

# Forecasting Demand for Surimi Products and Implementation of the Master Production Schedule to Maintain Customer Trust, Case Studies of Itoyori Products in Group Management

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**Abstract:-** In the midst of increasingly innovative and competitive competition, it takes the ability to capture the development of market demand in industries engaged in the manufacturing industry. Maintaining market trust and making consumers loyal to the company is one of the methods so that the company can survive in the midst of competition. The objectives to be achieved from this research are: to analyze the appropriate forecasting method for the demand for Surimi Itoyori products, to analyze the best forecasting method for Surimi Itoyori products, to analyze the appropriate Master Production Schedule (MPS) based on the best forecasting method for Surimi Itoyori products. By using descriptive quantitative method. The results of this study indicate that the Tracking Signal limit for Surimi Itoyori Products has the potential to have a stationary pattern and a trend. From the results of the research, the forecasting methods obtained are Stationary Data with Additive Seasonal Effects, Stationary Data with Multiplicative Seasonal Effects, Holt-Winter's Method for Additive Seasonal Effects, and Holt -Winter's Method for Multiplicative Seasonal Effects meets the Tracking signal limit and can be used to forecast surimi products and the results of the comparison of the smallest MSE value, the smallest MAD and the Tracking Signal limit for Surimi Itoyori Products have obtained the selected forecasting results and 3. In the manufacture of MPS products it is necessary to carry out the second iteration to adjust the master production schedule with the delivery quantity. The large factory capacity compared to the demand for surimi, the potential of the surimi factory can be maximized by producing other products in the form of surimi products besides itoyori, frozen fish, and reprocessing or freezing services without worrying about disrupting the itoyori surimi production process. So furthermore during peak and low seasons surimi can be put to good use by optimizing its production capacity .

**Keywords:-** *Component; Surimi Itoyori Products; Forecasting Method; Master Production Schedule (MPS); Request.*

## I. INTRODUCTION

In the midst of increasingly innovative and competitive competition, the ability to capture the development of market demands in industries that are engaged in the manufacturing industry is needed. Maintaining market trust and making consumers loyal to the company is one of the methods so that the company can survive in the midst of competition. The marketing division is the spearhead of a company's sustainability as a mediator and representative of the company to customers. The role of marketers is very necessary in terms of how to be able to sell products from the company, capture information on market needs and to develop products from the market so that products can survive and be competitive in the market. The company must also be able to guarantee the certainty of the quantity and timeliness of product delivery. Determining the time of order and good quantity will never interfere with the smooth production process and can minimize the total cost of inventory (Nasution, 2008: 256).

As a company engaged in the production of Surimi, Prestasi Group always prioritizes quality in its services and always tries to maintain customer trust. One of them is by providing a commitment to fulfill the demand for the quantity of surimi products with the timeliness of delivery. This can be achieved by implementing good customer management by providing an overview of potential raw materials at sea, production plans, and estimated product delivery times. When a company is unable to meet requests from customers, it is certain that the company has the potential to lose customers. Customers will look for other producers who are able to meet the needs of their market share. If this happens repeatedly and in the long term, companies must be prepared to lose their customers and worse cause the company to stop carrying out the production process.

The material purchasing strategy is part of the focus of the Tata Group because the raw materials for making surimi are fish in the sea, with uncertainty from fishermen's catches how the Tata Group is able to get raw materials according to market needs and dominate the market. In the global market, the demand for surimi products is very large and tends to increase every year. We can see an increase in surimi production in Figure 1. under.



Fig 1.1 Graph of Sales of Surimi Manage Group in 2018-2020  
Source: Manage Groups (2020)

Manage Group is currently the largest producer of surimi products. Based on existing data, the Manage Group controls the share of raw materials acquisition in the field. Quoted from the scroll entitled "Surimi Tuban Controls 80% of the Asian Export Market" that "Fish meat extract in Tuban controls 80% of the Asian export market," said the President Director of PT. KML, Ir. Mohammad Nadjikh, to suarabanyuurip.com, Thursday (17/5/2018). The greater the share in the field shows the greater the supplier's trust in the Manage Group. The problem faced by the Tata Group is that raw materials are marine fish, as marine fish are generally difficult to predict. Making it difficult to align meeting market needs with fish catches, the Management Group often carries out the production process with a lack of knowledge regarding the description of fish to be obtained in the next period.

Surimi is a processed fish meat product that has gone through a very complex production process, leaving only the meat as raw materials (separated from bones, scales, fat, and other parts). Surimi is a semi-finished product, with its derivatives including fish balls, kamaboko, nuggets, takoyaki, scallops, and many other types. There are several types of Surimi that are quite popular, including: Itoyori comes from raw materials of kurisi fish, Big Eye from swangi fish, Pony Fish from cotton fish, Himeji from kuniran fish, and there are Mix Surimi products. Figure 2 shows the percentage of products exported by the Manage Group.

