

## Determining sustainability in contract farming: An evidence of melon farmers from Klotok Village, Plumpang District, Tuban Regency, Indonesia

### *Menentukan keberlanjutan dalam contract farming: Bukti petani melon dari Desa Klotok, Kecamatan Plumpang, Kabupaten Tuban, Indonesia*

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#### Abstract

The main problems of small farmers who plant melons in open and intensive agricultural land are capital, technology, and markets. One way to overcome the problem is by establishing contract farming with a sponsor. Relationships with sponsors do not always benefit economically. For this purpose, this study was carried out on the indicators that determine the sustainability of contract farming between melon farmers and sponsors in Klotok Village, Plumpang District, Tuban Regency, Indonesia. The study was conducted using a combination of qualitative and quantitative approaches. The results showed that of the three contract farming indicators, equity has the highest correlation value (0.302). It illustrates that the equality of farmers and sponsors is a crucial aspect for the sustainability of farming contracts. Even the dimensions of mutual benefit have low correlation values (0.296). It was shown by some farmers who suffered losses but did not break relations with the sponsors. This study concludes that the presence of sponsors plays an important role in the activities of melon farmers. The sustainability of melon farmers can drive rural economic activities and can further improve the welfare of the rural population.

**Keywords:** contract farming; melon farmers; rural areas; sponsors; sustainability

#### Abstrak

Masalah utama petani kecil yang menanam melon di lahan pertanian terbuka dan intensif adalah permodalan, teknologi, dan pasar. Salah satu cara untuk mengatasi masalah tersebut adalah dengan menjalin contract farming dengan sponsor. Hubungan dengan sponsor tidak selalu menguntungkan secara ekonomi. Untuk itu, dilakukan penelitian tentang indikator-indikator yang menentukan keberlangsungan contract farming antara petani melon dengan sponsor di Desa Klotok, Kecamatan Plumpang, Kabupaten Tuban, Indonesia. Penelitian dilakukan dengan menggunakan kombinasi pendekatan kualitatif dan kuantitatif. Hasil penelitian menunjukkan bahwa dari ketiga indikator kontrak usahatani, ekuitas memiliki nilai korelasi tertinggi (0,302). Hal tersebut menggambarkan bahwa kesetaraan petani dan sponsor merupakan hal terpenting bagi keberlangsungan kontrak usahatani. Bahkan dimensi saling menguntungkan memiliki nilai korelasi yang rendah (0,296). Hal itu ditunjukkan oleh beberapa petani yang mengalami kerugian yang tidak memutuskan hubungan dengan pihak sponsor. Studi ini menyimpulkan bahwa keberadaan sponsor memegang peranan penting dalam kegiatan petani melon. Keberlanjutan petani melon dapat menggerakkan kegiatan ekonomi pedesaan dan selanjutnya dapat meningkatkan kesejahteraan penduduk pedesaan.

**Kata kunci:** pertanian kontrak; petani melon; daerah pedesaan; sponsor; keberlanjutan

## Introduction

Some of the problems faced by small farmers in the midst of modernization are cash capital, technology, and markets. Such is the case experienced by melon farmers in Klotok Village, Plumpang District, Tuban Regency, Indonesia. Planting melons are usually done in the rainy season on open agricultural

land with rather a high location. High rainfall and its unpredictable arrival cause farmers in the area to work hard so that plants can grow well. For example, if the rainfall is high at night, then in the middle of the night, the farmers must see if their agricultural land is submerged in water, or damaged by the wind. Furthermore, farmers must take action to save these plants. It certainly requires a large cost to plant melons. On the other hand, melon farming in Klothok Village is essential because melons are a suitable agricultural commodity to be planted in the area as well as a production chain that can absorb a lot of labor in the agricultural sector and increase farmers' income.

One strategy for overcoming the problem is by establishing a farming contract with a sponsor. Sponsors can provide capital, technology, and markets. According to Fullbrook (2007), farming contracts are a way to increase income and can further improve the welfare of rural households. Likewise, melon farmers in Klotok Village said that "farming melon provides the lure of huge profits that can reach 100% of its capital". Melon farmers in this village have a farming contract with sponsors from the village. They provide credit in the form of agricultural inputs (chemical fertilizers, pesticides, mulch, etc.) to farmers in the village. Then, farmers sell their crops to the sponsors. Melon farmers and sponsorship contracts are expected to increase production and reduce import dependency.

Contract farming is a commercial relationship between a company and an individual or group of farmers. Typically, companies buy agricultural products in exchange for services and other benefits. Although in principle it has commercial objectives, contract farming is one of the ways to overcome problems faced by small farmers, such as market, capital, technology issues, and others (Bose 2013). It helps farmers in dealing with markets and overcoming capital problems through credit (Eaton & Shepherd 2001, FAO 2013). Such services are sometimes not only provided by private companies but also a kind of multi-actor partnership model between companies, governments, and NGOs (Prowse 2012).

