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Possibilities and barriers of development of farmers` cooperation in Kosovo

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by

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ABBREVIATIONS

SDG- Sustainable Development Goals

GDP-   Gross Domestic Product

KAS-   Kosovo Agency of Statistics

USAID- United States Agency for International Development

EU-   Europian Union

EUR-   Official currency of member states of the European Union

DKK-   Official currency of Denmark

CF-   Contract farming

UAA-   Utilized Agriculture Area

∘C-   Degree Celsius

mm-   Millimeters

ha-   Hectar

I. INTRODUCTION

In the twenty-first century, the world is confronted with a variety of difficulties, many of which are directly connected to agriculture and the food business, and which necessitate answers on a global, regional, national, and local level, as well as at the firm level.

Although global population growth is decreasing, certain regions will continue to increase long beyond 2050, maybe even into the next century. Urban areas presently have a higher population density than rural regions, and this disparity is expected to widen as the population expands. By 2050, the world's population is predicted to reach about 10 billion people, expanding agricultural demand by half under a scenario of modest economic development. Agricultural investments and technological breakthroughs are increasing productivity, but yield growth has stalled to levels that are unacceptably low. The degradation of natural resources, on the other hand, is impeding the essential increase in productivity development. Especially, climate change affects disproportionately food- insecure regions, jeopardizing crop and livestock production, fish stocks and fisheries (FAO, 2017).

Since the 1990s, global hunger and extreme poverty have decreased. However, today's agrifood systems are unable to keep around 10% of the world's population from becoming hungry. By 2030, the world will not have achieved Zero Hunger. By 2030, the number of people impacted by hunger would have surpassed 840 million if current trends continue. According to data, the world is not moving toward SDG goal 2.1, which calls for ensuring that all people have access to safe, nutritious, and adequate food throughout the year, nor toward SDG target 2.2, which calls for eliminating all kinds of malnutrition (FAO, 2020).

Measures to contain the new coronavirus disease (COVID-19) interrupted global and national supply chains, causing economic downturns in several countries, highlighting the fragility of agrifood systems. The loss of buying power damaged billions of people's food security and nutrition, specifically in low-income nations and among the poorest. Restrictions on the movement of persons and products hampered the supply of inputs to farmers and their output to markets, especially in the early stages of the epidemic. Huge amounts of fresh fruits and vegetables were allowed to rot in farmers' fields as harvesting and transportation were halted (FAO, 2021). Low level of cooperation between farmers has been another factor hindering the operation of food systems during the pandemic crisis (DUDEK & ŚPIEWAK, 2022).

Kosovo has a total area of 1.1 million hectares, with agricultural land accounting for 53 percent and forest accounting for 41 percent. Kosovo has a population of 1.8 million people. More than 62 percent of Kosovo's inhabitants live in rural areas. Today in the economy of Kosovo, agriculture continues to play a vital role. It has a positive influence on rural regions' quality of life

and long-term development. Agriculture continues to be one of Kosovo's most important economic sectors in terms of contribution to GDP and employment. It has also traditionally been a source of growth for Kosovo's economy (MESP, 2015).

Furthermore, 130,775 agricultural properties occupy 419 thousand hectares (ha) of agricultural land (MAFRD, 2019). The average land area is 3.2 hectares, and it employs 362,700 people, or around 25 percent of the entire population (GJOKAJ ET AL., 2017). According to available data, farmers in Kosovo have one of the lowest rates of poverty (9.4 percent) (WORLD BANK & KAS, 2019). Holders of farm households and individual companies are on average 52 years old. The level of education of holders is relatively low, particularly in agriculture. 28.0 percent have completed only primary school, 5.4 percent did not even meet primary school, while 3.1 percent have no education. Secondary school was completed by almost half of the holders. Less than 3 percent of the holders have completed agriculture studies (Secondary agricultural school, Faculty of Agriculture/Veterinary, Master studies, Ph.D. of farming studies). While 6.7 percent of the holders completed faculty (non-agricultural). Regarding the education/pieces of training in agriculture, more than 95 percent of managers have only practical experience in agriculture (KAS, 2014).

There are solely 1250 farms documented on Farm Accounting Data Network (FADN), the average family revenue on a farm is 2,457 €, cooperated to other EU countries is pretty modest (MAFRD, 2019). Due to the low technical efficiency, Kosovo still shares a negative trade balance, taking from the extreme volume of imported goods, and a relatively tiny amount is sold broadly (JUSUFI ET AL., 2015). The non-tradable sectors dominate output and employment in Kosovo. Services represent the most crucial sector in the economy, with a share of value-added at more than 50 percent of GDP in 2019. Farming accounted for 8.7 percent of GDP in 2019.

Apart from the advancement in the labor markets over the past decade, only three out of 10 people are employed among the working-age population (WORLD BANK, 2020). The total of imports for agriculture products during 2018 was 712.3 mil. €, most of them come from EU countries, while export was only 63.9 mil. €, more than half of them are exported to CEFTA country members (MAFRD, 2020).

Kosovo is able to have (may) have advantages in different agricultural sectors (fruits and vegetables), yet needs to exceed many challenges and difficulties, mainly due to poor production and competitive capacity (BELUHOVA-UZUNOVA & LUBENIQI, 2019).

Farmers could overcome these troubles by operating cooperatively to gain collective power that they do not own separately, and in doing so, they would find a way out of destitution and powerlessness (BIBBY & SHAW, 2005; BIRCHALL & SIMMONS, 2009) and can help alleviate poverty in developing countries (BHUKUTH ET AL., 2018).

Agriculture cooperatives are identified as "mutual aid economic organizations" interconnected freely and operated by the farmers and workers of a similar range of farm outputs, or by the providers or users of assistance as the same kind of agricultural production and operation" (WU & DING, 2018). Their primary role is essential in countries where farms are fragmented over vast and remote rural areas (WANYAMA ET AL., 2009). Kosovo is anticipated to be inthe EU Accession process, implementing the Stabilization and Association Agreement (SAA) in 2016. Types, operation, regulation, and yield of membership of cooperatives in EU countries are well explored. Membership intensity of farming producers in many Northern and Western European countries is over 50 percent, in the Mediterranean and Southern European countries is 30 to 50 percent while this power in Central and Eastern European countries is below 30 percent and even below 10 percent in some cases (GIJSELINCKX & BUSSELS, 2014) resulting from historical background. Some nations still need modifications to boost the effectiveness of agricultural cooperatives (RIBAŠAUSKIENĖ ET AL., 2019). Their categories of information show the possibility of farming cooperatives changing traditional, subsistence agricultural farming to modern market-oriented business units, accelerating growth, and addressing rural poverty can be used in the case of Kosovo.

While in Kosovo, some cooperatives and associations exist in cases of various crops, and in many areas, only around 9.6 percent are considered active, representing only a small percentage of farmers. Types of activities completed by cooperatives are expertise/extension, crop collection/marketing, asset and labor sharing (ALLEN HAMILTON, 2010). Notwithstanding all the advantages, the level of collaboration among farmers (horizontal integration) and between farmers and processors or traders (vertical integration) is yet minimal/ slight in Kosovo. Collaboration among farmers is not actualized due to the lack of solidarity and inadequate governance, making the environment problematic to establish cooperatives in the country efficiently (EFSE, 2013). Despite having a considerable processing ability, most of it remains unused. The challenge for processors is to guarantee both the quantity and quality of local products. Various studies (BELUHOVA-UZUNOVA & LUBENIQI, 2019; GJOKAJ, HALIMI, GJONBALAJ, ET AL., 2017) studying the character and pattern of agriculture in Kosovo advised that land fragmentation and the problems in the land market should be resolved soon, enhance vertical and horizontal coordination, sustain diverse cooperation activities between different types of producers and processors, incorporate in the value chains and enhance marketing channels, develop rural credit accessibility, and obtain better advisory services and training.

This circumstance is prevalent in transition countries (BORZAGA & SPEAR, 2004), most nations suffer from a shortage of cooperative entrepreneurship and trust. Nonetheless, this in no way implies that there is no preference for cooperation (e.g., informal collaboration; sharing

machinery, labor, etc.) in these countries; the choice for collaboration in transition countries is proximate to that of the other European Countries (LISSOWSKA, 2013).

Creating a cooperative can be a big challenge and a very significant achievement. Cooperatives would help farmers in Kosovo to become more competitive and profitable in the market. Nevertheless, it requires a high degree of trust in the function of the cooperating model, knowledge, research, planning, patience, and dedication. Co-operative development may not come early, as arranged by the founders (PLLASHNIKU, 2015).

Regardless, the changing nature of both European and global agricultural markets combined with the fact that sustainability has become an essential issue, gaining more urgency with climate change and scarcity of natural resources, demands a reflection on the current situation in the creation of sustainable agriculture cooperatives in Kosovo.

1.1 Problem statement and justification

Agriculture has traditionally represented a significant role in the economy of Kosovo Farming was the primary financial activity in the country for an extended period, with an inconvenient structure of crops, primitive equipment, and poor performance. Most cereals were cultivated, dedicated to food for the inhabitants and livestock. The livestock was minor , and inferior quality race dominated (REÇICA, 2009). The agriculture sector in Kosovo is represented by small farms, low productivity, low efficiency, poor infrastructure, inappropriate land use, limited land consolidation, and incomplete social land privatization with unclear property and land use rights (MFARD, 2013).

Further, Kosovo has unfavorable farm structures, with an average Utilized Agricultural Area (UAA) per holding of 1.5 ha, fragmented into seven parcels. Most crop farms are not acting efficiently despite the considerable potential for technical efficiency advancement (MIFTARI ET AL., 2015). The farm average technical efficiency in transition economies is 86%, whereas in Kosovo is solely 15.7%, demonstrating that an average farmer in Kosovo produces 68.3 fewer percentage points of the possible output than an average farm in transition countries (ALISHANI, 2019).

Some of the concerns confronted by Kosovo's farmers are the absence of coordination among small farmers, low level of education and training (KAS, 2014), advisory service, poor knowledge in the usage of technology, high-interest rate on loans (SHKODRA, 2019), unpleasant experience, low technical efficiency, limited market access and trade barriers from neighbor countries, lack of experience, limited market entrance, and the foremost concern is the lack of cooperation between farmers (EFSE, 2013; GJOKAJ ET AL., 2017). While in Kosovo, some

cooperatives and associations exist in various crops, and in many areas, only around 9.6% are considered active, representing only a small percentage of farmers.

Although agricultural cooperatives are significant in improving farm efficiency, there is still a dearth of studies on Kosovo agriculture examining their role in economy, potential contribution to welfare of rural area, reduction of poverty and increasing food sufficiency. Studies show that introducing any new technology or operation techniques requires proper knowledge about socio-economic conditions, and natural environment (Abegunde et al., 2020; XIE ET AL., 2019). A related study in the field raised a fundamental issue in cooperative formation requiring promoters of cooperative societies to pay particular attention to socio-economic characteristics, as they have fundamental effects on the performance of cooperative societies (AGBO & CHIDEBELU, 2010).

1.2 Significance of the study

Nowadays, the agricultural sector plays a fundamental function in providing employment opportunities and generating income for people living in rural areas in Kosovo. Despite the employment creation potential and the significance of the sector, Kosovo farmers face various challenges such as; small farms, poor infrastructure, old technology, high cost of production, low education/training in farming, etc. The imported agricultural products from other countries compete with the local agricultural products making the situation alarming (SALLAHU & GJOKAJ, 2016).

Thus, this research focuses on empowering farmers in competitive and profitable markets by improving cooperation among farmers. Furthermore, our study is the pioneering investigation in agriculture cooperation in Kosovo agriculture.

Therefore, the importance of this study is as follows:

This dissertation is the pioneering research in agriculture cooperation in Kosovo. The first purpose was to examine the socio-demographic and economic factors affecting agriculture cooperation activity and contract farming and their willingness to cooperate and join contract farming. The second purpose was to find the association between socio-demographic, agricultural, and economic factors pertaining to cooperative and non-cooperative farmers and third one to find the main benefits of cooperative farmers and, to identify differences in selling channels between the two groups.

II. OBJECTIVE OF THE STUDY

In correspondence to the previously mentioned problems, the study's overall objective is to estimate cooperation among the farmers in Kosovo that were oriented in general agriculture production.

Within this context, the study aimed to achieve the following specific objectives:

- Specify the level of cooperation activity on agriculture in Kosovo.
- Determine the type of cooperation activity on agriculture in Kosovo.
- Examine the socio-demographic and economic factors on cooperation activity in Kosovo agriculture.
- Research reasons not joining the cooperative.
- Examine trust among farmers.
- Examine the socio-demographic and economic characteristics of contract farming in Kosovo agriculture.
- Determine socio-demographic, agricultural, and economic factors influencing cooperative and non-cooperative farmers.
- Find out motivations to join the cooperative.
- Study selling channels for cooperative and non-cooperative farmers.

2.1 Research questions and hypothesis

The main research questions for the survey are as follows:

- What are the different types and levels of cooperation existing in the literature, and what are the ones which can be found in the Kosovo`s practice?
- Are there any possibilities to increase the level of cooperation among agricultural producers?
- What are the main reasons why farmers do not cooperate?
- What are the main benefits of farmers that cooperate?
- If the level of trust increases, is the level of willingness to cooperate supposedly expected to increase as well?
- What types and levels of contract farming can be found in Kosovo agriculture?
- What are the differences in socio-demographic, agricultural, and economic factors between cooperative and non-cooperative farmers?

- What are the differences in selling channels using cooperative and non-cooperative farmers?

The researcher developed the following hypotheses, based on the complexity of the study theme and the selected research methods:

H1: Social and economic factors have effect on willingness to cooperate.

H2: Trust has a significant positive effect on willingness of farmers to cooperate.

H3: Social-demographic and economic factors have influence on participation in contract farming.

H4: There are relationship on socio-demographic, agriculture, and economic factors between cooperative and non-cooperative farmers.

H5: There are differences on selling channels between cooperative and non-cooperative farmers.

2.2 Organization of the Thesis

Chapter one of the thesis presents the background agriculture and cooperatives, particularly in poverty reduction and raising income levels among poor rural farmers in developing countries. The research problem and significance of the study. Chapter two shows objectives and research questions and hypotheses. Chapter three is a review of different elements of literature. It covers issues of agriculturein general and cooperatives in Kosovo, pyrethrum subsector and studies that addressed related topics.

Chapter four presents the methodology, which covers the conceptual, theoretical, and empirical frameworks. It also reviews the underlining theory on which the study is based and the analytical approach that was used in the study. It further describes techniques that were used in sampling, data collection and data analysis used. Chapter five covers the results of the study further chapter six presents conclusion and recommendations. Chapter seven shows the new scientific results and lastly chapter eight covers the summary of the research.

III. LITERATURE REVIEW

3.1 Overview of the agriculture sector in Kosovo

3.1.1 Land resource, farm structure and size of farms

Kosovo has an unfavorable farm structure with an average UAA per holding of 1.5 ha, fragmented into seven plots (MFARD, 2013). According to USAID, 2014, from the poorest, 20 percent of countries in the globe have an average farm size of just 1.6 ha – slightly above that of Kosovo. While, in the richest 20% of countries, the average farm size is 54.1 ha.

Compared to its neighbors, Kosovo has neither the smallest nor the largest farm size. Serbia has an average farm size of more than double that of Kosovo (3.68 ha vs. 1.56 ha) and a significant number of larger farms (24.7 percent of land under cultivation is held by farms larger than 10 ha vs. 12.6 percent for Kosovo). By contrast, Albania is even more fragmented than Kosovo. The average farm size is just 1.08 ha, and less than 1 percent of land under cultivation (approximately 900 ha in total) is held by farms with more than 10 ha. The latest statistic, there was 185,130 ha of arable land -fields[1] in Kosovo.

Land use and changes occurring during our operations have important economic and environmental implications for the production and trade of agricultural products, land and water conservation, air quality, and greenhouse gas concentrations.
The use of agricultural land is characterized by the forms of use, activities and inputs that people undertake to use the land to produce, change, store or conserve it. In order to have a realistic forecast for agricultural production and food security and the real situation of the possibility of production in agriculture, data on the use of agricultural land are needed.

According to the data of this survey, the total utilized area of agricultural land has not changed significantly and has been a rough trend of utilization for this period of time (Table 1). In 2016, the total utilized area of agricultural land was 415,826 ha, while in 2017 there is a slight increase, continuing to increase in 2018 where the area was 418,582 ha. The increase of agricultural land use proceeded in 2019 and in this case the area reached 420,141 ha, which shows a change in 2019 compared to 2018 for 0.4 percent. The total farmland is used by 185,765 farms, out of which 185,424 (99 percent) are small farms (MFARD, 2013).

The largest area of utilized land is occupied by meadows and pastures (including common land) which constitutes 51.9 percent of the total utilized area of agricultural land. It can be observed

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[1] The AHs of the northern municipalities are not included

that this category of land did not have significant changes for this period of time. In 2019 this area was 217,931 ha, which represents a decrease compared to 2018 by 0.1 percent. After meadows and pastures, as in other years and in 2019, the category of arable land-fields accounts for the largest area, with a share of 44.8 percent, which represents the area of 188,365 ha, which includes the area of vegetables in the open field (first crop) and greenhouses (first crop).

Table 1. Use of agricultural land by categories

	2016	2017	2018	2019	Difference `19/`18	Difference `19/`18 in %	Share in %
Arable land – field	187,223	186,954	188,359	188,356	5.7	0.0	44.8
-from which the vegetables in the open field (first crop)	7,864	8,033	7,818	8,319	501.1	6.4	
-from which the vegetables in greenhouses)first crop)	457	467	468	518	49.7	10.6	
Garden	994	1,199	1,003	1,122	119.1	11.9	0.3
Fruit tree	5,493	6,247	7,687	9,244	1,557.3	20.3	2.2
Vineyard	3,112	3,199	3,272	3,367	95.3	2.9	0.8
Plant nursery	196	159	109	111	1.8	1.6	0.0
Meadows and pastures(including common land)	218,808	218,314	218,152	217,932	-220.2	-0.1	51.9
Total area of agriculture land in use	**415,826**	**416,072**	**418,582**	**420,141**	**1,559.1**	**0.4**	**100**

Source: KAS (2020)

The area of arable land-fields includes vegetables in the open field as the first crop (8,319 ha) and vegetables in greenhouses as the first crop (517 ha). In 2019, the area of vegetables increased compared to other years, where, in 2018 this area increased by 6.4 percent. Even greenhouse area recorded an increase in area compared to other years that are presented in the table above and in the following figure (1). The data show that in 2019 compared to 2018 there was an increase in the area cultivated with vegetables in the greenhouse as the first crop by 10.6 percent. The smallest area with gardens is presented in 2016 with 994 ha, continuing to increase

in the following years. In 2019 this area was 1,122 ha, which is an increasing difference by 11.9 percent compared to 2018.

The area of tree plantations in 2016 was 5,493 ha, with continuous growth until 2019, when this area reached 9,244 ha. In 2019 there was an increase of 20.3 percent compared to 2018. Regarding the area of vineyards, there were no significant changes in the period between 2016-2019. An increase in the area of vineyards is presented in 2019 which shows a comparison from 2018 by 2.9 percent.
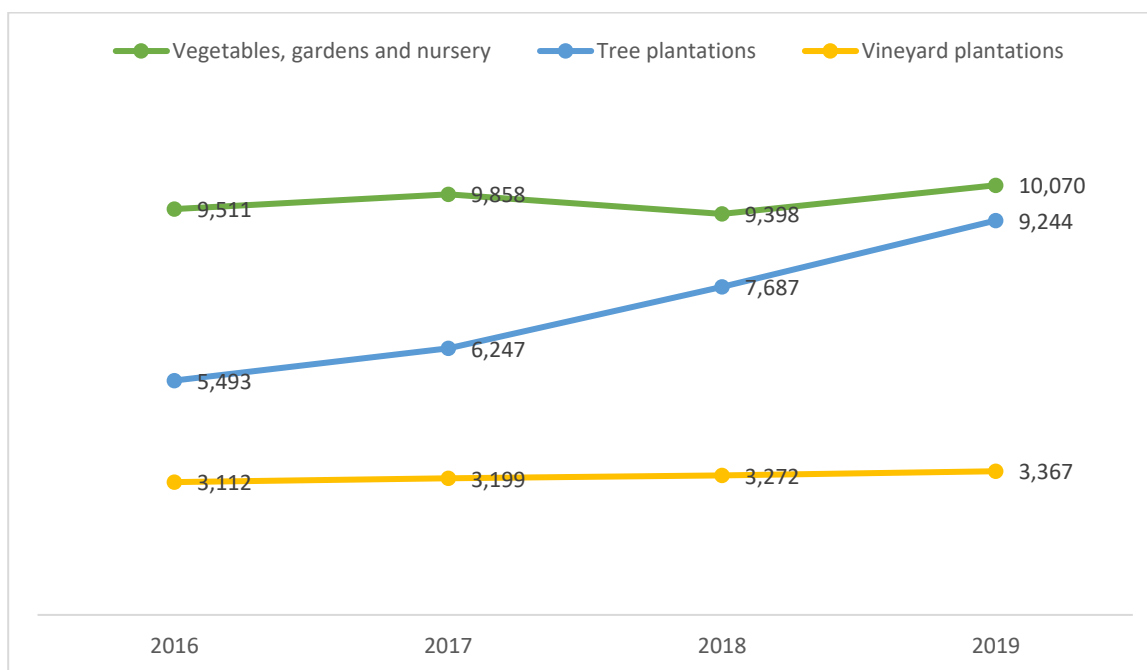
Figure 1. Vegetables, gardens and nurseries, tree plantations and vineyards
Source: KAS (2020)

In relation to the use of agricultural land, in 2019, there are these categories (Figure 2): Meadows and pastures (including common land) with a share of 52 percent, Arable land-fields 43 percent, Vegetables (in open field and greenhouses as a first crop), gardens and nurseries 2 percent, Tree plantations 2 percent and Vineyard plantations 1 percent.
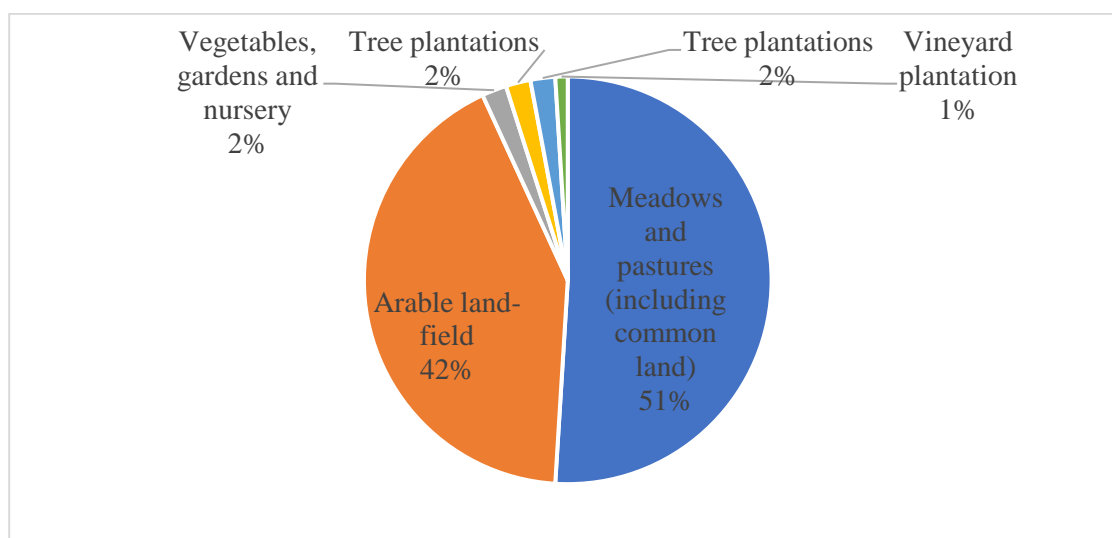
Figure 2. Agricultural land use by categories, 2019
Source: KAS (2020)

The total arable land in Kosovo appears to be 44.8 percent, including the land area, which is regularly cultivated with different agricultural crops, or planted with a certain order of crops. The area of arable land used refers to the main area during a year of agricultural production. In 2019, the total arable land turns out to be 0.11 ha per capita, while the average of the total utilized agricultural area per capita was 0.24 ha.

The following Table 2 shows the distribution of used arable land area and the number of farmers by farm size and their share (%) in 2019.

