RESEARCH ARTICLE

IDENTIFICATION OF CONTRACTUAL ISSUES IN AGRICULTURE PROCESS: A DEMATEL- BASED MODEL

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ABSTRACT - The agriculture sector contributes vastly to a nation's economy, including Malaysia. Nevertheless, limited research has looked on the contractual issues in agriculture process. The purpose of this study was to explore the contractual issues in the agriculture process and determine the relationship between both variables. The respondents involved seven experts from the agriculture sector in Sabah, Malaysia and a survey questionnaire were used to gather the data. Subsequently, the DEMATEL method was used to create the causal and effect diagram between the contractual issues. The results showed that Delayed Delivery Issues (Issue A) is the most crucial contract issue in agriculture and must be addressed. Furthermore, the most crucial relationship existed between Crucial Contract Issues (Issue A) and Contract Duration (Issue E). These issues should be studied further to improve the agriculture sector.

1.0   INTRODUCTION

This should provide an adequate background and general context for the work, explaining its significance, and indicating why it should be of interest to researchers. Avoiding a detailed literature survey or a summary of the results. State the objectives of the study at the end of this section. In this modern technologized era, agriculture is considered an important sector in Malaysia's economy. This is because the agriculture sector provides employment opportunities for people to generate their living expenses and benefits the country by producing revenue from exporting commodities. In Malaysia, commodities such as rubber, cocoa, and wood products are prime examples of what the country can produce. The country is known as one of the world's largest palm oil producers. The Malaysian Development Plan outlines the necessary strategies for Malaysia's longitudinal development by establishing the macroeconomic framework and long-term goals to realise the society's vision (Economy Planning Unit, 2020).

According to the Ministry of Economy (2021), Malaysia is currently executing the 12th Malaysian Development Plan (Twelfth Plan) covering the timeline of 2021 to 2025. The Twelfth Plan aims to address the difficulties faced by Malaysians without discriminating against any gender, location, socioeconomic status, or ethnicity. According to the Malaysian Department of Statistics (2022), the agriculture sector's contribution to Malaysia's Growth Domestic Product (GDP) highlights the vital importance of agriculture. During the first quarter of 2020, the sector recorded RM 22,503 million worth in GDP and it increased to RM 27,848 million in the fourth quarter, which is an increase of around 24%. In 2021, the GDP from agriculture was RM 22,684 million in the first quarter, increased to RM 27,464 million in the third quarter, and later decreased to RM 24,960, which was 10% lower than the previous year. Whereas, the GDP for agriculture in the year 2022 showed an increase from RM 22,604 million in the first quarter to RM 27,710 million in the third quarter. However, it later recorded a 9% decrease to RM 25,162 million in the fourth quarter. These statistics postulate that agriculture is indeed crucial to Malaysia's economy where it contributes 7% to 12% to the country's GDP and employs around 16% of the workforce.

A contract is generally defined as a promise that is enforceable by law. It is a common aspect in agriculture whereby the production and marketing of agricultural commodities are at times governed by contracts. Furthermore, contracts are an important tool for managing risks as they enable farmers to invest in better equipment and skills that can contribute to their businesses. This also allows the realisation of economies of scale and production, thus affecting cost in a positive manner. The effects of contract farming on farmers have long been investigated, such as in total household income (Meemken & Bellemare, 2020; Ogutu et al., 2020). A recent study showed that the input and productivity from both farmers with and without contracts are the same, whereas larger investments and yields are the outcome of resource-providing contracts. (Ruml & Qaim, 2020). A contractual relationship is nothing new to farmers and can be used for sales of land and equipment, purchases of input, production and marketing contracts, and land or equipment leases. Written documents are used to specify the terms of a transaction and contracts have become overlooked due to it being common.

Nevertheless, contractual issues may arise at any time during an outgoing contract or even before negotiating. When there are two or more parties involved in a contract, the possibility for an issue to happen is more probable as there exists a disagreement or problem between the parties. Therefore, this paper aims to explore the contractual issues in the agriculture process and to identify the most significant relationship between the contractual issues and the agriculture process. Past literature denotes on the lack of understanding about contractual issues and their significant relationship in the agriculture process. This calls for the identification of contractual issues.

