in Albania (Imami et al., 2013; Xhoxhi, 2016) show that written contracts (formal contracting) are not common in Albania, while informal (verbal) agreements are widely used (refer to Table 8 below). The second category – verbal agreements – happens commonly between farmers and vegetable buyers because of repeated exchanges

among each other and due to a long-term relationship. Here, frequent exchanges between one another build a personal relationship in which trust between the parties overcomes the need for formal contracts.

Table 8. Type of agreements between farmers and buyers for greenhouse tomato farmers

Type of relation	Observations	Frequency
Written Contract	23	10%
Verbal agreement	84	36%
No Agreement	124	54%
Total	231	100%

Source: Field survey

Non-contracted farmers were asked to give the main reasons for not establishing contracts with their buyers. Figure 2 summaries the responses. It can be clearly seen that the main reason for not contracting is that contracting is not a business habit among farmers. The second most important reason appears to be that farmers do not see/perceive any benefits from contracts, and the third most important reason for not contracting is that buyers do not agree to have a contract.
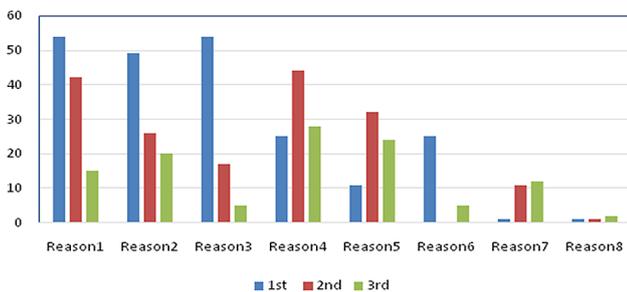

Fig. 2. Reasons for not contracting

Reason 1	Contracts are not a business habit (we are not used to/familiar with contracts)
Reason 2	I don't see any real benefit from contracting
Reason 3	The buyer does not agree to have a contract
Reason 4	I don't trust the buyer
Reason 5	I don't want to depend on the buyer
Reason 6	I don't trust on the judicial system and contract enforcement
Reason 7	Unfavorable contracting terms
Reason 8	I don't understand contracting terms

Source: Field survey

Contract Design

Figure 3 points out the contracting elements that are usually included in the agreements/contracts (written/verbal) between vegetable farmers and their buyers. The farmers

that sell their production to the buyer through informal or formal contracting outlined the two primary elements that are agreed upon in the contract as product price and quality. As is shown in Figure 3, the third element that is usually found in the contracts between farmers and buyers is selling time, while the fourth is the product characteristics.
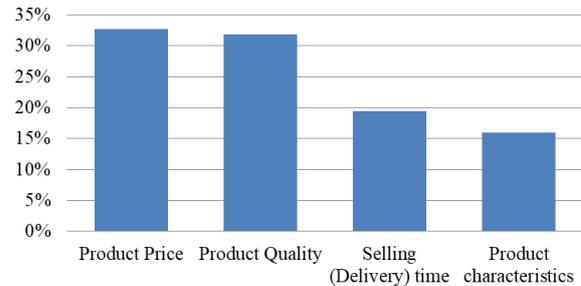

Fig. 3. Elements that are included in the agreements (formal/informal)
Source: Field Survey

Additionally, the questionnaire contained questions to encourage the farmer to demonstrate his/her perceptions about the benefits of contracting. The results show that most of the farmers agree or strongly agree with the fact that contracting will improve business relationships with their buyers. They also perceive other benefits such as: advisory services, trainings, better access to market information, market reliability, risk sharing with the buyer, best/fair prices, loan guarantees, and input supplies from the buyer.

Meeting standards

There are gaps in food safety standards throughout the downstream food value chain. Albania faces serious problems with the national food safety control system in terms of legislation, infrastructure, institutional capacity, control, and enforcement, which affects real and perceived safety risks for consumers. The problems in the Agricultural Health and Food Safety System have been identified by several studies (Vercuni et al., 2016).

