A REVIEW ON MATHEMATICAL MODEL OF MANUFACTURING INDUSTRY FOR MARKET PREDICTION

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Abstract

The entire global beef market is valued at USD 468.7 billion in the year 2021 and its progress is further expected as the compound annual growth also generated by 4.8% from the year 2022 to 2030. With the advent of globalization and its increase it has seen that consumers' food preferences are hugely changing and protein intake has resulted in rising demand in beef (Drouillard, 2018). The ingredients used in this take a small time and not too much effort is being given to this along with that proper nutrients also have been placed. The manufacturers are primarily focusing on the meat product related production plan effectively by managing the quality support planning (Liet al. 2018).

Keywords: evaluation, development, learning modules, descriptive-correlation, Philippines.

1. INTRODUCTION

The entire global beef market is valued at USD 468.7 billion in the year 2021 and its progress is further expected as the compound annual growth also generated by 4.8% from the year 2022 to 2030. With the advent of globalization and its increase it has seen that consumers' food preferences are hugely changing and protein intake has resulted in rising demand in beef (Drouillard, 2018). The ingredients used in this take a small time and not too much effort is being given to this along with that proper nutrients also have been placed. The manufacturers are primarily focusing on the meat product related production plan effectively by managing the quality support planning (Liet al. 2018).

Figure 1 Beef industry overview
Source: Muzzoand Provenza, 2018

The Covid-19 pandemic has somehow disrupted the market and limited availability of products to observe in this and the retail stores tend to associate with the high pricing associations. In this context it has seen that production facilities of meat need to be effectively placed and maintain the better constructive action planning supports. As a largest outbreak in May 2020, Cargill, Inc beef production has taken a key place in the market and

with the better support plan the considerable market association becomes highly effective to process (Muzzoand Provenza, 2018).

The rising demand regarding the animal sourced protein helps to channelize the better market support plans and state the ideas about proper dietary habits maintain consumer preferences plan and significantly associated with the better utilization of meat products for the customers to maintain the value of the foods. Beef based sausages, burgers and hotdogs along with steaks and filets are quite famous among the customers and they are widely served as multi-cuisine dishes and authentic in nature (Mwangiet al. 2019).

Some of the key factors that propel the demand associate with constant rising income plans and considerably associate with the customers' food preferences specially the middle-class families. From Asia Pacific to Latin America the customers' demand is quite high and convenient support implications with the engagement of the younger generation become appropriate. The market scope of beef has been widened because of the ready to eat meat choices by the younger customers.

Industry overview-

Cattle production becomes the most significant agricultural industry and consistently this industry is growing which accounted for the largest share of total cash receipts for agricultural commodities. For the year 2022, the production growth is expected to grow by 17% of the $391 billion in the segment of agricultural commodities. With strong land resources the developed beef industry has created the ideas about better fed-cattle
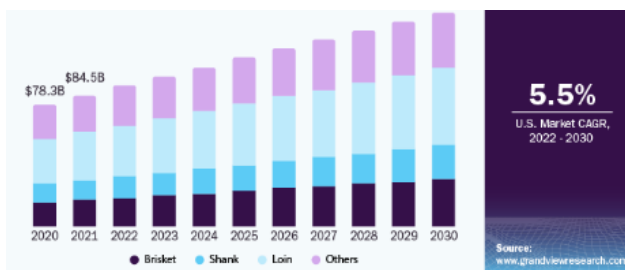
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industry plans and considered high-value market assistance and directions (Bunmeeet al. 2018). The production segment of this industry is divided into two major criteria one is cow-calf producers and another one is cattle feeding.

The cattle cycle becomes a particular process that processes with the proper size of the national cattle herd and maintains the ideas about herd size variation which is quite lengthy in nature and maintains the poultry delaying of cow-calf producers' response by specifically associating with the profit approaches. It has seen that different price and profit fluctuations also changed the market and considerable dependency on the different cycles makes the process quite effective to maintain and necessarily involve the ideas about coordinated responses (Teresaet al. 2018). The cattle cycle is being influenced by the cattle prices and due to different climate conditions it has seen that it connects with the persistent dry conditions and pastures so that involved cycle planning and engaged specifications towards creating better plans based engagement can be channelized in this prospect.