The purpose of this paper is to explore the contractual issues in the agriculture process and to understand their impact in Malaysia, specifically focusing on Sabah. Sabah is one of the states in Malaysia that excels in the agriculture sector, where livestock, fisheries, and crops are the main economic sectors. To date, limited agricultural research has been done in Sabah. Therefore, this study hopes to be a pioneer and guideline to other researchers by contributing new information and knowledge about the topic. Seven expert personnel from several agricultural companies in Sabah were selected and interviewed using the DEMATEL questionnaire method to elicit their point of view on whether contractual issues can affect the agriculture process.

2.0　LITERATURE REVIEW

2.1　Agriculture Process and Practices

Many farmers, including those living in rural areas, still adopt the traditional farming method. While it may seem outdated, traditional farming method is known to have contributed and fed people around the world (Koohafkan & Altieri, 2010). While modern agriculture has been gaining popularity nowadays, small farmers are responsible for applying traditional agriculture practices (Lowder et al., 2016). With the ever-changing diets and food demands from people, changes have started to appear in the agriculture sector (Snyder et al., 2020). This is exemplary whereby more than 70% of the population in Tanzania is dependent on agriculture (Myusa et al., 2018). Nowadays, the advancement of modern technologies has aided in farming with threats such as uncertain climate changes and natural calamities that can harm crop yield (Kale, Panzade, & Chavan, 2020). Although such modern technologies exist, farmers have yet to grasp and use the opportunity due to the lack of awareness and the inability to adapt to the new environment and systems.

2.2　Significance of Agriculture Process

The agriculture process has a major impact on a nation's economy and even the world. One of the key areas highlighting the prominence of the agriculture process is how farming is recognised as an important sector that contributes not only to economic growth but also the people's well-being (Mehrara & Baghbanpour, 2016; Rehman et al., 2019). The importance of agriculture lies on the fact that it reduces poverty and stands as the main source for people to acquire a job, income, and food especially in rural areas (Yeboah & Jayne, 2018).

2.3　Contractual Issues in the Agriculture Process

2.3.1　Delayed Delivery Issues

One of the main contractual issues in the agriculture process is the delay in delivery. Delay refers to the over-run in time that is either beyond the completion date and agreed date that the parties mutually agreed on or is stated originally in the contract (Assaf & Al Hejji, 2006). Delayed delivery describes a situation whereby the delivery of agricultural products to or from a factory is delayed by a particular problem that occurs amid the process. This issue may arise due to a number of reasons, such as incomplete address, customs of delivery, or poor weather conditions that can lead to delivery failure. At times, farmers are at fault as they are unable to meet the demand or the presence of production failure (Ian & Mathews, 2013). When the amount that is needed to produce in the contract is too much to handle, farmers are unable to cope with the pressure, thus increasing the time taken for the deliveries to be handled. Moreover, the recent COVID-19 pandemic has also impacted the agriculture sector where there is an increasing demand for agricultural products in both urban and rural environments (Ridaura et al., 2021). This leads to the problem of not being able to keep up with the demands, leading to delays in deliveries.

2.3.2　Delayed Payment Issues

Payment issues to the other party are common in a contract. According to Abdul-Rahman et al. (2013), one of the causes of delayed payment is poor financial management. As money holds a significant power in today's world and business, any delay in payment will affect a company to run their business. For example, when farmers or agriculture companies do not receive their payments, it will disrupt their cash flow and negatively impact the business operations and sustainability. This will ultimately lead to difficulty in paying suppliers that help sustain their business and operating expenses as well as the inability to continue operating the business normally. Delayed payment issues happen due to various reasons such as payment under process, loss of invoice as the proof of payment, and human errors whereby the financial personnel forgot to process the payment.

2.3.3　Risk of Losses

Work risk carries varied definitions and meanings across different contexts (Adams, 2014). Agriculture is considered one of the riskiest sectors and this necessitates producers to use various risk management strategies (Rahman et al., 2020).

