

# An adaptation of the goat business throughout the supply chain in the spread of Viral Diseases Corona 2019 in Phra Nakhon Si Ayutthaya Province, Thailand.

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## Abstract

The spread situation of Viral Disease Corona 2019 in 4th wave (COVID 19), Phra Nakhon Si Ayutthaya province is the highest controlled area. Entrepreneurs throughout the goat supply chain were affected from upstream where production costs were higher. Midstream, gatherers, wholesaler's restaurant operators who could not normally open the shop. And downstream that refrain from performing religious ceremonies and reduce income affects purchasing power and demand for goats declined. This research article aims 1) to analyze the current goat supply chain situation 2) synthesize an adaptation of the goat business in the spread situation of Viral Disease Corona 2019 case study in Phra Nakhon Si Ayutthaya province. In order for entrepreneurs to survive under uncertain situation (VUCA World) by using in – depth interviews with structured questionnaires that were passed the accuracy and Content Confidence Test (IOC) with entrepreneurs throughout the goat supply chain by choosing a chain sample (Snowball Sampling) of 414 sampling samples. Analyze issues (pain points) by using with Whole supply – demand chain. Descriptive research based on VUCA framework for proposing an adaptation guideline. The results of the study were as follows: 1) Network value chain of meat goats, the main stakeholders of the goat business, divided into 3 main players: (1) live goat collectors or butchered goats outside the area (11.9% income ratio) (2) processors (halal food producers) will bring live goats to the area (5%) and import them outside the area. And (3) entrepreneurs with integrated business (74.3% income ratio) and 2) VUCA World analysis found that Volatility's demand for meat goat reduce 95% while production costs were increasing 20%, leading to vision processing the meat goat products in line with uncertainty of consumer behavior. The Quantities of consumer demand for products lead to understanding and focusing on strategic business planning, risk management and complexity of the product market to clarify by analyzing the entrepreneurs, products model and ambiguity of the trend consumption of goat products. Entrepreneurs must agility and choose to use tools that suit the personality of entrepreneurs such as Game Theory.

**Keywords**— adaptation, goat business, supply chain, value chain, Phra Nakhon Si Ayutthaya

## I. INTRODUCTION

Goats are considered economic animals because they are small animals, easy to rise, tricky, resistant to all weather conditions, strong, not prone to disease, and are cost-effective in production. [1] Moreover, goat meat and goat's milk are good sources of protein and quality due to their low fat, high iron, and lower calories of saturated fat than other meats. Goat's milk is easier to digest than cow's milk, which is suitable for today's consumer market with health-conscious. [2] Goat farming has been supported by the government to be raised in many areas especially in the southern and central regions. [3] Phra Nakhon Si Ayutthaya Provincial Livestock Office promotes goat farming as a strategy for provincial development because goats are animals that have marketing opportunities because they have high market demand both at home and abroad and the area is suitable for goat farming. People working as farmers have a lot of agricultural products that can be used as food for goats as well. For this reason, Ayutthaya province has been encouraged and encouraged to raise goats and breed them for income and sustainability. By 2020, Phra Nakhon Si Ayutthaya Province had a total of 269 goat farmers, with a total of 4,769 goats (4,273 beef goats and 496 milk goats). [4] The group of goat farmers with the

largest number of breeder goats was in 4 main districts, namely 1) Goat Farmers Group, Chai Na Sub-District, Sena District, 2) Pak Kran Goat Farming Group, Phra Nakhon Si Ayutthaya District 3) Lat Bua Luang Goat Farmers Group Lad Bua Luang District and 4) Farmers raising beef goats, milk goats, Chamab, Wang Noi district, respectively, possessing a total of 1,985 goats. [5] The current epidemic situation of coronavirus disease 2019 (Covid 19) (Ayutthaya Province is the most controlled area) has severely affected the goat market due to the difficulty of domestic and international transportation. Operations throughout the goat supply chain are affected upstream where production costs are higher, midstream, especially restaurant operators who are unable to open storefronts normally, and downstream that refrain from performing religious ceremonies. And the dwindling income has resulted in lower purchasing power and lower demand for goats. This research paper aims to analyze the problems of goat business throughout the supply chain. To propose guidelines for the adjustment of goat business in the situation of covid 19 in Phra Nakhon Si Ayutthaya Province to enable entrepreneurs to survive under uncertain circumstances (VUCA World).

## II. RESEARCH OBJECTIVES

- 1) To analyze the problems of goat business throughout the supply chain in the situation of covid 19.
- 2) To synthesize guidelines for goat business adaptation in the situation of covid 19.

### III. LITERATURE REVIEW

Value Chain [6] it proposes a value chain model that focuses on the value chain activities of each business unit from sourcing of raw materials processing to the delivery of goods and services to customers, aiming to create business competitiveness by analyzing the added value that occurs in each activity. Therefore, the value chain is a link between activities that create added value (Value-Creation Activities and create links with partners in the supply chain together. Linking activities that occur both inside and outside the organization will affect the competitive position. [7]

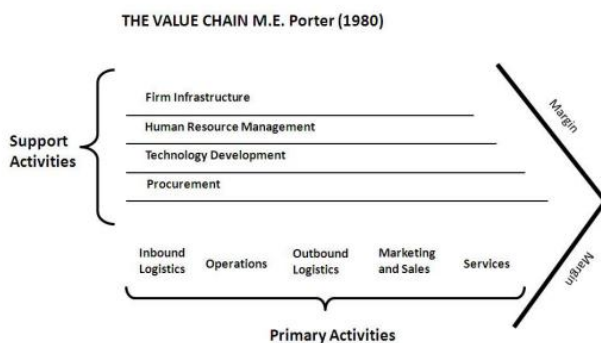


Fig 1 value chain diagram [6]

Supply Chain is a process that connects various activities to meet the needs of end customers in terms of goods and services to achieve maximum customer satisfaction. It consists of the important points that are suppliers, manufacturers, distribution centers, and Retailers or customers. The success will occur in the supply chain will consist of the flow of information on rice, goods, and capital which is between each step of the process in response to customer satisfaction. [6], [7]

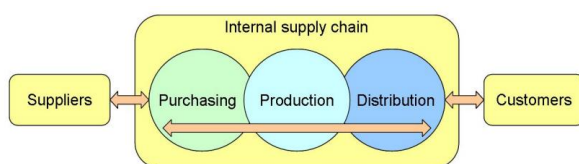


Fig 2 supply chain diagram [6]

VUCA World [8] is an abbreviation for Volatility, Uncertainty, Complexity, and Ambiguity. "VUCA World" is a term used by the United States Army to refer to the situation in the wars in Africa and Iraq, which was later adopted into business because of the rapidly changing economic environment and leadership challenges. In organizations that need to understand and adapt to the changing political, economic, social, and environmental conditions of today based on problem-solving and planning to reduce uncertainty towards a fast-paced world by contributing, involvement, continuous improvement, and quick decision-making as well as being proactive to realize the importance of change, innovation and Thinking different so that work can cope with the current changing conditions effectively.