Despite legal and institutional changes, many farmers still lack information or awareness related to standards. Indeed, there have been reported cases of shipments of greenhouse vegetables being returned back from EU countries due to high residuals, causing significant financial damage to the involved traders/exporters (Skreli & Imami, 2018). This is, to a large extent, a result of "spot market" coordination, which cannot guarantee traceability and standards compliane.

The survey reveals that only about 1/3 of the tomato farmers have carried out a water or soil analysis (Table 9). That is worrisome considering that investments in green-

houses are considerable, while soil salinization is a major concern in the areas where greenhouses are concentrated. As a result, many farms are characterized by low performance in terms of yield and quality of production, which has a direct impact on market performance.

Table 9. Farmers who carry out soil or water analysis

Category	Soil		Water	
	Observations	Frequency	Observations	Frequency
Yes	77	34%	79	35%
No	152	66%	149	65%
Total	229	100%	228	100%

Source: Field survey

The prices and quality of inputs

According to the law, seeds and seedlings can either be purchased or self-produced by farmers. In the latter case, the propagation material should be inspected by the MARD phytosanitary service[1]. All seedlings used for new plantations financed by the MARD subsidy scheme must be certified. Purchased seeds and seedlings should either be produced in the country by licensed units or imported by licensed traders. The main traders of seeds and seedlings are integrated input dealers, who also provide other inputs (PPP and fertilizers).

The informal market for seeds and seedlings (production and sale of seedlings from unlicensed dealers) is still widespread, especially for supplying non-commercial farmers and small farmers in general.

Input suppliers provide some services to producers, including information and informal credit (providing inputs against delayed payment). They are the main source of agronomic information for most tomato farmers. The quality of information provided varies greatly and there is a strong belief among producers that the input suppliers recommend over-use of chemical inputs. As a result, most non-commercial farmers have the tendency to under-use inputs (World Bank, 2007).

Other factors also contribute to the improper and low use of inputs:

Prices of inputs are high, especially those of fertilizers. Up to the mid-2000s prices of inputs in Albania were higher than in neighbouring countries. This was mainly due to a lack of competition, which was more or less an oligopoly. Increased competition among input dealers has contributed to a reduction in the price gap with other countries, but the international surge of input prices seen in 2008 had a large effect on Albania, as the price of inputs doubled.

Greenhouse tomato farmers were asked about the price of agricultural inputs (seeds/seedlings, fertilizers, pesticides,

---

[1] Art. 11 Law 9632/05

and herbicides) they buy from input dealers. The responses are recorded in Table 10 below, where can be noted that 65% of them claim that input dealers set unfair and unreasonable prices.

Table 10. Farmers' claim on input prices set by input dealers

Items	Observations	Frequency
1. Input dealers set unfair and unreasonable prices	148	65%
2. Input dealers set fair and reasonable prices	40	17%
3. Neither 1 nor 2	41	18%
Total	229	100%

Source: Field Survey

Farmers do not trust the quality of inputs. Recurrent complaints from farmers about the poor quality of inputs are recorded. Doubts about the quality of pesticides often lead farmers to mix different pesticides and use them together "to increase effects". Table 11 below shows that from the total of respondents, 48% of them outlined that the agricultural inputs (seeds/seedlings, fertilizers, pesticides, and herbicides) they buy are not of good quality.

Table 11. Farmers perception on input quality

Items	Observations	Frequency
Bad	109	48%
Neither bad nor good	58	25%
Good	63	28%
Total	230	100%

Source: Field Survey

The growing pressure from the "export market" and EU approximation to improve standards will imply a growing demand for significant investments along the value chain to meet the standards. Awareness campaigns combined with stronger law enforcement and availability of financial incentives would highly influence the likelihood of increasing such investments at the farm, trader, and processor levels.

Conclusions

The horticulture sector has shown improved performance in recent years, especially in the case of greenhouse vegetables. The surface area of greenhouses has almost doubled since 2005, which, coupled with improved production technologies, has resulted in a significant increase in production and resulted in a surplus of the key vegetables produced under greenhouses (most notably tomatoes). Additionally, a

significant increase in exports has been observed – from quasi-nonexistent in early 2000 to significant levels in the last few years. Tomato is one of the primary exported vegetables, with an increase in export quantity of almost 10 times since 2010, followed by cucumber.