Risk of losses can be defined as the obligation to assume the risk of loss or damages to products that can occur after sales or before the delivery period. It also refers to the individuals who must bear the risk and pay if any goods are damaged, lost, or destroyed without the fault of either party. In some cases, a clause stating that a bearer will bear the cost if the goods delivered are not in the promised condition is added to a contract negotiation. This, however, poses a problem to the bearer as the person will hold a big responsibility to pay a huge sum of compensation, such as in the delivery of machines for agriculture that become malfunction or need maintenance.

2.3.4 Quality and Quantity Requirement Issues

Natural resources like cultivated land are vital for producing agricultural products with excellent quality and quantity (Song et al. 2022). However, factors such as declining economic development and population growth affect not only the cultivated land but also the agricultural products (Dengiz & Baskan, 2008; Tauqeer et al., 2022a, 2022b; Akram et al., 2018; Akram 2018). When this occurs, agricultural produce will not be accepted to be marketed due to the substandard quality. Farmers will also face difficulty to keep up with the demands since agricultural products are always on the rise globally. Therefore, it is important that the quality standards required by the buyer are met and that the goods are delivered in time (Adnan et al., 2020).

2.3.5 Cost Issues

In the agriculture industry, one of the most common issues faced regarding any contractual negotiation is the pricing or cost (Prowse, 2012). Farmers are known to rely on intermediaries with agricultural products as they hold an enormous power in the market. Intermediaries can control how much the agricultural product will be sold in the market and this issue puts farmers at risk of bearing uncertain demands and prices (Sutopo et al., 2012). Moreover, intermediaries can also be unfair by not giving a fair proportion of the earnings to the farmers. In a negotiation, farmers are in a dilemma with the other party as they cannot risk bargaining too much and are forced to comply more with the demands of intermediaries.

2.4 Contract Duration

Contract farming is the contract between a buyer and an agriculture production seller where an agreement for the sales and production of agricultural produce is formed (Haque, 2000; Hou, 2020). Contract duration is defined as the length of a contract that varies depending on how quick the agricultural goods that are the object of the contract (Pultrone, 2012). The duration of a contract can be affected by the relationship between parties and it is where the process of teaching each other unfolds (Inkpen & Tsang, 2007). By growing the network and brand value, the possibility of the other party to offer a longer contract is more likely to happen due to the fact there is a presence of commitment and trust (Gorovaïa, 2019). Farmers may need to consider which contract designs benefit the most (Das & Teng, 2000). This is because the way the operation will work changes, conversely affecting the resources in hand. Another issue is how farmers or agriculture organisations maintain a good relationship with the same partner. It is noted that the relationship with the same partner or party can increase the details of a contract where it will be more complete and beneficial for both ends (Ryall & Sampson, 2009).

3.0 METHODOLOGY

3.1 DEMATEL Method

DEMATEL (Decision-Making Trial and Evaluation Laboratory) is a useful method to study and analyse the cause-and-effect interactions between a system's components or evaluation criteria using directed graphs. It demonstrates how the components are interdependent with one another (Kaushik & Somvir, 2015). Additionally, DEMATEL does not require basic assumptions, making it more reliable than the traditional techniques that only assume independent elements (Lee et al., 2023). There are six steps in the DEMATEL method, which are:

Step 1: Collect opinions from experts and calculate the average matrix Z

The data was gathered from **X** people, where it included **X**. The interviewed individuals were deemed as experts in the agriculture industry with a minimum of five years of work experience in their respective fields. The symbol xij in the formula represents the degree of factor while i is the effect on factor, j, that were evaluated by the experts.