Many previous studies have been carried out (Motiram & Vakulabharanam 2007, Gatto et al. 2017, Bellemare & Bloem 2018, Soullier & Moustier 2018, Ton et al. 2018, Ze-ying et al. 2018, Khan et al. 2019, V  th et al. 2019, Arouna et al. 2021), resulted in the view that the contract farming model provides a positive development for agricultural innovation in developing countries and increasing farmer participation in markets. However, there are serious concerns that farmers will get less profit from contract farming as investors (buyers) have more power and can influence the terms of contract farming (Sivramkrishna & Jyotishi 2008, Von Hagen & Alvarez 2011). In some literature, issues of imbalance between farmers and buyers are very prominent (Vamuloh et al. 2020, Kaur et al. 2021, Ray et al. 2021) so Kumar (2012) said the success of contract farming depends on the farmers themselves, market opportunities, and the government as a regulator.

Contract farming in developing countries has a variety of characteristics. Contracting companies include processors, exporters, or relatively large supermarket chains. There are rarely small-scale traders, or even wholesalers offering farmer contracts to farmers. This is due to the large fixed costs associated with the contract (Minot & Ronchi 2015). In the Klotok Village, however, the sponsor is a fruit trader who is also a successful farmer.

It has become the choice of a number of companies to enter into contract farming with farmers along with the development of modern markets due to the need for agricultural products that depend on procuring products from suppliers (Reardon & Berdegue 2002, FAO 2013). Modern markets have higher demands for quality products. For this reason, it is necessary to track the availability of agricultural products. Contract farming is one of the institutions to regulate, coordinate, and control the chain of the existence of agricultural products in countries that have difficulty accessing agricultural land (Bijman 2008).

Contract farming is meant as an agricultural business partnership. Article 3 of the Decree of the Minister of Agriculture No. 940/Kpts/OT.210/10/1997 concerning guidelines for Agricultural Business Partnerships reads: Agricultural business partnerships are based on the principle of equality, alignment, and enhancement of partner group skills by partner companies through the realization of partnership

synergies, which are relationships that: (a) require each other in the sense that the partner company requires the supply of raw materials while the partner group requires the gathering of results and guidance, (b) strengthen each other in the sense that both the partner group and the partner company pay attention to the moral and ethical business responsibilities so that they will strengthen their respective positions in increasing the competitiveness of their businesses, (c) increase income and business continuity.

There are three dimensions of contract farming namely: (a) equity, which means that individuals and organizations that form partnerships feel the same or equal, (b) transparency, which means that openness to the weaknesses and limitations of each party must be known by each party, and (c) mutual benefits, which means that the individuals or organizations that establish a partnership have a contribution that provides benefits. According to Levinger & Mulroy (2004), there are four types of partnerships, namely (a) potential partnership, (b) nascent partnership, (c) complementary partnership, and (d) synergistic partnership. Contract farming is established to overcome market, capital, technology issues, and others.

Usually, in developing countries, including Indonesia, it is common for companies doing contract farming to carry out the processing, infrastructure, or relatively large supermarket chains because of the fixed costs associated with the contract (Minot & Ronchi 2015). Several studies on the impact of contract farming on the lives of farmers in rural areas revealed that contract farming is able to increase agricultural productivity and subsequently increase farmers' incomes (Patrick 2004).

Farming contracts are crucial because according to farmers in Klotok Village, farming melons provide a high rate of return that can reach 100% of their capital. Therefore, the sponsors provide credit in the form of agricultural inputs (chemical fertilizers, pesticides, mulch, etc.) to farmers in their village. Instead, farmers sell their crops to sponsors. Melon farmers and sponsorship contracts are expected to increase production and reduce import dependency so that melon farming can be sustainable. In establishing farming contracts, farmers are not always benefited because of crop failure. Despite the experience of failure in melon farming, a number of farmers in this village continue to establish farming contracts with these sponsors. In contrast to previous studies (Motiram & Vakulabharanam 2007, Gatto et al. 2017, Bellemare & Bloem 2018, Soullier & Moustier 2018, Ton et al. 2018, Ze-ying et al. 2018, Khan et al. 2019, V  th et al. 2019, Arouna et al. 2021) that looked at the positive and negative impacts of contract farming, this study aims to see what dimension most determines the sustainability of contract farming between melon farmers and sponsors in Klotok Village.

## Research Method

This research was conducted on melon farmers in Klotok Village, Plumpang District, Tuban Regency, which is one of the regions in Indonesia. Figure 1 shows the Map of Plumpang District:



**Figure 1.**  
Map of Plumpang District  
Source: Openstreetmap.org (2022)

In Figure 1, the sub Plumpang Solo River is impassable during the rainy season so low-lying areas and areas near the river will be inundated. However, in the rainy season from December to the end of April/ May, farmers in this area utilize agricultural land which is located rather high for planting melons. In the rainy season, the agricultural land is in a fallow condition or cannot be planted with rice because the water for agricultural irrigation is managed by HIPPA (*Himpunan Petani Pemakai Air/Water User Organization*). During the rainy season, HIPPA's activity is to dump water that inundates agricultural land into the Bengawan Solo River.