Table 2. Pattern of arable land used, 2019

Farm size	Area (ha)	Participation in %	No. of Agricultural Economies	Participation in %
0 and less than 0.5	5,929	3.17	32,020	30.41%
0.5 to less than 1	12,065	6.45	18,355	17.43%
1 to less than 2	30,123	16.11	23,022	21.87%
2 to less than 5	65,202	34.86	24,231	23.01%
5 to less than 10	39,533	21.14	6,013	5.71%
10 to less than 20	16,013	8.56	1,203	1.14%
20 to less than 30	5,146	2.75	245	0.23%
30 and more	13,016	6.96	200	0.19%
Total	**187,026**	**100**	**105,289**	**100%**

Source: KAS (2020)

In Kosovo farm size of 2 up to less than 5 ha represents 35 percent of the total area of arable land, followed by size of 5 up to less than 10 ha (21 percent), size 1 up to less than 2 ha (16 percent) and other sizes with less share where the size with the smallest area is that from 0 up to less than 0.5 ha (Figure 3).
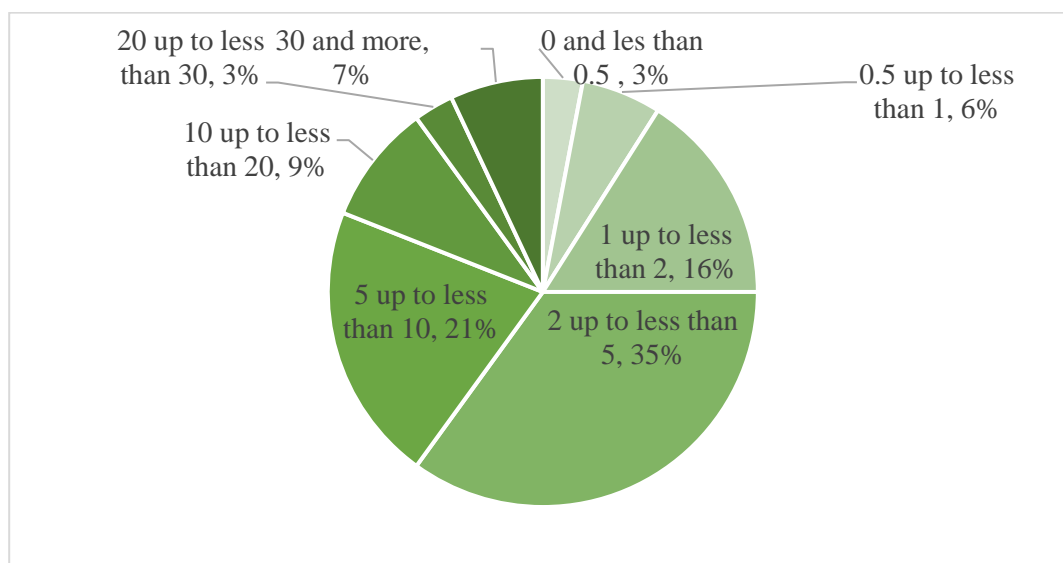
Figure 3. Farm size by area 2019, in %
Source: KAS (2020)

The largest number of agricultural holdings is in farm size 0 up to less than 0.5 ha (30.4 percent), followed by size 2 up to less than 5 ha (23.0 percent), size 1 up to less than 2 ha (21.9 percent) and other groups. The smallest number of agricultural holdings is in the sizes: 20 up to more than 30 ha (0.2 percent) and 30 and more (0.2 percent) (Figure 4).
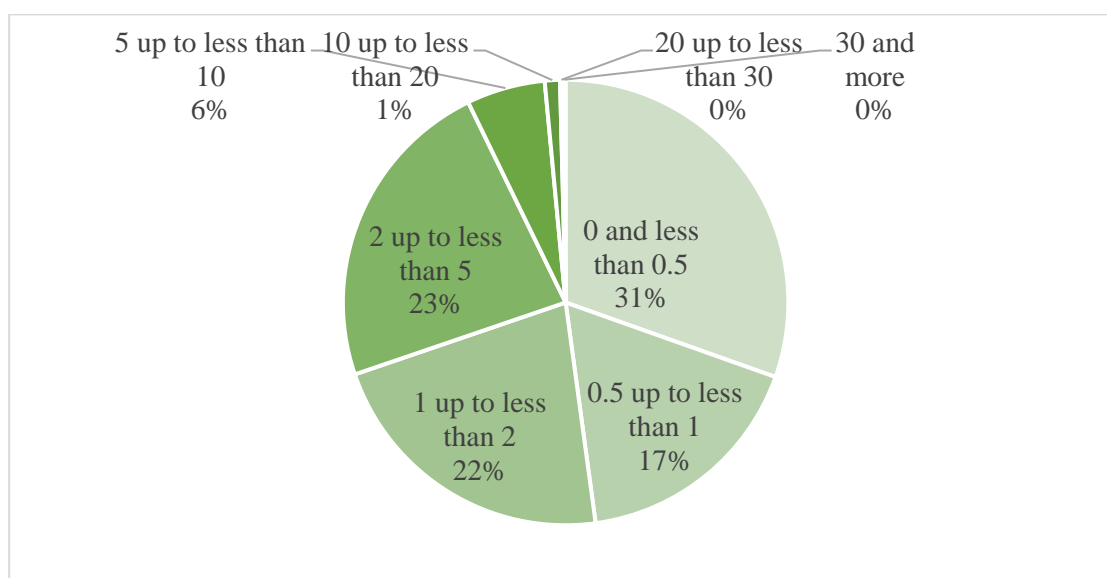
Figure 4. Number of agricultural holdings by farm size 2019, (%)
Source: KAS (2020)

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3.1.2 Workforce and level of education in agriculture

According to KAS (2014) most of the agricultural work in the Agricultural Households is carried out by the family workforce. Managers (mainly the same persons with the carriers) carry almost half of the agricultural work (44.6 percent), while other members of the family carry out the other half of the job (49.6 percent). Seasonal workers contribute only 2.6 percent, while the work of regularly employed persons who are not members of the Agricultural Households is almost negligible.

Most of the holders are male (95.1 percent), while the rest of the family workforce (family members of the caretakers) is dominated by women with 58.2 percent. The average age of holders of Family Farms and Individual Businesses is 52 , while the average age of family members of holders working in Agricultural Economics is 40 .

The level of education of the holders is quite low, especially with regard to agriculture. Among the family members of caretakers working in agricultural economics, 39.1 percent have completed only elementary school. While 3.6 percent have no education. Education in agriculture has less than 1.5 percent of them. As far as education / training in agriculture is concerned, more than 95 percent of managers have only practical experience in agriculture.

3.1.3 Agricultural production, intermediate consumption and gross value added

The following figure (5) presents data on agricultural industry products, intermediate consumption and gross value added for the period 2015–2019. The value of production of the agricultural industry in 2019 was the highest during the period in question (at issue), and compared to the previous year, agricultural production was increased by 11 percent. In terms of intermediate consumption, in 2019 it increased by only 1 percent. Gross value added, which represents the difference between the production value of the agricultural industry and the value of intermediate consumption, in 2019 had a value of 477 mil. €, where compared to the previous year marked an increase of 18 percent. In 2019, gross value added was equal to 61 percent of output value.
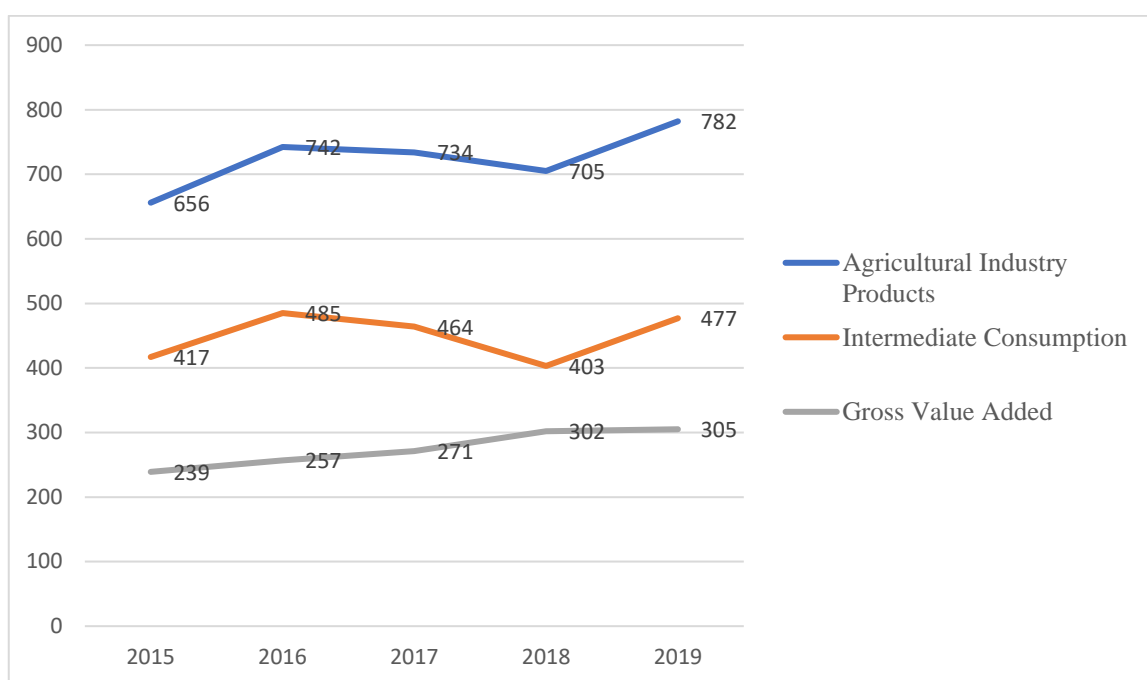
Figure 5. Agricultural production, intermediate consumption and gross value added in mil.

€, 2015-2019

Source: MAFRD (2020)

3.1.4 Overall trade and trade of agricultural products

Kosovo's exports for the customs chapters of the harmonized system (01-98) for the period 2014-2019, have been almost of approximate value and are presented with very small changes with some ups and downs (Table 3). In 2019, exports were worth 383.5 mil. EUR, which had an increase in total exports by 4.4 percent compared to 2018. While exports did not change significantly, imports increased steadily. In the period 2014-2016, the value of imports was over EUR 2 billion, while in the period 2017-2018 the value of imports increased to over EUR 3 billion. In 2019, the value of imports appears again with an increase of 4.5 percent compared to 2018.

Table 3. General export-import

Year	Export (1-98), in '000 EUR	Import (1-98), in '000 EUR	Trade balance, in '000 EUR	Import Coverage with Export (%)
	1	2	3=1-2	4=1/2
2014	324,543	2,538,337	-2,213,794	12.8
2015	325,294	2,634,693	-2,209,399	12.3
2016	309,627	2,789,491	-2,479,864	11.1
2017	378,010	3,047,018	-2,669,007	12.4

| 2018 | 367,500 | 3,347,007 | -2,979,507 | 11.0 |
| 2019 | 383,491 | 3,496,431 | -3,112,940 | 11.0 |

Source: MAFRD (2020)

The export value of agricultural products has increased from year to year although not at the desired level (Figure 6).The trade balance has been increasing despite the increase in the value of exports since on the other hand imports also increased. In 2019, the export value of exported agricultural products was EUR 65.5 million and at the same time this is the largest value of exports for this period, which compared to 2018 had an increase of 2.4 percent. While the export in 2019 had an increase of 2.4 percent, on the other hand the import is presented with a larger increase of 6.6 percent compared to 2018 and with a negative balance of EUR 693.8 million.
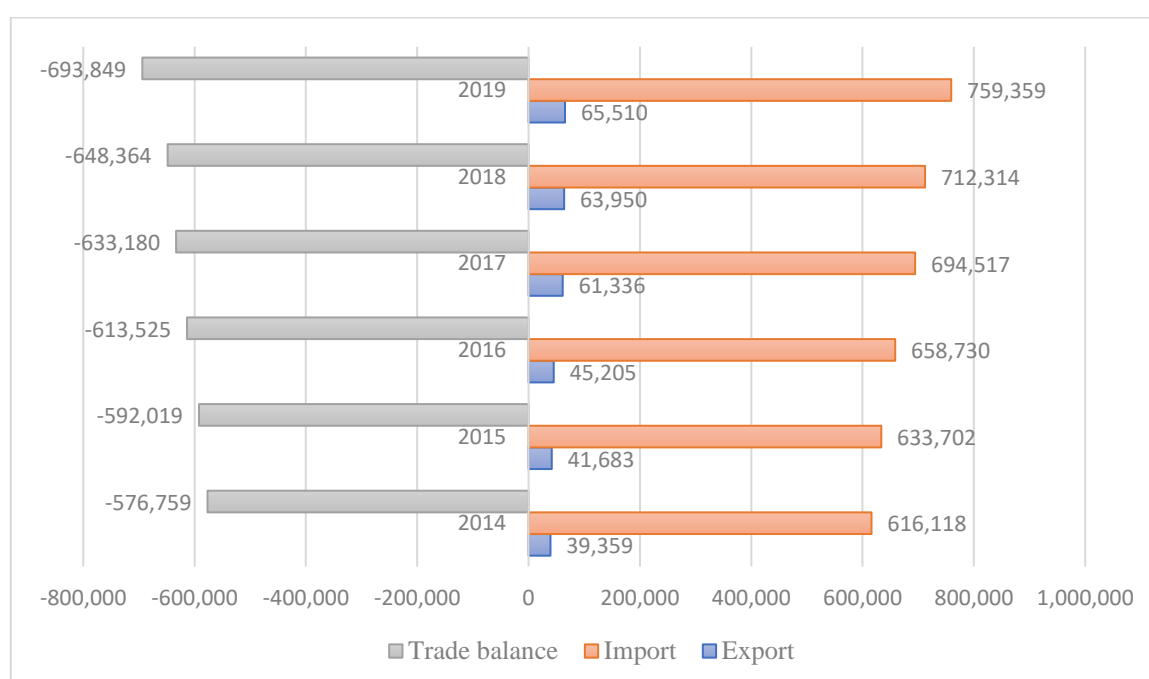
Figure 6. Export, Import and Trade Balance of Agricultural Products (1-24), in '000 EUR
Source: MAFRD (2020)

The trade balance as in other years continues to be negative, so in 2019 the negative balance was displayed in the amount of -693,849 million EUR, so the coverage of imports with exports is at a rate of 8.6 percent in 2019.

The share of agricultural exports in total exports has increased significantly. The largest share of exports of agricultural products (01-24) in total exports (1-98) was in 2018 (17.4 percent), while the smallest share is considered to be that of 2014 (12.1 percent). The share of export of agricultural products in the total export in 2019 was 17.1 percent. In terms of imports, the situation is different. In this case, we have a decrease in the share of imports of agricultural products in total

imports. The year with the lowest share was 2018 (21.3 percent), while the highest was in 2014 (24.3 percent). The share of import of agricultural products in the total import in 2019 was 21.7 percent (Figure 7).
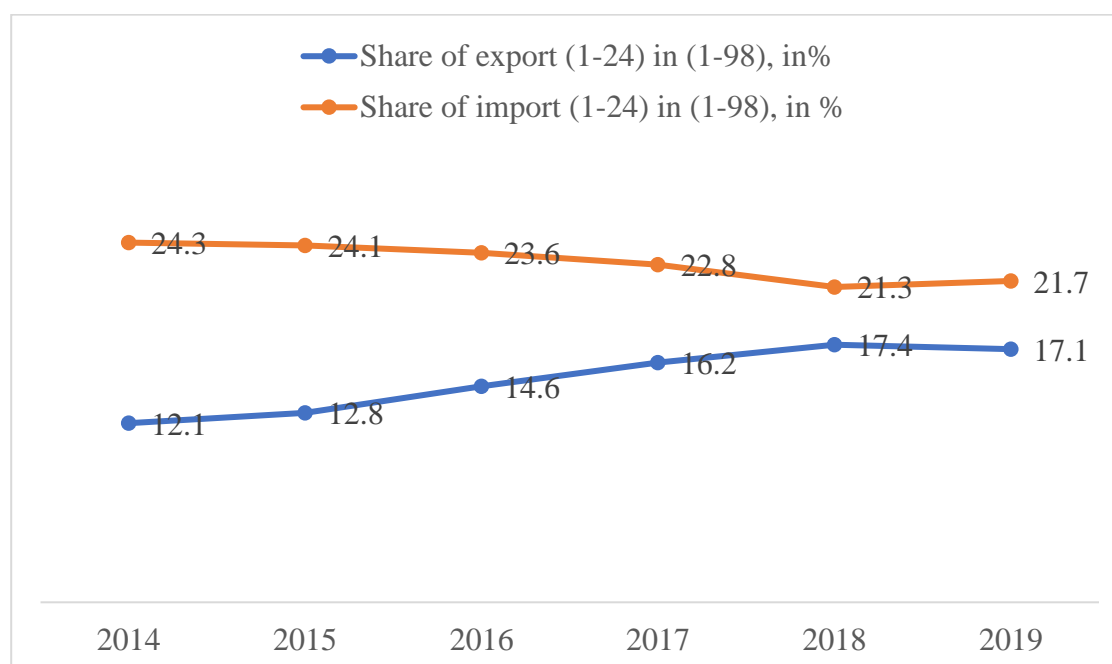
Figure 7. Share of agricultural products in total exports and share of agricultural products in total imports
Source: MAFRD (2020)

3.2 Background of agriculture cooperatives in Kosovo

Historically, Farmers' Cooperatives existed for a long time, including the time of former SFR Yugoslavia. One of the organizational forms for performing activities according to applicable laws at that time was through Farmers' Cooperatives. However, after the last war in 1999 all Socially Owned Enterprises, Public Enterprises and Farmers' Cooperatives fell under UNMIK administration. Until 2003, respectively the entry into force of the Law No.2003/9 on Farmers' Cooperatives, no Farmers` Cooperatives were subject to any registration process. Based on the research work of applications filed with the Agency for Registration of Businesses, up to date, a total of 83 farmers' cooperatives have been registered.

According to the Law no. 03/L-044 on amendments to the Law no. 2003/9 on agricultural cooperatives, Article 3, a minimum of 5 farmers may establish a cooperative, and later a union by joining two or more cooperatives. Even though it brings many benefits, such as job creation, access to technology, better negotiating position with suppliers, retailers and banks, intensifying competition, there are very few effective cooperatives (MIJACIC, 2017).

Due to a lack of solidarity and poor governance, farmers' collaboration is not realized, making it impossible to build effective farmers' cooperatives in the nation (EFSE, 2013). Although certain co-operatives and organizations exist for a variety of crops and in a variety of locations, only around 9.6% of them are deemed active, representing a tiny number of farmers (Figure 8). Active associations and cooperatives are defined as entities that have shown a commitment to their members in marketing and that operate as businesses. Currently, the capacity of existing co-operatives is weak (ALLEN HAMILTON, 2010).

13 Active Associations

Mamushe

Perdrini

Anadrini

Agroqyshu

Krusha Madhe

Tina Association

KOVRGA

FRUTI

Women for Women
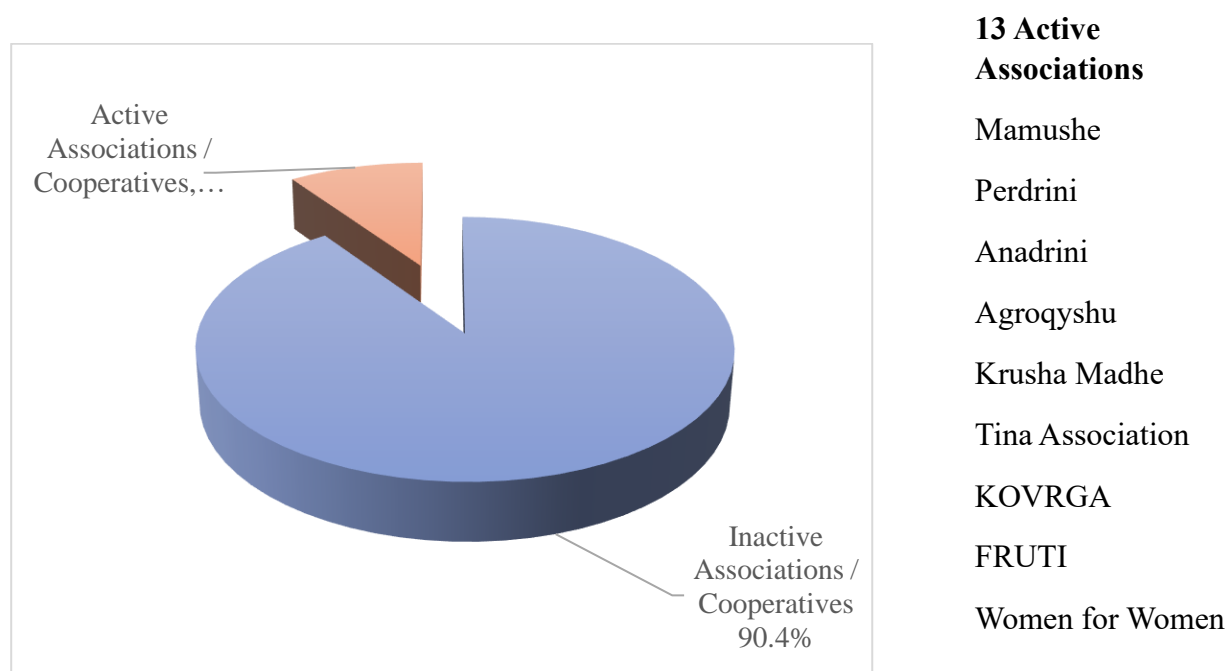
Figure 8. Total number of cooperatives in Kosovo
Source: ALLEN HAMILTON (2010)

These active association/cooperatives have varying levels of membership and do not complete many critical activities (Table 4).

Table 4. Types of Activities completed by active association/cooperatives in Kosovo

	Number of Members in Active Associations/ Cooperatives in Kosovo	Bargaining for inputs	Labor Sharing	Asset Sharing	Expertise/ Extension	Crop collection /Marketing
Mamushe	175				✓	
Perdrini	100		✓		✓	✓
Anadrini	100				✓	✓

Agroqyshu	8			✓	
Krusha e Madhe	60		✓	✓	
Tina association	50			✓	✓
Kovrga	-				✓
Fruti	-				✓
Woman for Woman	-	✓	✓	✓	✓

■ Gap in Activities

Source: ALLEN HAMILTON (2010)

Historically, association and cooperatives have not been popular for three main reasons:

-Dependence on the extended family for production relationships and support,

-Lack of trust in developing business ventures with other association and cooperative member,

-Producers have not placed as much emphasis on relationships with byers; if the business model is driven more by attracting buyer attention, then there is greater ability to foster trust among members (ALLEN HAMILTON, 2010).

This is the reality in most developing nations (BORZAGA & SPEAR, 2004). The majority of these nations do, in fact, have a lack of cooperative entrepreneurship and trust. This does not, however, imply that there is no inclination for collaboration (e.g., informal cooperation; sharing machinery, labor, etc.) The inclination for collaboration in transition countries in these nations is similar to that of other European countries (LISSOWSKA, 2013). The formation of a cooperative might be a difficult task, but it is also a great accomplishment. Farmers in Kosovo would benefit from cooperatives since they would help them become more competitive and profitable in the market. It does, however, need a high degree of confidence in the cooperative model's operation, as well as expertise, study, preparation, patience, and perseverance. The founders' plans for cooperative growth may not come to fruition as soon as they had hoped (PLLASHNIKU, 2015).

Nonetheless, the changing nature of both European and global agricultural markets, as well as the fact that sustainability has become a critical issue, gaining greater urgency as a result of climate change and natural resource scarcity, necessitates a review of the current situation in Kosovo in terms of the establishment of sustainable agriculture cooperatives. As a result, it is critical to develop new systems that need dialogue, trust, and cooperation, which are now deficient.

3.3 Sustainable agriculture

3.3.1 Definition of sustainable agriculture

Agriculture is a particular human activity that plays an essential role in sustainable development due to its dependency on natural resources to produce goods and services and its economic role to preserve human society. There are lots of definitions in international studies, for sustainable agriculture. According to GOLDMAN (1995) and HANSEN (1996), sustainable agriculture presents "integrated practice of plant and animal product practices having a site-specific application that will, over the long term: (a) provide human food and fiber requirements; (b) improve environmental quality; (c) make suitable use of non-renewable resources and on-farm resources and combine appropriate natural biological cycles and controls; (d) sustain the economic viability of farm services; and (e) enhance the quality of life for farmers and society as a whole." (U.S. Congress, 1990).

According to MACRAE ET AL., (1989), sustainable Agriculture involves "management procedures that work with natural processes to conserve all resources, minimize waste and environmental impact, prevent problems and promote agroecosystem resilience, self-regulation, evolution and sustained production for the nourishment and fulfillment of all." "For a farm to be sustainable, it requires to produce sufficient quantities of high-quality food, defend its resources and be both environmentally protected and profitable. Rather than depending on purchased materials such as fertilizers, a sustainable farm depends on effective natural processes and renewable resources described from the farm itself." (REGANOLD ET AL., 1990).

Improving agricultural sustainability seems to be one of the most essential goals for most countries in the near future, and it has now become a global agenda item. Several research on ecologically non-degrading, resource-conserving, socially acceptable, technically suitable, and commercially successful farming techniques have been conducted in this arena. Sustainable agriculture in industrialized nations combines fundamental economic considerations, conservation, and the preservation or enhancement of the resource base. The primary source of inspiration are environmental and ecological issues. Rather than being concerned about environmental issues, farmers in developing nations are more concerned in increasing agricultural production, increasing crop diversification, and increasing revenue.

3.3.2 Factors of sustainable agriculture

Traditionally, it is considered that sustainability centers on three pillars: environmental, economic, and social. The 'Triple Bottom Line (TBL)' measures the influence of an activity on

society (people), the environment (planet), and economic value (profit) – Fig. 10 (a) (FLINT, 2013; KAMBEWA, 2007; NORMAN & MACDONALD, 2004). Certain variables in the agriculture system can be stressed in the three pillars indicated below (Table 5).