There are gaps in food safety standards throughout the downstream food value chain in Albania. Despite legal and institutional changes, many farmers still lack information or awareness related to standards. This is, to a large extent, a result of "spot market" coordination, which cannot guarantee traceability and standards compliance.

The key investment financing needs for the greenhouse value chain are investments in greenhouse construction. In order for Albania to exploit its potential, greenhouse area could grow to 5000 ha from a low current base of close to 1500 ha. Since investments in heated greenhouses have proven less efficient than simple non-heated greenhouses, installation of bio-mass heating systems in centrally heated greenhouses combined with automatic heat control and/or climate control sensors to improve energy efficiency systems may also be considered for support.

While the geography of exports is focused on regional countries at relatively low reported prices, the need to target high-income European countries which are more demanding in terms of product quality and standards calls for investment in packaging houses, increased storage facilities, cold storage facilities, and mechanisation at collection points. Support for investment in transport should be considered as well.

In conclusion, the results from descriptive analysis show that vertical cooperation in the value chain is characterised by non-sustained exchange relationships, considering that most greenhouse vegetable farmers do not use formal contractual arrangements. Furthermore, most farmers do not carry out soil or water analyses and perceive a relatively poor quality of inputs despite the unfair (high) prices. These conditions result from "spot market" coordination, which cannot guarantee traceability and compliance of standards, therefore CF would be an adequate tool to address these gaps.

References

Coase, R. H. (1937). The nature of the firm. *Economica NS, 4 (16),* 386-405.

David, R. J. & Han, S. K. (2004). A systematic assessment of the empirical support for transaction cost economics. *Strategic Management Journal, 25(1),* 39-58.

EUROSTAT (2017). Database available at http://ec.europa.eu/eurostat

FAO (2013). FAQ: What is Contract Farming? Contract Farming Resource Centre. Accessed on 7 November 2017. http://www.fao.org/ag/ags/contract-farming/faq/en/

FAO (2020). Smallholders and family farms in Albania. Country study report 2019. Budapest. Accessed on 10 December 2020, http://www.fao.org/3/ca7450en/CA7450EN.pdf

Goldsmith, A. (1985). The private sector and rural development: Can agribusiness help the small farmer? *World Development, 13(10/11),* 1125-1138.

Gow, H. R., Streeter, D. H. & Swinnen, J. F. M. (2000). How private contract enforcement mechanisms can succeed where public institutions fail: the case of Juhocukora.s. *Agricultural Economics, 23,* 253-265.

Grosh, B. (1994). Contract farming in Africa: An application of the new institutional economics. *Journal of African Economies, 3(2),* 231-261.

Gruda, N. & Popsimonova, G. (2016). Status-quo and perspectives of protected vegetables for a sustainable production in South-East Europe. *(ISHS) Acta Hort., 1142,* 429-434.

Gruda, N. & Popsimonova, G. (2017). Current situation and future trends of protected cultivation in South East Europe. In: Good Agricultural Practices for greenhouse vegetable production in the South East European countries – Principles for sustainable intensification of smallholder farms, FAO Plant Production and Protection Paper 230, p. 17-26. Eds.: W. Baudoin, A. Nersisyan, A. Shamilov, A. Hodder, D. Gutierrez, S. DePascale, S. Nicola, N. Gruda, L. Urban, and J. Tanny, ISBN 978-92-5-109622-2, Rome, Italy, 428.

Gruda, N. & Tanny, J. (2014). Protected crops. In: G.R. Dixon, D.E. Aldous, Horticulture – Plants for people and places, Ch. 10 Vol. 1, Production horticulture, Heidelberg, Springer Science & Business Media, 327–405.

Gruda, N. & Tanny, J. (2015). Protected crops – Recent advances, innovative technologies and future challenges. *Acta Hort., 1107,* 271–278.