This research is a combination of qualitative and quantitative research. Data was collected through several stages, i.e. first, by collecting data through observation, interviews with farmers, and sponsors. The observation was carried out to identify first-hand the activities of farmers, from preparation to harvest, geographical conditions of the study area, and get to know more about farmers in this area. Then, the interview was conducted by the sponsor, the owner of PT. Sumber Buah and his staff, to obtain data on the contract farming model, the advantages and disadvantages of establishing partnerships with farmers. Qualitative research brings meaningful and beneficial results (Pope et al. 2000) and is a supporter of quantitative data.

Second, to analyze the sustainability of melon farmers in the farming contract, a survey was conducted of farmers who established cooperation with the sponsor, PT. Sumber Buah, through interview techniques using a semi-structured questionnaire. The population used in this study was melon farmers, while the sample used was melon farmers in Klotok Village, which established a partnership with PT. Sumber Buah. A total of 56 farmers joined as partners of the organization. The survey was conducted on 50 respondents as partners of PT. Sumber Buah. A validity and reliability test were necessary to conduct prior to using the questionnaire.

### Validity and reliability test

Validity shows the extent to which a measuring instrument measures precisely the concept to be measured. If the measuring instrument used by researchers in data collection is a questionnaire, the questionnaire must describe the topic to be studied (Singarimbun & Effendi 1982). The method often used to assess the validity of questionnaires is the moment-product correlation (Pearson correlation) between the scores of each item with the total score; it is often referred to as inter item-total correlation. The test criteria are carried out by comparing the  $r$  count with the  $r$  table at the level of  $\alpha = 5\%$  and  $\alpha = 1\%$ . The formula used is:

$$r_{x,y} = \frac{n(\sum_{i=1}^n x_i y_i) - (\sum_{i=1}^n x_i)(\sum_{i=1}^n y_i)}{\sqrt{(n \sum_{i=1}^n x_i^2 - (\sum_{i=1}^n x_i)^2)(n \sum_{i=1}^n y_i^2 - (\sum_{i=1}^n y_i)^2)}}$$

$$r_{x,y} = \frac{n(\sum_{i=1}^n x_i y_i) - (\sum_{i=1}^n x_i)(\sum_{i=1}^n y_i)}{\sqrt{(n \sum_{i=1}^n x_i^2 - (\sum_{i=1}^n x_i)^2)(n \sum_{i=1}^n y_i^2 - (\sum_{i=1}^n y_i)^2)}}$$

Notes:

- $r_{(x,y)}$  : product-moment correlation
- $x_i$  : score of the question item- $i$
- $y_i$  : score of the question item- $i$
- $n$  : the number of research respondents

Based on the results of the validity test conducted, seven out of forty question items were invalid, as evidenced by non-significant p-values, which are greater than the 0.05 significance level. Measurements that have high reliability are called reliable measurements. Although reliability has other names such as trustworthiness, reliability, constancy, stability, consistency, and so on, the main idea of reliability is the extent to which the results of a measurement can be trusted (Azwar 2012). In this study, to find the reliability of the instrument, the following Cronbach's Alpha formula was used:

$$r_{11} = \left(\frac{k}{k-1}\right) \left(1 - \frac{\sum \sigma_b^2}{\sigma_t^2}\right) r_{11} = \left(\frac{k}{k-1}\right) \left(1 - \frac{\sum \sigma_b^2}{\sigma_t^2}\right)$$

Notes:

- $r_{11} r_{11}$  : Instrument reliability
- $kk$  : The number of questions
- $\sum \sigma_b^2 \sum \sigma_b^2$  : Number of item variances
- $\sigma_t^2 \sigma_t^2$  : Total variance

The results were then interpreted with the level of reliability coefficients in Table 1 as follows:

**Table 1.**  
Interpretation of correlation coefficients

Coefficients $r r$	Level of significance
0.800-1.000	Very high
0.600-0.799	High
0.400-0.599	Medium
0.200-0.399	Low
0.000-0.199	Very low

Source: Azwar (2012)

The instrument testing criteria are said to be reliable if the r count is greater than the table at a significant level of 5% (Arikunto 2006). Table 2 shows the reliability test conducted using SPSS 17 Software, showing the Cronbach's statistical value of 0.729. This value is greater than the limit value to meet the reliability of 0.5. Therefore, it can be said that the questionnaire is reliable.

**Table 2.**  
Results of reliability test

Cronbach's Alpha	N of items
.729	50

Source: Primary data

Table 3 shows the variables of melon farmers' sustainability in contract farming. The indicators of sustainability in contract farming include getting credit, farmers' consultation, and selling crops. Meanwhile, indicators of contract farming are equality, transparency, and mutually beneficial.

**Table 3.**  
Variables used in the study

Variables	Indicators
Sustainability of contract farming	Getting credit Farmers' consultation Selling crops
Contract farming	Equality Transparency Mutual benefit

Source: Primary data

The variables of contract farming are taken from the concept of partnership in agriculture business from Minister of Agriculture Decree No. 940/Kpts/OT.210/10/1997. The indicators of equality are measured from the condition of melon farmers and sponsors who feel they have an equal position so that they can communicate smoothly, including to consult and convey problems related to agricultural activities. They work together, respect each other, trust each other, and uphold togetherness. The indicators of

transparency are transparent in conveying information about the problems faced, production management, and purchase of agricultural inputs so that there is no negative suspicion of each party. Openness causes melons of farmers' confidence in sponsors and is an indicator of mutual benefit. Whereas the indicator of mutual benefit is measured by the existence of a mutually beneficial contract farming. In this case, farmers obtain agricultural input credit from the sponsor so that they get profit from the harvest, while the sponsor receives a supply of quality goods from the farmers.