Table 5. Elements of Sustainable Agriculture

Environmental dimension	Social dimension	Economic dimension
Environmental integrity	Social acceptability & justice	Economic viability & opportunity
Physical resource base	Human settlements	Disassociate environmental
Management of human consumption	Enhanced quality of life	Degradation & economic growth
Applied technology	Intergenerational equity	Increased & stability productivity
	Human relationship to nature	Manageability of the system
		Political desirability of the system

Source: UZIAK & LORENCOWICZ (2017)

The three main goals from a sustainable agricultural system is usually affected by other underlying factors. In other circumstances, especially in developing nations, it is more reasonable to define two additional factors: participation and cooperation, as well as knowledge level – Figure 9 (b). It is determined that the level of education and participation, both play a vital role as factors of the sustainability of agricultural (BOSSHAQ ET AL., 2012; DEN BIGGELAAR & SUVEDI, 2000; D'SOUZA ET AL., 1993).
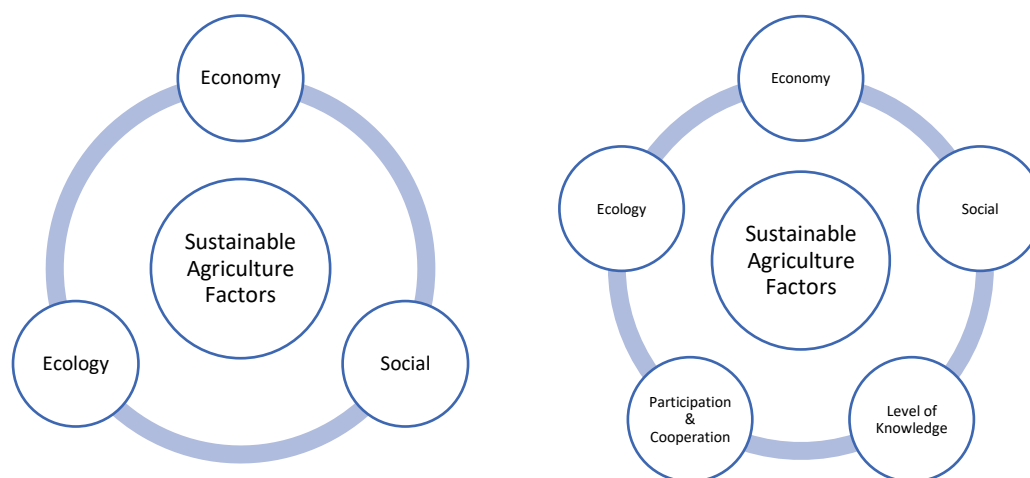
Figure 9. Factors of Sustainable Agriculture

Source: LORENCOWICZ & UZIAK (2014)

The level of knowledge which is directly related to the level of education is most likely a crucial factor and superior to the participation. Techniques that are fundamental for making agriculture sustainable, such as sustainable agronomical operations-orientation (SAIFI & DRAKE, 2008), including use of advanced irrigation systems, technologies of integrated management of pests combining administration, decline in the consumption of chemical fertilizers and move toward consuming organic fertilizers and supporting biological variation, can only be achieved with high level of knowledge. Knowledge gives understanding, information, responsiveness and consciousness, essential factors in comprehension and application of proper agricultural solutions.

However, participation, which can be considered as a part of the social element in sustainable agriculture, call for special consideration. It is also directly related to knowledge (participation in training and extension classes), as it may be one of the only ways for local farmers to obtain information and know-how. However, participation should be read together with cooperation and collaboration, as taking part in regional and local social activities related to sharing and empowering people, producing new capacities, learning native knowledge, and generally increasing understanding and grasp of practical aspects of sustainable agriculture (LORENCOWICZ & UZIAK, 2014; UPHOFF, 1991). That also calls for support system not only showing the values and benefits of sustainability in the agricultural system, but also improving production resources of the farming community that drives to the improvement of life quality.

3.4 Social capital, cooperation and trust

3.4.1 Definition of social capital

Social capital is probably one of the most successfully introduced new concepts in economics in the last decade. The effects of social capital on the organizational structures of economic activities are increasingly attracting more attention of researchers. An analysis of social capital definitions proposed in the literature reveals that they are diverse, numerous, and illustrate various important aspects of the concept. No definition, however, seems to be generally accepted. Most of the available definitions of the concept contain references to norms, values, relationships, connections, or networks as characteristic features of social capital.

PUTNAM ET AL., (1993) defines social capital as strength social organization, such as trust, norms, and networks, that can develop the efficiency of society by facilitating co-ordinated actions. The World Bank uses a similar definition, social capital introduces to the norms and networks that enable collective action. It refers to the institutions, relationships, and norms that shape the quality and quantity of a society's social interactions (THE WORLD BANK, 2005).

To classify these features, GROOTAERT & VAN BASTELAER (2001), draw a methodological distinction between two forms of social capital – structural (established roles, social networks, and other social structures) and cognitive (shared norms, values, trust, attitudes, and beliefs). The beneficial influence of social capital on economic and social development is realized through the transformation of the organizational and governance mechanisms concerned. In particular, social capital is often seen as closely related to networks (BURT, 2009) and cooperative (THE WORLD BANK, 2005) etc.

Social capital is considered an important factor in explaining economic success, FUKUYAMA, (1995) has highlighted the influence of social capital. He demonstrates that social capital in the form of nonfamily or generalized trust is of crucial importance for successful performance in advanced economies. As it becomes clear in Putnam et al.'s interpretation of social capital, trust and networks are considered as dimensions of social capital. Where Putnam et al. stress the role of networks, Fukuyama stresses the role of trust.

Several studies have appeared on the concept of social capital since then (INKELES, 2000; PALDAM & SVENDSEN, 2000; PIAZZA-GEORGI, 2002; ZAK & KNACK, 2001). The pointers applied in the research on social capital are frequently trust and associational activity.

3.4.2 Cooperation activity in agriculture

The term "cooperation" actually designates the association of several people of small or limited means who organize themselves for self-help and mutual benefit from an enterprise. Collaboration is critical in empowering farmers, and it is especially important in low socioeconomic status areas (DANIA ET AL., 2018) particularly in agriculture economies with structural and efficiency problems (PAVILLARD, 2005) , where it can have a significant impact on achieving sustainable development goals. Sustainable and sustainability have emerged as concepts to address the severe economic, environmental, and social consequences that this generation and future generations will face (BATISTA & FRANCISCO, 2018; LOZANO, 2008). Collaboration is now required for development, which is based on the creation and assimilation of innovation, in situations where, for example, a single firm's resources may be insufficient, and where information sharing and flexible cooperation are vital.

Defining collaboration as a word is closely associated with several similar terms. In the studies, collaboration is commonly understood as "working together with somebody to produce or achieve something" (HORNBY ET AL., 2005) and cooperation can be defined as "forms of working together in a regulated manner" (KLISCHAT & HABERMANN, 2001). Collaboration and cooperation thus have almost identical dictionary scientific meanings, however, a tendency for 'collaboration' to be used in the context of studies that focuses on environmental activities, whilst the term cooperation tends to be used in economic contexts and particularly in the specific sense of formal cooperative organizations, such as agricultural marketing cooperatives.

Cooperation appears to be a popular approach among both developed and developing country producers. It can take several forms, from informal collaboration among siblings and neighbors during times of high workload (e.g., hay harvesting) to official production, transportation, marketing, and selling cooperatives. Farmers collaborate not just with one another, but also with customers and institutions (ANDERSON ET AL., 2014; BRUNORI & ROSSI, 2010; RENTING ET AL., 2012; SCHERMER, 2015). In general, producer collaboration falls into two categories: formal and informal. The decision to cooperate among smallholder farmers is moderated by several endogenous and exogenous factors which was investigated from different study in terms of the development and sustainability of including as a formal and informal cooperation.

Formal cooperation among farmers

Formal cooperation primarily includes collaborations regulated by written contract in accordance with existing legal provisions (e.g. cooperatives, machinery rings and other producer organisations, etc.) Formal groups are registered as legal entities. At a certain stage of economic development, formal enrollment is essential to effectively participating in economic life. The theoretical and practical benefits of formal cooperation such as cooperatives and producer organizations have been considerably explored via diverse approaches, as evidenced by the vast amount of earlier studies.

Informal cooperation among farmers

Informal cooperation is typically based on unwritten contracts made by relatives, friends, and acquaintances, with the content shaped by the participants (e.g. paid machine services, reciprocal labor practices, lending of machinery and tools, joint input purchase and sales, joint use of services, and so on) (BENDE-SZABÓ & BARANYAI, 2017). Informal activities, by their very

nature, are less likely to be easily documented and studied, as they often fall into the black and grey market.

Informal collaboration is crucial, particularly for small-scale, family-run farms. Farmers share machinery and agricultural knowledge, as well as assisting one another during times of excessive workload (CIALDELLA ET AL., 2009). Other advantages of sharing include better access to skilled labor, decreased risk, and idea-sharing among peer groups of like-minded people (ARTZ & NAEVE, 2016). It also aids in the reduction of transaction costs, the facilitation of cost avoidance, the development of a common vision, the initiation of a learning process, and the expansion of small farmers' effect on the agri-food system (ERKUŞ-ÖZTÜRK & ERAYDIN, 2010). Such cooperation is similar to the mutual aid that often occurs between relatives and neighbors (CIALDELLA ET AL., 2009).

The international literature highlights several advantages cooperation may bring about. These may be classified under three main categories: most sources underline the economic benefits arising from cooperatives (FALCO ET AL., 2008; FRANKS & MC GLOIN, 2007; VALENTINOV, 2007), while the past decade has identified a raise in the number of studies that clarify/ explain the social (AJATES GONZALEZ, 2017; FORNEY & HÄBERLI, 2017; VLADIMIROVA, 2017; WYNNE-JONES, 2017) and environmental advantages (ASAI & LANGER, 2014; EMERY & FRANKS, 2012; MARTIN ET AL., 2016) that result from collaboration.

3.4.3 Cooperatives in agriculture

The "modern" agricultural cooperatives described are the most well-known example of formal cooperation (COBIA, 1989), which is defined as a formal way for farmers to organize collective actions (MADELON MEIJER & MARK LUNDY, 2007). Cooperatives have obtained prominent attention in recent years as strategic elements to achieve sustainable economic development and greater social cohesion (BRETOS & MARCUELLO, 2017). It is defined as "mutual aid economic organizations joined voluntarily and operated democratically by the farmers and workers of the similar variety of farm outputs, or by the providers or users of assistance as the same kind of agricultural production and operation" (WU & DING, 2018). In a competitive society, a farmer cooperative is a practical legal entity created by a group of farmers to enhance their economic prospects (KOHLS & UHL, 1990). A farmer cooperative is a business that provides various services (e.g., credit, equity, information), functions (e.g., product purchasing and selling, transportation, storage, grading), and welfare (e.g., health care, education) to its

members (KOHLS & UHL, 1990; PRAKASH, 2000). They connect farmers with other stakeholders including governments, extension agencies, research institutes, and merchants to create more efficient labor networks (YANG ET AL., 2014).

The Food and Agriculture Organization (FAO) predicted around 500 million families involved in agriculture activities in the world in 2014 (FAO, 2014). In 2013, one billion people were officially employed in the agriculture sector. Overall, agriculture activities are carried out by small farmers. There are more than 570 million farms in the world and more than 90% are run by individuals or family (FAO, 2011). It is therefore essential to raise the income of small-scale farmers to decrease poverty. One policy that has been developed to reach this purpose is to build and support farmers' co-ops in developing countries. The fundamental idea is that farmers' organizations will strengthen the farmers' negotiation position about the buyers and reducing transaction costs faced by farmers. This will bring farmers closer to the market, enable them to benefit from comparative advantages and potentially even connect them to the international market.

In the EU there are approximately 40,000 cooperatives, employing over 600,000 persons; with 9 million members. The turnover is around €260 billion. These cooperatives represent over 50% of the shares of the supply of agricultural inputs and over 60 percent of shares of the collection, processing and marketing of agricultural products. The USDA 2010 survey of marketing, supply, and service cooperatives identified 2,310 farmer, rancher, and fishery cooperatives in the US, with approximately 2.2 million members, 129,000 full-time and 54,000 part-time and seasonal employees. The net value of products marketed by cooperatives was $94 billion, and the total net income was $4.0 billion (COGECA, 2010).

3.4.4 Cooperative values and principles

The life and work of cooperatives are overseen by a special number of values. These values are self-help, self-responsibility, democracy, equality, equity, solidarity, and moral values. The principles of cooperatives are guidelines by which cooperatives can put their values into practice. The International Co-operative Alliance kept seven, considered to be the most essential (ICA, 1995):

1st PRINCIPLE: VOLUNTARY AND OPEN MEMBERSHIP

Co-operatives are known as voluntary associations, free to all persons intending to use their services and accept the obligations of membership, without gender, social, racial, political, or religious discrimination.

2nd PRINCIPLE: DEMOCRATIC MEMBER CONTROL

Co-operatives are democratic associations managed by their members, who actively participate in establishing their policies and decision-making. Males and females serving as elected representatives are accountable to the membership. In the first co-operatives, members have equal voting rights (one member, one vote) and are democratically organized.

3rd PRINCIPLE MEMBER ECONOMIC PARTICIPATION

Participants participate equitably and manage the capital of their organization democratically. They usually accept limited return, if any, on capital subscribed as a condition of the organization. Members allocate residues for any, or all of the following purposes: developing the co-operative, possibly by setting up stocks, part of which at least would be inseparable; profiting members in proportion to their transactions with the co-operative; and helping other activities supported by the group.

4th PRINCIPLE: AUTONOMY AND INDEPENDENCE

Co-operatives are independent, self-help organizations managed by their members. If they begin into agreements with other organizations, including governments, or increase capital from outside sources, they do so in terms that provide democratic control by their members and keep their co-operative independent.

5th PRINCIPLE: EDUCATION, TRAINING AND INFORMATION

Co-operatives give education and training for their members, chosen representatives, managers, and workers so they can contribute efficiently to the development of their co-operatives. They inform the general public -- particularly young people and opinion leaders -- about the nature and benefits of co-operation.

6th PRINCIPLE: CO-OPERATION AMONG CO-OPERATIVES

Co-operatives help their members most effectively and strengthen the co-operative movement by working together through local, national, regional, and international structures.

7th PRINCIPLE: CONCERN FOR COMMUNITY

While focusing on member needs, co-operatives work for the sustainable development of their communities through policies accepted by their members.

3.4.5 Classification of Cooperatives

It is generally accepted that cooperatives can be distinguished or classified in two ways: either by their ownership structure or by the function of the goods and services they provide. Based on the basis of the ownership structure, cooperatives have been classified into two basic types: worker-owned and client-owned cooperatives (SCHWETTMANN, 2012). Worker-owned cooperatives are business associations that are owned and democratically governed by their

employees. The cooperative members own the business, work in it, govern and manage it. The business is owned by some or all of the workers. Management structures of worker cooperatives vary greatly depending on the desires of members. Client-owned cooperatives are formed and owned by individuals or groups that seek goods and services from the business that they have established. It is in this type of cooperative that the second basis for classifying cooperatives mentioned above is quite apparent.

According to ZEULI & CROPP, (2004) cooperatives are often classified in one of three ways:

1.   Primary business activity. Cooperatives are usually described as production, marketing, purchasing, consumer, or service. Each of these groups include more refined categories that reflect the wide variety of products handled, and functions performed by cooperatives.

2.   Market area. Co-ops can be classified by the size of their market area: local, super-local, regional, national or international.

3.   Ownership structure. Six distinct co-op owner-ship models can be identified: 1. Centralized: 2. Federated; 3. Hybrid- some combination of centralized and federated; 4. New generation co-ops (NGCs); 5. The new "Wyoming cooperatives" and 6. Worker-owned co-ops.

3.4.6 Function and objectives of cooperatives

Usually, a co-operative is established for special purposes and thus, they are categorized by its function, objective and activities as it is presented on table 6 (DARDAK, 2015).

Table 6. Function and objectives of co-operative movement

Cooperative functions	Definition	Objectives
Banking/ credit	Another form of banking institution that provides business loans to farmers and mortgages.	To provide financial services for members.
Industry	Association of workers involved in cottage or village industries.	To undertake collective production, processing & marketing of goods manufactured by the members & provide them with the necessary services & assistance.

Logistics and transportation	Association of logistic and transport provides.	To provide logistics and transportation for individual and business venture.
Agriculture production	Collective efforts by farmers in production and marketing agricultural products.	To aggregate purchases, storage and distribution of farm input for producing agricultural products.
Agricultural marketing	Cooperative business owned by farmers, to undertake, transformation, packaging, distribution and marketing of agricultural products.	To undertake collective marketing activities for members.
Consumer	It is a form of free enterprise that is oriented toward service rather than pecuniary profit. It often takes the form of retail outlets owned and operated by their consumers.	Collectively purchase and sell agricultural products to enterprise.

Source: DARDAK (2015)

The function of a cooperative is determined by the objectives of its establishment and policies set by the members. For example, the credit cooperative provides credit facilities and financial services to its members. The agriculture co-operative is where farmers store their resources in a certain area of activities and work together in producing and marketing the agricultural products. They purchase and supply their members with inputs for agricultural production, undertake transportation, packaging, distribution and marketing farm products together. The operation of transportation determines the efficiency of moving products from producer to customers. It involves packaging, moving activities, service quality, delivery speed, cost of operation and the usage of facilities. The logistics and transportation cooperative will determine the customers receive the agricultural products on time, safely, in good quality and at reasonable cost. Consumer cooperatives are business venture owned, controlled and pointed at fulfilling the needs and aspirations of their members. They operate independently of the state, as a form of mutual aid, oriented toward service rather than financial profit. The purpose of consumer cooperative is to provide quality good products and services at the lowest cost to the consumers, rather than to sell goods and services at the highest price. In general, the prices of the goods and

services are at competitive market rates. This separation of function also enables the cooperative focus on the capabilities it provides and the coordination between cooperatives becomes easier.

3.5 Economic benefits of cooperation activity in agriculture

Cooperation in agriculture has economic rewards. The worldwide research demonstrates the contrasts and advantages between cooperative and non cooperative farmers in countries such as Ethiopia (ABATE, 2018; FRANCESCONI & RUBEN, 2012), Abuja (AJAH, 2015) and Bangladesh (SULTANA ET AL., 2020). The majority of the findings emphasize cooperative members' economic benefits (Table 7) (ANDERSON ET AL., 2014; FALCO ET AL., 2008; FRANKS & MC GLOIN, 2007; GRASHUIS & SU, 2019; HOVHANNISYAN & VASA, 2007; LARSÉN, 2008; NAGY & TAKACS, 2001; VALENTINOV, 2007) by increasing their level of income and output (FISCHER & QAIM, 2014; IBEZIM ET AL., 2010; ITO ET AL., 2012; SULTANA ET AL., 2020; TWUMASI ET AL., 2021; VANDEPLAS ET AL., 2013; VERHOFSTADT & MAERTENS, 2014; WANG ET AL., 2019), providing a secure market (GIAGNOCAVO ET AL., 2018; SULTANA ET AL., 2020), increasing access to labor, loans, tractor services, storage, and processing equipment, and strengthening smallholders' bargaining power (BIJMAN & HU, 2011) all help to reduce the risks they face in the marketplace (WOLDU ET AL., 2013). Cooperative societies are also seen useful in overcoming issues such as sharing assets, data, services (AHMED & MESFIN, 2017; HOLLOWAY ET AL., 2000; WOSSEN ET AL., 2017) equality and caring for others are among the essential values on which authentic cooperatives and sometimes assisting farmers financially to buy equipment and seedlings for group use (ADEOGUN ET AL., 2010) for high-value products. Those societal issues, such as enhancing the well-being of smallholder farmers, are founded on research of CANDEMIR ET AL., (2021) NIPPIERD, (2012) and TWUMASI ET AL., (2021).

All of these findings are recognized as one of the driving drivers of sustainable rural development (LAMINE, 2015; POPP ET AL., 2018) and are widely identified as a vital foundation that can assist smallholder farmers in overcoming the restraints that prevent them from maximizing their profits. The concept of agricultural economic transformation, which attempts to identify new means of agricultural development based on current agrarian output, underpins the growth of cooperatives (LONG ET AL., 2011; QIN & ZHANG, 2016; YU ET AL., 2012). The positive economic effects of the producer's cooperation have been in the focus of many research programs in the recent years (LARSÉN, 2008; NAGY & TAKACS, 2001), studies have concluded that

cooperative partnerships among agricultural producers can help reduce production costs while also increasing profit margins.

According to WILSON, P. ET AL., (2014) examined innovation and cooperation between farm businesses in a recent report for Defra. They looked at formal and informal types of cooperation and focused mainly on the structural and economic relationships between farm businesses. The report highlighted the key drivers of cooperation as including Cost-savings, Timeliness, Efficiency Economies of scale.

According to ANDERSON ET AL., (2014) proved that partnership arrangements between farmers might be a way to obtain the economic viability of their farms as well as to increase profitability. The study discusses empirical analyses of three different forms of collaboration. Collaboration among a dairy farm and a crop farm are examined in the first sample. The findings show that enhanced crop variety and crop rotation may yield significant benefits, which are increased when machinery is involved. The secondary investigation examines external integration among farrowing and finishing-pig works. Profits from collaboration originate from biological and technical factors, such as improved growth rate of the pigs and better utilization of buildings. Lastly, an evaluation of a group of collaborating crop farmers is performed. In this example, the benefits that arise are largely due to decreased machinery costs and profits due to other factors, such as improved crop rotation and managerial/marketing strategies.

Based on a study done by NIELSEN (1999) in Danish farms were six milk-producing farms, the potential advantages of joint ownership were examined for field work and for livestock services. On the establishment of joint ownership, analyses showed that the number of annual workers can be reduced from 16-8 to between 10-8 and 11-4, if joint field operations are built together with a simple feed mill from where feed is shared daily to the single cow houses. It was found that the number of annual workers can be reduced to 8-8 if all cows are housed in a shared cow house. Results showed that cost for labor and machine for five field plans differ from DKK 3063 to 2515 per ha—high-priced for the plan with beet and lowest for the plan with straw. Labour and machine costs on feeding change from DKK 2056 to 1811 per year-cow and rearing stock but if all the animals are grouped in a common cow house, the costs can be decreased to DKK 1686 per year-cow and rearing stock.

According to GRASHUIS & SU (2019) cooperative membership is found to have positive impact price, yield, input adoption, revenue, and other indicators of member performance, yet there is growing evidence of an uneven distribution of advantages for small and large producers. As a result, cooperation improves smallholders' negotiating power (BIJMAN & HU, 2011), reduces market risk for producers, increases farmers' trust in technology adoption, and improves technical efficiency (ABEBAW & HAILE, 2013)

Many studies have shown the good effects of producer collaboration, claiming that a higher degree of cooperation aids in the coordination of operations carried out by economic stakeholders, as well as improving individual performance of cooperating partners (SMITH ET AL. 1995). Furthermore, when farmers interact amongst themselves as well as with customers and institutions, the local production, processing, and distribution infrastructure becomes more inexpensive (LUTZ ET AL., 2017). Besides the direct economic benefits, the cooperatives provide greater possibilities for the intervention of capital and show excellent externality in product traceability, product quality, food safety, and industrial chain extension (GIAGNOCAVO ET AL., 2017; JI ET AL., 2017; JIA ET AL., 2012; LIANG ET AL., 2015; ZHANG ET AL., 2017).

Table 7. Some economic benefits of cooperation

Author(s)	Key finding (s)
(LARSÉN, 2008; NAGY & TAKACS, 2001)	Cooperation arrangements among agricultural producers may contribute to the reduction of production costs as well as to the rise in profit from production.
(WILSON ET AL., 2014)	The key drivers of cooperation as including Cost-savings, Timeliness, Efficiency Economies of scale.
(ANDERSON ET AL., 2014)	Partnership arrangements between farmers might be a way to obtain the economic viability of their farms as well as to increase profitability.
(NIELSEN, 1999)	Labour and machine costs can be reduced.
(GRASHUIS & SU, 2019)	Positive impact price, yield, input adoption, revenue, and other indicators of member performance,
(BIJMAN & HU, 2011)	Cooperation also improves the bargaining power of smallholders
(ABEBAW & HAILE, 2013)	Helps minimize the market risk that producers face, improve farmers' trust in adopting technology and improve technical efficiency
(SMITH ET AL., 1995)	Helps the coordination of activities performed by economic stakeholders and this also improves the individual performances of cooperating partners
(LUTZ ET AL., 2017)	The local production, processing, and distribution infrastructure become more affordable when farmers collaborate amongst themselves and with the consumers and institutions

(GIAGNOCAVO ET AL., 2017; JI ET AL., 2017; JIA ET AL., 2012; LIANG ET AL., 2015; ZHANG ET AL., 2017)	The cooperatives provide greater possibilities for the intervention of capital and show excellent externality in product traceability, product quality, food safety, and industrial chain extension

Source: Author`s own construction based on literature review

3.5.1 Factors affecting on willingness of farmers to cooperate in agriculture sector

A lot of research studies were done in developed and developing countries to know the level of cooperation among farmers and the willingness of farmers to cooperate in agriculture and factors that influence on it (ALHO, 2015; KARLI ET AL., 2006; KONTOGEORGOS ET AL., 2014; KŐSZEGI, 2016; KOVAČIĆ ET AL., 2001; OSMANI & KAMBO, 2019; STALLMAN & JAMES, 2015; SZABÓ G. & BARANYAI, 2017) (Table 8).

KOVAČIĆ ET AL., (2001) performed a research in a rural region of Zagreb with the goal of determining the farmer's overall attitude toward corporate collaboration in agriculture, as well as the impact of socio-demographic, psychological, and other aspects on their desire to collaborate. The findings revealed that farmers with more experience and education demonstrated more entrepreneurship and innovativeness, which should serve as the foundation for agricultural growth and more efficient farmer participation in business cooperation systems.

According to KARLI ET AL., (2006) a study was done in Turkey's South Eastern Anatolian Region to evaluate factors influencing the likelihood of joining agricultural cooperatives, and the results were calculated using binary logit method. Education, high communication, log of gross revenue, farm size, medium and high technological variables all play a part in determining the likelihood of entrance. According to analysis, small farmers are more likely than affluent farmers to join agricultural cooperatives. Gross income and some social status variables are two essential aspects that play a major impact in farmers' aversion to agricultural cooperatives.

According to AAZAMI ET AL., (2011) in a study conducted on Iran on socio-economic factors affecting rural women participation in productive cooperation revealed that trust, number of family members, economic motivation and land ownership were among socio-economic factors influenced the participation of women in the Paveh ball-making cooperative.

ASANTE ET AL., (2011) indicated that farm size, access to credit and access to machinery services were the main factors that influenced farmers' decisions to join farmer organizations in Ghana.

While study by ISSA (2014) results revealed that off-farm income, access to credit, keeping farm records and trust positively influences farmers' decision to participate in coffee cooperatives in Rowanda, while female headed household, higher education level and large farm size found negatively influenced farmers' decision to participate in coffee cooperatives. For Tobit regression, results showed that higher educational level, off-farm income and experiences in farming positively influenced the intensity of coffee production while female headed household and farm under other crops were found to negatively influence the coffee intensity.