### VUCA World consists of

1. V- Volatility is high volatility, rapid change, a rapidly changing situation or environment, unpredictable or predictable, or a sudden change of situation or unpredictable or very fast For example, which is currently disruptive innovation, an innovation that has a high rate of change.
2. U-Uncertainty is conditions of high uncertainty, difficulty to predict, lack of clarity, inability to obtain clear information to confirm each situation, which makes it difficult to make decisions due to the current world's uncertainties (Unclear about the present).
3. C-Complexity is an ever-increasing complexity of a system with multiple key decision factors.
4. A-Ambiguity is vague, unclear, and unpredictable outcome (Lack of clarity about meaning of an event). [8]

### How to deal with VUCA world

1. Vision Business Leader must have a clear vision and time to be able to make quick judgments and respond appropriately to rapidly changing situations by communication (COMMUNICATE) with the team and people in the organization, clear communication. And make everyone see the goals and vision of the organization as a single image and know which direction to walk, believe in yourself and others, and to support a growth mind set and new styles of working in line with the vision and strategy of the organization, strive and ensure that your team is capable and moving together with the direction of the organization.

2. Understand the organization's strengths, weaknesses, capabilities, and strategies. Leaders need to engage with their employees, customers, and stakeholder to hear information and opinions that create new perspectives to cope with situations that can change quickly by curiosity continuous learning, using open-ended questions or coaching questions, open-minded stakeholders to get new information to develop new things in the organization, empathy cares about the team to get the heart, and continuous cooperation, open mind to new ideas to get creative ideas to continuously develop.

3. Clarify In an era where systems and organizations and environments are becoming more and more complex, with multiple key decision factors, fostering clarity in policies and strategies is an important guideline. One way to keep the decisions of leaders up to date is by keeping the system simple, simplifying the system, and focusing on the core issues that are the core of the organization. Do not waste time on systems or procedures that do not create value for the organization (Awareness), use intuition and experience in the work, and make decisions. System thinking to get a holistic view and then break it down into different parts for a clearer picture.

4. Agility to Change: Leaders who are flexible and adaptable to a rapidly changing environment can deal with emergencies while keeping the organization's goals and vision intact through decision-making, adapt to rapidly changing environments and make decisions with confidence. Innovation, learn about customer problems pay attention to people and develop new innovations to solve them. Empowerment (EMPOWER) Networking, collaboration and support enable others to do great work.

#### IV. RESEARCH METHODS

This research paper aims to present the problem of local goat business production and marketing throughout the supply chain. In the case of Phra Nakhon Si Ayutthaya Province Under the impact of the Covid 19 epidemic situation, to synthesize the adaptive approach of business entrepreneurs to survive under uncertain circumstances according to the VUCA framework by using in-depth interviews with a structured questionnaire that passes the Integrity and Content Confidence (IOC) test with goat operators across the supply chain. A snowball sampling group of 414 was selected using an in-depth interview format and surveyed through a structured questionnaire via the Google Meet program.

##### Methods of conducting research

1) To analyze the problems of goat business throughout the supply chain in the situation of covid 19 by survey research by structured interview form that passed the integrity and confidence in content (IOC) test with a sample of goat operators throughout the supply chain with an online format. To analyze the problem (Pain point) by unfolding the whole supply-demand chain (upstream-mid-stream-downstream).

2) To synthesize the adaptation of goat business throughout the supply chain in the situation of covid 19 through descriptive research using the Uncertainty Framework (VUCA) to propose the adaptation of operators to be able to survive within the current situation.

#### V. RESEARCH RESULTS

##### 1. Business situation throughout the beef goat supply chain

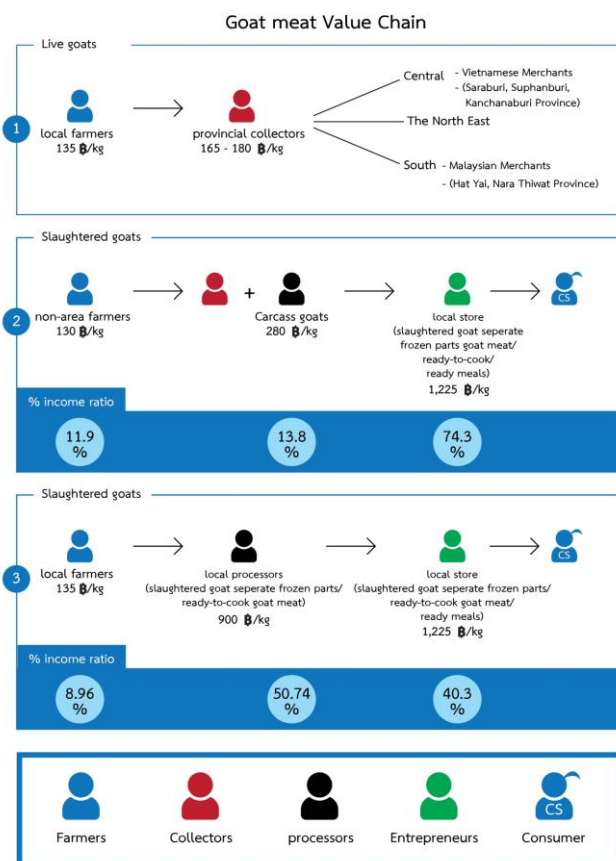


Fig 3. Goat meet Value chain of Phra Nakhon Si Ayutthaya.