The method used for analyzing the correlation of sustainability of contract farming in rural areas is Spearman's Rank correlation analysis. This analysis was chosen to determine the relationship between two variables based on a Likert scale. Here is the formula for finding the Spearman's Rank correlation coefficient (Sugiyono 2008). If there are no equal rankings, the following formula is used:

$$\rho = 1 - \frac{6 \sum_{i=1}^n b_i^2}{n(n^2 - 1)}$$

Where  $\rho$  is the value obtained by the Spearman's Rank;  $b_i^2$  is the square of the difference between each pair of ranks; and  $n$  is the number of ratings for the Spearman. The following formula is used:

$$\rho = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^n (x_i - \bar{x})^2} \sqrt{\sum_{i=1}^n (y_i - \bar{y})^2}} \rho = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^n (x_i - \bar{x})^2} \sqrt{\sum_{i=1}^n (y_i - \bar{y})^2}}$$

This study used an error rate of 5%, which means that a p-value less than  $\alpha$  (5%) shows a significant relationship (i.e.,  $H_0$  is rejected and  $H_1$  is accepted). Furthermore, a simple interpretation is done by making a comparison with  $\rho$  table. If the amount of  $\rho$  is greater than the  $\rho$  table of 5%, it means that there is a significant relationship. To identify the high and low correlation coefficients or to provide interpretations of correlation coefficients, the guideline criteria table for correlation coefficients was used. Spearman's rank correlation analysis was performed with SPSS 17 Software (Sugiyono 2012). Table 4 presents the guidelines for interpretation.

**Table 4.**  
Guidelines for interpreting correlation coefficients

Interval coefficients	Level of correlation
0.00-0.199	Very low
0.20-0.399	Low
0.40-0.599	Medium
0.60-0.799	Strong
0.80-1.000	Very strong

Source: Sugiyono (2012)

## Results and Discussion

There are two kinds of partnership or contract farming practices between melon farmers and companies, namely (a) partnership or contract farming between melon farmers and companies that buy agricultural products as well as providing credit for farming needs such as agricultural chemicals, seeds, and other necessities, (b) contract farming between farmers and companies, middlemen, slashers who buy crops, (c) contract farming between farmers of agricultural pharmaceutical companies, (d) contract farming between farmers and banks, and (e) contract farming between farmer and farmer. In this study, contract farming was carried out between melon farmers and the sponsor or PT. Sumber Buah. The owner of PT. Sumber Buah is a fruit trader and a successful farmer in Klotok Village.

### PT. Sumber Buah as a sponsor of melon farmers

Sponsor is a fruit trading business located in Klotok Village. The sponsor is a provider of credit for agricultural input needs (chemical fertilizers, agricultural chemicals, agricultural equipment, etc.), and

buyers of agricultural products. The owner of the sponsor is a 35 years old wealthy male farmer with a high school education background coming from the Klotok Village. He continued his parents' work as a farmer who also pioneered melon planting in this village. Melon's planting in this village began in 2005. His parents are also from the same village. As a farmer, he owns and manages 10 hectares of farmland which he bought gradually so that it is scattered in several locations. Of the 10 hectares of agricultural land, five hectares are always planted with paddy but tilled by farmers in the village with a production sharing system. Then, the other five hectares of agricultural land are planted with melons in January until the harvest is completed in May. Then, from June to November, paddy is planted with two harvest periods.

Every day, the sponsor sends three trucks of melons to Jakarta with seven tons of melons each truck. The profit earned by the entrepreneur is approximately 10% of the price of the fruit. For example, the price of melons is IDR 6,000 per kilogram, then the company profit is IDR 600.00 per kilogram. The income of the sponsor per day reaches approximately IDR 12,500,000.00. Selling fruits to Jakarta is not difficult because there are already traders to accommodate them.

PT. Sumber Buah also has a marketing network in big cities and regions such as Surabaya, Jakarta, Bali, and Lombok. PT. Sumber Buah's income is large enough so that it has sufficient capital availability to provide loans to farmers. The loan is not in the form of cash, but in the form of agricultural inputs for the needs of melon plants such as seeds, chemical fertilizers, pesticides, mulch, buffer wood, and others. Azumah et al. (2017) found that various loans given to farmers in contract farming can actually increase the ability of farmers to adapt to climate change which is often not profitable.

The process of providing loans to them is very easy and they already know because they come from the same village. Farmers who need inputs (chemical fertilizers, agricultural drugs, seeds, support wood, etc.) come to the sponsor's house to convey their needs for agricultural inputs. Furthermore, the sponsor (company) buys these items in cash at the customer's shop. Prices for agricultural needs are set by the company according to market prices. Then, the farmers were contacted to collect the goods and inform the prices.