According to ANDERSSON ET AL., (2005)which was done in Sweden examined(s) the benefits of collaboration between different categories of farms. A study of a partnership arrangements between dairy farms and crop farms reveals that the prospective benefits of diversification and crop rotation amount to 15–23 percent of current gross income for the farms. Collaborative arrangements that include access to more advanced technologies, reducing labor and farm machinery use, show a much higher potential. In the event of collaboration between a dairy farm and a crop farm the total benefits range from 55–85 percent of gross farm income. However, the case study of implemented collaboration among a group of crop farms reveals that the total benefits may range from 45 percent up to more than 200 percent of the net farm income per hectare. Furthermore, the studies support the notion that collaboration contributes towards more efficient resource use.

Another study was done by BARANYAI ET AL., (2018)in Hungary in order to examine the factors which determine the cooperation activity in agriculture. According to the study, producers who reside in smaller rural regions, are younger, and have a better education level have a greater level of activity involved with cooperation, which can be statistically supported. It was also shown that farms run by women are less likely to collaborate. Estimations indicate that as the size of holdings increases, their willingness for cooperation increases too, while in terms of the type of farming, crop farmers are more open to cooperate effectively than livestock farmers. It was also discovered that there is a link between trust and collaboration activities. Higher levels of trust are associated with a greater chance of collaboration, as predicted.

According to other research, more than 51 percent of the Hungarian farmers do not cooperate at all in any forms of cooperation. The biggest obstacle to cooperation is in the attitude of the farmers: they do not like to depend on anybody else or, they do not like to commit themselves. Huge lack of information is also a big barrier; farmers do not know their possibilities and have not got enough information on the different forms of cooperation (SZABÓ G. & BARANYAI, 2017).

Another study was concucted in Hunagry by PAPP-VARY ET AL., (2019) to dentify the factors affecting the farmers' willingness to cooperate. The effect of demographic (sex, age, level

of education), economic (size of farm, type of farm, asset supply), and sociological (contractual and competence trust) factors on farmers' cooperation activity in machinery sharing arrangements was clearly justified based on the results of binomial logistic regression.

Another study by DESSIE ET AL., (2019) was done in Wegera district, northern Ethiopia. The study concluded that there are two forms of collaboration: informal and formal, and that the degree of cooperation is high, with the majority of smallholder farmers (80.8 percent) participating in one or both of these systems. The decision to cooperate and the level of cooperation are determined by endogenous and exogenous factors like age of producers, woodlot size, social relation, trust, existence of informal institutions, commitment to work, and availability of production inputs and tools highly influenced the level and decisions to cooperate in eucalyptus woodlot production. Variables such as institutional membership status, woodlot size and numbers of livestock had significant and positive effects on decisions to cooperate. Variables like family size, age and work preference status of producers had significant and negative effect on households' decisions to cooperate in eucalyptus production.

According to a research condacted by TWUMASI ET AL., (2021) in Ghana, the household heads' decisions to join cooperatives are influenced by their access to credit, off-farm work, education level, and peer influence. Cooperative participation can boost household income by 28.54 percent and agricultural revenue by 34.75 percent, respectively. Furthermore, they demonstrate that the cooperative influence of different groupings of families on farm and home income are diverse. Their findings emphasize the relevance of cooperative patronization and offer recommendations that might increase the well-being of families.

STALLMAN & JAMES, (2015) conducted another study in Missouri crop farmers to investigate the influence of trust in farmers' expressed readiness to collaborate to reduce pests. Most farmers say they are willing to collaborate, and most farmers say they are willing to trust others, according to the study. They found no evidence, however, that trust impacts farmers' willingness to collaborate in pest control.

A study was conducted in Central Bhutan by DENDUP & ADITTO (2021) to examine the variables influencing families' decisions to join agricultural cooperatives. Households with older heads of household, literacy, more family labor, more land under cultivation, owning agricultural machinery, being further distant from a market, and having access to financing were more likely to join cooperatives, according to the binary logistic regression. Households with off-farm income and a location remote from the Renewable Natural Resources Centres, on the other hand, were less likely to join agricultural cooperatives. In addition, the gender of a home's head of household and the amount of cattle possessed by a household had no bearing.

Table 8. Factors affecting cooperation activity

Affecting factors to the cooperation	To be estimated sign	Meaning	Some related references
Location	+	Findings highlight that producers who live in smaller rural show a higher level of activity associated with cooperation.	(BARANYAI ET AL., 2018)
Education	+/-	Education is expected to increase the cooperation between farmers in agriculture sector. Educated farmers are more likely to join the agriculture cooperatives/association etc.	(BARANYAI ET AL., 2018; ISSA, 2014; KARLI ET AL., 2006; KOVAČIĆ ET AL., 2001)
Gender	+/-	Results of different studies showed that gender significantly affect farmers' participation in cooperatives. Most of them stress that woman are more likely to participate on cooperatives.	(AAZAMI ET AL., 2011; BARANYAI ET AL., 2018; ISSA, 2014)
Age	+	Result shows that age affect the cooperation among farmers. Most of the studies provide the information on young farmers which are more likely to cooperate.	(BARANYAI ET AL., 2018; DESSIE ET AL., 2019)
Farm size	+/-	Most of the studies include as a factor the farm size. According to the results size of holdings increases, their readiness for cooperation increases too.	(ASANTE ET AL., 2011; BARANYAI ET AL., 2018; ISSA, 2014; KARLI ET AL., 2006)
Trust	+	Trust is another factor that significantly affects farmers' participation in cooperatives or	(AAZAMI ET AL., 2011; BARANYAI ET AL., 2018; ISSA,

		willingness to cooperate on control pests.	2014; STALLMAN & JAMES, 2015)
Type of farming	+	While in terms of the type of farming, crop farmers are more open to cooperate effectively than livestock farmers.	(BARANYAI ET AL., 2018)
Income	+	Some of the researchers found that increase the income can significantly affect the cooperation among farmers.	(ANDERSON ET AL., 2014; ISSA, 2014)

Source: Author`s own construction based on literature review

3.5.2 Factors determining farmers to invest on agriculture cooperatives

Willingness to invest, or eagerness to invest, according to the Oxford Dictionary of Business World (1993) (PRESS, 1993), denotes having the desire, purpose, and resolve to invest; alternatively, being ready to invest. However, willingness to invest does not imply ability to invest. Agricultural growth is aided by a number of important elements known as development drivers. Some essential factors must be in place for agriculture to develop, according to MOSHER (1966), markets for farm commodities, constantly changing technologies, disposal of materials and equipment, production stimuli for farm technologies, disposal of materials and equipment, production stimuli for farmers, and transportation. In addition, several additional variables known as accelerators are required, such as education, production credit, farmer collaboration, soil expansion and improvement, and national agricultural development planning.

In table (8) below are presented several studies done in order to identify the factors which has effect on willignes of farmers to invest in agriculture cooperatives.

KONTOGEORGOS ET AL., (2014) determine Greek farmers' willingness to invest in agricultural cooperative. Results demonstrate that education, urban residence, participation in the cooperative's administrative procedures, as well as the farmers' perceptions of possible future strategies and previous managerial failures can positively affect members' decision to invest in the cooperative. Result demonstrates that the existence of a successor in the farm and large farm size positively affect farmers' willingness to invest in the cooperative were rejected.

ALHO (2015) investigated if farmers in Finland are willing to engage in cooperative growth as members and owners of agricultural producer cooperatives. Results indicated that the market channel is equally appreciated by large and small producers, but the reduced uncertainty brought by a cooperative buyer is particularly valuable to farmers who are investing in farm

expansion. The survey findings indicate that the more competition for the raw material from producers there is in an area, the greater is the pressure cooperatives may be under to develop their service offering in order to attract members. The findings confirm that a stable market channel is still the most important benefit that producers perceive as deriving from cooperative membership.

OSMANI & KAMBO (2019) did another study in Albania's Korça district to look at people's readiness to invest in small apple farms. Access to credit, advisory assistance, market competition, readiness to cooperate and willingness to get loans, and farm revenue are all factors that influence farmers' willingness to invest, while socio-demographic factors like age, education level, and experience have no bearing on their willingness to invest. The findings revealed that large farms are more inclined to spend in general.

Table 9. Farmers' willingness to invest in agriculture cooperatives

Author(s)	Product(s)	Empirical technique(s)	Key finding (s)
(KONTOGEOR GOS ET AL., 2014)	Various	Logistic regression	Results demonstrate that education, urban residence, participation in the cooperative's administrative procedures, as well as the farmers' perceptions of possible future strategies and previous managerial failures can positively affect members' decision to invest in the cooperative.
(ALHO, 2015)	Livestock	Probit regression model	Results indicated that most of the farmers were willing to spend, and the tendency increased with farm size.
(OSMANI & KAMBO, 2019)	Apple	Classical and multinomial logistic regression	Res ults highlight factors of willingness to invest where access to credits, advisory assistance, market competition, readiness to cooperate and willingness to get loans, and farm revenue, while socio-demographic factors such as age, education level, and experience of

			farmers do not influence the willingness to invest.

Source: Author`s own construction based on literature review

3.5.3 The role of trust in cooperation among farmers

The literature of trust in various disciplines is often defined as trust through perceptions and behaviors. Trust as a subject of study of (agricultural) economics is a relatively new phenomenon since it was used more in sociology, anthropology and other "soft" disciplines. In general, trust can be considered as the perception and interpretation of the other's expected dependability. Trust is the mutual expectation that arises within a community of regular, cooperative behavior, based on commonly shared norms (PALDAM & SVENDSEN, 2000).

Farmers' trust is another determinant of effective collaboration (BARANYAI ET AL., 2018; OLÁH ET AL., 2019; VASA ET AL., 2014). Various studies have shown that a high level of confidence is necessary for effective agricultural cooperation (DUDAS & FERTO, 2009). It influences the development and promotion of high-quality (PACHOUD ET AL., 2020) agricultural products and the intensity of marketing as well (BELAY, 2020).

According to ZAHEER ET AL., (1998) summarize, the concept of trust may be framed as an expectation of a partner's reliability about his obligations, predictability of behavior, and fairness in actions and negotiations while faced with the possibility to behave opportunistically. Trust is so essential in human relations thus it is very significant in the cooperation among farmers, too. Trust has been the perceived credibility and benevolence behind an individual's behavior and actions (LARZELERE & HUSTON, 1980).

In farming, trust is, in many ways, a kind of social capital. As illustrated by WILSON (2000), social capital, or trust, involves the goods or advantages following from "one person or group's sense of responsibility towards another." This understanding of trust simplifies business transactions and frees time for both parties, becoming a vital player in the industry. Most agribusiness firms are included in trusted connections among labors, distributing information within or outside the firm can raise productivity and competitive advantage.

Building trust has also been the focus within the agribusiness and agricultural cooperatives. SYKUTA (2006) the emphasis that farmers prefer to market with cooperatives because of the honesty and competence in which cooperatives exhibit. ÖSTERBERG & NILSSON (2009), highlight that farmers perceive successful cooperatives as being transparent and trustworthy because the board of directors consists of farmers.

To be able to understand the development of trust in cooperatives and possible ways to influence it, as well as different levels of trust in a co-operative organization (e.g. between two members, among multiple members in general, as well as between the members and management), different authors classify many types of trust. According to MCALLISTER (1995) there are two main types of trust: affective and cognitive. The former is more subjective and emotional bonded, while the latter is mainly based on rational calculations and empirical evidence. But if a strong trust is established between the two parts, this should be based on perceptions, motives, and actions to trust. According to BARANYAI ET AL., (2011), farmers will trust each other if their faith is high both in loyalty and incompetence.

In the last twenty years, the issues of trust as a topic–has become the focus of interest in several fields of science. Several authors have shown the importance of trust in economic transactions. GULATI (1995) showed the fact that transaction cost elements likewise, social factors are relevant and essential in studying interfirm relationships and co-operation. Repeated ties between firms engender trust that is exhibited in the form of the contracts used to organize subsequent alliances. Trust is connected to the facilitation of highly uncertain and complex transactions. It decreases the uncertainty of these kinds of transactions. Trust has mainly been considered as a means for facilitating the exchange relationships by lowering transaction costs and for enhancing the total supply chain economic value by allowing for full exploitation of the new bio-genetic and information technologies (SODANO, 2002).

It is generally accepted between experts in different scientific fields that the concept of trust presumes the presence of uncertainty or risk (ROUSSEAU ET AL., 1998). This next function of trust is related to its information function. As MALECKI (2000) puts it, through the economic and social relations in the network, many information become inexpensive to obtain.

Table 10. Role of trust on agriculture cooperation

Author(s)	Key finding (s)
(BARANYAI ET AL., 2018; OLÁH ET AL., 2019; VASA ET AL., 2014; ZAHEER ET AL., 1998)	Determining factor of successful cooperation is the trust among farmers
(DUDAS & FERTO, 2009)	The high level of trust is predestined for well-functioning cooperation in agriculture

Source: Author`s own construction based on literature review

3.6 The theory of Contract Farming

3.6.1 Definition of Contract Farming

There are various definitions of contract farming in agriculture economies and practice. The concept is initially defined by Roy as "those contractual arrangements between farmers and other firms, whether oral or written, specifying one or more conditions of production and/or marketing of an agricultural product". 'An arrangement between farmers and processing and/or marketing corporations for the production and supply of agricultural goods under advance agreements, typically at preset rates,' according to EATON & SHEPHERD (2001). The arrangement often 'involves the purchaser in providing a degree of production support through, for example, the supply of inputs and the provision of technical advice'. To make this agreement work, the farmer agrees to "supply a specific commodity in quantities and according to quality criteria established by the customer ". The company on the other hand agrees to 'support the farmer's production and to purchase the commodity'. In more simple terms, contract farming can be regarded as a partnership between agribusiness companies and farmers. Contract farming would be more likely to arise when market failure occurs at a time when commodity specificity and uncertainty are high, such as in the trading of perishable and difficult-to-store and-transport crops (MINOT & SAWYER, 2016; SOULLIER & MOUSTIER, 2018).

Poverty is prevalent in many developing nations' small-farm sector. According to a vast body of evidence, contract farming—a preharvest agreement between farmers and buyers—can help smallholder farmers participate in the market, boost household welfare, and support rural development. In developing nations, smallholder farmers are frequently locked in a vicious cycle of low-intensity, subsistence-oriented farming, low yields, and inadequate income to make beneficial investments. Many rural communities suffer from high levels of poverty as a result of these issues (BARRETT, 2008; FAN, 2019; FOOD & NATIONS-FAO, 2018).
Consequently, these smallholders are confined within agricultural subsistence, and serve only as mere producers with very little orientation towards the market. For these resource-poor farmers, contract farming is potentially a way of overcoming market imperfections, minimizing transaction costs and gaining market access (KANANA, 2019).

Contract farming, on the other hand, is frequently condemned as a tool for businesses to abuse uneven power relationships with farmers in order to obtain rents (WARNING & KEY, 2002). Contracts allow large agribusiness businesses to take advantage of inexpensive labor while transferring risk to farmers. Small farmers may be overlooked since large farmers are preferred by businesses, causing inequity for small and weak farmers in rural regions (LITTLE & WATTS, 1994; MIYATA ET AL., 2009; SINGH, 2002). Furthermore, a contract with inputs and a fixed

price may be viewed as a negative of contract farming since it prevents farmers from getting better seed, fertilizer, loan, and technical support, as well as selling in spot markets for a higher price and revenue.

3.6.2 What are the advantages of contract farming?

Since the 1970s, the benefits of contract farming have been a source of discussion and debate, particularly in developing and transitional nations (MIYATA ET AL., 2009; MORRISSY, 1974). Numerous studies analyze whether farm households benefit from contract farming, most of contract farming projects do appear to contribute to smallholder welfare (AROUNA ET AL., 2019; BELLEMARE & BLOEM, 2018; HOANG, 2021; OTSUKA ET AL., 2016; TON ET AL., 2018), improve farmer incomes (KANANA, 2019; KHAN ET AL., 2019; MAERTENS & VANDE VELDE, 2017; MIYATA ET AL., 2009) and sustainability on the long term.

3.6.3 Intermediate Factors and Mechanisms of Influence

The impact of contract farming on income, sustainability, and wellbeing should be split into three stages, according to HOANG (2021) : short term, medium term, and long term (Figure 10). The short-term stage is as follows: Contract farmers may face more investment, rising production costs, and declining productivity at this stage in order to meet company demands, particularly higher quality standards. A contract's sale price, on the other hand, cannot be guaranteed to be greater than the spot market price. Farmers' revenue may eventually suffer as a result of these factors.

Contract farming, on the other hand, might have a significant influence on intermediate aspects such cooperative membership, market access, knowledge and skill, product quality and safety, technology and method, trust, and government backing. Contract farming can facilitate farming activities and reduce farming difficulties in this period.
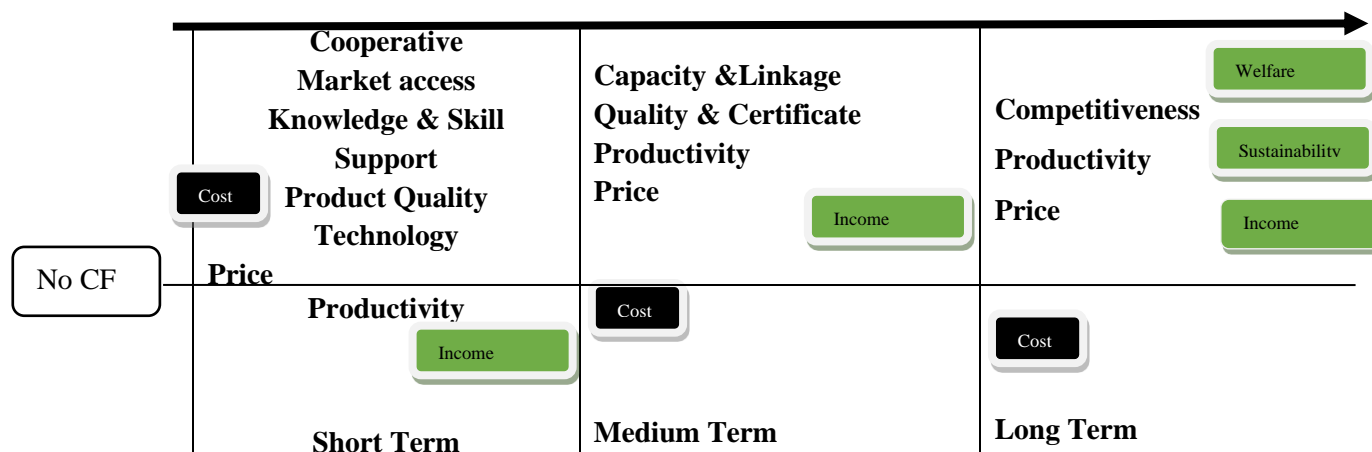
Figure 10. The mechanism of how contract farming affects income, sustainability, and welfare
Source: HOANG (2021)

The medium-term stage: After stage 1, the intermediate factors affected by contract farming may assist contract farmers to obtain the higher real price in comparison with the spot market prices, the increasing farming productivity, the lower production cost, quality certifications, the higher capacity, and the linkage in the value chain. As the result, the contract farmers can achieve higher incomes. In other words, contract farming may start significantly affecting farmers' income in the medium term.

The long-term stage: After a long time with contract farming, contract farmers can have stronger competitiveness based on the higher capacity (knowledge, skill, experience, technology, technique, trust, and market information), strong linkage to the value chain, higher product quality, and certifications; reduce production costs; increase productivity, and obtain higher sale prices. These intermediate factors also result in more sustainable and fairer agricultural production and practice. These finally demonstrate that contract farming may significantly affect income, sustainability, and welfare in the long term.

3.6.4 Factors affecting farmers to join contract farming

Different studies were carried out in order to examine socio-economic factors which effect farmers to join contract farming (Table 11). While some empirical research demonstrate minor or negative outcomes, the literature evaluation suggests that contract farming can boost farmers' revenue. According to WANG ET AL., (2014), 75 percent of empirical investigations reveal a favorable effect, while just 6.3 percent of studies show a negative effect. Several comparative studies of income from contract farming have recorded average increases in income for between 30-40% (moderate) and 50-60% (high) proportion of participants (LITTLE & WATTS, 1994).

Contract farming, according to reviews and studies, allows small farmers to boost yields, diversify into new crops, and increase earnings, and that these arrangements can have broader advantages, such as stimulating demand for hired labor (KIRSTEN & SARTORIUS, 2002; SINGH, 2002, 2005).

According to MENSAH (2012) farmers who cultivated small plots of land, had access to labor, and whose farms were further away from the firm were more likely to enter into contract arrangements with processing firms.

Six factors had statistically significant influence on farmers' decision to participate in contract farming, according to RONDHI ET AL., (2020) Farmers' decisions are influenced by factors such as education, land size, population, farmer group, and agricultural extension. The largest influences on contract farming involvement are farmer groups and agricultural extension services.

While study of KANANA (2019) found out that sociological factors have a strong and positive influence on the performance of contract farming. Also it was found that it was strongly agreed that the age of a farmer influences performance of contract farming and education level of a farmer influences performance of contract farming. It was agreed that the gender of a farmer influences performance of contract farming while it was undecided that the land size of a farmer influences performance of contract farming. Further the study found out that farmer's satisfaction and experience influence their attitude towards contract farming. The study found that most of the farmers preferred written contracts compared to oral ones. Larger farms prefer formal contracts, but informal contracts are more adaptable to the demands of smallholders, according to FAFCHAMPS & LUND (2003).

According to BELLEMARE (2012), a research in Kenya discovered that females are less likely to participate in contract farming, resulting in low intervention performance. One possible reason is that in developing countries, institutional forces at times provide females with disadvantageous contract opportunities.

According to AAZAMI ET AL., (2011) there are a number of factors influencing farmers participation in contract farming which include trust, number of family members, land ownership and economic motivation. NUGUSSIE (2009), revealed that the major variables strongly influencing farmers to join contract farming were male head households, family size and attending public meetings.

Results show that education, farming experience, and credit/financial support significantly affect contract farming participation. The results highlighted the importance of technical skills and knowledge, and financial support in making decisions such as contract participation. Results also show that contract farmers earn higher profits than non-contract farmers which may imply contract farming to be better (LOQUIAS ET AL., 2021).

The logit model was used by MUROIWA (2019) to analyse the factors that influence the farmers' decision to participate in tobacco contract farming. The results showed that male tobacco farmers are more likely to participate in contract farming than their female counterparts. Older farmers are less likely to participate in contract farming than young farmers. Other variables such as land tenure and distance from the tarred road were also statistically significant in negatively influencing smallholder participation in contract farming arrangements. Education level, farming

experience, labour force size, cattle owned and access to extension positively influenced smallholder farmer participation in tobacco contract farming arrangements.

Farm size, farmer age, education level, and degree of group engagement are all factors that impact participation in contract farming arrangements, according to previous research SIMMONS ET AL., (2005) in East Java, Bali and Lambok, Indonesia. The findings concurred with results carried by SWAIN (2012) in India where results from the binary logistic model indicated that education levels, access to productive assets and access to markets influenced farmer participation in contract farming. The research findings from the same study revealed that farmers with access to irrigation facilities and those with bigger family sizes are more likely to participate in contract farming arrangements.

Table 11. Factors determining farmers to join contract farming

Affecting factors to the contract farming	To be estimated sign	Meaning	Some related references
Education	+	The high level of education influences to enter into contract farming. This may be that educated farmers are more likely to know more about the benefits of contract farming.	(KANANA, 2019; LOQUIAS ET AL., 2021; MUROIWA, 2019; RONDHI ET AL., 2020; SIMMONS ET AL., 2005; SWAIN, 2012)
Gender	+	The relationship between gender and contract farming is complex and ambiguous. Some empirical studies result show women appear to be more involved in contract farming compared to male. Some other studies showed that male have greater tendency to enter into contract farming.	(BELLEMARE, 2012; NUGUSSIE, 2009)
Age	+	Results indicate participation in contracts is influenced by age of farmers or household. Older	(MUROIWA, 2019; SIMMONS ET AL., 2005)

		farmers are less likely to participate in contract farming than young farmers.	
Participation on grups	+	Increasing participation in agricultural groups of farmers	(SIMMONS ET AL., 2005)
Farm size	+/-	The relationship between farm size and contract farming is complex and ambiguous. Some empirical studies result show larger farms appear to have higher tendency to enter into contract faring. While some authors reveal small farms tend to enter into contract farming compared to larger farms.	(Fafchamps & Lund, 2003; Kanana, 2019; Mensah, 2012; Rondhi et al., 2020; Simmons et al., 2005)
Trust	+	Trust affects a positive influence on entry in contact farming.	(AAZAMI ET AL., 2011)
Income	+/-	The effect of income in contract farming are presented as a significant factor in join CF . Most of the studies show that incomes significantly affectcontract farming participation.	(LITTLE & WATTS, 1994; LOQUIAS ET AL., 2021; WANG ET AL., 2014)

Source: Author`s own construction based on literature review

IV. MATERIALS AND METHODS

This chapter gives a detailed account of the materials and methods used to conduct this research. The chapter begins with the description of the study area, questionnaire development, sampling method and size followed by a table consisting of the measurement items used in the questionnaire and a description of the research tool used.

4.1 Study Area

With a surface area of 10,887 km2 and two main regions, the Dukagjini Region in the west and the Kosovo Region in the east (Figure 1), Kosovo is located in the center section of the Balkan Peninsula, between the Mediterranean Sea and the mountainous parts of Southeast Europe. Kosovo shares its southern border with Macedonia, its western border with Albania, its northern border with Montenegro, and its northern and southern borders with Serbia. The continental climate of Kosovo is characterized by temperatures ranging from -20°C in the winter, to +35°C in the summer.