##### Business situation before Covid-19

Goat business operators throughout the supply chain from goat farmers (upstream), goat collectors, goat processors, shop operators (mid-stream), and goat products consumers (downstream) found that the situation of goat meat products before the outbreak of Covid -19. The demand for beef goats from inside and outside the area is quite high (approximately 1,060 heads per month, classified as **1. live goat** especially the demand from the south (Malaysia Market) 400 pcs per month **2. slaughtered goats** 500 pcs per month **3. mutton cut into pieces** 160 pcs per month. Due to the needs of consumers in the province / for the religious rituals of Thai-Muslims and consumers/tourists, which is an opportunity from promoting Phra Nakhon Si Ayutthaya Province as tourism, center "Ayutthaya, Halal City". Moreover, demand for live goats from the country (South, Northeastern region) and abroad (Vietnam and Malaysia) has resulted in local restaurant operators having to procure slaughtered goats from outside the area by relying on collectors from outside the area (Suphan Buri Province) to feed the main raw material in the frequency of 3-4 pieces per week per shop. / or in some periods when the young goats in the area are not enough, they have to order the slaughtered goats from the merchants in Tak Province (passage), etc. The price of a living goat, selling price 130-135 baht per kilogram, the slaughtered goats is 240-280 baht per kilogram. Shop operators will slaughter them into parts to add value to the slaughtered goat meat separately for sale. The average price of the whole body is 400 baht per kilogram (value-added 1.4X). Sold in freezers to serve Thai-Muslim consumers and Chinese customers in the area (factory/company customer group). In addition, there is added value by marinating, seasoning, ready-to-cook goat meat, sold in packs of 2 points, priced at 180 baht per pack (900 baht per kilogram) (value added 3.2X), and ready-to-eat meals such as goat curry (with Roti), Biryani. Goat, Fried Goat with Garlic, Stewed Goat with Chinese Medicine, Goat Soup, etc., to serve urban consumers, Thai (Southern) tourists and Chinese customers, Singapore, Brunei, India, Bangladesh, etc. (4.4 X added value) who like the taste of goat products which is a group of regular customers in the area and outside the area (Bangkok). In addition, a group of halal food manufacturers has been established (Wang Noi District). At present, there are value-added processed products made from goat meat, disassembled throughout the body (goat head 100 baht, leg of goat, 4 legs 60 baht, stomach 150-200 baht per kilogram, liver and heart 300 baht per kilogram, goat meat 400 baht per kilogram, goat ribs 800-1000 baht per kilogram and the goat intestines to expand to products, sausages, sausages 200-220 baht per kilogram, at the same time, it also raises the value of retired goat, marinated goat meat, ready to cook 800 baht per kilogram (value added 6.7X), selling retired goat meat 300-350 baht per kilogram, etc. ). There is a marketing plan to focus on producing frozen packaged goat meat for export outside of the country, namely the city customers (Pathum Thani, Bangkok) by producing feed to the distribution center of processed halal food products and marketed in Hat Yai. At present, the slaughtered goats with leather cost about 300-400 baht per kilogram + 300 baht per animal and plans to export such processed products to Malaysia as well. And Wanida Kitchen, a fully integrated tourist destination, plans to produce canned food for export to Pakistan, which is under consumer analysis. In addition, some restaurant operators, such as Muslim Krung Kao Kitchen, have expanded their

branches by renting an area for food center, gas station, PTT for 20,000 baht per month, but after less than a month of renting, it has been affected by Covid-19; A new wave failing to perform as planned/predicted (In the process of analysis - assessing the situation - dealing with fixed costs) and production standards (Halal, FDA, GMP, etc.), but use trust with consumers as a key principle in selling products as a result, such processed products by focusing on reaching the market for only regular customers .

#### The current business situation that is facing Covid-19 round 4

Business operators throughout the beef goat supply chain found that the current situation caused some shop/restaurant operators to temporarily suspend their operations (unpredictable income As a result, it cannot be analyzed with certainty. Therefore, it is not worthwhile to be released for sale). The restaurants that are open offer only some goat food that can be taken back to eat/cooked at home or reduce the processing of goat food. Due to the dwindling purchasing power of consumers and the international live goat market stalled (Malaysia market is temporarily closed) due to the current impact. As a result, the demand for beef goats in the area decreased by 95% (from 1,060 heads to only 53 per month), affecting the financial liquidity of farmers, goat gatherers live to bear the cost of production. Currently, it is found to increase by 20 percent (for example, the cost of animal feed from the original price of 360 baht per sack to 390 baht, etc.) [9] And if the situation continues to prolong until the end of 2021 or early 2022, it is found that some goat entrepreneurs agree to let go of the goat business/Store operators cancel product menus and turn to sell menus with a customer base and comparatively cheaper unit prices, such as chicken menus, etc.

#### Marketing information related to goat business



Fig. 4 VUCA Countermeasures Analysis for Goat Entrepreneurs in Phra Nakhon Si Ayutthaya Province Unfold the supply demand chain image to illustrate all relevant parties.

When considering the VUCA World framework, it was found that 1. *Volatility in the market related to goat products* was found that The epidemic situation of COVID-19 has affected the demand for goat meat products, down 95% (from 40 to only 2 per week, etc.) and goat's milk by 100% (from being able to can be sold under normal circumstances and at present, goat milk must be distributed to neighbors) from the

original supply chain make upstream entrepreneurs (meat/milk goat farmers) have higher costs of goat production, for example, the cost of animal feed with a 20 percent increase in volatility [9] From the analysis of the product characteristics, it was found that goat meat products were high market capturing products (Luxury Goods and is a niche market). Even in the epidemic situation of COVID-19, the demand for goat meat products (Demand Side) is equal to the amount of goat meat (Supply Side) is 5%. Because there are only 5 percent of goats in the area for consumption, the other 95 percent are imported from outside the area such as Suphanburi, Kanchanaburi, and Saraburi. Because Phra Nakhon Si Ayutthaya Province is the center of tourism "Ayutthaya City Halal" but is affected by the dark red area and the restaurant cannot sit and eat because the main customers are tourists from Thailand and abroad such as Singapore, Brunei, Bangladesh, and India.

However, due to such volatility, operators in the area the production and distribution model has been modified so that the goat business can survive fluctuations in demand and input prices (feed prices). (Since goat is a product with age and body weight restrictions), keeping live goats will result in higher production costs but lower goat meat quality. In the longer term, it may result in a black market as the legal market cannot operate normally and at the same time positively affects operators in adjusting their vision under volatility, such as process goat meat products in accordance with the situation and behavior of the consumer group.

2. *Market uncertainty related to goat products (Uncertainty)* found that from the current situation that cannot be predicted or unable to plan the business to be cost-effective under the circumstances. In the case of an example of a local goat business, the business must be temporarily suspended/discontinued from goat products due to unpredictable demand for goat meat/milk products (Goat products are suitable for specific groups of customers with purchasing power). However, the uncertainty of prices (products/inputs), market uncertainty, market-related uncertainty and financial uncertainty make goat business operators realize the importance of strategic business management to manage risks arising from today's uncertainties

3. *Market Complexity Related to Goat Products (Complexity)* it was found that the volatility in the price of inputs and the uncertainty of the meat/goat milk market resulted in entrepreneurs having to face difficult decision-making problems. However, due to the complexity of external issues affecting the business as a result, entrepreneurs should defend themselves by creating clarity in their business operations, such as analyzing the operator (aptitude/appropriateness to the context of the area) such as goat farming patterns (Containment type, Switch-release type, etc.), Processing forms of goat products (live goat, slaughtered goat, slaughtered goat meat, ready-to-cook processed food, etc.)