The last full cattle cycle began in 2004 with the engagement of 94.4 million head of cattle and calves by proposing the beef and dairy cattle. The herd expanded for the 3 years to 96.6 million by the year 2007 when the energy prices and feed caused the herd to contract and get supportive channelized (Teresaet al. 2018). When the environmentally dry conditions persisted here the major context of calf crop availability and different heifer retention get to observe in this.

Identification of 3 key business issues

The three major business issues present in the beef industry as per the multiple activities and operations that are being undertaken within the industry are stated as follows.

Assuring prominence issues: Accruing prominence in the beef industry is an issue considering the changing supply chain management prospects throughout the industry. The challenges associated with the supply chain activities have been influencing the overall changes in the availability and quality of fertilizer used to feed the animals, the vaccines provided to them, and the cattle identification products reliability. (Bolotova, 2021) There have been immense changes in the overall fertilizer prices, which is further altering the scope of developing a steady position of the industry in the market of the food industry referring to delaying the crop management prospect.

Providence issues: The incoming scarcity of food has been holding a necessity in double-checking the food product labels to confirm through the incoming of the items while precisely managing through the ingredient quality. The increasing level of ammonia within the beef products has been causing a difficulty in managing through the overall instances of growing the beef production process relating to adulteration and contamination presented throughout (Neisyafitri and Ongkunaruk, 2020). Hence, it is being difficult in managing through the expected guidelines or traditional guidelines in the beef industry referring to the concerns over food safety and consumption process.

Environmental issues: The beef production process is of the subjected to the development of an environmental footprint that contributes to the development of land and water degradation processes. It is based on the prospect of deforestation, biodiversity loss and the occurrence of acid rain while referring to the degeneration of the coral reef as well.

Identification of 3 supply chain solutions

To ensure effective management of the beef industry and development of the industry is successfully taken into account, there is a necessity in presenting and utilizing the following three supply chain solutions.

Traceability: The companies present in the beef industry must ensure that there is effective tracking, identification, and tracking of elements of the beef product. The prospect of developing traceability is important, as it will ensure quick and efficient management of the product recalling process. Tracking down the products to identify and remove the spoiled or poor quality beef products is a necessity (Mohebalizadehgashti et al. 2020).

Local supplier selection: To ensure efficient cost cutting in the supply chain operations, the selection of the suppliers for the beef production process must be focused on the selection of the local suppliers present within the operating market. There is a necessity in ensuring that the vendors selected are being efficient in prioritizing the orders placed for raw ingredients for the development of the beef product.

Sustainability operations: Sustainable beef production process is important to be maintained by emphasizing on the pest reduction activities and stress problems removal solutions being implemented such as the blockchain technology application (Cao et al. 2021). The beef materials must be prosecuted by the farms, which do not hold high impact farming practices throughout the industry.

Mapping supply chain Proper mapping of supply chain and accessing the constructive and authenticated action process further considers better verification of systems and creates the ideas about advanced analytical techniques to deal with constructive work based assistance. Broader application management and consider operational management, efficiency and reliability and focuses on the supply chain centric perspective with focused work based indications helpfully directed in this prospect (Muzzo and Provenza, 2018).
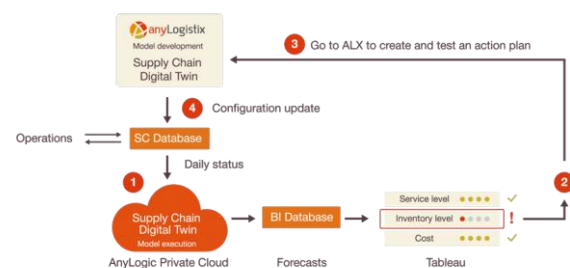

Figure: Digital Twin Supply Chain (DTSC)

Source:Teresaet al. 2018

The prevalent action plans and proper supply design assistance here connect with proposed work system

criteria and establish better equipment and unit operational indications followed in this prospect. Enabling unit operations and maintain the data based assistance here present helpfully directs the ideas about Digital Twin Supply Chain (DTSC) to maintain agri-food production caters the ideas about combined assistance with the public-domain support constructively assisted and helpfully channelize involved assistance (Teresaet al. 2018).