Each expert was requested to rate the factors influencing the contractual issues in the agriculture process. The integer score range ranged from 0 to 4, namely 0 (No Impact), 1 (Low Impact), 2 (Moderate Impact), 3 (High Impact), and 4 (Very High Impact). The integer was set to zero (0) when i = j. An n x n non-negative matrix X^k=$[xijk]$ was created whereby the number of experts involved with $1 \leq k \leq m$. Therefore, $X^1, X^2, X^3; \ldots; X^m$ were matrices from m experts. The average matric Z = $[z_{ij}]$ was used to summarize the experts' judgments.

$$z_{ij} = \frac{1}{m}\sum_{i=1}^{m} x_{ij}^k$$

Step 2: Calculate the normalised initial direct-relation matrix D

All values in the resulting matric D ranged between [0,1] for the normalised initial direct-relation matrix D. The formula used is:

$$D = \frac{z}{\lambda}$$

where

$$\lambda = \max\left[\max_{1 \leq i \leq n} \sum_{j=1}^{n} Z_{ij}, \ \max_{1 \leq j \leq n} \sum_{i=1}^{n} Z_{ij}\right]$$

Each element in this normalised initial direct-relation matrix D would fall between the range of zero (0) and one (1).

Step 3: Creating the total relation of matrix T

To obtain the total-influence matrix T, the equation T = D (I – D)-1 was used where I was an n x n identity matrices. The matrix T showed the total relationship between each pair of system factors and t_{ij} showed the indirect effects of factor I on factor j.

$$T = D (I - D) - 1$$

Step 4: The calculation of sums of matrix T's rows and columns.

Vector r represented the sum of rows while vector c was the sum of columns. In the total influence matrix T, the sum of rows and columns was calculated using the following formula.

$$r = [r_i]_{n \times 1} = \left(\sum_{j=1}^{n} t_{ij}\right)_{n \times 1},$$
$$c = [c_i]_{1 \times n} = \left(\sum_{i=1}^{n} t_{ij}\right)'_{1 \times n}$$

where the superscript ′ was expressed as a transpose.

Let the sum of the *i*th row be r_i in matrix T. The total given impacts on factor *i* had on the other factors were represented by the value of r_i, both directly and indirectly.

Let the sum of the *j*th row be r_j in matrix T. The sum of all other factors received both directly and indirectly was represented by the value of c_j. If *j* = *i*, the overall effects both given and received by factor *i* were represented by the value of $(r_i + c_j)$. Inversely, the value $(r_i - c_j)$ indicated the net contribution by factor *i* on the system.

Step 5: Determine the threshold value

To develop the directed graph, a threshold value was developed and matric T demonstrated impacts that were higher than the threshold value. N represented the total number of elements in matrix T.

$$\alpha = \frac{\sum_{i=1}^{n} \sum_{j=1}^{n} [t_{ij}]}{N}$$

Step 6: Constructing a Digraph of Cause-and-Effect Relationships

The cause-and-effect digraph was constructed by mapping all coordinate sets of $(r_i + c_j, r_i - c_j)$ to create the interrelationship where $(r_i + c_j)$ was regarded as the horizontal axis (x-axis) while $(r_i - c_j)$ was the vertical axis (y-axis). Information on the most important factor and how it can affect other factors was determined using the coordinates set on the diagram. Therefore, the interrelationships between the issues can be better understood.

4.0   RESULTS AND DISCUSSION

Six issues were identified to calculate the interrelationship and experts' responses gathered from the questionnaire were analysed accordingly. The DEMATEL method was applied to determine the contractual issues and their influence on the agriculture process.

4.1   *Demographic of Respondents*

Table 1 shows the demographic profile of the respondents. Seven experts with at least five years of experience in the agriculture industry were approached using the purposive snowball technique and invited to be interviewed. Approximately 85% of the respondents were male while 15% were female. Most of them were between 41 to 50 years old (57.1%), followed by those ages between 21 to 30 years old (28.6%) and 31 to 40 years old (14.3%). None of them were between 51 to 60 years old. Furthermore, 28.57% of the respondents were agriculture educators, 14.28% were heads of departments, 28.57% were district officers, and 14.28% were managers and economics affairs assistants, respectively. Around 72% of the respondents had 5 to 10 years of experience in the agriculture industry while the remaining of them had 11 to 20 years of experience. Education wise, the majority of the respondents had a doctoral degree (57%) and a bachelor's degree (28.6%) while the remaining (14.3%) did not specify their education level. Finally, 42.9% of the respondents were involved in marketing projects, 28.6% were involved in production, and 28.6% were involved in other projects such as the mechanization of agriculture. This indicates that the experts are knowledgeable to share opinions regarding the contract issues in the agriculture process.