4. *Market ambiguity related to goat products (Ambiguity)* It was found that from situations where the results of the current goat business cannot be predicted, such as the direction of consumption of goat products from consumer groups, the same tourists will be able to return to the same proportion immediately after the situation starts to normal or not, etc. However, the ambiguity of the goat products market has a positive impact on the business operator's adaptation to adjust the production/distribution



model to be flexible and adaptable to changing situations as well as planning to accommodate ambiguity or difficulty to predict such as choosing a game theory to create a plan for dealing with ambiguous situations and choosing problem-based learning (Problem-based Learning: PBL), etc.

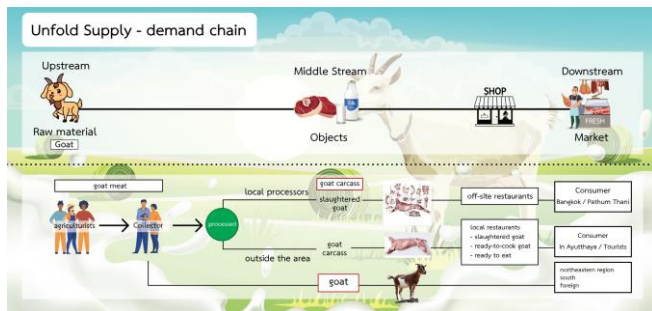


Fig 5. Connecting stakeholders throughout the demand and supply chain of beef goats in the case of Phra Nakhon Si Ayutthaya Province

From the current situation, the main stakeholders of the goat business in the Ayutthaya area are divided into 3 main players as follows:

(1) **Live goat collectors/slaughtered goat carcasses from outside the area** for distribution in the area by feeding goat carcasses raw materials as bring life to restaurants in the city that sell goat food (market share accounted for 60 percent of the goat carcass market) (2) **Processing group (halal food producer group)** will bring live goats in the area (Only 5 percent of the total demand for live goats because the number of goats in the area is quite limited which became an opportunity to increase the quantity of goat farming in Phra Nakhon Si Ayutthaya Province) and imported from outside the area, including Kanchanaburi, Saraburi, and Suphan Buri. They are slaughtered and processed into local products, and most are sold outside the area. Its main customers are restaurants in Pathum Thani province and a halal product distribution center in Bangkok. and (3) **merchants with integrated business** From farms, slaughterhouses, restaurants, and as a tourist attraction/learning center where only the goats they are raised are processed for added value and sold because it is a goat that is raised by natural methods and allowed to feed on its own from natural food sources, which has a beneficial effect on health-conscious consumers which business operations in all 3 routes. The operator said it would not overlap. however, from the analysis of the advantages and disadvantages of the said network partners, it was found that it was an advantage in managing raw materials that the current entrepreneurs were satisfied with Due to limitations in terms of the nature of goat products, slaughtering processes, storage, and trust in trading, it was found that operators were still willing to choose the same raw material procurement route.

**Analysis of the original baseline of the beef goat business** Considering the Business Model Canvas framework, it was found that

1. Value Propositions: The value of the business will focus on the quality products of good raw materials, clean, fresh, and delicious - good taste, reasonable price, and meet the Halal standard, GMP Clean Food Good Taste. Carefully selected ingredients using homemade roti flour, butter oil imported from Pakistan and Malaysia, real cow butter, animal butter, and masala spices from Bangladesh. Goat meat is

allowed to be raised naturally without eating pellets. Young goat, carcass weight is not more than 14-16 kg (in the case of Wanida Farm), resulting in customers receiving value from spending for the consumption of products worthwhile (utilization of consumption products), which is the advantage of the business and is a competitive strength.

2. Customer Segment: These include local consumers, family tourists, Thai-Muslim tourists in and out of the area (Southern Thai Muslim tour groups and foreign tourists), and customers from the private sector and government agencies (organizational groups). Sub district Administration, Provincial Administrative Organization / Hospital staff) who come to study the work according to the organization's policy, industrial groups, which are mostly ordered in the form of a lunch box, a party catering that looks like a contract to provide food, teenage customers - elderly / family customers, both tourists, and people of Ayutthaya province, tourists in southern countries, foreign tourists such as Pakistan, Singapore, Brunei, government agencies (retirement party) /Stay in a hotel that has both Thai-Buddhist and Thai-Muslims

3. Customer Relationships: Building relationships with customers by analyzing, planning, building good relationships with customers to have activities to build good relationships with customers through Facebook pages such as check-in at the shop and giving discounts, promoting Islamic religious activities by making merit with mosques and religious schools, there is a channel for receiving complaints about customer feedback to improve the development of photos. Products and services that meet the needs of customers, selling special menus for regular customers, birthday banquets, which the shop will arrange a birthday cake (advance notice) every Friday. Participate in activities with local mosques by bringing goat curry to the event and there is a 10% discount for loyal customers when purchasing products and using the service according to the terms of the store. These activities are customer relationship management, which is a strategy that entrepreneurs should implement to create repeat purchases, create loyalty to the brand (Brand Loyalty), and Word of Mouth This is considered as a part of the marketing competition strategy to strengthen our strengths or point of sale (Selling Point) of the store as well.

4. Channels: Channels of communication between entrepreneurs and consumers who have access to products or services to inform various information either marketing promotions, ordering channels, or shipping channels. Most of the channels that are suitable for the current situation are via social media or online delivery channels, divided according to the characteristics of the platform Facebook, Youtube, Line @, Line or product publicity through a television program channel, which is a channel that able to perform both information notification, marketing promotion, ordering channel, delivery channels such as Lineman, Food panda, or even the delivery service of the shop itself which every channel will be appropriate and reach the most customers in the current situation

5. Key Activities The main activities that are important to drive the business are *Activity 1*: Raising goats for their own slaughter and processing them into ready-to-eat foods such as goat curry, goat biryani, and fried goat with garlic, fried goat ribs with garlic *Activity 2*: Buy shredded goat meat from Suphanburi and bring it to pieces and marinate for seasoning. *Activity 3*: Management of agricultural education centers/family activities/animal feeding, goat milk feeding,

milk cow milking *Activity 4* : Management of resorts, accommodation, meeting/conference rooms *Activity 5* : Beekeeping, honey production under the brand Wanida *Activity 6*: Marketing activities, CSR and CRM activities will help completed which Activity 1 and Activity 2 are activities on the procurement of raw materials. Activity 3 and Activity 6 are building relationships with customers. Activity 4 is an activity to manage a sustainable business in a comprehensive way to increase revenue and increasing distribution and service chains. Activity 5 is a CSR activity from honey under the Wanida brand that is honey from farmers in the northern region. All 6 main activities drive the business to meet its goals.