Dukagjini region which is ideally suited for labor intensive horticulture, and Kosovo region which is well suited for industrial cereals and potato production. Dukagjini, has fertile arable land with several small rivers which supply with irrigation water and, in combination with the Mediterranean climate, offers great conditions for a diversity of agricultural and livestock activities, and has lower number of 54,249 farmers. While Kosovo region has a slightly higher number of farmers 76,526 which are generally seen with less potential due to inferior climatic conditions, misuse of the agricultural land, or high concentration of activities in urban area (mostly trade and services) (EFSE, 2013).

Figure 11. Map of the study area

The lowest point of altitude is 265 m above the sea level located at "Drini i Bardhë" at the border to Albania and raises up to 2,656 above the sea level which is located in the southern part of Kosovo called Gjeravica. In total, approximately 80 percent of the entire area lies below 1,000 m. On June 2008, the Assembly of Kosovo adopted the Law No.03/L-041 on Administrative Municipal Boundaries and on the basis of this law the country composes of 5 regions, 38 municipalities and 1,469 settlements (KAS, 2014).

Kosovo has a population of around 1.8 million people and the youngest population in Europe, with an average age of 25 years (MESP, 2015). Agriculture is the major source of income for more than 62 percent of Kosovo's people who reside in rural regions.

Kosovo has a total area of 1.1 million hectares, with agricultural land accounting for 53 percent and forest accounting for 41 percent. According to estimates, 15 percent of the soil is of good grade, 29 percent is of medium quality, and 56 percent is of low quality (DACI-ZEJNULLAHI, 2014). Within agricultural companies and cooperatives, it is estimated that 88 percent of the surface area used for agriculture is private land, while 12 percent is public land (MFARD, 2018).

4.2 Sampling method, size and distribution of questionnaires

Sampling method

The researcher used two sampling methods; Probability sampling method; a sampling method that relies on a random, choice method so that the probability of selection of population

elements is known. Nonprobability sampling method; is sampling method in which the probability of selection of population elements are unknown.

The researcher used quantitative and qualitative methods of research. Quantitative research includes calculating and measuring happening and conducting the statistical analysis of a group of numerical data (SMITH, 1988). According to SCHUTT & ENGEL (2008), qualitative research often focuses on populations that are hard to locate or very limited in size.

Sample Size

My research field survey consisted of two parts. Between March and April of 2018, I pre-tested my questionnaire with 50 randomly selected farmers in the Dukagjini and Kosovo regions. This pre-test survey assisted me in improving and confirming my questionnaire. After that, between May and October 2018, I conducted a second round of research with 300 farmers in Dukagjini and Kosovo Region and 249 of them answered (Table 12).

During the harvest season, the researcher done personal visits to all of the farmers working in the fields. The farmers' willingness to meet and share their ideas with the researcher was the most important criterion in their selection. Personal interviews, visits to respondents' homes or workplaces, and cooperative associations were used to collect data. Each respondent was given a brief overview of the study's objective before the interview began (for academic research). The questionnaire asked about demographic, social, and economic characteristics that were relevant to the farm profile. The surveys were filled out by hand since farmers lacked understanding on how to use the Internet. The interview lasted an average of 45 minutes, and the questions were asked in non-scientific language so that all farmers, regardless of their level of education, could comprehend them.

Table 12. Sample distribution

Regions	Cities	Sample households
Dukagjini Region	Peje, Prizren, Rahovec,Gjakove, Deçan	124
Kosovo Region	Prishtine, Ferizaj, Gjilan,Mitrovice, Drenas	125

Source: Field survey conduct in Kosovo

The response rate was at 83 percent. We think that it is important to note that the study's sample may be statistically representative at the national level due to the data collection methodologies used. The sample adequacy tests revealed that the study's sample is adequate with a 6.3 percent margin of error at a 95 percent confidence level.

Questionnaire (Primary Data Collection)

This study was based on original data collected from farmers using structured and semi-structured questionnaires as the major data collection instrument. The researcher used random sampling and snowball sampling, in cases when we were not able to identify farmers. In the social and natural sciences, household surveys with a semi-structured questionnaire are a standard method (BARRIBALL & WHILE, 1994).

The questions of the questionnaires covered – among others – the following areas: general information about the head of the farm (gender, age, education level, main activity, income dependence on agricultural activity, experience on farming etc.); general information about the farm (scope of activities, size of leased and own land, size of animal stock, etc.); natural indices of farming (production structure, output, asset supply, etc.); contract farming (written contract, verbal contract) and main questions of cooperation with fellow farmers (forms and frequency of cooperation, knowledge about the institutionalized forms of cooperation and the opinion of the farmer about these solutions, etc.); and the question of trust.

The explanation of variables employed in the study are itemized in Table 13.

Table 13. Description of the variables used in the study

Variable	Description	*Binary Logistic Regresion* Measure	*Chi Square* Measure
Dependet Variable			
Cooperation activity	Participation of respodent in cooperation actvity or not	Dummy	
Contract farming	Participation of respondent in contract farming or not	Dummy	
Explanatory variables			
Location	Location of farm	Binary	

Gender	Sex of household head	Binary	Nominal
Age	Age of household head (Years)	Binary	Ordinal
Education level	The respodent education level	Binary	Ordinal
Rent land	Land rented by respodents		Binary
Family involved in agriculture	Family engaged in agriculture		Binary
Seasonal employee	Seasonal employee		Binary
Sharing machineries	Sharing machineries between farmers		Binary
Willignes to buy machinery with others	Redinnes to invest i agriculture machinery with other farmers		Binary
Level of trust	The level of trust among farmers	Ordinal	Ordinal
Type of farming	Types of production of farms	Nominal	Nominal
Size of farm	The size of farm	Ordinal	Ordinal
Income	The income of respodents		Ordinal

Source: Author`s own construction

4.3 Data Analysis

The original data was analyzed using both descriptive and inferential statistical approaches. Statistical Package for the Social Sciences (SPSS) was used to code and analyze the data gathered through surveys. Different statistical methods, approaches and tools will be used and applied for the purpose of testing the study hypotheses and research questions. Binary logistic Regression, Chi Square, Independent sample t-test and other descriptive statistics were performed.

4.3.1 Descriptive Statistics

Descriptive statistics are useful tools in summarizing, organizing and describing the collected data. In the research, descriptive statistics was useful in organizing the data into frequencies and different classes related to the research questions.

4.3.2 Binary logistic regression

Binary logistic regression will be used to check significant economic and demographic/social factors which have influence in cooperation activity of farmers, through this analysis it can be found the level of cooperation and the willingness of Kosovo`s farmers to cooperate. On the economic factors it will include variables as; type of farming, size of farm, income etc., on the demographic/social factors it will include; location, gender, age, education level and trust of farmers (Figure 12).
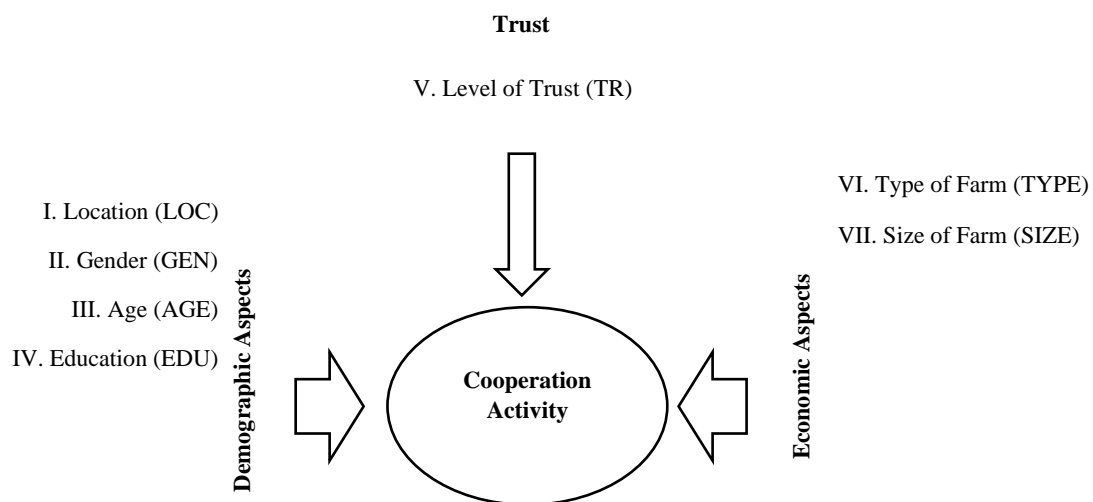
Figure 12. The logical model of the examinations

The same analysis is used before from international researchers like (BARANYAI ET AL., 2018; DAMALAS ET AL., 2019; KONTOGEORGOS ET AL., 2014; STALLMAN & JAMES, 2015; YMERI ET AL., 2020). Through this analysis using the Enter Method will test the three hypotheses. It is important to note that of the 7 variables included on the model, I.-IV. and VI.-VII. were used as categorical variables, and the last category was maked as a reference value in

most of cases. Binary logistic regression sometimes is called the logistic model or logit model, it analyzes the association among multiple independent variables and a categorical dependent variable, and estimates the likelihood of occurrence of an event by suitable data to a logistic curve (PARK, 2013). The most essential data acquired for the study is binary values (FIELD, 2009; GUJARATI, 2006).

The factors (X–independent variables) impacting agriculture cooperative activity, as well as the outcomes (Y–dependent variables), might be examined using this Model. The following regression model:

$$Yi = \beta1 + \beta2Xi + ui \ (1)$$

Model (1) seems like a typical linear regression model but because the regression is binary, or dichotomous, it is named a linear probability model (LPM)(GUJARATI, 2006).

The formula will be for the analysis is as follows:

$$Y = \beta0 + \beta1 \ \text{LOCATION} + \beta2 \ \text{GENDER} + \beta3 \ \text{AGE} + \beta4 \ \text{EDUCATION LEVEL} + \beta5 \ \text{TRUST}$$
$$+ \beta6 \ \text{TYPE OF FARMING} + \beta7 \ \text{SIZE FARM} + ui \ (1)$$

With the same analysis (Binary logistic regression) was used to examine socio-demographic and economic factors which have influence to join contract farming, through this analysis it can be found the level contract farming and the willingness of Kosovo`s farmers to join on contract farming. On the socio-demographic factors include; cooperation, gender, age, education level and experience of farming, while on the economic factors include variables as; type of farming, type of farming (Figure 13).
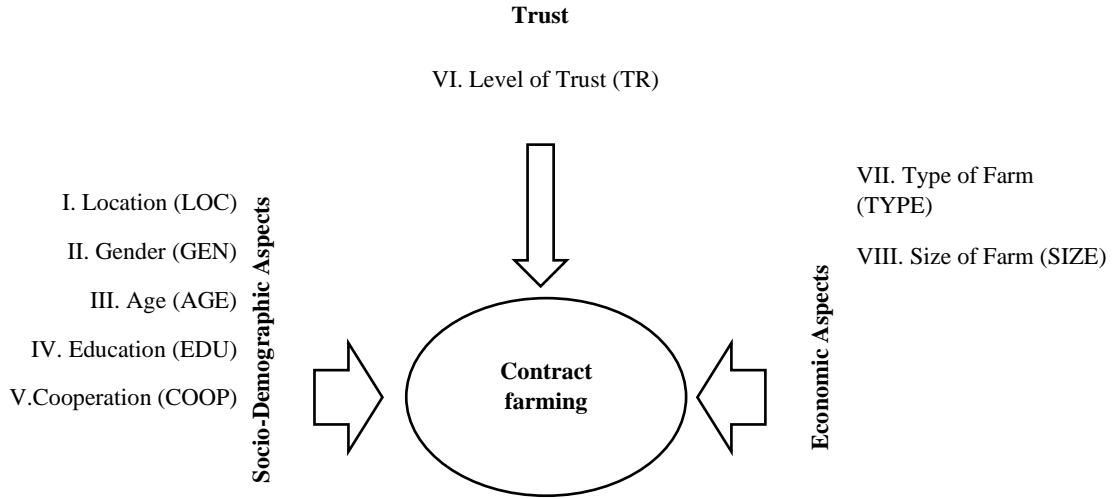
Figure 13. The logical model of the examinations

The variables (X–independent variables) impacting contract farming in agriculture, as well as the outcomes (Y–dependent variables), might be measured using this Model. The regression model is as follows:

$$Yi = β1 + β2Xi + ui \ (1)$$

The formula for the analysis is as follows:

$$Y = β0 + β1 \ LOCATION + β2 \ GENDER + β3 \ AGE + β4 \ EDUCATION \ LEVEL$$
$$+ β5 \ COOPERATION \ ACTIVITY + β6 \ TRUST + β7 \ TYPE \ OF \ FARMING$$
$$+ β8 \ SIZE \ FARM + ui \ (1)$$

When using logistic regression models, ILDIKÓ & SZÉKELYI (2004) point out that if a model has too many independent variables, the total R-squared value would be inflated. To avoid this, they suggest measuring explanatory power using the following formula:

$$R^2_{LA} = \sqrt{\frac{G_M - 2k}{D_0}} \quad where,$$

GM is deviation chi-square, k denotes the number of independent variables in the model;

$$D_0 = -2\left\{(n_{Y=1})\ln\left[P(Y=1\right] + (n_{Y=0})\ln\left[P(Y=0\right]\right\} \ and,$$

in which nY=1 denoting the frequency of the occurrence of cooperation as an event; P(Y = 1) means the probability of the occurrence of the same event; nY=0 and P(Y = 0) marks the frequency and probability of the non-occurrence of cooperation. The value obtained is also in the range from

0 to 1, with 0 indicating that the independent variables included to the model do not contribute to the prediction of the dependent variable's value, and 1 representing a clear determination.

4.3.3 Chi-Square

The independence chi-square test, also known as Pearson's chi-square test or the chi-square test, is a statistical test evaluating association between two categorical variables (UGONI & WALKER, 1995). The link between cooperative and non-cooperative farmers in relation to the variables under research was discovered using descriptive statistics and a Chi Square test, with Cramer's V indicating the relationship's power. The Chi Square (X2) test, which was invented by K. Pearson, is one of the tools that may be used to analyze information about data relationships (PEARSON, 1900).

Cramer's V, on the other hand, is a post-test technique (with values ranging from 0–1) used after Chi-square to determine the strength of an association with the following interpretation: "very weak" is considered 0–0.19, "weak" 0.2–0.39, "moderate" 0.40–0.59, "strong" 0.6–0.79, and "very strong" 0.8–1 (SIMAR & WILSON, 2015).

4.3.4 Independent Sample t test

The Independent Samples t-Test is a statistical test that analyzes the means of two independent groups to see if there is statistical evidence that the related population means differ significantly.

To test the hypothesis, the researcher used the Independent Sample t-test in some cases such as; to comapre the climatic factors in Dukagjini Region and Kosovo Region, if there are significant differences between these two regions. The variables that are included was the maximal temperature, the minimal temperature, the average temperature (in ◦C) and the rainfall (in mm) fom year 2017 until 2020.

Then versus compare the revenue of farmers who collaborate (who are members of any cooperatives) to farmers who do not. Similar research may be found in the study of JUYJAENG & SUWANMANEEPONG (2017). The variables that will be included was the total income from the main activity of the farmers. The difference between the two farmer groups was determined using an independent sample t-test.

Independent Sample T-test was used to determine the contrast in the sales channels of products between cooperative and non-cooperative farmers. An Independent Sample t-test can be used to compare the mean of one sample with the other to test the statistically significant difference between the two samples (KULKARNI, 2016). In addition, effect size was applied as a

complementary statistic to validate the independent t-test (DANKEL ET AL., 2017). Effect size an effect statistic which is used to measure the difference between two group means (LAKENS, 2013). According to SULLIVAN & FEINN (2012) while reporting and interpreting results, both the substantive significance (effect size) and statistical significance (P value) are required to be reported. Cohen's d was adopted and computed as follows:

$$\text{Cohen`s } d = \frac{M\ coop - M\ non-coop}{SD pooled} \quad (1)$$

Where; Cohen's d = effect size; M $coop$ = cooperative farmers group mean; M $non\text{-}coop$ = cooperative farmers group mean; SD $pooled$ was computed as:

$$SD_{pooled} = \sqrt{\frac{SD_{coop}^2 + SD_{non-coop}^2}{2}} \quad (2)$$

Where: SD^2 $coop$ = squared standard deviation of the cooperative farmers group; SD^2 $non\text{-}coop$ = squared standard deviation of the non-cooperative farmers group. For interpretation purposes, $d <$ 0.50 indicated small effect size; $0.50 \geq d < 0.80$ indicated moderate effect size and $0.80 \geq$ d reflected large effect size (JACOB, 1977).

V. RESULTS AND DISCUSSION

5.1 Descriptive analysis of temperature and rainfall in Kosovo

According to the measurements of Hydrometeorological Institute of Kosovo done from 2017-2020, (Figure 14) showed that in Dukagjini Region the maximal temperature 19.14 ℃ and average temperature 13.83 ℃ is obtained in 2019. While 2017 is characterized by lower max. temperatures compared to 2018, 2019 and 2020.
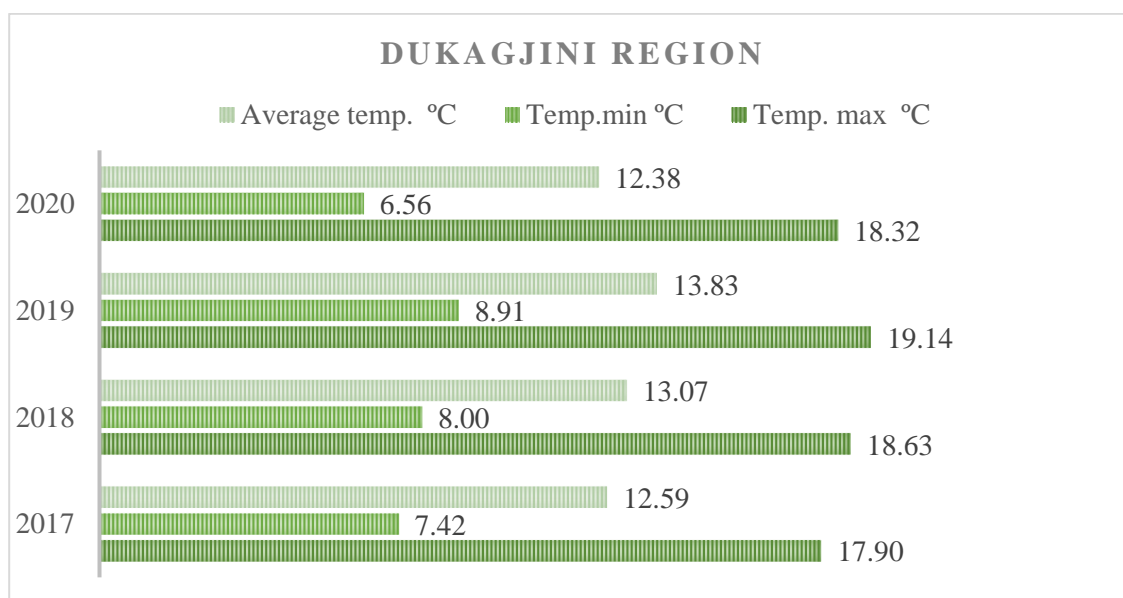
Figure 14. Descriptive statistics for year average temperature from 2017 to 2020 in Kosovo Region (unit: ◦C)
Source: Author`s own construction based on statistic information

As presented in the Figure (15), in Kosovo Region the maximal temperature 18.26 ℃ and average temperature 11.77 ℃ is obtained in 2019. While in 2017, 2018 the maximal temperature was slightly lower. Based on the data of two regions year 2019 was characterized with the high temperature.
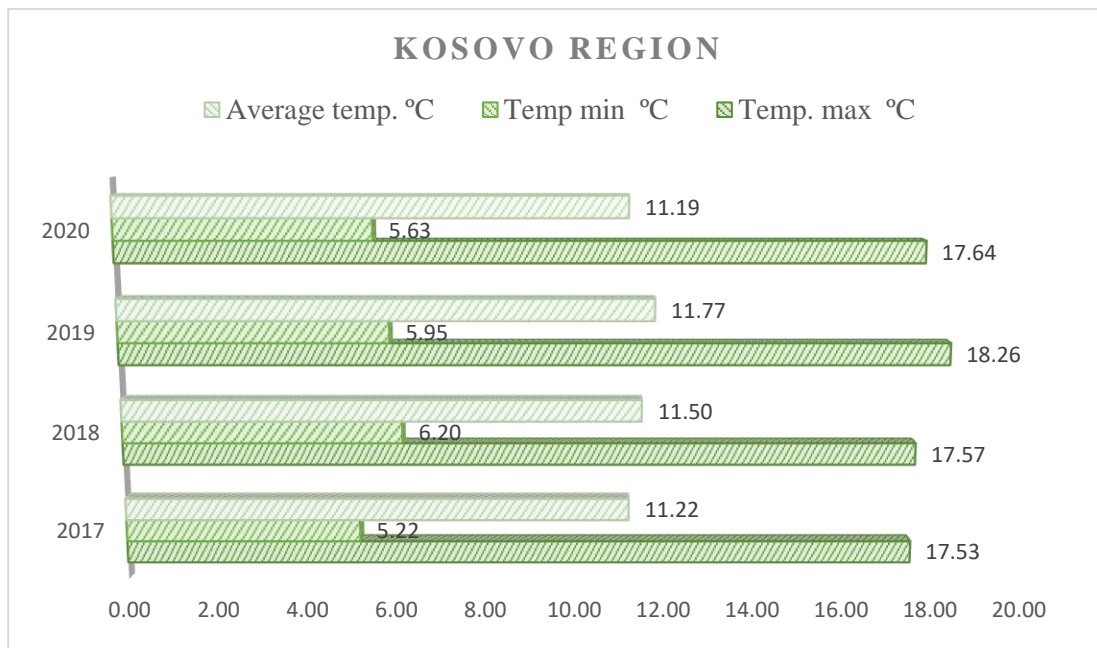
Figure 15. Descriptive statistics for year average temperature from 2017 to 2020 in Kosovo Region (unit: ◦C)
Source: Author`s own construction based on statistic information

As indicated on the figure (16) the precipitation in Kosovo Region and Dukagjini region was minor especially in 2017 in 57.44(mm) and 57.49(mm). While in the next year 2018 it was slightly increasing in both regions (68.66 and 68.09 mm). Taking into consideration that 2019 was characterized with the high level of precipitation in Dukagjini Region 73.09(mm) while in the same year in Kosovo Region it was seen the lowest level of precipitation 49.19(mm). While in 2020 it was seen almost the same average rainfall in both regions (59.27; 60.21mm).
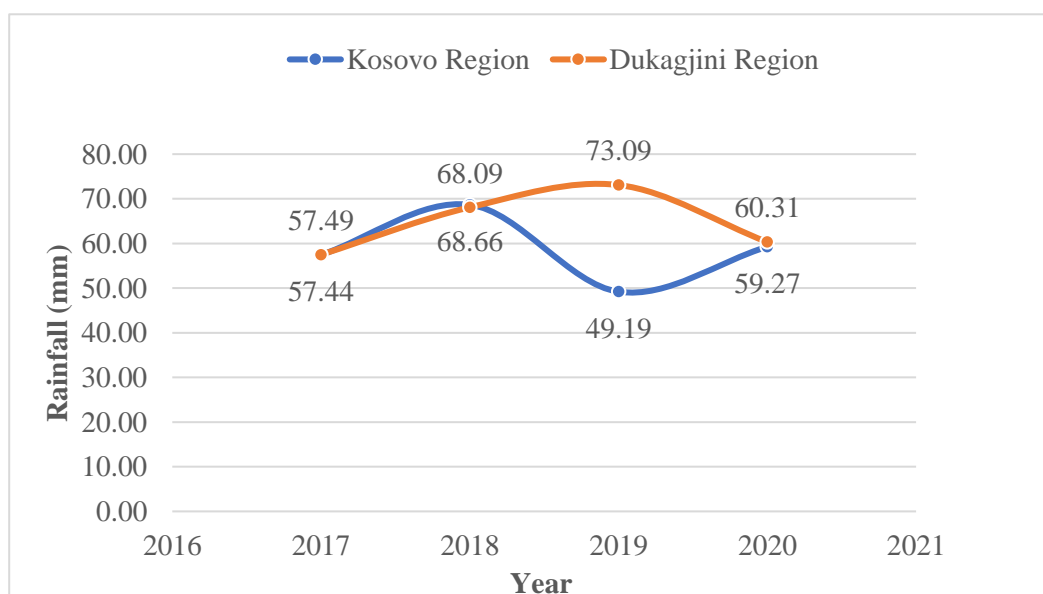
Source: Author's own construction based on statistic information

An independent Sample t Test was used to identify significant difference in maximal, minimal and average temperature and the rainfall between Dukagjini Region and Kosovo Region (Table 14). The results showed that there is not a significant difference in maximal temperature (M *D.R*=18.46, M *K.R*=17.78, t=-0.540, p> 0.590, d=0.10), minimal temperature (M *D.R*=7.54, M *K.R*=5.75, t=-.1.81, p> 0.70, d=0.26), and average temperature (M *D.R*=15.02, M *K.R*=11.41, t=-1.501, p> 0.135, d=0.21) between the Dukagjini Region and Kosovo Region. The results also stress that there is not a significant difference in terms of rainfall (M *D.R*=64.34, M *K.R*=59.44, t=-0.735, p> 0.463, d=0.10) between two regions. The temperature measurements in the two regions can not be compleately independent, since they are located close to each other thus they probably have a similar climate-weather.

Table 14. Comparison of maximal, minimal and average temperature and rainfall between Dukagjini and Kosovo Region (2017-2020)

Temperature ∘C	Dukagjini Region	Kosovo Region				
	Mean	*Mean*	*Mean Difference*	*t-value*	*p-value*	*d-value**
Max. temperature	18.46	17.78	-0.684	-0.540	0.590	0.10
Min. temperature	7.54	5.75	0.984	-1.81	0.70	0.26
Average temperature	15.02	11.41	-3.61	-1.501	0.135	0.21
Rainfall	64.34	59.44	-4.89	-0.735	0.463	0.10

* Cohen's d

Source: Author's own construction based on statistic information

5.2 Farmers' willingness to collaborate in Kosovo agriculture

In the literature, research on agricultural cooperative activities is rather sparse, particularly in Kosovo. As a result, the findings of this study are significant for better understanding the demographic and economic determinants of farmer cooperation.