Table 1. Demographic profile of respondents

Characteristic	Frequency	Percentage (%)
Gender		
Male	6	85.7
Female	1	14.3
Age		
21-30	1	14.3
31-40	2	28.6
41-50	4	57.1
51-60	0	0
Job Position		
Agriculture Educator	2	28.57
Head of Department	1	14.28
District Officer	2	28.57
Manager	1	14.28
Economic Affairs Assistant	1	14.28
Years of Experience in the Industry		
5-10	5	71.4
11-20	2	28.6
Education Level		
SPM	0	0
Degree	4	57.1
PhD	2	28.6
Others	1	14.3
Type of Projects Currently Involved		
Production	2	28.6
Marketing	3	42.9
Others	2	28.6

4.2 Applying DEMATEL to the Seven Contractual Issues

The DEMATEL method was applied to determine the contractual issues in the agriculture process (see Table 2).

Table 2. Contractual issues in the agriculture process

Issues	Contractual Issues in the Agriculture Process
A	Delayed Delivery Issues
B	Delayed Delivery Issues
C	Risk of Losses
D	Quality and Quantity Requirement Issues
E	Cost Issues
F	Contract Duration

Table 3 shows the calculation of average matrix Z (Issues vs. Issues) using Equation 1 based on the feedback given by the experts.

Table 3. Average matrix Z (Issues vs. Issues)

Issues	A	B	C	D	E	F	SUM
A	0	2.285714	2.57149	2.714286	2.428571	2.142857	12.14286
B	2.428571	0	2.285714	2.428571	2.142857	2.428571	11.71429
C	2.714286	2.285714	0	2.428571	2.142857	2	11.57143
D	2.571429	2.285714	2.428571	0	2.428571	2.428571	12.14286
E	2.714286	2.714286	2.571429	2.428571	0	2	12.42857
F	2.285714	2.142857	2.142857	2.428571	2.142857	0	11.14286
SUM	12.71429	11.71429	12	12.42857	11.28571	11	11.14286

The value of 12.71429 was chosen to normalize Matrix Z followed by the calculation of Matrix D using Equations (2) and (3). Table 4 shows the normalised initial direct-relation matrix D (Issues vs. Issues).

Table 4. Normalised initial direct-relation matrix D (issues vs. issues)

Issues	A	B	C	D	E	F
A	0	0.179775	0.202247	0.213483	0.191011	0.168539
B	0.191011	0	0.179775	0.191011	0.168539	0.191011
C	0.213483	0.179775	0	0.191011	0.168539	0.157303
D	0.202247	0.179775	0.191011	0	0.191011	0.191011
E	0.213483	0.213483	0.202247	0.191011	0	0.157303
F	0.179775	0.168539	0.168539	0.191011	0.168539	0

Table 5 shows the total relation matrix T (Issues vs. Issues) with the application of Equation (4).

Table 5. Total relation matrix T (issues vs. issues)

Issues	A	B	C	D	E	F
A	0	0.179775	0.202247	0.213483	0.191011	0.168539
B	0.191011	0	0.179775	0.191011	0.168539	0.191011
C	0.213483	0.179775	0	0.191011	0.168539	0.157303
D	0.202247	0.179775	0.191011	0	0.191011	0.191011
E	0.213483	0.213483	0.202247	0.191011	0	0.157303
F	0.179775	0.168539	0.168539	0.191011	0.168539	0

Table 6 shows the sums of rows and columns of Matrix T using Equations (5) and (6).