6. Key Partners: of goat business in the area found that there are business alliances as a distribution channel for the business, consisting of Lineman helping to deliver products, Dtac helping with promotions, and being a channel to communicate with customers. Krung Thai Bank, Bangkok, Thai Commercial, Kasikornbank, and other banks will help to pay for goods Government agencies, Chao Phrom Market, Thai Market, Si Mum Mueang Market, various markets as a source of raw materials herbal shop Source of raw materials, seasonings and spices, Business Knowledge Resources Rajamangala University of Technology Suvarnabhumi Phranakhon Si Ayutthaya Rajabhat University, Shop selling tea leaves from Pakistan, shops selling original butter from abroad, etc All business partners or main business partners in doing business with good business partners depend on each other. It is indeed another advantage to compete with other competitors by business partners. It can help reduce the cost of running a business and be a tool to increase distribution channels.

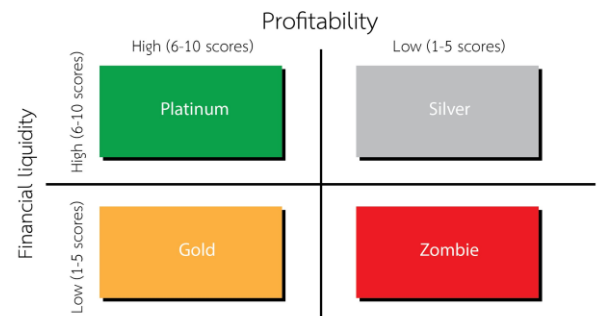
7. Key Resource: There are two types of goat business resources: tangible resources such as machines; Cooking utensils, land, buildings, cars, family members, workers, etc., and abstract resources such as brand values, goodwill, unique recipes passed down from ancestors. But at present, the brand has only a logo, shop name, and contact information such as phone number only.

8. Cost Structure: The analysis of the business's financial factors reveals that the goat food restaurant business has costs/expenses which can be divided into 2 types: 1) Fixed costs are expenses that do not vary according to the quantity of goat products production, consisting of employee wages (monthly/daily), space rental fees, Facebook advertising fees, delivery platform service fees e.g. Gross Profit: Lineman's GP 2) 2) Variable costs are expenses that vary according to the quantity of goat products production, comprising the main raw material cost of goat products, water, electricity, fuel, etc.

9. Revenue Streams: The income structure of goat business in the area revealed that goat business is the main income of entrepreneurs, ie, 80% of the income is from the sale of processed products from goat meat, and the other 20% is from other activities that benefit the local businesses such as Wanida Kitchen, income from hotel and resort business accounted for 15%, and the other 5% was revenue from selling honey products, etc. Halal food production group, 80% of revenue from processing made from Goats: Another 20% is income from raising beef goats. For example, revenue analysis can help goat business operators know which direction to plan profitability from the business to generate maximum revenue.

### Analyzing the financial health of beef goat operators

Analyzing the financial health of entrepreneurs by designing tools to assess the potential of financial management in 2 dimensions: 1) Financial liquidity dimension, which will include debt repayment ability and 2) Profitability Dimension, where entrepreneurs evaluate their performance in the form of a scale, with a score value between 1 - 10, which is an evaluation score between 1 - 5 means low financial management potential and a performance evaluation score with a score between 6 - 10 means high financial management potential and can be divided into 4 groups according to financial management potential by using a tool modified from the BCG Matrix Model as follows:



#### Group definition by financial management potential

1. Platinum group means a group with financial liquidity and high profitability, that is, able to manage cash, accounts receivable, and able to pay debts appropriately, including managing sales, costs, or expenses effectively. Therefore, it is a group that can develop further, enhance the potential and creates long-term sustainability very well.

2. Gold group means a group with low financial liquidity but with high profitability, i.e. able to manage cash, receivables, and able to pay debts, but may face cash shortages or problems with repayment. This may be caused by a lack of knowledge and understanding of liquidity management which results in reduced operational flexibility but this group can manage sales, costs or expenses effectively because of a clear target market. Therefore, it is a group that has sales-generating capabilities but has a partially uncovered view on liquidity management. This can be developed and revised by promoting financial literacy to optimize liquidity management and overall financial management to maximize its potential.

3. Silver group means a group with high financial liquidity but low profitability. That is to say, it can manage cash, accounts receivable, and can pay off debts properly, but can't generate profits according to the desired goals. This could be due to high costs due to low productivity, higher unit costs, or lack of a clear target market. Therefore, it is a group that can operate efficiently but may still not be able to reach the correct target audience by product. This can be developed and modified by defining products that are in line with customer requirements to increase production volumes, resulting in lower unit costs and a clear target market or customer groups and to effectively increase sales and profitability.

4. Zombie group means a group with low financial liquidity and profitability. In other words, there is no ability to manage cash, receivables, and be able to pay debts properly including sales management ineffective costs, or expenses. Therefore, it is a group that should be addressed and reviewed

urgently. The results of the financial management potential analysis can compare the results of operations before and during the impact of the 2019 coronavirus epidemic situation as follows: (fig. 6)



Fig 6. Analysis of financial management potential by comparing before and during Covid 19

Comparative financial health before and during the 4<sup>th</sup> wave of Covid-19 impact of the goat food restaurant business can be classified as follows:

1) Khrua Muslim Ayutthaya was found that the business had financial potential before the Covid 19 situation in terms of financial liquidity at level 8 and profitability at level 9, which is classified as platinum, which is a group with financial liquidity and high profitability. However, due to the impact of the current Covid 19 situation, it was found that the financial potential of the business received a liquidity score of 5 and profitability at a level of 3, which was classified as Zombie is a group with low financial liquidity and low profitability. Due to the impact of restaurant branch expansion (2 branches, namely Branch 1 has a shop rental fee of 16,000 per month and Branch 2 has a shop rental fee of 20,000 per month) to bear fixed costs. The shop rent per month is 36,000 baht, etc., while sales decreased by more than 60 percent due to the inability to open the storefront to provide sit-down services as usual. As a result, the financial potential of the business is in the Zombie group.

2) Arika's Kitchen and yeelohr Muslim Restaurant was found that financial potential at the Platinum level is the group with financial liquidity and has high profitability both before and during the impact of Covid 19. This is because the operators of both stores have a form of adaptation according to the situation and have a strategic plan to cope with the

situation. With the expertise of the entrepreneurs themselves, found that they can communicate, marketing and have products that are suitable for customers in the current situation, such as processed goat food, frozen goat curry that consumers can be reheated to cook immediately and there is a free delivery service in the area, etc.