The amount of farmer credit varies depending on the needs of farmers. According to records at PT. Sumber Buah, credit for farmers ranges from 1-60 million rupiah. The credit is paid at the end of the harvest and is not subject to interest. In contract farming, there is no written agreement between the farmer and the company. It is based on trust only. If farmers are late in paying credit, they do not get sanctions and are not billed.

Although there is no written agreement, farmers have a moral obligation to sell their crops to the sponsor or the company. However, the company buys quality products so that the crops that are not of good quality are usually sold by farmers to hawkers who come to the village. The price offered by the sponsor or company is in accordance with the current market price, so there is no need to haggle. Usually, only around 30-40% of the quality of the harvest is sold to the sponsor, while the rest is sold to local traders who usually come or are called to buy the crops. At present, farmers have no difficulty selling their melons with low or good quality.

The advantage of PT. Sumber Buah in establishing a farming contract with farmers in this village is because (a) it gets a supply of merchandise (melon) during the fruit season and (b) build good relations with villagers. Good relations between entrepreneurs and villagers make it easier to find labor and other needs. This can support the existence of agricultural and trade activities that involve a lot of workers from the village.

Establishing contract farming with sponsors is one way to sustain melon farmers in carrying out their activities. Melon farmers in this village have various characteristics. Table 5 presents the characteristics of melon farmers as a respondent.

**Table 5.**  
Characteristics of respondents (N = 50)

Characteristics	Categories	Frequency	Percentage (%)
Age	20-50 years old	38	76
	>50 years old	12	24
Level of education	Did not finish elementary school	1	2
	Elementary school	10	20
	Secondary school	20	40
	Upper secondary school	14	28
	Diploma/bachelor's degree	5	10
Land tenure status	Owner	28	56
	Renter	10	20
	Cultivator	12	24
The area of agricultural land controlled	< 0.3 (in hectare)	15	30
	0.3 - <0.5 (in hectare)	21	42
	0.5 - <1 (in hectare)	4	8
	1 - <3 (in hectare)	10	20
Total production	1000-5000 (in kilogram)	18	36
	6000-10000 (in kilogram)	17	34
	>10000 (in kilogram)	15	30
Advantages and disadvantages	<b>Advantages</b>		
	< 10 (in million rupiahs)	6	12
	10-<20 (in million rupiahs)	17	34
	20-<30 (in million rupiahs)	8	16
	30-<40 (in million rupiahs)	2	4
	>40 (in million rupiah)	6	12
	<b>Disadvantages</b>		
	<10 (in million rupiahs)	4	8
	10-<15 (in million rupiahs)	5	10
	15 (in million rupiahs)	2	4

Source: Primary data

Most melons farmers (76%) are aged 20-50 years because planting melons requires high morale. A previous study (Swain 2018) on contract farming show that farmers allocate more families as labor to maintain income. In the planting season of 2019, most of the melon farmers in this village (78%) benefited and a small portion (22%) suffered losses. Those who suffer losses are caused by high rainfall so that damaged plants are submerged in water, exposed to pests and diseases, and die. The greatest number of losses suffered by melon farmers was 15 million rupiahs due to crop damage and crop failure, while those who received the largest profits during the 2019 planting season amounted to more than 40 million rupiahs.

Compared to the losses experienced, the melon farmers' profits have a larger margin. This is influenced by contract farming which has succeeded in improving the quality of melon farmers (Rehber 2004). However, the open market in the food industry opens up opportunities for agriculture (Zhang & Donaldson 2010). In addition to making farmers directly involved with global markets, contract farming also provides opportunities for marginalized small farmers to face various problems and challenges (Behera et al. 2021) such as losses due to flooding and death from pests and diseases (Mishra et al. 2018).

### **The factors that determine the sustainability of contract farming between melon farmers and the sponsor**

The level of dimensions that determine the sustainability in contract farming is seen at the Weight and Rank of Dimensions in contract farming including three dimensions in partnership, namely equality, transparency, and mutual benefit. Based on statistical tests in Table 6 can be seen the Weight and Rank of the contract farming.



**Table 6.**  
Weight dan rank dimensions contract farming

<b>Dimensions of contract farming</b>	<b>Value</b>	<b>%</b>	<b>Items</b>
Equality	0.302	1	Melon farmers and sponsors feel they have an equal position so that they can communicate smoothly, including consulting and conveying problems related to agricultural activities. They work together, respect each other, trust each other, and uphold togetherness.
Transparency	0.299	2	Transparency in conveying information about the problems faced, production management, and purchase of agricultural inputs so that there is no negative suspicion of each party. Openness causes melons of farmers' confidence in the sponsor.
Mutual benefit	0.296	3	The existence of a mutually beneficial contract farming. In this case, farmers obtain agricultural input credit from the sponsor so that they get profit from the harvest, while the sponsor receives a supply of quality goods from the farmers.

Source: Primary data

In this research, the equality dimension has the highest correlation value which is 0.302, meaning that equality between farmers and the sponsor has the greatest influence on sustainability in contract farming. The farmers and the sponsor reside in the same village so they need good cooperation. A study conducted by Vicol (2017) found that the unequal relationship in contract farming in Maharashtra, India has caused families to become vulnerable to debt and lose control of the land they own.