Haas, R., Imami, D., Miftari, I., Ymerie, P. & Grunert, K. (2019). How do Kosovar and Albanian consumers perceive food quality and safety in the dairy sector? *Studies in Agricultural Economics, 121(3),* 119-126.

Imami, D., Chan-Halbrendt, C., Zhang, Q. & Zhllima, E. (2011). Conjoint analysis of consumer preferences for lamb meat in central and southwest urban Albania. *International Food and Agribusiness Management Review, 14(3).*

Imami, D., Valentinov, V., & Skreli, E. (2021). Food safety and value chain coordination in the context of a transition economy: The role of agricultural cooperatives. *International Journal of the Commons, 15(1).*

Imami, D., Zhllima, E., Viaggi, D. & Bokelmann, W. (2013). Between weak markets and weak regulations: determinants of contracting in orchard farming in Albania. *Journal on Chain and Network Science, 13(1),* 37-46.

INSTAT (2017). Database available at www.instat.gov.al

INSTAT (2018). Database available at www.instat.gov.al

International Trade Centre (2018). https://www.trademap.org

ISETN (2017). National Economic Potentials of Contract Farming and Agriculture Cooperation in Albania, report prepared for GIZ.

Katchova, A. & Miranda, M. (2004). Two-step econometric estimation of farm characteristics affecting marketing contract decisions. *American Journal of Agricultural Economics*, *86(1),* 88-102.

Keco, R., Xhoxhi, O., Skreli, E. & Imami, D. (2019). To contract or not contract: Implications for farmer–buyer trading relation performance. *International Journal on Food System Dynamics*, *10(2),* 151-161.

Key, N. & Runsten, D. (1999). Contract farming, smallholders, and rural development in Latin America. *World Development*, *27(2),* 381-401.

Klein, B. (1996). Why hold-ups occur: The self-enforcing range of contractual. *Economic Inquiry, 34(3),* 444-463.

Miyata, S., Minot, N. & Hu, D. (2009). Impact of contract farming on income: Linking small farmers, packers, and supermarkets in China. *World Development*, *37(11),* 1728–1741.

Morgan, R. M. & Hunt, S. D. (1994). The commitment-trust theory of relationship marketing. *The Journal of Marketing*, 20-38.

Skreli, E. & Imami, D. (2018). Greenhouse vegetables sector study. Technical report prepared for EBRD.

UNSTAT (2018). Trade database available at https://comtrade.un.org/data/

Vercuni, A., Zhllima, E., Imami, D., Bijo, B., Hamiti, X. H. &

Bicoku, Y. (2016). Analysis of consumer awareness and perceptions about food safety in Tirana, Albania. *Albanian Journal of Agricultural Sciences*, *15(1).*

Williamson, O. E. (1979). Transaction-cost economics: the governance of contractual relations. *The journal of Law and Economics*, *22(2),* 233-261.

World Bank (2007). Albania: Strategic Policies for a More Competitive Agricultural sector. Commodity Development Plan: Fresh Vegetables.

Xhoxhi, O. (2016). Trading relationship performance and market power in food supply chains. Unpublished doctoral dissertation, University of Copenhagen.

Xhoxhi, O., Keco, R., Skreli, E., Imami, D. & Musabelliu, B. (2019). The role of intermediaries' power on contracting decision between farmers and intermediaries. New medit: *Mediterranean Journal of Economics, Agriculture and Environment*, *18(3),* 3-16.

Xhoxhi, O., Stefanllari, A., Skreli, E. & Imami, D. (2020). How intermediaries' power affects contract farming decisions: evidence from the medicinal and aromatic plant sector in Albania. *Journal of Agribusiness in Developing and Emerging Economies*, *10(5),* 529-544.

Zhllima, E., Imami, D. & Canavari, M. (2015). Consumer perceptions of food safety risk: Evidence from a segmentation study in Albania. *Journal of Integrative Agriculture*, *14(6),* 1142-1152.