3) Khrua Wanida Halal food was found that The financial management potential of the business in the normal situation of entrepreneurs has financial liquidity at level 7 and has profitability level 4, which is classified as Silver, which is a group with high financial liquidity but low profitability. Because the business has been inherited from the family, has no business liabilities, and has funds to manage investment plans in doing business both nationally and internationally. In addition, Wanida business is a comprehensive business from Farm/slaughterhouse/restaurant/learning center/attraction by Wanida restaurant business has only been open for 3 years (The year 2018) and is gaining popularity but has been affected by the covid 19 situation since the 1<sup>st</sup> - 4<sup>th</sup> wave (currently) coupled with such businesses just started doing business and operates businesses based on social benefits in the past, such as farm business, focusing on making merit, redeeming cattle-buffalo lives in conjunction with the King Rama IX Project, etc. and Krua Wanida Restaurant will proceed to cook goat curry and goat biryani every Friday, etc. However, when faced with the covid 19 situation, it was found that the financial potential of financial liquidity is at level 3 and profitability is at level 2, which are classified in the Zombie group as a group with financial liquidity and has low profitability. Due to the current Wanida shop operators are closed for restaurants/accommodation/learning resources temporary, that is, there will be no operating income but there will still be variable expenses to take care of employees and employees both monthly and daily. There is also welfare to take care of employees, accommodation and food, etc. An analysis of the investment readiness of entrepreneurs found that from interviews with entrepreneurs to assess the situation of coping the level of forecasting of the situation is divided as follows: 1) The situation has returned to the red level is that the key actor restaurant can open a sit-down restaurant following the Covid 19 prevention measures of the Department of Health, Ministry of Public Health. This will increase sales of key actor stores from the current situation. 2) The situation returned to the orange scale. Restaurants can be opened in front of a sit-down restaurant with Islamic religious activities back to normal. As a result, the demand for goat consumption has increased, at least the demand for goat consumption for merit making every Friday, etc. 3) the situation returned to the yellow level. Restaurants can be opened in front of a sit-down restaurant with Islamic religious activities back to normal, accommodation/tourist attractions, can travel, especially for customers in the city, and if there are activities, meetings, seminars, resulting in Wanida / Father's house to be able to serve customers normally according to Covid 19 prevention measures of the Department of Health, Ministry of Public Health. And if the foreign market situation is open as usual, the demand for goats will return to being active as usual and planning to invest in new products to open up foreign markets both Malaysia (dissected goat meat / ready-to-cook goat meat) and Pakistan (canned goat meat products), etc.

However, it was found that the entrepreneurs in the aforementioned sample group had other businesses that could help take care of the goat business that they were

experiencing, such as other halal businesses such as cattle meat and chicken businesses that could be easily sold in the current situation.

## 2. Guidelines for the adjustment of goat business throughout the supply chain in the situation of covid 19

Analyze business content, conditions, limitations, what can be done, what can't, and suggestions by using the Business Model Canvas tool to analyze the situation, conditions, limitations of the business to be able to answer the main mission of the business and the goals of the project to upgrade the business (Ego Business) that affects the economy (Eco System) as follows:

Core Mission of the Organization (Mission Statement) to create acceptance and demand for goat products in Phra Nakhon Si Ayutthaya Province

Problem: classified into 3 aspects: 1) People, lack of skills 2) Product, lack of product strengths unknown, low consumption. 3) Market, the market for goat products at present is not very large.

Solution

### 1) people

- (1) Make a new strategic plan (New Business Plan) to respond well to rapidly changing situations
- (2) Develop new value chain management approaches
- (3) Develop a new model of goat supply chain

### 2) goods

- (1) Build acceptance, analyze the target audience.
- (2) Upgrading products from meat/goat milk
- (3) Analyzing consumer behavior, forecasting the demand for goat products in the area.

### 3) market

- (1) Create an electronic trading channel for goat products.
- (2) Public relations, create awareness, create recognition of meat/goat milk products.
- (3) Test, evaluate, and apply online marketing innovations to your business to promote fair trade.

From fig 7, a detailed analysis of the business development approach from goat products according to the BMC CSR framework can be described as follows:

1. Value Propositions: The value of the business found that the goat business in the area should focus on products with good quality of raw materials, clean, fresh, delicious - good taste, reasonable price, halal standard, GMP Clean Food Good Taste, raw materials are selected with attention (e.g. Homemade roti flour, butter oil imported from Pakistan and Malaysia, real cow butter, animal butter, spices, masala from Bangladesh, goat meat, freed from nature. and quality fattening goats according to the market premium, model goats whose carcass weight does not exceed 20 kg, etc.), etc., giving opportunities for business development (CSR) (returning profits to consumers).

2. Customer Segment : It was found that the customers of the goat business will be general customers who come to eat as a family of tourists, Thai people, tour groups in the south, Thai Muslims, foreign tourists, tour companies - government agencies / sub-district administrative organizations, Provincial Administrative Organization, existing hospital staff and can now add industrial customers to organize banquets, seminars, and if the situation gets better, it can expand the group of teenagers - the elderly /

family customers, domestic tourists, southern tours, foreign tourists such as Pakistan, Singapore, Brunei, Government sector (retirement party) / hotel stay with Thai Buddhists can generate more income for the community and related people.

3. Customer Relationships: building relationships with customers by analyzing, planning, building good relationships with customers, having activities on Facebook, checking in at the shop and giving discounts, religious activities that the shop has made merit with mosques, religious schools, there is a comment box for customers, a special menu for regular customers, a customer who has a birthday party, where the shop will arrange a birthday cake (advance notice). Every Friday there is an event with a local mosque where goat curry is brought to the event and there is a 10% discount for loyal customers. It helps customers to think of the first products and services of the business that are reused and referred to lead to become loyal customers and use this channel to expand the customer base by word of mouth to increase the demand for meat/goat milk products in the area

4. Channels: Channels through which customers can access our products and services, such as online delivery channels (Lineman) - page, Facebook, Line group (Personal Line) such as promoting or advertising products/services through channels 7 - TV programs, Youtube, Tik Tok, Facebook, Wongnai Dtac, which all channels will be effective and reach the most customers. In addition, increase electronic trading channels to expand the customer base. The goal of the business and the market is managed to allow buyers and sellers to trade in real, leading to fair trade.