The second position is occupied by the transparency dimension with a correlation value of 0.299. This means that the openness of each party is needed for the development of agricultural activities. The mutual benefit dimension has the lowest correlation value (0.296). Even though some farmers suffered losses, they still entered into farming contracts with the sponsor. Some farmers suffer losses and are late paying credit, but the sponsor never collects and charges interest so that contract farming can become insurance for farmers (Bellemare et al. 2021). As the following informant said: "In this contract farming, there is no written agreement between me and PT. Sumber Buah and based solely on trust. If I am late in paying the credit, I do not get a penalty and am not billed" (Informant MUH).

Correlation values of equality (0.302), transparency (0.299), and mutual benefit (0.296) indicate that the correlation values are low. Therefore, there is another dimension that further determines the sustainability of contract farming practices with the sponsor, which is maintaining harmonious relationships to prevent conflicts and natural factors.

The sustainability of the contract in Klothok Village is also due to the basis of the contract based on an agreement between the farmers and the sponsor. The relationship between farmers and the sponsor reflects a mutually beneficial patron-client relationship. It is in contrast to the previous farming contracts that already exist in Indonesia, the People's Sugar Cane Intensification Program (TRI). This farming contract system is part of a structural policy, not an agreement with farmers. The profit is determined from the profit-sharing of the sugarcane yield. When the productivity level and sugarcane yield are low, the farmers' income is far from what is expected (Ramadhan 2021).

Farmers in this village plant melons in the rainy season from December to April. During the months, rainfall is high. If water inundates the farm, farmers refrain from planting melons. In the rainy season, the Water User Association (WUAs) that manages the irrigation system in this village discharges dumps

water from agricultural land into rivers. In May, farmers must prepare their agricultural land for rice. But on the contrary, if the climate is good and farmers can handle it, farmers will plant melons and establish a contract farming with the sponsor because planting melons gives the lure of a large profit.

As the following informant said:

“In this year’s melon growing season, I made a profit of around 100 million from farming an area of 8500 square meters of melon. My profits are for sending my children to university, buying motorbikes, household needs (repairing houses and others) and I save part of it at BRI (Bank Rakyat Indonesia)” (Informant JAF).

Moreover, melon farmers are members of the *Asosiasi Petani Melon Sumber Buah* or Association of Melon Farmer of “Sumber Buah” or melon farmers association in Klotok Village. They formed WhatsApp Group to facilitate communication specifically related to melon farming and other important information. The name “Sumber Buah” is a trademark owned by the sponsor. Good social relations can be seen from their gathering by drinking coffee together at the sponsor’s house and meeting at events held by the village. They do not want conflict because in farming in the village, they need each other to meet farming needs and other living needs. The existence of good and comfortable social relations benefits both parties, both the sponsor and the farmers to get the title of good people. Melon farmers can easily convey their agricultural problem and on the other hand, the sponsor gets a supply of crops, get labor (Chakraborty 2009), and others.

Modernization projects in agriculture that connect agriculture to markets have long been carried out (Gramzow et al. 2018), one of which is through the green revolution which emphasizes the use of technological innovations to increase productivity. But now policy has shifted from increasing productivity to finding markets and consumers. Contract farming is one of the innovations that connect agricultural activities with the retail market (Sarkar 2014).

In Klothok Village, contract farming on melon farming has opened a market for melon farmers to easily market melon as a farming product. In carrying out contract farming in Klothok Village, farmers and the sponsor are not only have rigid formal legal ties but also successful because of the dimensions of equality, transparency, and mutual benefit, as well as social capital (Wuepper & Sauer 2016) in the form of harmonious social relationships.

Several previous studies revealed that in India, the paradigm shift in agriculture from increasing productivity to finding markets and consumers has resulted in small farms (Ray et al. 2021) having no market power to compete among themselves (Trebbin & Hassler 2012, Harilal 2021). However, the social capital that develops between farmers and sponsors in Klothok Village proves that these dimensions can determine the success of contract farming.

## **Conclusion**

Contract farming between melon farmers in Klotok Village is a strategy to get capital, markets, and benefit. The existence of a sponsor as a farmers’ partner has been running for approximately ten years. Contract farming can benefit farmers and the sponsor. Farmers benefit because they get credit and the market. Credit provided by the sponsor gives a sense of security because there is no interest and bills. There is a correlation between the sustainability of melon farming and contract farming. The highest dimension that determines the sustainability of contract farming is equality with the coefficient correlation value of 0.302 because equality between farmers and the sponsor makes it easier to communicate. The second position is the dimension of transparency with a correlation value of 0.299 and the third dimension is a mutual benefit of 0.296. Three dimensions of equality, transparency, and mutual benefit have a low correlation.

There is a strong dimension in determining sustainability in a farming contract that is maintaining a harmonious relationship with the sponsor and natural factors such as high rainfall. If rainfall is high and water floods the farmland and farmers cannot overcome the problem, then it will discourage planting melons. The sustainability of melon farmers in contract farming with the sponsor in the village can drive rural economic activities and is further expected to improve the welfare of villagers. Furthermore, it can encourage the achievement of the Sustainable Development Goals (SDGs) in rural areas.