Concerning the demographic and economic characteristics of cooperative activity, the findings (Table 15) revealed that more than three-quarters (73.3 percent) of the farmers in the sample were from rural and minor regions, whereas (27.7 percent) were from urban areas. The

majority of farms (94.4 percent) were handled by men, while the rest (5.6 percent) were managed by women. The respondents' average age was 46.99. More than half (58.6 percent) are between the ages of 15 and 49, with the rest (41.4 percent) between the ages of 50 and 80. More than three–quarters of farmers (79.5 percent) had completed primary/secondary school, while the rest had completed university (20.5 percent). Moreover, the findings of the sample revealed that the majority of the farms (48.2 percent) were part of mixed farms (which included animal farms and fruits), while others (37.3 percent) were vegetable farms and cereal farms (14.5 percent). While the average farm size was 6.81 ha, the majority of farmers (85.6 percent) belonged to the long scale farms 0.01 to 10.00 ha, while a minority (14 percent) belonged to the size 10.01 to 70.00 ha. Per the degree of trust, the majority of respondents (65.5 percent) believe in farmer cooperation, a minority (19.2 percent) do not, and the remaining (15.3 percent) do not agree or disagree.

Table 15. Farmers' basic characteristics on willingness to cooperate

Factor	Category	Frecuency	Perc. %	Mean & S.D *
I. Location	Urban	69	27.7%	0.09 ± 0.284
	Rural	180	73.3%	0.22 ± 0.413
II. Gender	Male	235	94.4%	0.17 ± 0.337
	Female	14	5.6%	0.36 ± 0.497
III. Age	14–49	146	58.6%	0.27 ± 0.444
	50–80	103	41.4%	0.06 ± 0.235
IV. Education Level	University	51	20.5%	0.31 ± 0.469
	Primary/higher school	198	79.5%	0.15 ± 0.354
V. Type of Farming	Cereals	36	14.5%	0.11 ± 0.319
	Vegetable	93	37.3%	0.19 ± 0.397
	Mix farms	120	48.2%	0.19 ± 0.395
VI. Size Farm	0.01–5	162	65.1%	0.07 ± 0.252
	5.01–10	51	20.5%	0.57 ± 0.500
	10.01–20	24	9.6%	0.17 ± 0.381
	20.01–70	12	4.8%	0.08 ± 0.289
VII. Trust	Likert scale (1–5) 1.I don't agree at all	24	9.6%	0.04 ± 0.204
	2. I don't agree	24	9.6%	0.08 ± 0.282
	3. I don't agree or disagree	38	15.3%	0.08 ± 0.273
	4. I agree	117	47.0%	0.08 ± 0.293
	5. I agree at all	46	18.5%	0.61 ± 0.493

Despite the high degree of trust among farmers, just a slight number of the sample's farmers (18.1 percent) are collaborating farmers, and the vast majority of farmers (81.9 percent) do not collaborate at all (Figure 17). According to our findings, collaboration in Kosovo appears to be low (18.1 percent), which is consistent with the findings of a previous survey done in 2013 (MIFTARI ET AL., 2015), which showed little or no change in the situation over the preceding five years. It was surprising to see nearly identical findings in the case of Hungarian farmers as well (BARANYAI ET AL., 2011).
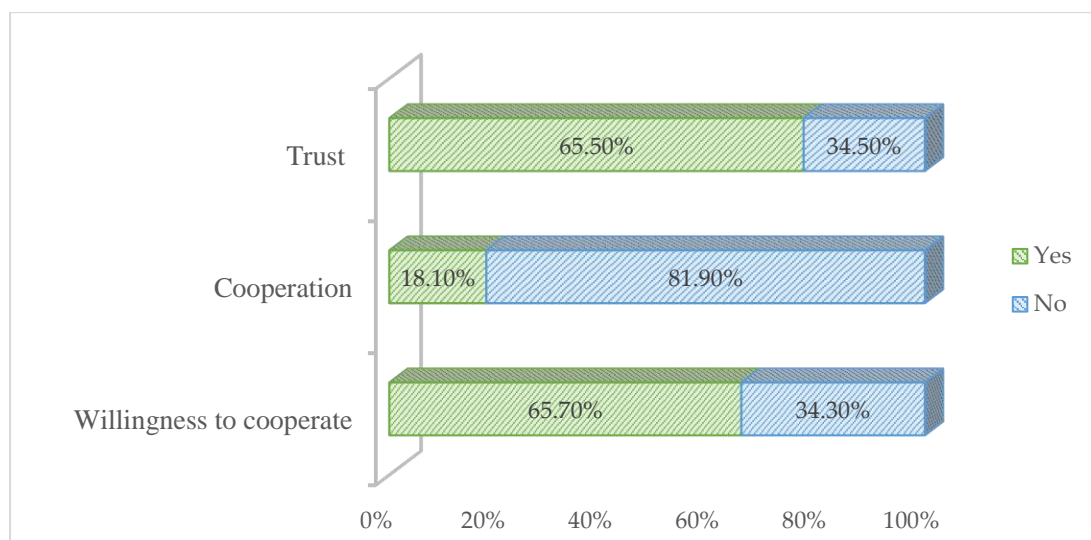
Figure 17. Agriculture cooperation, willingness to cooperate and trust
Source: Author's own work based on SPSS 21 Results

However, according to survey results, more than half of farmers (65.7 percent) are eager to join or engage in any collaboration (particularly buying/sharing agricultural machinery among themselves) (with their relatives, friends, neighbors). It is because farmers have a high level of trust (65.5 percent) (Figure 17). Farmers in Kosovo appear to have a higher degree of trust and readiness to collaborate, yet collaboration is extremely low, given that farmers have not showed willingness to engage at a higher level, such as with the cooperative institution, but only in informal cooperation.

Several of the primary reasons offered to understand why farmers were not a part of any cooperative including: they do not feel that cooperative can benefit them (46.3 percent) ("I do not believe that the cooperative institution can help me"). They disagree with cooperative work (31.1

percent) ("I disagree with how the organizations are organized"), and they want to be autonomous (11.3 percent) ("I want to make my own decisions and not rely on others").Other reasons were that they do not trust other farmers (6.2 percent)(„ I do not trust others to decide for me"), they buy the inputs from the same supplier who suggest them for different issue (5.8 percent) ("I buy my supplies (fertilizers, pesticides) from a particular supplier who also advises me") (Table 16).

Table 16. Reasons for not participating in the agricultural cooperative

Reasons	Percentage
I sell my products to the same trader/company for many years, and I am satisfied.	3.9%
I buy my supplies (fertilizers, pesticides) from a particular supplier who also advises me.	5.8%
I do not believe that a cooperative institution could help me.	46.3%
I do not agree with the way the cooperatives are running.	31.1%
I want to make up my own decisions and not to depend on others.	11.3%
I do not trust others to decide for me.	6.2%
I have personal differences/disagreements with some other members of the cooperative.	0.8%
I have personal differences/conflicts with the administrative board of the cooperative.	–
The cooperative cannot provide useful services to me.	1.6%
The cooperatives cannot solve producers' problems (only the state can).	3.5%
Other reasons	5.1%

Source: Author's own work based on SPSS 21 Results

According to the study's findings (Figure 18), the majority of farmers (76.30 percent) said they coordinate sales with other farmers, and the majority of farmers (78.70 percent) said they organize raw material purchases with other farmers. In terms of cooperative usage of agricultural machinery, more than half of the farmers (58.50 percent) answered that they do not utilize these machines with other farmers.
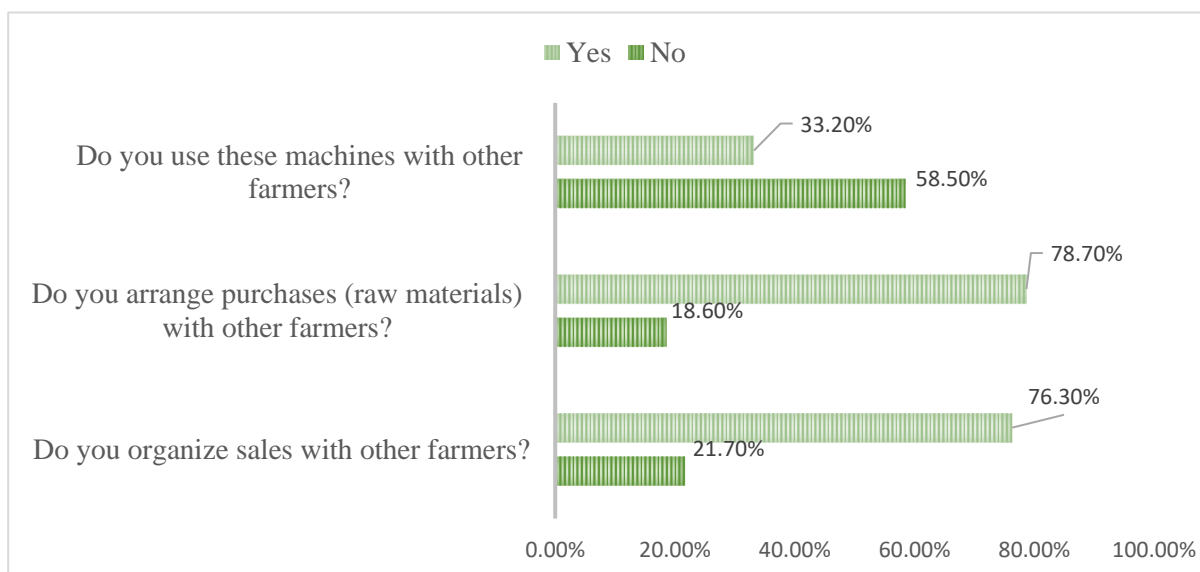
Figure 18. Please let me know if you agree or disagree with the following statements
Source: Author's own work based on SPSS 21 Results

However, the results (Figure 19) appear to be quite hopeful, since more than half of the farmers (66.20 percent) are eager to purchase various agricultural equipment to share with other farmers.

Figure 19. If you have the chance, would you accept to purchase machinery together with other farmers for joint use of machinery?
Source: Author's own work based on SPSS 21 Results

Table 17 depicts the utilization of agricultural machinery by cooperative and non-cooperative farmers. Farmers from both categories report that they own a tractor (Coop 1.27±0.447 ; Non coop 1.21±0.405), plowing machinery (Coop 1.47±0.505 ; Non coop 1.40±0.492), a truck(Coop 1.60±0.495 ; Non coop 1.58±0.495), spraying equipment (Coop 1.27±0.447 ; Non coop

1.47±0.500), and irrigation equipment (Coop 1.27±0.447 ; Non coop 1.50±0.501). While both organizations claim to lack harvesting machinery (Coop 1.80±0.405 ; Non coop 1.85±0.360) and a storage environment (Coop 1.73±0.447 ; Non coop 1.88±0.329).

Table 17. Ownership of agricultural machinery between cooperative and non-cooperative farmers

Sort	Answer	Pulled data N=249 Frequency & Percentage	Coop. farmers N=45	Mean & S.D.*	Non-coop. farmers N=204	Mean & S.D.*
Tractor	Yes	195(78.31%)	33(73.30%)	1.27±0.447	162(79.4%)	1.21±0.405
	No	54(21.69%)	12(26.70%)		42(20.6%)	
Plowing machinery	Yes	146(58.80%)	24(53.30%)	1.47±0.505	122(59.80%)	1.40±0.492
	No	103(41.20%)	21(46.70%)		82(40.20%)	
Planter machine	Yes	134(53.80%)	23(51.00%)	1.49±0.506	111(54.40%)	1.46±0.499
	No	115(46.20%)	22(49.00%)		93(45.60%)	
Harvester machine	Yes	40(16.00%)	09(20.00%)	1.80±0.405	31(15.20%)	1.85±0.360
	No	209(84.00%)	36(80.00%)		173(84.80%)	
Combine	Yes	15(6.00%)	01(2.30%)	1.98±0.149	14(6.90%)	1.93±0.253
	No	234(94.00%)	44(97.70%)		190(93.10%)	
Truck	Yes	104(41.80%)	18(40.00%)	1.60±0.495	86(42.15%)	1.58±0.495
	No	145(58.20%)	27(60.00%)		118(57.85%)	
Goldor	Yes	105(4.40%)	02(4.44%)	1.96±0.208	103(50.50%)	1.96±0.206
	No	144(95.60%)	43(95.56%)		101(49.50%)	
Irrigation equipment	Yes	136(54.60%)	33(73.30%)	1.27±0.447	103(50.50%)	1.50±0.501
	No	113(45.40%)	12(26.70%)		101(49.50%)	
Spraying equipment	Yes	142(57.00%)	33(73.30%)	1.27±0.447	109(53.43%)	1.47±0.500
	No	107(43.00%)	12(26.70%)		95(46.56%)	
Storage environment	Yes	37(14.90%)	12(26.70%)	1.73±0.447	25(12.30%)	1.88±0.329
	No	212(85.10%)	33(73.30%)		179(87.70%)	

*Mean & Standard Deviation: 1 for those who own agriculture machinery and 2 for those who do not own the agriculture machinery

Source: Author's own work based on SPSS 21 Results

The sole difference is that cooperative farmers report that they do not possess goldor (Coop 1.96±0.208) and planter machines (Coop 1.49±0.506), but non cooperative farmers do (Non coop 1.46±0.499; Non coop 1.96±0.206). According to the farm's manager, "nearly all of the argiculture machinery is quite outdated, which results in high maintenance costs and negative environmental implications."

According to the study's findings (Figure 20), farmers who are not members of agricultural cooperatives agree with the statement that sharing agricultural machinery with other farmers is financially viable (14.70 percent), and the same group of farmers agree that sales with other output farmers are inexpensive (13.70 percent). While cooperative farmers (95.60 percent) agreed that purchases of other inputs are affordable, non-cooperative farmers did not (71.60 percent).
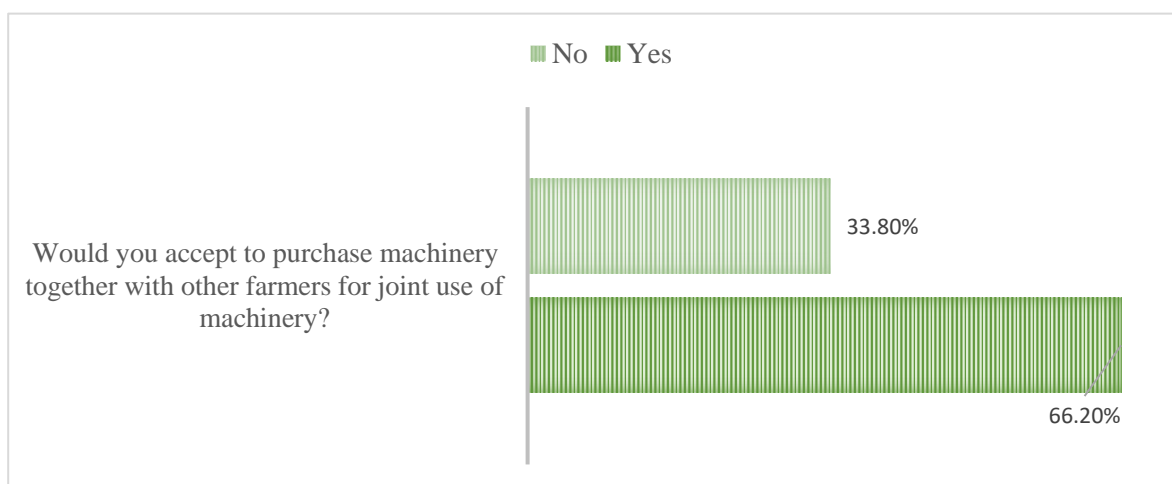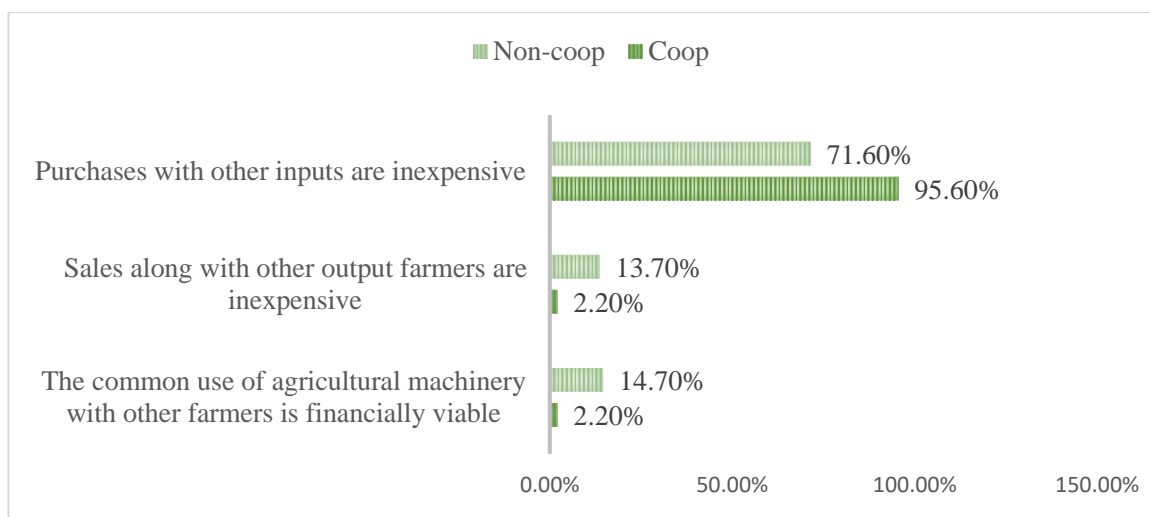

Figure 20. Would you accept to purchase machinery together with other farmers for joint use of machinery?
Source: Author's own work based on SPSS 21 Results

The logistic regression model produced a statistically significant result of $\chi^2(9) = 104.60$, $p < 0.001$ for the logistic regression model. This model successfully identified 91.2 percent of the cases and explained between (Cox & Snell R Square) 34 percent and (Nagelkerke R2) 56 percent of the variation in collaboration activity. Furthermore, the Goodness–of–fit test (Hosmer and Lemeshow) yielded negligible results: $\chi^2 (8) = 8.487$, $p > 0.387$. The logistic regression result of the parameters affecting farmer cooperation activities in Kosovo is shown in table (18) below.

The outcome revealed that the Predicted logit of (COOPERATION) = −7.570+ (1.333) *LOCATION + (−1.504) *GENDER + (1.400) *AGE + (−1.307) *EDUCATION LEVEL +

(1.210) *TRUST + (0.185) *TYPE OF FARMING + (0.036) *SIZE OF FARM(1) + (2.805) *SIZE OF FARM(2) + (0.484) *SIZE OF FARM(3).

Location, gender, age, education level, trust, and farm size were all significant predictors of collaboration activity in binary logistic regression (Table 18). The type of farming was not statistically significant ($p > 0.580$).

(I) Furthermore, there is a positive significant ($p < 0.05$) association between location and collaboration activity. Furthermore, collaboration was less widespread on farms in urban regions than on farms in rural areas, and rural farmers had a stronger desire to collaborate than urban farmers. As a result, the number of farms in rural regions grows; the odds ratio of cooperation activity increases 3.793 times more than in urban areas; the explanation for this might be because farmers in rural areas are actively involved in agricultural activities and have limited options other than farming. The differences between urban and rural regions are reflected in the average number of farmers collaborating in rural areas (Table 18), which is larger (0.22 ± 0.413) than in urban areas (0.09 ± 0.284).

(II) The second demographic element evaluated in the study is gender, which plays a significant but negative influence in collaboration activity ($p < 0.05$) Farms managed by males have a reduced likelihood of cooperating, but farms managed by females are 4.504 (1/0.222) times more likely to collaborate. Different results can be found in the study of (BARANYAI ET AL., 2018). The causes for this might be linked to the fact that women are underrepresented in political and economic decision–making processes; they also do not have access to quality, fair–wage, and safe job opportunities, and are more likely to work as unpaid laborers (COPAC COOP, 2015). Over the last two decades, women have been more involved in cooperatives. SUZUKI (2010) found that the majority of members in consumer cooperatives are women, indicating a substantial female presence in worker cooperatives. Female-led farms are more likely to collaborate (0.36 ± 0.497), compared to males (0.17 ± 0.337).

(III) The age of farmers is another predictor that has a favorable effect on cooperative activities ($p < 0.05$). Farmers who are younger (group 1), 15–49 years old, are 4.054 times more likely to collaborate than farmers who are older (group 2), 50–80 years old. A rise in the number of young farmers is linked to improved collaboration among them. The same findings were obtained in a study of BARANYAI ET AL., (2018). This might be due to the fact that elderly farmers prefer to work with their own family members rather than with strangers, and they have extensive knowledge of numerous farming techniques. The younger generation (group 1) has a greater average of cooperating farmers (0.27 ± 0.444), whereas the elder generation (group 2) has a lower average (0.06 ± 0.235).

(IV) Cooperation activity shows a substantial negative connection ($p < 0.05$) with education level. Higher number of farmers with a low level of education would correspond with lower odds of cooperation, whereas farmers who have a high level of education are 3.690 (1/0.271) times more likely to cooperate. The same findings were obtained in a study of BARANYAI ET AL. (2018); KARLI ET AL., (2006); KŐSZEGI (2016). It may also be noticed in the variation in mean across groups; 1 (university) which cooperate is greater (0.31 ± 0.469), compared group 2 (primary/higher school) (0.15 ± 0.354).

(V) It was also shown that the degree of trust and collaboration activity had a positive correlation ($p < 0.01$). A higher level of trust is associated with a higher chance of collaboration.

(VI) And according to findings of economic considerations, the type of farming has no impact on cooperation activity ($p > 0.05$).

(VII) The size of farms was the final factor to consider, and it had a favorable impact ($p < 0.01$) in cooperation activity, medium–sized farms 5.01–10.00 ha are more likely to cooperate 16.522 times greater, compared to small–sized farms; 0.01–5.00 ha. The same results can be found in the study of KARLI ET AL., (2006). This difference is also stressed by means of size farm group (1) (0.07 ± 0.252), group (2) (0.57 ± 0.500), group (3) (0.17 ± 0.381), and group (4)(0.08 ± 0.289).

Except for the type of farming ($p > 0.05$) , all other variables had an influence on cooperative activity, as shown in Table 18. All six factors in the model have an influence on collaboration activity, which can be statistically supported ($p < 0.05$).

According to the value of R^2, the size of farm (SIZE) has the greatest influence (0.316), followed by the degree of trust (TR; 0.250) and the partial impact (0.125) of education level (EDU) and of age (0.124)(AGE).

Table 18. Factors affecting cooperation activity

FACTORS	B	S.E	Wald	Df	p-value	Exp(B)	R
I. LOC (Urban) Rural	1.333	0.589	5.118	1	0.024	3.793	0.113
II. GEN(Female) Male	−1.504	0.744	4.091	1	0.043	0.222	0.093

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[2] Papers on methodology recommend the use of the so-called R value to express the role and power of specific independent variables in a model. The size of the value denotes the order of „importance" of independent variables. This index is not a part of the output of the model, it needs to be calculated using the following equation: $R = \sqrt{\dfrac{Wald - 2df}{D_0}}$.

III. AGE (50-80) 14-49	1.400	0.584	5.741	1	0.017	4.054	0.124
IV.EDU(University) Primary/higher school	–1.307	0.545	5.754	1	0.016	0.271	0.125
V. TR	1.210	0.293	17.045	1	0.000	3.353	0.250
VI. TYPE	-	-	-	-	0.580	-	–
VII.SIZE(0.01-5.00)			30.103	3	0.000	0	0.316
5.01-10	0.036	1.230	0.001	1	0.977	1.036	0.116
10.01-20	2.805	1.226	5.232	1	0.022	16.522	-
20.01-70	0.484	1.306	0.138	1	0.711	1.623	-
Constant	–7.570	2.379	10.127	1	0.001	0.001	

–2 Log likelihood = 130.70; Hosmer and Lemeshov test (X2 = 8.48, df = 8, p = 0.387); Pseudo R–squares (Cox and Snell R2 = 34 %; Nagelkerke R2 = 56%); Overall percentage of correctly predicted = 91.2%; B: unstandardized regression weight; S.E.: standard error; Sig.: significance; Exp(B): exponentiation of the B coefficient; Wald.: Wald chi-square value; Df.: the degrees of freedom. ("-" Factors that were not shaped in cooperation activity)

Source: Author's own work based on SPSS 21 Results

5.3 Factors Influencing the Willingness to Participate in Contract Farming in Kosovo

In terms of socioeconomic characteristics influencing the desire to join contract farming, the results (Table 19) revealed that more than three-quarters of the farmers in the sample (73.3 percent) were from rural and minor regions, while 27.7 percent came from urban areas. Males manage the majority of the farms (94.4 percent), while females manage a minority of the farms (5.6 percent). In terms of age, 58. percent of the farmers were between the ages of 14 and 49, while the rest were over 50. Over three-quarters of farmers had completed secondary education, with the remainder having completed university. When questioned about their faith in farmer cooperation, the majority of respondents (65.5 percent) do, a small percentage (19.2 percent) do not, and the rest (15.3 percent) do not agree or disagree.