5. Key Activities: The main activities that are important to drive the business are *Activity 1* The main activities that are important to drive the business are *Activity 1* Raising goats by themselves and transforming them into ready-to-eat foods such as goat curry, goat biryani, and fried goat with garlic, fried goat ribs with Garlic. *Activity 2* Buy goat meat that has been butchered from Suphanburi and bring to pieces marinated seasonings for sale *Activity 3* Management of agricultural education center / family activity source Feeding animals, feeding goats, milking cows *Activity 4* Management of resorts, accommodation, meeting/conference rooms *Activity 5* Beekeeping, honey production under the brand Wanida *Activity 6* Marketing promotion activities, CSR and CRM activities will help to complete which *Activity 1* and *Activity 2* are raw material procurement activities, *Activity 3* and *Activity 6* are building relationships with customers, *Activity 4* is an activity, In order to manage the business to be sustainable, integrated, increase revenues to increase distribution and service, *Activity 5* is a CSR activity from honey under the Vanida brand is honey from farmers in the North. All 6 main activities drive the business to meet its goals. This is to increase the capacity of goat business operators in the area.

6. Key Partners: The main partners of the goat business at present consist of Line man who assists in delivery of goods; Dtac assists with promotions and is a channel to communicate with customers. Krung Thai Bank, Bangkok, Thai Commercial, Kasikorn Bank and foreign banks will assist in payment of goods, Wongnai, a local and international tour company, is the one who introduces customers to their business as well as being a purchaser, Government agencies, Chao Phrom Market, Thai Market, Si Muang Market, and various markets will be the source of raw materials, herbal shops, sources of raw materials, seasonings and spices, business knowledge resources, Rajamangala University of



Technology Suvarnabhumi Ayutthaya Rajabhat University, a shop selling tea leaves from Pakistan, a butter shop. Overseas originals, partners or main business partners all have good business partners whose dependencies provide competitive advantages and can help reduce operating costs.

7. Key Resource: The resources of a business can be divided into two categories: tangible resources such as machinery, cooking equipment, land, buildings, cars, family members, workers, etc., and abstract resources such as brand values. Goodwill and unique recipes are passed down from our ancestors.

8. Cost Structure and 9. Revenue Streams: It is an analysis of cost management combined with the revenue structure of the business. Analysis of business financial factors found that the current situation businesses can maintain their current situation by adapting to the situation. (From service only in front of the shop to producing ready-to-cook products and adding distribution channels, having additional services such as delivery services, etc.). Operate the business to be able to afford the variable costs. If assessing the business, it is found that the ability to manage costs, the business can survive ( $TR=TVC$ ) (if the current situation can be maintained until the end of the year).

And planning the future a business should plan its revenue structure and analyze its profitability combined with simulating risks and uncertainties from uncontrollable external factors such as VUCA World affecting its current business as fig 4.

Positive external effects (Externalities)

Economic: There is a distribution of income throughout the goat supply chain such as groups of farmers who raise beef goats, meat goat collection business, slaughterhouse, Halal food producer group goat products shop restaurant operator and consumers of goat products in Phra Nakhon Si Ayutthaya Province and consumers in nearby provinces such as Bangkok, Pathum Thani, covering upstream goat supply chains (farmers), midstream (processors, couriers, retailers) and downstream (consumers).

Increased profit margins due to efficient business strategies and business models.

Social: There is a link between producers/processors based on product characteristics that support each other.

The main activities that are important to drive the business are Activity 1: Raising goats by themselves and transforming them into ready-to-eat foods such as goat curry, goat biryani, and garlic fried goat, fried goat ribs with garlic. Activity 2 Buy goat meat that has been butchered from Suphanburi and bring to pieces marinated seasonings for sale Activity3Management of agricultural education center / family activity source Feeding animals, feeding goats, milking cows Activity 4 Management of resorts, accommodation, meeting/conference rooms Activity 5 Beekeeping, honey production under the brand Wanida Activity 6 Marketing promotion activities, CSR and CRM activities will help to complete which Activity 1 and Activity 2 are raw material procurement activities, Activity 3 and Activity 6 are building relationships with customers, Activity 4 is an activity, In order to manage the business to be sustainable, integrated, increase revenues to increase distribution and service, Activity 5 is a CSR activity from honey under the Vanida brand is honey from farmers in the North. All 6 main activities drive the business to meet its goals.

Environmental: Waste is likely to be reduced as new products may be planned to focus on By Product use.

Negative external effects (Externalities): The promotion of goat meat products will affect certain groups of stakeholders (decrease in income) such as middlemen and market share of pork, chicken, beef, and cow's milk products in Phra Nakhon Si Ayutthaya Province, etc.



Fig 7 Analysis of business development guidelines for goat meat products under the framework of Business Model Canvas (CSR)

## VI. DISCUSSIONS

There are 3 main issues for goat meat business adjustment throughout the supply chain: 1) People or meat goat operators: will adjust according to the market situation by increasing the variety of products to meet the demand of goat meat consumers both in the area and outside the area, including Live goat (130 - 135 baht per kilogram), Carcass goat (240-280 baht per kilogram), Mutton cut into pieces (Average 400 baht per kilogram), Marinated goat meat (800 - 1000 baht per kg), or even frozen and ready-to-eat foods (Price per dish is about 150 - 300 baht) The main customer groups are Thai-Muslims in the area, urban people (Bangkok, Pathum Thani), both Thai and foreign tourists (Singapore, India, Brunei, Bangladesh, etc.), which result from the positive impact of pushing Ayutthaya to be the center of travel business "Ayutthaya, Halal City" with restaurants and tourist attractions that attracts tourists who love halal food especially the goat menu until it is a highlight that tourists must stop by to eat. As a result, the demand for beef goats in the area is greater than the quantity of beef goats for sale. That is to say, from interviews with those involved throughout the supply chain. [9] It was found that shop operators had demand for meat goats to be processed as food for sale according to the average quantity of 40 goats per week, but only 5% of goats in the area were needed. As a result, goat meat must be imported in the form of slaughtered goats to be fed to shops (goats from Suphan Buri, Kanchanaburi, and Saraburi, etc.) and live goats are imported to be processed into value-added goat parts for further processing. Delivered to distribution centers for halal products in Bangkok and Pathum Thani etc. The reason for choosing to import from the aforementioned areas is partly found that farmers in Phra Nakhon Si Ayutthaya province expanded goat raising areas in that province because there was enough space to raise goats and animal feed, resulting in lower goat raising costs in the area by comparison. From the interviews, it was found that the goats in the area were domesticated and were small-sized, but the constraints on expansion and pellet feeding resulted in

higher costs of goats in the area than outside the area. [9] From the literature review, it is found that goats are a specialized product, most of which are Thai-Muslim entrepreneurs and the market is relatively small and popular for selling live goats and slaughtered for sale and consumption by households and entrepreneurs as a group. Existing operators in areas where there are no new operators [10] [11] [12] [2] [1]