Table 6. Sums of rows and columns of matrix T

Issues	SUM R	SUM C	R+C	R-C
A	14.25808	14.81101	29.06909	-0.55293
B	13.80848	13.80768	27.61615	0.000799
C	13.69206	14.11959	27.81166	-0.42753
D	14.24459	14.53867	28.78325	-0.29408
E	14.54304	13.40952	27.95256	1.133516
F	13.24652	13.10629	26.35282	0.140228

The threshold value, α, was calculated using Equation (7) with the reference of Total Relation Matrix T (Table 5) and produced the result of $\alpha = 2.327577$. In Figure 1, a diagram was created with reference to Table 6 to highlight how the components affect one another. The X-axis in the diagram shows the influence of the given issue whereas the Y-axis shows an issue in either the causal group or effect group. The direction of the arrows indicates the influence among the factors.
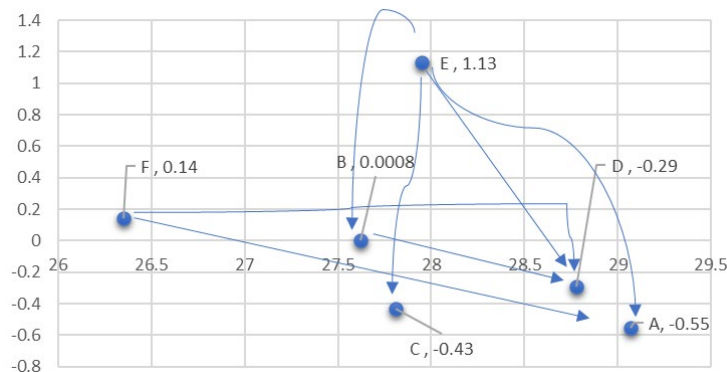

Figure 1. Causal and effect diagram among contractual issues in agriculture process

Figure 1 and Table 6 show that Issue A (delayed delivery issues) possesses the most influence on the other contractual issues in the agriculture process as it has the highest value of $r_i + c_j$ ($r_i + c_j = 29.06909$). However, Issue F (contract duration) has the lowest value of $r_i + c_j$ ($r_i + c_j = 26.35282$) and is considered to have the least influence on the other contractual issues. The importance of these issues based on the $r_i + c_j$ values can be arranged as Delayed Delivery Issues

(A) > Quality and Quantity Requirement Issues (D) > Cost Issues (E) > Risk of Losses (C) > Delayed Payment Issues (B) > Contract Duration (F).

Moreover, the r_i - c_j values on the Y-axis comprised two groups, namely the causal group and the effect group. The causal group consisted of the positive valued r_i + c_j issues in Figure 1 whereas the effect group had the negative valued r_i - c_j issues. The highest r_i + c_j value showed that it is the most influential issue to the other contractual issues. Issues that were classified into the causal group include Delayed Payment Issues (Issue B), Cost Issues (Issue E), and Contract Duration (Issue F) with the positive r_i + c_j values of 0.0008, 1.13, and 0.14, respectively. Among all, Cost Issues (Issue E) has the most influence as it has the highest r_i + c_j value (r_i + c_j = 1.13).

On the other hand, the effect group consisted of the negative valued r_i - c_j issues in Figure 1. Like the causal group, Delayed Delivery Issues (Issue A), Risk of Losses (Issue C), and Quality and Quantity Requirement Issues (Issue D) were classified into the effect group with the negative r_i - c_j values of -0.55, -0.43, and -0.29, respectively. the results further denoted that Issue A is the easiest to be influenced by the other issues as it has the lowest r_i - c_j value (r_i - c_j = -0.55). Table 7 shows the inner dependency matrix indicating values that are higher than the threshold value in matrix T, where α = 2.327577.

Table 7. Inner dependency matrix

Issues	A	B	C	D	E	F
A	2.378764	2.369735	2.435967	2.5108	-	-
B	2.463417	-	2.348042	2.421423	-	-
C	2.460293	-	-	2.402694	-	-
D	2.544363	2.367484	2.425669	2.332515	-	-
E	2.602323	2.438048	2.481382	2.541851	-	-
F	2.361852	-	-	2.329382	-	-