Table 19. Farmers' basic characteristics on participation in Contract Farming

Factor	Category	Frecuency	Perc. %

I. Location	Urban	69	27.7%
	Rural	180	73.3%
II. Gender	Male	235	94.4%
	Female	14	5.6%
III. Age	14–49	146	58.6%
	50–80	103	41.4%
IV. Education Level	University	51	20.5%
	Primary/higher school	198	79.5%
V. Trust	Likert scale (1–5)		
	1.I don't agree at all	24	9.6%
	2 I don't agree	24	9.6%
	3I don't agree or disagree	38	15.3%
	4 I agree	117	47.0%
	5 I agree at all	46	18.5%
VI. Cooperation activity	Yes	45	18.1%
	No	204	81.9%
VII. Type of Farming	Cereals	36	14.5%
	Vegetable	93	37.3%
	Mix farms	120	48.2%
VIII. Size Farm	0.01–5	162	65.1%
	5.01–10	51	20.5%
	10.01–20	24	9.6%
	20.01–70	12	4.8%

Source: Author's own work based on SPSS 21 Results

When farmers were asked if they cooperate (in a formal or informal form) among themselves, the majority (81.9 percent) indicated they do not cooperate in any way, while the rest said the contrary. Nearly half of the farmers in the survey (48.2 percent) have mixed farms, while the rest have vegetable (37.3 percent) and cereal (37.3 percent) farms (14.5 percent). In terms of land area, the majority of wheat farmers (85.6 percent) had small farms of 0.01–10 ha, whereas a minority (14.4 percent) had farms of 10-70 ha.

In Kosovo, the overall level of contract farming appears to be low. Contract farming was divided into two categories based on farmer responses: non-contract farming and contract farming. The majority of the farmers in the survey (56.2 percent) said they practice contract farming, while the rest (43.80 percent) said they do not (Figure 21). According to the farm leader, they wish to perform contract farming for those items that are shipped outside of Kosovo because the contract is fully completed in these circumstances.
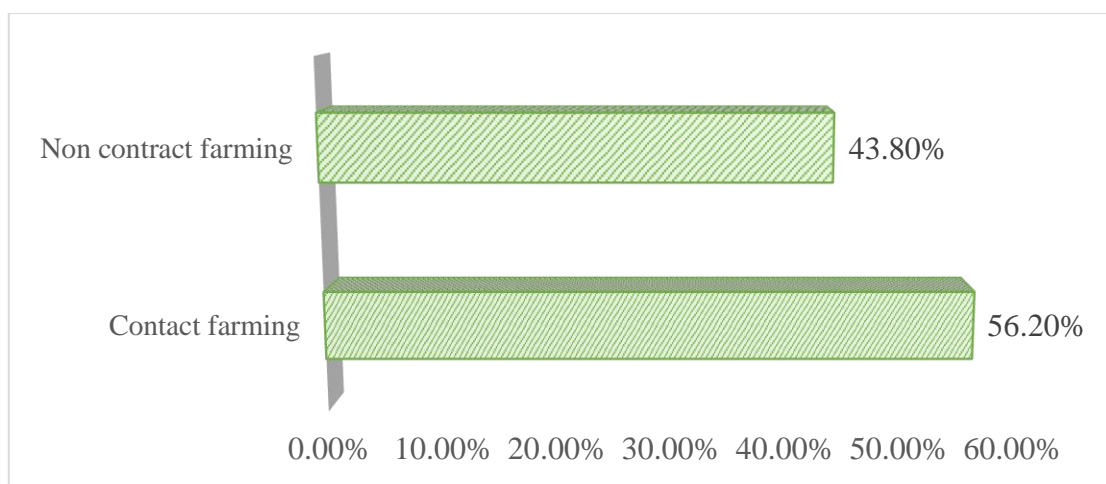
Figure 21. General level of contract farming in Kosovo Agriculture
Source: Author's own work based on SPSS 21 Results

Figure 22 illustrates details for contract type, farmers which declared that they have agricultural contract farming nearly half of them (47,37 percent) they have verbal contract (informal contract or oral agreement) and only a small number of farmers (8.83 percent) declared that they have written contract (formal contract).
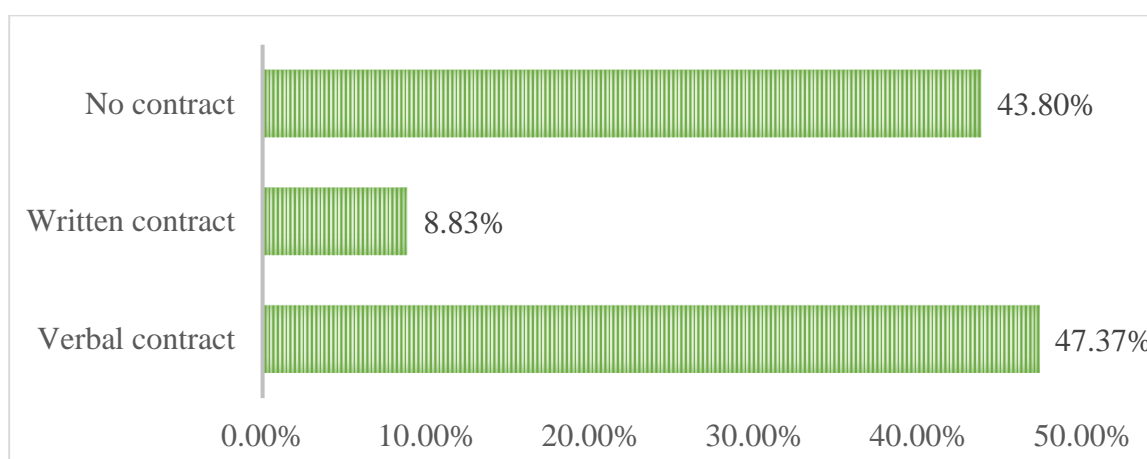
Figure 22. Type of contracts
Source: Author's own work based on SPSS 21 Results

The logistic regression model produced a statistically significant result of $\chi^2(12) = 59.282$, $p < 0.001$ for the logistic regression model. This model explained between (Cox & Snell R Square) 21.0 % and (Nagelkerke R^2) 28 % of the variance in contract farming and correctly classified 70.7 % of the cases. Additionally, we received an insignificant values for Goodness–of–fit test (Hosmer and Lemeshow) $\chi^2(8) = 4.864$, $p > 0.772$.

The logistic regression result of the parameters determining contract farming of farmers in Kosovo is shown in table (19) below.

The result showed that Predicted logit of (CONTRACT FARMING) = –4.330+ (1.298) *LOCATION + (.453) *GENDER + (0.172) *AGE + (0.096) *EDUCATION LEVEL + (.007) *TRUST(1) + (0.364) *TRUST(2) + (0.090) *TRUST(3) + (0.045) *TRUST(4) + (1.333) *COOP+ (1.299) *TYPE OF FARMING(1) + (-0.695) *TYPE OF FARMING(2)+ (0.020) *SIZE OF FARM.

Based on Binary logistic regression (Table 20) showed that location, cooperation, and type of farming were significant predictors in contract farming ($p < 0.05$). While gender, age, education level, trust and size was marginally non-significant ($p > 0.05$).

(I) In contract farming, the location of farmers shows a substantial positive ($p < 0.05$) association. Furthermore, contract farming was less widespread in urban farms than in rural farms, and urban farmers had a higher proclivity to engage in contract farming than rural farmers. As a result, the number of farms in rural regions is increasing; the odds ratio of contract farming is 3.661times higher than in urban areas.

(II) A gender has no significance ($p>0.05$) when it comes to contract farming, according to the next preditors variables. This is in direct opposition to the conclusions of BELLEMARE (2012); UGUSSIE (2009) which showed that male are more likely to joing CF in agriculture compare to female.

(III) Age of farmers does not have a significance ($p>0.05$) entering into contract farming. This is contrary to the findings of MUROIWA (2019); SIMMONS ET AL., (2005) which showed that yonger farmers are more likely to joing CF in agriculture compare to older farmer.

(IV) Education of does not have a significance ($p>0.05$) entering into contract farming. This is contrary to the findings of KANANA (2019); LOQUIAS ET AL., (2021); MUROIWA (2019); RONDHI ET AL., (2020); SIMMONS ET AL., (2005); SWAIN (2012).

(V) Trust of farmers does not have a significance ($p>0.05$) entering into contract farming. Different results were found in the study of AAZAMI ET AL., (2011).

(VI) It was also noticed that there was a positive significance ($p<0.01$) between the cooperation activity and contract farming. As a result, it increases the number of farmers which cooperate with each other the odds ratio of CF increases 3755 times grater compared to non cooperation farmers. Similar results were found in the study of SIMMONS ET AL., (2005).

(VII) The next variable was the type of farming which has positive significance ($p< 0.01$) in contract farming, vegetable producers are more likely to cooperate 3.664 times greater compared to cereal producers. Result showed that also mixed farms have a significant negative relationship ($p < 0.05$) in contract farming. Higher number of farmers engaged with mixed farms would correspond with lower odds of contract farming, whereas farmers who are engaged with cereals are 2.00 (1/0.499) times more likely to enter into contrat farming. Moreover, it can be seen in the

difference in mean among groups; 2 (vegetable) which have contract farming is greater (0.19 ± 0.397), compared to group 1 (cereals) (0.11 ± 0.319) and group 3 (mix farms) (0.19 ± 0.395) .

(VIII) The last element was the size of farms which does not have a significance (p>0.05) entering into contract farming. These results are confirmed by KANANA (2019). Some of the authors such as MENSAH (2012); RONDHI ET AL., (2020); SIMMONS ET AL., (2005) stated a negative influence in participation on contract farming by farm size.

Contract farming is largely formed by the farm`s location (LOC;0.17), followed the type of farming (TYPE; 0.15) and cooperation activity (COOP; 0.13), according to the value of R[3].

Table 20. Factors affecting contract farming

FACTORS	B	S.E	Wald	Df	p-value	Exp(B)	R
I. LOC (Urban) Rural	1.298	0.363	12.810	1	0.000	3.661	0.17
II. GEN (Urban) Male	-	-	-	-	0.485	-	-
III. AGE (50-80) 14-49	-	-	-	-	0.596	-	-
IV.EDU(University) Primary/higher school	-	-	-	-	0.794	-	-
V. TR	-	-	-	-	0.978	-	-
VI. COOP (No) Yes	1.323	0.465	8.099	1	0.004	3.755	0.13
VII. TYPE(Cereals)			13.220	2	0.001	-	0.15
Vegetable	1.299	0.517	6.312	1	0.012	3.664	0.10
Mix farms	-0.695	0.335	4.303	1	0.038	0.499	0.07
VIII. SIZE	-	-	-	-	0.912	-	-
Constant	–4.330	1.422	9.270	1	0.002	0.013	0.08

–2 Log likelihood = 285.580; Hosmer and Lemeshov test (X2 = 4.864, df = 8, p = 0.772); Pseudo R–squares (Cox and Snell R2 = 21%; Nagelkerke R2 = 28%); Overall percentage of correctly

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[3] Papers on methodology recommend the use of the so-called R value to express the role and power of specific independent variables in a model. The size of the value denotes the order of „importance" of independent variables. This index is not a part of the output of the model, it needs to be calculated using the following equation: $R = \sqrt{\dfrac{Wald - 2df}{D_0}}$.

predicted = 70.7%; B: unstandardized regression weight; S.E.: standard error; Sig.: significance; Exp(B): exponentiation of the B coefficient; Wald.: Wald chi-square value; Df.: the degrees of freedom. ("-" Factors that were not shaped in contract farming)

Source: Author's own work based on SPSS 21 Results

The difference in income between contract and non-contract farmers in Kosovo was determined using an independent Sample t Test (Table 21). The results showed that there is a significant difference in income by contract farmers (M $_{cont}$=15418.39, M $_{non-cont}$=10607.02, t=2.135, $p<0.035$, d=0.352), between the contract and non-contract farmers. These results are proved by LITTLE & WATTS (1994); LOQUIAS ET AL., (2021); WANG ET AL., (2014).

Table 21. Comparison of income between contract farmers and non-contract farmers

Variables	**Contract farmers**	**Non-contract farmers**				
	Mean	*Mean*	*Mean Difference*	*t-value*	*p-value*	*d-value*
Income	15418.39	10607.02	2670.135	2.135	0.035	0.352

Source: Author's own work based on SPSS 21 Results

5.4 Comparable research of cooperative & non-cooperative farmers in Kosovo

The results (Table 22) revealed that the majority of farms (92.7 percent) were managed by males and the remaining (7.3 percent) by females, based on socio-demographic, agricultural, and economic aspects of cooperative and non-cooperative farmers. The male farmers made up the majority of the cooperative farms (88.9 percent), with female farmers accounting for about 11.1 percent of the entire sample. In the non-cooperative sector, 94.2 percent of farms were led by men, while 5.8% were led by women, similar to the proportions reported in cooperative farms. The cooperative farmers' average age was 44.53 years, whereas non-cooperative farmers' ages ranged from 24 to 73 years, with a mean of 48.52 years. The average age of the cooperative and non-cooperative farmers revealed that both were middle-aged farmers in their generative years, making them more inclined to approve innovation sooner (ONYENWEAKU, 1991).

From the total sample, it could be seen that a low percentage of the cooperative farmers and non-cooperative farmers (9.1 percent) had finished agriculture education. Most of the respondents (90.9 percent) had completed other type educations (High school or University). Farmers, both cooperative and non-cooperative, have low literacy levels, which may make it difficult to obtain and use modern agriculture inputs. Education improves farmers' ability to make precise and meaningful management choices (IMONIKHE, 2010).

When farmers were asked if they rent land, nearly half of the cooperative farmers (44.4 percent) declared that they take land for rent, whilst non cooperative farmers (29.2 percent) rent extra land too. The distribution of the family member engaged in agriculture shows that non cooperative farmers had on average 3 persons which were engaged directly in agriculture and most (85.5 percent) revealed they do not hire seasonal employees, while cooperative farmers had on average 4 persons engaged in agriculture, also more than half (53.3 percent) of this group of farmers hire seasonal employees.

Table 22. Characteristics of cooperative and non-cooperative farmers

Variables	Subcategory	Coop farmers	Non coop farmers	Pooled data
		Frequency & Perc.%	Frequency & Perc.%	Frequency & Perc.%
Gender	Male	40(88.9%)	113(94.2%)	153(92.7%)
	Female	5(11.1%)	7(5.8%)	12(7.3%)
Age	17-30	5(11.1%)	11(9.2%)	16(9.7%)
	31-40	12(26.7%)	23(19.2%)	35(21.2%)
	41-50	14(37.8)	35(29.2%)	52(31.5%)
	51-75	11(24.4%)	51(42.5%)	62(37.6%)
Education level	Agriculture education	9(20.0%)	6(5.0%)	15(9.1%)
	Other education	36(80.0%)	114(95.0%)	150(90.9%)
Rent land	Yes	20(44.4%)	35(29.2%)	55(33.3%)
	No	25(59.6%)	85(70.8%)	110(66.7%)
Family involved in agriculture	1-5	31(68.9%)	102(85.5%)	133(80.6%)
	6-10	14(31.1%)	18(15.0%)	32(19.4%)
Seasonal employee	Yes	24(53.3%)	41(34.2%)	86(57.3%)
	No	21(14.3%)	79(65.8%)	64(42.7%)
Sharing machinery	Yes	36(85.7%)	50(46.3%)	86(57.3%)
	No	6(14.3%)	58(50.8%)	64(42.7%)
Willingness to buy agriculture machinery	Yes	39(86.7%)	59(49.2%)	98(59%)
	No	6(13.3%)	61(50.8%)	67(40.6%)
Trust	Likert scale (1-5)			
	1.I do not agree at all	1(2.2%)	14(11.7%)	15(9.1%)
	2 I do not agree	2(4.4%)	17(14.2%)	19(11.5%)
	3I do not agree or disagree	3(6.7%)	28(23.3%)	31(18.8%)
	disagree	11(24.4%)	54(45.0%)	65(39.4%)
	4 I agree	28(62.2%)	7(5.8%)	35(21.2%)

	5 I agree at all			154(93.3%)
	0.01-20	43(95.6%)	111(92.5%)	7(4.2%)
	21-40	1(2.2%)	6(5.0%)	3(1.8%)
Size farm	41-60	1(2.2%)	2(1.7%)	1(0.6%)
	<61	0(0%)	1(0.8%)	
				18(33.3%)
	5000-7000	2(10.5%)	16(45.7%)	8(14.8%)
	7001-9000	2(10.5%)	6(17.1%)	18(33.3%)
	9001-11000	11(57.9%)	7(20.0%)	10(18.5%)
	<11001	4(21.1%)	6(17.1%)	
Income				
	Yes	27(16.4%)	95(57.6%)	122(73.9%)
	No	18(10.9%)	25(15.2%)	43(26.1%)
Production type *Cereals*	Yes	35(21.2%)	41(24.8%)	76(46.1%)
	No	10(6.1%)	79(47.9%)	89(53.9%)
Vegetables	Yes	18(10.9%)	21(12.7%)	39(23.6%)
	No	27(16.4%)	99(60.0%)	126(76.4%)
Fruits	Yes	12(7.3%)	53(32.1%)	65(39.4%)
	No	33(20.0%)	67(40.6%)	100(60.6%)
Animal farms				

Source: Author's own work based on SPSS 21 Results

Results stress that most (85.7 percent) of the cooperative farmers share the agriculture machinery with other farmers and many among them (86.7 percent) are ready to invest (buy) in agriculture machinery with other farmers. The level of trust among cooperative farmers is higher (62.2 percent) as compared to the other group. In the case of non-cooperative farmers, the results emphasize that sharing agricultural machinery with other farmers is relatively lower (46.3 percent) and also their readiness to invest (buy) in agriculture machinery is low because of the very low level of trust (5.8 percent).

Coming to the economic factors, cooperative farmers have small farm size on the average 7.8 ha, unlike non-cooperative farmers who have a slightly larger size on the average 9.0 ha. The income distribution shows that majority of the cooperative farmers earn an average income of 11.215 € per year, while the non-cooperative farmers earn an average of 7.616 € yearly. Finally, the type of production presents that cooperative farmers were engaged with vegetables production, while non cooperative farmers in cereals, fruits and animal farms.

5.4.1 Relationship among farmers in their socio-demographic, agricultural and economic factors

There is a wide gap in the information on cooperatives in developing countries, especially for Republic of Kosovo as a part of Balkan countries, frequently it is not just a missing information but also the information which might be provided is not in English. As a result, there is a dearth of study on the contrast between cooperative and non-cooperative farmers in the literature, particularly when it comes to agricultural difficulties. Few similar studies in the area that look at the prospects of cooperative and non cooperative farmers do not go far enough into the challenges that they confront (AJAH, 2015; NEUPANE ET AL., 2015; PETCHO ET AL., 2019; VERHOFSTADT & MAERTENS, 2015).

As a result, the findings of this study are critical for better understanding the disparities between cooperative and non-cooperative farmers in Kosovo in terms of socio-demographic, agricultural, and economic characteristics.

The Chi-Square Test has been applied to see if there was a link between the socio-demographic, agricultural, and economic aspects of both groups of farmers (Table 23).

For socio-demographic parameters, the results suggest that education level ($X2$ (1)=8.910, p< 0.003, V =.232) has a significant relationship with cooperative or non cooperative farmers, however the relationship is weak. Moreover, unlike non-cooperative farmers, cooperative farmers have completed agriculture education. In Kosovo, agricultural education is expected to raise knowledge of the advantages of joining cooperatives. Farmers who have completed agriculture education are more likely to join a cooperative than those who have completed other forms of education.

Several differences between cooperative and non-cooperative farmers, such as gender ($X2$ (1)=1.352, p>0.245, V=0.091), and age ($X2$ (3)=4.605, p>0.203, V =0.203), proved to be insignificant. AJAH (2015); VERHOFSTADT & MAERTENS (2015) reported similar results whereas NEUPANE ET AL., (2015) obtained different results. Similarly, the age result agrees with the findings of AJAH (2015); PETCHO ET AL., (2019), but varies with the findings of NEUPANE ET AL., (2015).

"Almost all members of the cooperative are females, since they are more eager to collaborate with each other, attend different trainings, are more committed to work, and more mindful of agricultural crops than men," says KB Krusha, the cooperative's head.

The agricultural factors such as family involved in agriculture ($X2$ (1)=5.434, p<0.020, V=.181), seasonal employee ($X2$ (1)=5.036, p<0.025, V =0.175), machine sharing ($X2$ (1)=19.208, p<0.000, V =0.358), willigness to buy agricultural equipment with other farmers ($X2$ (1)=19.083, p<0.000, V =0.340), and trust ($X2$ (4)=63.305, p<0.000, V =0.619), are very distinct.

In comparison to non cooperative farmers, the majority of cooperative farmers included their families in agriculture and had a weak link, according to the findings. The findings revealed

that cooperative farmers involve more family members in agricultural activity, hire more seasonal workers, utilize somewhat more agricultural equipment than Hungarian cooperative farmers (PAPP-VARY ET AL., 2019), and are willing to invest in agriculture machinery with other farmers. Trust was recognized as a key component in the case of cooperative farmers, which is somewhat greater than in the case of non cooperative farmers. The research of produced a variety of outcomes SOLEK & BEMBENEK (2004).

Table 23. Comparison of demographic, social and economic characteristics of cooperative and non-cooperative farmers

Variables				
Socio-demographic	*X²*	*D*	*p-value*	*V**
I. Gender	1.352	1	0.245	0.091
II. Age	4.605	3	0.203	0.167
III. Edu. Level	8.910	1	0.003	0.232
Agriculture				
IV. Experience on farming	9.402	2	0.009	0.239
V. Rent land	3.438	1	0.064	0.144
VI. Family involved in agriculture	5.434	1	0.020	0.181
VII. Seasonal employee	5.036	1	0.025	0.175
VIII. Sharing machineries	19.208	1	0.000	0.358
IX. Willingness to buy machinery with others	19.083	1	0.000	0.340
X. Trust	63.305	4	0.000	0.619
Economic XI. Size of farms	1.059	3	0.787	0.080
XII. Income	10.345	3	0.016	0.438
XIII. Production type Cereals	6.239	1	0.012	0.194
Vegetables	25.054	1	0.000	0.390
Fruits	9.179	1	0.002	0.236
Animal farms	4.198	1	0.040	0.160

* Cramer's V

Source: Author's own work based on SPSS 21 Results

In contrast to non-cooperative farmers, more than half of cooperative farmers utilize seasonal workers, according to the data. Unlike non-cooperative farmers, cooperative farmers utilize agricultural equipment with other farmers and are willing to acquire or invest in agriculture machinery with other farmers. Cooperative farmers have a greater level of trust than non cooperative farmers, according to the findings. The fact that farm managers are solely involved in agriculture activities might be one of the causes behind this. In this instance, they enlist the help

of their family members, especially during the planting, tilling, and harvesting seasons, when a large number of workers is required.

This might be attributed to outdated agricultural equipment: "every second farmer owns a tractor that is more than 80 years old in the same time farmers are interested to invest on a newer technology with other farmers in order to reduce the cost of the labour force and prevent production loss. The results show that for agricultural factors like land rent ($X2$ (1)=3.438, p>0.064, V=0.144), a significant difference could not be seen between cooperative farmers and non-cooperative farmers.

As reported by the economic factors such as the size of farms ($X2$ (3)=1.059, p> 0.787, V =0.080), the difference was not significant between the two groups. These findings are in line with the results of AJAH (2015), but differ from the results of JULIUS (2013); PETCHO ET AL., (2019); VERHOFSTADT & MAERTENS (2015). Based on the personal interview "I found out that on small farms (subsistence) the decisions are most of the times made only by the oldest members of the family, who usually have not heard about cooperation in agriculture before and their main source of information was other neighbor farmers".

In terms of income, a significant link was discovered ($X2$ (3)=10.345, p< 0.016, V =0.438), showing that cooperative farmers earn more than non-cooperative farmers, characterized by a moderate correlation. This finding is confirmed by the findings of CHEN ET AL., (2018), IBEZIM ET AL., (2010), VERHOFSTADT & MAERTENS (2015) and WANG ET AL., (2019), but not by the findings of PETCHO ET AL., (2019) and SHUMETA & D'HAESE (2018).

A significant relationship was found between production type and cooperative farmers' involvement in vegetable production ($X2$ (1)=25.054, p<0.000, V =0.390) while non cooperative farmers' involvement in cereals ($X2$ (1)=6.239, p<0.012, V =0.194), fruits ($X2$ (1)=9.179, p< 0.002, V=0.236) and animal farms ($X2$ (1)=4.198, p<0.040, V=0.160) was found to be. This group of farmers mostly uses their agricultural goods for personal use. The market is not their objective.

5.4.2 Motivation for formers to join a cooperative

The results in Table (24) show some plausible motivations for the farmers to join a cooperative.

Table 24. Motivations to join a cooperative

Sort	Agree Disagree	Frequency & Percentage	Mean & S.D.*
No need to find buyers	*Agree* *Disagree*	41(91.1%) 4(8.9%)	1.09±0.288
Better Prices (Fixed)	*Agree*	30(66.7%)	1.33±0.477

	Disagree	15(33.3%)	
Social Reasons	*Agree*	15(33.3%)	1.67±0.477
	Disagree	30(66.7%)	
Better Services	*Agree*	22(48.9%)	1.51±0.506
	Disagree	23(51.1%)	
Family Reason (Family Members)	*Agree*	6(13.3%)	1.87±0.344
	Disagree	39(86.7%)	
Credit (for agricultural supplies)	*Agree*	10(22.7%)	1.78±0.420
	Disagree	35(86.7%)	
Information Source	*Agree*	31(68.9%)	1.31±0.468
	Disagree	14(31.1%)	
Agriculture machinery	*Agree*	6(13.3%)	1.87±0.344
	Disagree	39(86.7%)	
Other reason (various answers)	*Agree*	5(11.1%)	1.89±0.318
	Disagree	40(88.9%)	

* Standard deviation

Source: Author's own work based on SPSS 21 Results

Based on the results, the reasons that farmers consider as motivational to join a cooperative are as follows; no need to find buyers, information sources, better prices, and better services. However, other motives such as social reasons, credits, family reasons, agriculture machinery are factors that do not necessarily persuade farmers to join a cooperative.