## References

- Arikunto S (2006) *Prosedur Penelitian Suatu Pendekatan Praktik*. Jakarta: PT. Rineka Cipta.
- Arouna A, Michler JD, & Lokossou JC (2021) Contract farming and rural transformation: Evidence from a field experiment in Benin. *Journal of Development Economics* 151 (February). <https://doi.org/10.1016/j.jdeveco.2021.102626>.
- Azumah SB, Donkoh SA, & Ansah IGK (2017) Contract farming and the adoption of climate change coping and adaptation strategies in the northern region of Ghana. *Environment, Development and Sustainability* 19 (6):2275-2295. <https://doi.org/10.1007/s10668-016-9854-z>.
- Azwar S (2012) *Reliabilitas dan Validitas*. Yogyakarta: Pustaka Pelajar.
- Behera HC, Kodirekkala KR, & Sinha AA (2021) Small and marginal farmers' participation in potato contract farming in West Bengal, India. *Journal of Asian and African Studies* 1-21. <https://doi.org/10.1177/00219096211025074>.
- Bellemare MF & Bloem JR (2018) Does contract farming improve welfare? A review. *World Development* 112:259-271. <https://doi.org/10.1016/j.worlddev.2018.08.018>.
- Bellemare MF, Lee YN, & Novak L (2021) Contract farming as partial insurance. *World Development* 140. <https://doi.org/10.1016/j.worlddev.2020.105274>.
- Bijman J (2008) *Contract Farming in Developing Countries: An Overview*. Wageningen: Wageningen University & Research.
- Bose AK (2013) Issues of landlessness, contract and corporate farming. *Journal of Land and Rural Studies* 1 (1):25-39. <https://doi.org/10.1177/2321024913483037>.
- Chakraborty D (2009) Contract farming in India: Unique solution to multilayer agricultural problems? *Review of Market Integration* 1 (1):83-102. <https://doi.org/10.1177/097492920900100105>.
- Eaton C & Shepherd A (2001) *Contract Farming: Partnerships for Growth*. Rome: FAO.
- FAO (2013) *Contract Farming for Inclusive Market Access*. Rome: FAO.
- Fullbrook D (2007) *Contract farming in Lao PDR: Cases and questions*. Laos Extension for Agriculture Project (LEAP), National Agriculture and Forestry Extension Service (NAFES). <http://lad.nafri.org.la/fulltext/1580-0.pdf>.
- Gatto M, Wollni M, Asnawi R, & Qaim M (2017) Oil palm boom, contract farming, and rural economic development: Village-level evidence from Indonesia. *World Development* 95:127-140. <https://doi.org/10.1016/j.worlddev.2017.02.013>.
- Gramzow A, Batt PJ, Afari-Sefa V, Petrick M, & Roothaert R (2018) Linking smallholder vegetable producers to markets - A comparison of a vegetable producer group and a contract-farming arrangement in the Lushoto District of Tanzania. *Journal of Rural Studies* 63 (July):168-179. <https://doi.org/10.1016/j.jrurstud.2018.07.011>.
- Harilal KN (2021) Globalization of agriculture and atomization of farming: Small farms crisis in Asia. *Millennial Asia* 12 (3):298-315. <https://doi.org/10.1177/09763996211059964>.
- Kaur P, Singla N, & Singh S (2021) Role of contract farming in crop diversification and employment generation: Empirical evidence from Indian Punjab. *Millennial Asia* 12 (3):350-366. <https://doi.org/10.1177/09763996211051300>.
- Khan MF, Nakano Y, & Kurosaki T (2019) Impact of contract farming on land productivity and income of maize and potato growers in Pakistan. *Food Policy* 85 (November):28-39. <https://doi.org/10.1016/j.foodpol.2019.04.004>.
- Kumar N (2012) Learning contract farming the banana way: A case study. *International Journal of Rural Management* 7 (1-2):121-131. <https://doi.org/10.1177/0973005212459831>.