As illustrated in Table 7, only important relationships are shown in the diagram. Based on the inner dependency matrix, all of the issues, except Risk of Losses (Issue C) and Contract Duration (F), have a critical relationship with Risk of Losses (Issue C). Furthermore, all issues have a critical relationship with Delayed Delivery Issues (Issue A) and Quality and Quantity Requirement Issues (Issue D) and therefore should be analysed carefully. The relationships can be classified into bidirectional relationship (the data flows in both ways) and unidirectional relationship (a one-way data flow). The bidirectional relationship between the issues are A-B, A-C, A-D, B-D, and C-D while A-E, A-F, B-E, C-B, C-E, D-E, and D-F have a unidirectional relationship. This shows that relationship A-E is the most crucial and influential compared to other contractual issues relationships as it has the highest inner dependency value of 2.602323. It highlights the influence of Delayed Delivery Issues (Issue A) on Contract Duration (Issue E). Conversely, relationship D-F is the least influential with an inner dependency value of 2.329383.

5.0 CONCLUSIONS

While limited studies have looked specifically on contractual issues in the agriculture process, a number of researches has identified several key issues that can affect activities like farming. Nevertheless, investigation regarding contractual issues in the agriculture process using the DEMATEL method remains scarce. This research aimed to gain a better understanding of the contractual issues in the agriculture process. Seven experts from the agriculture industry in Sabah, Malaysia with a minimum of five years of agricultural experience were selected to elicit their professional opinion using a survey questionnaire administered via the DEMATEL method. The use of such a method enabled the exploration of critical contract issues in the agriculture process as well as the relationship between both variables.

The results showed that Delayed Delivery Issues (Issue A) are the most important and influential issue in the agriculture process. Therefore, the agriculture industry should note that improving the growth of agriculture issues is related to better deliveries to farmers, suppliers, and users. Furthermore, delivery issue stands as a prominent aspect in any negotiation related to agricultural products. Conversely, the agriculture industry can provide proper education about these issues along with the improvement of infrastructure and technologies so that any agriculture-related issues can be reduced and avoided.

Moreover, the results also demonstrated that the most influential and important relationship between contract issues and the agriculture process is Delayed Delivery Issues (Issue A) on Contract Duration (Issue E). This suggests the high involvement of delayed delivery issues and contract duration in most negotiations or contract talks. By understanding the importance of this relationship, the agriculture industry can improve delivery-related issues and pay more attention on the duration of a contract because both issues carry a huge impact on agriculture. Further investigation is necessary on Delayed Delivery Issues on Contract Duration to have a better and thorough understanding, ultimately leading to prompt application.

There are several ways to solve the issues of delayed deliveries and contract duration in agriculture. First, those involved in the agriculture sector must adopt a shipment tracking system for agricultural products. This will enable both suppliers and buyers to track the whereabouts of their orders and estimate the date of delivery even if there is a possibility

of delays. Courier companies such as J&T Express and Ninja Van are great examples where they provide updates to suppliers and buyers about their orders. Furthermore, communication is key in the agriculture sector, especially between suppliers and buyers. Buyers will want to know what they can expect from the suppliers, particularly concerning the delivery of agricultural products, and they are more inclined to favour agriculture businesses that can keep up with the delivery demands. Therefore, it is important for suppliers to constantly update buyers about their orders, including any delay issues that may occur due to unforeseen reasons, in order to maintain a good business relationship and trust. To solve the issue regarding contract duration, the agreement in the arrangement of agriculture contract between the two parties should be changed in order for it to be successful. Stakeholders, such as managers, suppliers, and investors, should not make any exploitative arrangements as it can be detrimental and affect both parties in the contract. There should be no hidden information or clauses that can affect the farmers negatively since they are not in a relatively good position to counter any offer from the other party. Additionally, farmers, especially in rural areas, should be educated about the law system in order for them to better understand what is offered and what is the next best course of action. These well-educated farmers will have better negotiations in a contract, enabling them to have a long but better contract duration.

In conclusion, this research offers new, important information that can benefit the agriculture industry. Having an in-depth understanding about the contract issues in the agriculture process will facilitate better agriculture negotiations and improve the stakeholders' quality of life, especially farmers.

6.0   ACKNOWLEDGEMENTS

7.0   CONFLICT OF INTEREST

The authors declare no conflicts of interest.

8.0   AUTHORS CONTRIBUTION

Each author involved and contributed evenly to this manuscript. All authors read and approved the final manuscript.

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