2) Goods, goat meat products: Inquiries from the point of view of product users revealed that goat meat raw materials used for processing require a slaughtering process that is five times more meticulous than cattle slaughter because goats have a habit of urinating on themselves, resulting in a foul odor on their skin. And goat meat, if the process of slaughtering goat carcasses is not clean enough, will result in consumers. Therefore, merchants buy raw materials from sources they trust outside the area. At present, goat slaughterhouses in the area are mostly based on cattle slaughterhouses such as Kok SaNga slaughterhouses and Roongrot Farm. However, now there are merchants gathered who can meet the group of shop operators by delivering the slaughtered goats according to the user's specifications at a price of no more than 16 kilograms of carcass weight per head, which is 240 - 280 baht per kilogram, with users satisfied with the price. This is because goat meat is viewed as a premium product. Consumers, who are regular customers, have purchasing power, etc. However, shop operators and halal food producers in the area have increased the value of goats in the area as frozen processed products. Ready to cook / ready to eat to meet the needs of customers, but still limited to regular customers such as Thai-Muslim customers in the area urban consumer groups. This is because there is no branding to be recognized and there is no publicity and marketing of goat products as it should be, even though there are products with stories and specific formulas that are in demand among health-conscious customers today such as Goat Curry Roti, etc.



Pakistani Style Goat Curry Roti

It was found that goat products were a niche product and there was a belief in products such as goat scapegoats, but goat products were priced higher than other meats by comparison [2] [10] However, if goat products are upgraded to be in line with consumer groups who like goat meat, such as Chinese consumers, etc. [9]

3) Market: It was found that the current meat/goat milk customer group is a niche market for Thai-Muslim products, which is a good opportunity to increase/expand marketing channels, public relations channels. This was because interviews with consumers of goat products found that most of the consumers were Thai-Muslims who had the highest consumption of goat meat in the form of ready-to-eat food, especially goat biryani because they like the taste. As for goat's milk, they prefer pasteurized milk. Most of them choose to buy from sources such as restaurants, Khrua Muslim Ayutthaya, Yilah, Amina must try, Atika, Wanida

kitchen. Because it is convenient, close to home, and is a famous shop in Phra Nakhon Si Ayutthaya. However, from the questionnaire of Thai-Muslim adolescents, some find that the popularity of goat meat consumption is declining because they choose to eat it only during festivals or special days. By reasoning that it is not widely available, no product recognition or no need to choose to eat, etc., along with the product price per unit is quite high when compared to other types of meat such as beef, chicken or seafood, etc. When comparing the price of Chicken Biryani, the price per plate is 50-60 baht, while Goat Biryani is 150 baht per dish, etc. If you want to eat on a tray, sell at 1500 baht per tray, etc.



Chicken Biryani and Goat Biryani



Goat Biryani on a tray

In addition, following the results of the revenue ratio analysis, it was found that store operators can return profits to consumers by selecting good raw materials or organizing marketing promotions to create brand recognition, stores, or creating new business value products. It was also found that from the current situation, Entrepreneurs began to use electronic trading channels to promote their stores, products. But there are still a small number of entrepreneurs who use it due to lack of skills in PR, marketing, even presenting a product or creating a story for the product, etc., which is consistent with [13] The secretary-general of the National Bureau of Agricultural Commodity and Food Standards (TIS), who pays attention to the "production-led marketing" policy, tries to upgrade Agriculture 4.0 by choosing a platform "DGTFarm.com" expands agricultural marketing channels create opportunities for trade competition to meet the needs of consumers in the new normal era to achieve sustainability from fair trade as it is a channel that connects directly from manufacturers to consumers, together with innovations in digital marketing or Digital Marketing has become a tool that has been mentioned. Which has interesting features and measurable rewards fast and high ROI and low cost, but easy and fast to expand new customer base. [14] However, local enterprise operators still face important problems in 2 dimensions, namely the ability to be competitive entrepreneurs in the real market and the development of products in terms of quality, standards, appearance and packaging in accordance with [15] It was found that the packaging development resulted in a good overall product satisfaction in purchasing decisions, which was in line with the survey findings that consumers pay more attention to the marketing mix that affects decision to consume meat/goat milk is that the product has halal standards, has a brand, and has standard packaging, etc.

## CONCLUSION

From the current situation (Covid 19) under changes that are difficult to predict. Entrepreneurs should have guidelines to adjust according to the VUCA World framework as follows: 1. under the volatility of goat products caused by a 95 percent decrease in goat demand and a 20 percent increase in production costs. [9] In addition, goat

products are a niche market with the same demand side as the local supply side, which is 5%. Therefore, operators in the area should adjust the vision under fluctuations. For example, the processing of goat meat products in accordance with the behavior of consumer groups. Including sales of ready-to-cook and ready-to-eat goat products, chilled or frozen slaughtered goats, goat sausages which is a product that can be bought and eaten by yourself, which has a marketing strategy, provides transportation or delivery, as well as targeting urban customers such as Chinese people who love goat products such as Boil goat with Chinese herbs, Fried goat ribs, etc., are considered a marketing strategy. [10] [16]

2. Due to the uncertainty in the goat products market, most of the local goat business operators choose to suspend their operations/stop producing goat products. Because the demand for goat meat products cannot be predicted (caused by market-related uncertainty, financial/consumer income uncertainty, impact on purchasing power) Therefore, goat business operators should manage risks for the business to survive, such as adjusting the distribution channel of the product model to suit the situation including modifying marketing strategies Reduce product size for easy distribution, etc. [2]

3. Under the complexity of the goat products market (Complexity), entrepreneurs have to face problems that are difficult to decide (as well as difficult to understand the issues that entrepreneurs or businesses face). Entrepreneurs should defend themselves by creating clarity in their business operations, such as analyzing the Business Model Canvas to review the goals, scope of the business, and taking advantage of business planning opportunities to reduce the impact of complex problems.

4. Under the ambiguity of the goat products market at present, goat business operators cannot predict the impact of Covid 19 on demand for goat products. For example, the certainty of customer service patterns, the certain of quantity of demands of the existing customers, as well as the value of goat products, income or purchasing power of goat products, etc. Therefore, operators dealing with goat products should have a plan to cope with ambiguity or difficult to predict by choosing game theory in order to create a plan for dealing with vague situations in order to reduce the magnitude of the impact. However, the choice of game theory requires well-rounded and comprehensive decision-making information to make the least impactful choices under ambiguous circumstances. [17]

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