Appropriate technology selection

As the beef industry is growing fast, managing the Blockchain system can be utilized by accessing different action aspects by creating the appropriate global production of beef and reaching 63 million tonnes. The emphasis has been placed on the end-to-end traceability and channelizes the quality and safety assurance plans so that constructive directions by directing new technological support plans can be assisted. From the Blockchain system it can be stated that technological equipment management considerably access the ideas about level of transparency plan and assuring food safety and quality engagement plans (Greenwood, 2021). With the standard production plans and necessary approaches it can be presented that benefits from Blockchain planning cater the ideas about value chain assistance by increasing sustainability. The demonstration plan connects with the process of implementing support and maintaining greater confidence which follows constructive work based criteria get assisted. Blockchain has proceeded with the international market forecasting becoming highly effective and the process further connects with international growth engagement and maintains constructive directions so that necessary support implications can be followed and projected (Drouillard, 2018). The supply chain planning in a focused way can be directed well by articulating Blockchain support context here adjusts with the proposed work based indications. Furthermore, communicating about the food quality management plans and considering steady and effective supply planning here connects with quality, safety and standard flexible action approaches to create better action based pathways.

The dietary transition plans primarily associate with appropriate consumer awareness plans and make better concerns regarding ethical productions, potential health indications with considerable communication engagements can be focused. The rearing systems and welfare standards for the animals also get maintained by pointing out the structured awareness systems and this context channels helpful work perfectly in this context (Liet al. 2018). With the value management context and deals with better evolving value approaches connects with detailed approaches by accessing the food labels accuracy systems by stating structured production engagement and specifications get channelized properly.

Identification of industry impacts

The beef industry is trying to create effective market impressions by creating better customer areas and accurately deals with the production support plans which build better purchase decision supports. Currently witnessing some developments and considering the enhanced planning from robotics and Blockchain standardize the ideas about highest levels of quality, safety and sustainability assistance by stating continuous growth implications. These technologies effectively focus on the highest level of efficiency and create the idea about proper ingredient engagement for the production of beef products and sustainable framing also become a major part of the entire context. Unique opportunity building assistance and maintaining food safety along with unique opportunities to create premium and applicable support plans by verifying the sustainable credentials also become highly effective (Gotohet al. 2018).

The quality and traceability connected with constructive work system planning and genetic gain processes by building wider community specific engagement and initiating information based criteria can be helpfully proposed. Personalized sustainability approaches and maintain assurance schemes with proposed values and engagement cater the ideas about helpful work system pathways that can be directed and followed well. With significant quality assurance plans and creating individual improvement targets by stating values and considering participation from the farmers also become highly effective (Bonnyet al.2018). Blockchain represents the opportunity to contribute in developing standard production evaluations and create trust along with transparency so that helpful connectivity processes and helpful directions can be directed in this prospect. Evolving with different action assistance and maintaining the landscape to create helpful pathways helpfully get assisted and programmatically channelized. Environmental Protection Agency here connects with lowest carbon footprint management and channels the better economic engagement and execution of standard action support plans can be proposed.

The benefit within the business and connects with the proper margins and shared business specific criteria here defines the ideas about involved criteria processes with business related indications and specifications. The smart farming and the voluntary assistance cater the ideas about proper cost reduction plans and create the supportive implications so that followed engagement helpfully directed in this prospect. Sustainability in the beef industry processes with current action practices and achieve continued growth so that necessary understanding and constructive pathway here monitoring engagement and helpful value chain pattern constructively accessed (Greenwood et al. 2018). Consolidated data capture and prices with capacity building indications here defines the ideas about helpful work system planning and cater helpful directions to create proposed work-based integration context.

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Song and Schwarz (2008) participants (or students) thought the exercise would be difficult to perform Questioning students on study motivation, engagement and study strategies.