- Levinger B & Mulroy J (2004) *A Partnership Model for Public Health: Five Variables for Productive Collaboration*. Washington, DC: CORE, Pact Publications.
- Minot N & Ronchi L (2015) *Contract farming: Risks and benefits of partnership between farmers and firms*. Viewpoint: Public Policy for the Private Sector No. 344. Washington, DC: World Bank. [https://www.wbginvestmentclimate.org/advisory-services/investment-generation/agribusiness/upload/VP\\_344-Contract-Farming.pdf](https://www.wbginvestmentclimate.org/advisory-services/investment-generation/agribusiness/upload/VP_344-Contract-Farming.pdf).
- Mishra AK, Kumar A, Joshi PK, D'Souza A, & Tripathi G (2018) How can organic rice be a boon to smallholders? Evidence from contract farming in India. *Food Policy* 75 (January):147-157. <https://doi.org/10.1016/j.foodpol.2018.01.007>.
- Motiram S & Vakulabharanam V (2007) Corporate and cooperative solutions for the agrarian crisis in developing countries. *Review of Radical Political Economics* 39 (3):360-367. <https://doi.org/10.1177/0486613407305284>.
- Openstreetmap.org (2022) Map of Plumpang District. [Accessed 21 February 2022]. <https://www.openstreetmap.org/relation/13072118>.
- Patrick I (2004) *Contract farming in Indonesia: Smallholders and agribusiness working together*. [Accessed 21 February 2022]. [https://www.rfilc.org/wp-content/uploads/2020/08/1120037627274\\_contract\\_farming\\_Indonesia.pdf](https://www.rfilc.org/wp-content/uploads/2020/08/1120037627274_contract_farming_Indonesia.pdf).
- Pope C, Ziebland S, & Mays N (2000) Qualitative research in health care: Analysing qualitative data. *BMJ: British Medical Journal* 320 (7227):114-116.
- Prowse M (2012) *Contract Farming in Developing Countries: A Review*. Paris: AFD, Agence française de développement.
- Ramadhan TA (2021) Gula: Program Tebu Rakyat Intensifikasi (TRI) 1975 dan pengaruhnya terhadap petani tebu. *HISTORIA: Jurnal Program Studi Pendidikan Sejarah* 9 (1):55-64.
- Ray N, Clarke G, & Waley P (2021) The impact of contract farming on the welfare and livelihoods of farmers: A village case study from West Bengal. *Journal of Rural Studies* 86 (June):127-135. <https://doi.org/10.1016/j.jrurstud.2021.06.003>.
- Reardon T & Berdegue JA (2002) The rapid rise of supermarkets in Latin America: Challenges and opportunities for development. *Development Policy Review* 20 (4):317-334.
- Rehber E (2004) Vertical integration in the food industry and contract farming: The case of Turkey. *Outlook on Agriculture* 33 (2):85-91. <https://doi.org/10.5367/000000004773973064>.
- Sarkar S (2014) Contract farming and McKinsey's plan for transforming agriculture into agribusiness in West Bengal. *Journal of South Asian Development* 9 (3):235-251. <https://doi.org/10.1177/0973174114549100>.
- Singarimbun M & Effendi S (1982) *Metode Penelitian Survey*. Jakarta: LP3ES.
- Sivramkrishnan S & Jyotishi A (2008) Monopsonistic exploitation in contract farming: Articulating strategies for farmer cooperation. *Journal of International Development* 20 (2):280-296.
- Soullier G & Moustier P (2018) Impacts of contract farming in domestic grain chains on farmer income and food insecurity. Contrasted evidence from Senegal. *Food Policy* 79 (September):179-198. <https://doi.org/10.1016/j.foodpol.2018.07.004>.
- Sugiyono (2008) *Metode Penelitian Pendidikan: Pendekatan Kuantitatif, Kualitatif dan R&D*. Bandung: Alfabeta.
- Sugiyono (2012) *Understanding Qualitative Research*. Bandung: Alfabeta.
- Swain BB (2018) Determinant in intensity of farmers' participation in contract farming: The study of gherkin and hybrid paddy seed cultivation in a South Indian State. *Journal of Land and Rural Studies* 6 (2):170-190. <https://doi.org/10.1177/2321024918766585>.
- Ton G, Vellema W, Desiere S, Weituschat S, & D'Haese M (2018) Contract farming for improving smallholder incomes: What can we learn from effectiveness studies? *World Development* 104:46-64. <https://doi.org/10.1016/j.worlddev.2017.11.015>.
- Trebbin A & Hassler M (2012) Farmers' producer companies in India: A new concept for collective action? *Environment and Planning A* 44 (2):411-427. <https://doi.org/10.1068/a44143>.
- Vamuloh VV, Kozak RA, & Panwar R (2020) Voices unheard: Barriers to and opportunities for small farmers' participation in oil palm contract farming. *Journal of Cleaner Production* 275:121955. <https://doi.org/10.1016/j.jclepro.2020.121955>.

- Väth SJ, Gobien S, & Kirk M (2019) Socio-economic well-being, contract farming and property rights: Evidence from Ghana. *Land Use Policy* 81 (April):878-888. <https://doi.org/10.1016/j.landusepol.2017.04.023>.
- Vicol M (2017) Is contract farming an inclusive alternative to land grabbing? The case of potato contract farming in Maharashtra, India. *Geoforum* 85 (July): 157-166. <https://doi.org/10.1016/j.geoforum.2017.07.012>.
- Von Hagen O & Alvarez G (2011) The impacts of private standards on global value chains - Literature review series on the impacts of private standards, Part I. International Trade Centre. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2184282](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2184282).
- Wuepper D & Sauer J (2016) Explaining the performance of contract farming in Ghana: The role of self-efficacy and social capital. *Food Policy* 62:11-27. <https://doi.org/10.1016/j.foodpol.2016.05.003>.
- Ze-ying H, Ying X, Di Z, Chen W, & Ji-min W (2018) One size fits all? Contract farming among broiler producers in China. *Journal of Integrative Agriculture* 17 (2):473-482. [https://doi.org/10.1016/S2095-3119\(17\)61752-0](https://doi.org/10.1016/S2095-3119(17)61752-0).
- Zhang QF & Donaldson JA (2010) From peasants to farmers: Peasant differentiation, labor regimes, and land-rights institutions in China's agrarian transition. *Politics and Society* 38 (4):458-489. <https://doi.org/10.1177/0032329210381236>.