5.4.3 Selling channels for cooperative and non-cooperative farmers in Kosovo

The impact of disparities in selling channels was investigated in light of the major variances in economic considerations.
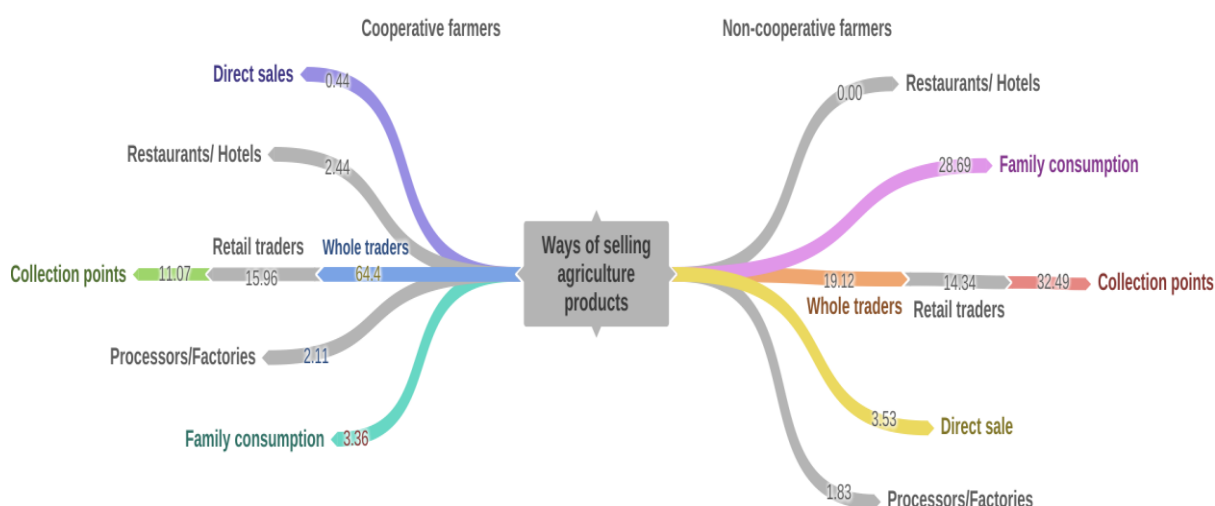
Figure 23. Selling channels for cooperative and non-cooperative farmers
Source: Author's own work based on SPSS 21 Results

The data in Figure 23 show how cooperative and non-cooperative farmers sell their farm products. According to the findings, cooperative farmers sell more than half of their produce (64.4) to wholesale dealers, (15.96) to retail traders, (11.07) to collecting locations, and just only a small portion (3.36) uses them for family consumption. Based on the results, this group of farmers does not make much use of restaurants/hotels (2.44), processors/factories (2.11) and the directs sales (0.44) as a sales channel.

When it comes to non-cooperative farmers, about 32.49 of the total produce is sold through collection points, (19.12) whole traders, (14.34) through retail traders and a considerable amount of products (28.69) is used for family consumption.

The findings show that this group sells a small amount of their produce through; directs sales (3.53), processors/factories (1.83) and does not sell to restaurants/ hotels (0). It has been found that two groups of farmers use different sale chains to market their produce.

The difference in selling channels between cooperative and non cooperative farmers in Kosovo was determined using an independent Sample t Test (Table 25). The findings revealed that there is a significant difference in selling channels by whole traders (M coop=64.40, M non-coop=19.12, t=6.489, p< 0.000, d=0.484), directs sales (M coop=0.44, M noncoop=3.54, t=-3.081, p<0.033, d=0.283),collection points (M coop=11.07, M non-coop=32.49, t=- 4.467, p< 0.000, d=0.727) and family consumption (M coop=3.36, M non-coop=28.69, t=-7.755, p<0.000, d=1.046) among the cooperative and non cooperative farmers.

It was discovered through qualitative interviews that "The majority of farmers do not conclude an agreement (enter into a contract) for agricultural selling, they choose selling channels (which offers more incomes) when the product is ready for market, but it was evident that many small farmers have sold their products even below production cost or in some cases have thrown their products away since they could not sell them in any way".

Table 25. Comparison selling channels between cooperative and non-cooperative farmers

Selling channels	**Coop. farmers**	**Non-coop farmers**				
	Mean	*Mean*	*Mean Difference*	*t-value*	*p-value*	*d-value*
Whole trades	64.40	19.12	45.283	6.489	0.000	1.184
Processors/factory	2.11	1.83	0.273	0.135	0.893	0.026

Retail traders	15.96	14.34	1.614	0.304	0.762	0.053
Restaurants/hotels	2.44	0.00	2.444	1.565	0.125	-
Direct sales	0.44	3.54	-3.081	2.154	0.033	0.283
Collection points	11.07	32.49	-21.425	-4.467	0.000	0.727
Family consumption	3.36	28.69	-25.336	-7.755	0.000	1.046

Source: Author's own work based on SPSS 21 Results

The results imply that the members of cooperative sell most of their produce through whole traders as compared to the non-cooperative farmers. Wholesalers are reported to be almost the only channel through which fruits are distributed in Kosovo (GJOKAJ ET AL., 2017). Similar results in the study of HAO ET AL. (2018). It could be understood that non-cooperative farmers sell most of their produce through direct sales. Non-cooperative farmers also sell a slightly higher amount of their total produce through collection points compared to the cooperative farmers. Finally, the results show that the non-cooperative farmers use a sizeable amount of the total produce for family consumption while comparing with that of the cooperative farmers.

However, for other selling channels such as processors/factory ($M_{coop}=2.11$, $M_{non-coop}=1.83$, $t=0.273$, $p> 0.893$, $d=0.026$), retail traders ($M_{coop}=15.96$, $M_{non-coop}=14.34$, $t=0.304$, $p> 0.762$, $d=0.053$) and restaurants/hotels ($M_{coop}=2.44$, $M_{non-coop}=00$, $t=1.565$, $p> 0.125$), a significant difference could not be found between cooperative and non-cooperative farmers.

Smallholders are mostly more vulnerable to economic shocks including COVID-19 lokcdown, as long as they have low productivity, low amount of savings and investments (GUIDO ET AL., 2020). This period of time –cooperative farmers have become handy as collection centers and at the same time minimize the risk of virus transmission since farmers drop off their product in one fixed place, while a single member of the cooperative is responsible for selling the product (DEUJA, 2020).

VI. CONCLUSION AND RECOMMENDATIONS

Conclusion

The historical, cultural and economic background of the country also influences the situation and structure of agriculture and the behavior of farmers. In the agriculture of Kosovo, the pace of the transition to modern agriculture is slower, both technologically and institutionally, than in the countries of other Central and Eastern Europe. However, the level of cooperation between farmers in these countries is also not even the required level, as Kosovo lags behind them. Kosovo is on its way to EU accession. This process is very slow and the effects on the restructuring process of support are also lagging behind.

As a consequence of my research, I have reached the following conclusions;

1. The research adds new knowledge through identifying new variables that impact agricultural cooperation in Kosovo. The findings show how important demographics and economic considerations, as well as trust levels are in the establishment of cooperative action. Farmers who live in the rural areas, and those who are younger and have a high level of education, show a higher level of cooperation activity that can be statistically confirmed, whereas farmers who seem to have a low education level and are managed by males are less supportive to cooperation, according to the descriptive analysis of demographic indicators. The economic variables point to the fact that medium-sized farms have a high level of collaboration that can be statistically validated, whereas small and large farms are less likely to collaborate.

2. Regarding to contract farming, there are three factors that significantly influence the participation of Kosovo farmers in contract farming. Location, cooperation activity and type of farming have a positive influence on farmers' decisions. The result implies that farmers which are located in rural areas which are engaged with vegetable productions and are member of any cooperative/association or cooperate in informal way with other farmers have the strongest effect on participation in contract farming. Meanwhile, gender, age education level, trust and size of farm has a negative effect.

3. The study uncovers major and new differences in the socio-demographic, agronomic, and economic characteristics of cooperative and non-cooperative farmers in Kosovo. According to the statistics, the number of cooperative members in the country is still quite

limited. The findings also reveal that cooperative development is influenced by socio-demographic, agricultural, and economic factors. Usually, cooperative farmers are involved in vegetable production, they have more access to seasonal labor, machinery through sharing, are more willing to invest in equipment with other farmers, and have a higher level of trust between farmers than non-cooperative farmers. Furthermore, cooperative farmers appear to generate more revenue than non-cooperative farmers. Non-cooperative farmers, on the other hand, are farmers who generally cultivate and deal with cereal, fruit, and livestock production. While other factors which are not significant are; gender, age, rent land and size of farm.

4. Farmers consider the following characteristics to be motivating to join a cooperative: no need to identify buyers, better knowledge, better pricing, and better services.

5. The differences between cooperative and non cooperative farmers' selling channels were statistically demonstrated. According to the findings, cooperative farmers sell the majority of their produce through whole dealers, whereas non cooperative farmers sell it directly or through collection sites, with a significant portion going to family consumption.

6. The period of crises (COVID-19) highlights the need for cooperation among farmers and making family farming system more sustainable and strong in case of future crises.

Recommendations

Based on the empirical evidence of this study, following recommendations and managerial implications are given to the policy makers, farmers and researchers:

1. Cooperation, particularly horizontal integration, will play a critical role in enhancing productivity in developing countries like Kosovo, which has a large number of dispersed farms, in this way negotiating power would also be increased together with the returns to scale, while it will also impact the cost of production by slightly decreasing it.

2. In a developing country like Kosovo, contracting development is critical for both farmers and contractors in order to ensure future market access and risk management.

3. According to the results, there is a need for a tool to increase the participation of poorer farms in cooperatives and to improve member benefits as prospective regions in making cooperatives more purposeful, stimulating, and sustainable. Our own personal experience implies that emotional bonds between farmers should be taken into account. This is seen as a crucial component of any support program's success.

4. The findings aid governmental and non-governmental organizations in encouraging farmers to form or join sustainable cooperative, through informal education, seminars presentations and financially encouraging.

5. The fourth revolution is currently seen as a possible solution for improving agricultural growth, ensuring the future needs of the global population in a fair, resilient and sustainable way. Government should find different forms to pass the barriers of farmers for land fragmentation (by increasing farm size) and knowledge on technology use.

6.1 Research Limitations

It is crucial to emphasize that this study has certain limitations, which are partly as a result of the fact that internet access and knowledge are extremely limited in Kosovo. Considering that the interviews were performed one-on-one with each farmer, the sample size was limited, but it did have the advantage of enhancing the desire to answer and the authenticity of the responses.

It is also worth noting that, despite increased interest among policymakers and researchers, the literature and statistical data on cooperation, cooperatives, and contract farming in Kosovo are limited.

VII. NEW SCIENTIFIC RESULTS

1. Researching this topic was a complex task. In Kosovo, as in a young republic, there is no reliable and available background data and statistics on agriculture in general, but this is the first survey based on extensive direct data collection on the food chain and the willingness of stakeholders to cooperate and forms of their cooperation.

2. The results of the research allow to gain an understanding of the behavior of farmers, the motivations of cooperation and the factors mostly emotional and educational creating barriers of non-cooperation. The results of this research contribute to the scarce literature common not only in Kosovo but also in the Balkan countries and make methodological recommendations for data collection and analysis.

3. In my empirical research, it has been revealed that the level of cooperation among farmers in Kosovo is low due to the lack of trust in the cooperative institutions. Informal cooperation (between farmers) has been seen to be present as a result of satisfactory trust between neighbors. Results highlight the significant role that demographics and economic factors likewise the level of trust play in the formation of cooperation activity

4. One of the results brought forth by this study, almost half of the interviewed farmers do not have contracts, the rest who claimed to have contracts have a verbal agreement and a very small part claimed to have a written contract. Results stress that socio-demographic and economic factors affect the willingness of Kosovo farmers to participate in contract farming.

5. Results also highlight the significant relationship in socio-demographic, agricultural and economic factors in the formation of cooperatives. Cooperative farmers are mostly involved in vegetable production. They have more access to seasonal employees, machinery through sharing, higher readiness to invest in equipments with other farmers and a higher level of trust between farmers, in contrast to non-cooperative farmers. In addition to that, cooperative farmers appear to have higher level of income than non-cooperative farmers.

6. Based on the obtained results, some of the factors that farmers consider as motivational to join a cooperative are; no need to find buyers, better information source, better prices and better services.

7. Another important result found is that differences in the selling channels used by the cooperative and non-cooperative farmers were statistically demonstrated. The results imply that the cooperative farmers sell most of their production through whole traders,

while noncooperative farmers through direct sale, collection points and a sizeable amount is used for family consumption.

VIII. SUMMARY

Strengthening the productivity, profitability and sustainability of smallholder agriculture continues to be the major approach to agrarian poverty in developing countries as Kosovo. In the economy of Kosovo, agriculture plays a very important role and has a positive impact on the quality of life and on the sustainable development of the rural areas. Agriculture was the main economic activity in the country for a long period, with an unsuitable structure of crops, primitive equipment, and deficient performance. There were mainly cereals cultivated, dedicated to food for the population and livestock. Nowadays the agricultural sector plays an essential function in providing employment opportunities and generating income for people living in rural areas.

Despite the employment creation potential and significance of the sector, Kosovo is facing a negative trade balance, suffering from the excessive volume of imported goods and a relatively low volume of exports. The imported agricultural products from other countries are competing with the local agriculture products making the situation worse. The agriculture sector in Kosovo is described by small farms, low productivity, low efficiency, poor infrastructure, improper land use, limited land consolidation, and incomplete social land privatization with unclear property and land use rights (MFARD, 2013).

Additionally, Kosovo has unfavorable farm structures, with an average UAA per holding of 1.5 ha, fragmented into seven plots, and most of the crop farms are not performing efficiently despite the huge potential for technical efficiency improvement. Some of the problems faced by Kosovo's farmers are lack of coordination among small farmers, lack of education and training, limited knowledge in the usage of technology, adversary service, lack of experience, limited market access gaps in quality and safety standards enforcement/implementation, informal contracts in relations between farmers and buyers and the main concern is the lack of cooperation between farmers.

The international literature highlights several advantages cooperation may bring about. These may be classified under three main categories: most sources underline the economic benefits arising from cooperatives (FALCO ET AL., 2008; FRANKS & MC GLOIN, 2007; VALENTINOV, 2007), while the past decade has seen a rise in the number of studies that shed light on the social (AJATES GONZALEZ, 2017; FORNEY & HÄBERLI, 2017; VLADIMIROVA, 2017; WYNNE-JONES, 2017), and environmental advantages (ASAI & LANGER, 2014; EMERY & FRANKS, 2012; MARTIN ET AL., 2016) that result from collaboration.

Thus, in the first part of our study the purpose was to examine the socio-demographic and economic factors affecting agriculture cooperation activity and contract farming in Kosovo and

their willingness to cooperate and join contract farming. Our second purpose was to find the association between socio-demographic, agricultural, and economic factors pertaining to cooperative and non-cooperative farmers in Kosovo, find the main benefits of cooperative farmers and identify differences in selling channels between cooperative farmers and non cooperative farmers.

Methodology: The primary data was collected through a structured questionnaire using the random sampling technique. The research was carried out between May to October 2018. Farmers engaged in the cultivation of various vegetables, cereals, and fruits, as well as those who owned animal farms interviewed for the study. The questionnaires were firstly pre–tested with a sample size of 50. Due to the absence of knowledge in using the Internet among farmers, the questionnaires were filled out by hand. The questionnaire was distributed to 300 farmers in the country and out of that 249 farmers responded. The response rate is 83%. We consider it as important to note that the sample in the study can be considered statistically representative at the national level because of the data collection methods used.

Data was examined with the statistical package for social sciences (SPSS). Binary logistic regression was used to check significant factors influencing cooperation activity of farmers and factors influencing CF. Chi Square ($\chi2$) test were used to discover association between cooperative and non-cooperative farmers in relation to the variables under study, while Cramer's V gives the power of the relationship. While independent Sample T test was used to identify the difference in the sales' channels of products between cooperative and non-cooperative farmers. In addition, effect size was applied as a complementary statistic to validate the independent t-test.

Results: In Kosovo's case, most of the farmers (81.9 percent) belong to those who do not cooperate at all. According to our study, cooperation seems to be of a low (18.1 percent) level in Kosovo. Some of the main reasons identified by this study on the reluctance among farmers in Kosovo to cooperate are that; they do not believe that cooperative institutions can help them (46.3 percent), do not agree with the cooperatives work (31.1 percent) and want to be independent (11.3 percent). Despite this, the level of trust is slightly higher (65.5 percent) and the willingness of the farmers in Kosovo to cooperate (especially buying/sharing agriculture machinery) with other farmers (with their relatives, friends, neighbors) is also higher (65.6 percent). Farmers in Kosovo have a higher level of trust and willingness to cooperate, although the cooperation is very low, taking into consideration\ that the farmers have not shown willingness to cooperate in a higher level as with the cooperative institution but only in informal cooperation. According to explored factors influencing cooperation activity in the agriculture sector, binary logistic regression analysis

showed that location, gender, age, education level, trust and size of farms were identified as significant predictors of cooperation and the only factor, type of farming was not a significant predictor of the cooperation activity. Farmers who live in the rural area have a higher probability of 3.79 times greater to join cooperation compared to farmers who live in urban areas; the reason might be that farmers in rural areas are actively engaged in farming practices and there are very few opportunities other than farming available to them. Farms that are managed by males have a lower probability to cooperate with other farmers compared to the farms that are led by females which have a higher chance of 4.50 times more likely to participate. Of the new generation, farmers who are younger (14–49 years old) have a probability of 4.05 times greater to cooperate, compared to farmers that are older (50–80 years old). Farmers who have finished the primary/high school have a lower probability to cooperate compared to those who have completed university (BSc, MSc or Ph.D.). The latter have a higher chance of 3.69 times greater to join a cooperation. Another predictor that has greater significance in cooperation activity is trust. An increase in the level of trust correspond with a stronger likelihood of cooperation. With regard to the size of farms, medium–sized farms i.e. 5.01 to 10.00 ha are more likely to cooperate about 16.52 times greater, compared to small and larger–sized farms.

In terms of CF, in Kosovo case, half of the farmers (81.9 percent) in Kosovo belong to those who have CF, farmers that declared they have agricultural contract farming nearly half of them (47,37 percent) have verbal contract (informal contract or oral agreement) and only a small numer of farmers (8.83 percent) declared that they have written contract (formal contract). According to explored factors influencing CF in the agriculture sector, binary logistic regression showed that location, cooperation, and type of farming were significant predictors in contract farming ($p < 0.05$). While gender, age, education level, trust and size was marginally non-significant ($p > 0.05$). Furthermore, in the farms which were in urban areas, contract farming was less common in comparison to those in rural areas and also showed a positive tendency to enter into contract farming rather than the urban farmers. As a result, increases of farms located in the rural areas; the odds ratio of contract farming increases 3.661 times greater as compared to the urban areas. It was also noticed that there was a positive significance ($p < 0.01$) between the cooperation activity and contract farming. As a result, the number of farmers which cooperate with each other increases; the odds ratio of CF increases 3.755 times greater compared to noncooperation farmers. The next variable was the type of farming which has positive significance ($p < 0.01$) in contract farming, vegetable producers are more likely to cooperate 3.664 times greater compared cereal producers. Result showed that also mix farms has a significant negative relationship ($p < 0.05$) in contract farming. Higher number of farmers engaged with mix farms would correspond with lower odds of contract farming, whereas farmers who are engaged with

cereals are 2.00 (1/.499) times more likely to enter into contract farming. Moreover, it can be seen in the difference in mean among groups; 2 (vegetable) which have contract farming is greater (0.19 ± 0.397), compared group 1 (cereals) (0.11 ± 0.319) and group 3 (mix farms) (0.19 ± 0.395). An independent Sample t Test was used to identify significant difference in income between contract and non-contract farmers in Kosovo. The results showed that there is a significant difference in income by contract farmers (M $_{cont}$=15418.39, M $_{non-cont}$=10607.02, t=2.135, p<0.035, d=0.352), between the contract and non-contract farmers.

The Chi Square test analysis showed that there is a significant association in socio-demographic, agricultural and economic factors of the cooperative and non cooperative farmers. Farmers who have completed agriculture education have a greater tendency to become a member of cooperative compared to those of other types of education. The results further show that the cooperative farmers tend to engage more family members in agricultural activity, obtain more seasonal employees, use agricultural equipment and are willing to invest in agriculture machinery with other farmers. In the case of cooperative farmers, trust was identified as an important factor, which is slightly higher as compared to the non cooperative farmers. Coming to the distribution of income, cooperative farmers have slightly higher level of income than the non cooperative farmers. Furthermore, the results portray that the non-cooperative farmers are engaged in cereals, fruits and animal production. Results also imply that cooperative and non-cooperative farmers share the same attributes in terms of gender. Besides these results, two groups are also characterized by similar farm size. Some of the significant reasons identified by this research related to the benefits accrued by cooperative farmers in Kosovo are that they do not need to find buyers (91.1 percent), information source (68.7 percent), better prices (66.7 percent), and better services (66.7 percent). The t-test analysis, represents that there is a significant difference in selling channels that the farmers use. The results further indicate that the cooperative farmers in Kosovo sell the main produce through wholesale traders. Non cooperative farmers mostly use direct sale and collection points as their primary selling channels. They use a sizeable part of the total agricultural produce for family consumption. No significant difference was found between cooperative and non cooperative farmers in using processors/factories, retail traders and restaurants/hotels as sales channels.

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X. APPENDICES

Questionnaire

Questionnaire No.: _____ Date of Interview: ___/___/_____ District: 1 ……../ 2…….. Location of the business (town/village):_____ Location: 1. Urban / 2. Rural

A1. Gender of the owner farm: 1. Male 2. Female

A2. The age of farm owner? _____

A3. Your main activity (job)?

1.	Employed in the public sector
2.	Employed in the private sector
3.	Self-employed in the non-agricultural sector
4.	Self-employed in the agricultural sector
5.	Other

A4. Level of your education?

1.	No education
2.	Primary school
3.	Agriculture high school
4.	Other high school
5.	University (MA, MSc) or Ph.D. degree

A5. How many years have you been farming? _____

A6. How much land do you own? A. _____ hectares;

A7. Did you took rent land? 1.yes 2.no (if no continue question A9)

A8. How ha_____

A8.1 How much did you paid for it_____

A9. How much land do you farm? _____

A10. Which is your main agriculture activity?

1.Cereals
2.Vegetalble
3.Fruit

4. Animal farms

A11. Type? _____

A12. How many years have you been cultivating the main product on your farm? _____

A13. Is agriculture your main occupation? 1. Yes 2. No 3. Can't say

A14. How much percentage of the annual income comes from agriculture? _____

A14.2 How much are the total expenditures in year from agriculture? _____

A15. How many members does your family have? _____

A16. Have many members of your family are involved in agriculture? _____

A17. Do you get seasonal worker? 1. Yes 2. No

B1. Are you part of any cooperative or other producer group? 1. Yes 2. No (If No continue with question B5)

B2. Which are the reasons for not participating in agricultural cooperative?

	I agree	I disagree
I sell my products to the same trader/company for many years and I am satisfied.		
I buy my supplies (fertilizers, pesticides) from a particular supplier who also advices me.		
I do not believe that the cooperative institution could help me.		
I do not agree with the way the cooperatives are running.		
I want to make up my own decisions and not to depend on others.		
I do not trust others to decide for me.		
I have personal differences/disagreements with some other members of the cooperative.		
I have personal differences/disagreements with the administrative board of the cooperative.		
The cooperative cannot provide useful services to me.		
The cooperatives cannot solve producers' problems (only the state can).		

B3. How often during the year do you meet (gather)? _____

B4. Which are the main reasons to join a cooperative?

	I agree	I disagree
1. No need to find buyers		
2. Better Prices (Fixed)		
3. Social Reasons		
4. Better Services		
5. Family Reason (Family Members)		
6. Credit (for agricultural supplies)		
7. Information Source		
8. Agriculture machinery		
9. Other reason (various answers)		

B5. Where do you sell your main product?(%)

1. Whole traders
2. Processors/ Factories
3. Retail traders
4. Restaurants/ hotels
5. Direct sales
6. Cumulative points
7. Family consumption

B6. What kind of contracts do you have with your buyers?

1. Written contract
2. Oral contract
3. No contract

B7. Have you ever heard about the cooperation between farmers? 1. Yes 2. No

B8. Do you organize sales with other farmers? 1. Yes 2. No

B9. Do you arrange purchases (raw materials) with other farmers? 1. Yes 2. No

B10. Do you think there is a farmer in your region who you believe can lead the farmers' group / association? 1. Yes 2. No

B11. Does your family possess any of the following agricultural equipment? 1. Yes 2. No

B12. If yes, which of these:

1. Tractor, plowing machinery, planter machine, harvester machine, combine, harrow etc.
2.Truck, Goldor
3.Irrigation equipment (wells, reservoir, water pumps etc)
4.Spraying equipment
5.Storage environment

B13. How are these devices purchased?

1. Individually	2.Donations/ Subsidies	3.Along with other farmers	4. Others

B14. Do you use these machines with other farmers? 1. Yes 2. No

B15. How much did you pay for rent agriculture machinery? _____

B16. If you have the chance, would you accept to purchase machinery together with other farmers for joint use of machinery?

Please let me know if you agree or disagree with the following statements:	1.Don't agree	1.Don't agree or disagree	3.Agree
1.The common use of agricultural machinery with other farmers is financially viable			
2. Sales along with other output farmers are inexpensive			
3. Purchases with other inputs are inexpensive			

B17. How much do you agree "I trust other farmers to cooperate"?

1.I don't agree at all	2.I don't agree	3.I don't agree or disagree	4. I agree	5.i agree at all

B18. Total income of your family? _____

1.I don't agree at all	2.I don't agree	3.I don't agree or disagree	4. I agree	5.i agree at all