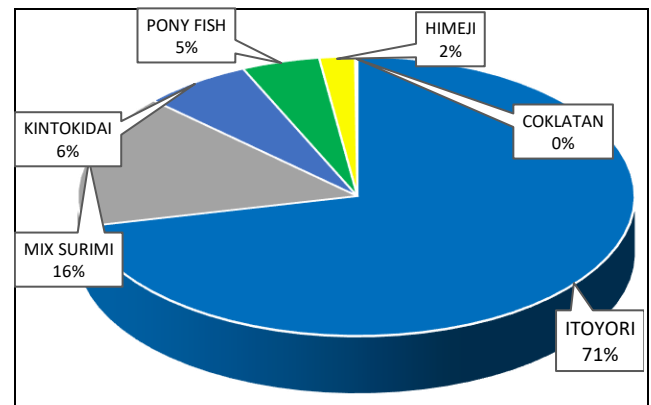


Fig 2 The percentage of products exported by the Manage Group.

In this study, the researcher limited Surimi Itoyori products. Itoyori surimi products are products with the highest demand compared to other surimi products. Surimi Itoyori can be representative of the demand for other surimi products because it has a similar demand pattern.

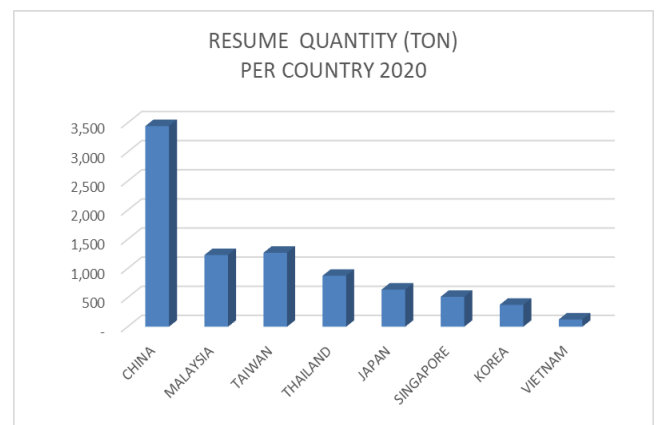


Fig 3 Export Recap by each country  
Source: Manage Groups (2020)

Figure 3 shows the distribution of the Tata Group's export destination countries. Surimi in the Manage group is an export product. The first destination country for surimi products is China, followed by Malaysia and finally Vietnam. Each destination country has different export-import regulations and lead time delivery. With these challenges, Tata Group is required to carry out good production and delivery management. Detailed data related to leadtime will later be needed in predicting surimi product forecasts for each period.

Trust is a value that the Angkasa Group wants to build and instill in its customers towards the company. With this trust, the Management Group and customers are able to grow and continue to develop together, build each other up and provide mutual benefits to each other to achieve their respective visions. Manage Group continues to strive to be committed to maintaining customer trust. Although in practice companies are often faced with constraints on timeliness and quantity of delivery. This challenge is being tried by researchers in terms of how to provide an approach to the certainty of the time and quantity of products to be delivered.

Doney and Cannon (1997) stated that trust in salespeople affects trust in supplier companies. Trust is also an important factor that is very basic in a business relationship and is a benchmark for the quality of business relationships that are developed. Meanwhile, Cram (2001: 114) defines trust as a statement that includes positive expectations in reaching a situation or the performance of a business. Ganesan (1994) stated that trust is important for establishing a successful long-term relationship. Yousafzai, Pallister, and Foxall (2003) stated that trust has been considered as a catalyst in various transactions between sellers and buyers so that consumer satisfaction can be realized as expected. Business transactions will not occur if the threshold of a trust is not reached between the business actors (Spectors and Jones 2004; Blumberg 2001; Mentzer and Min 2000).

Purchasing decisions are thoughts in which individuals evaluate the various choices available from the many choices which then ultimately decide on a choice of a product. According to Armstrong & Kotler (2014), regarding purchasing decisions is a stage in a decision-making process by buyers where consumers actually buy. Meanwhile, according to Schiffman & Kanuk (2014) in his book related to purchasing decisions can be defined as one choice of two or more alternative choices. According to Tjiptono (2012) related to purchasing decisions is a process in which consumers recognize the problem, seek information related to a particular product or brand and evaluate in depth each of the available alternatives which can be a solution to the problem which can then lead to purchasing decisions. From this understanding it can be concluded that purchasing decisions are a decision-making process that begins with an introduction to the problem and then evaluates it and decides which product best suits your needs.

Raw materials are inventories that have been purchased by companies to be processed into semi-finished goods and finally finished goods or final products from the company (Syamsuddin, 2011). All companies that produce to produce one or various kinds of products will always need the availability of raw materials for the implementation of their production processes. Raw materials are important inputs in every production process. Lack of available raw materials can cause the production process to stop. However, too much raw materials can also result in too high inventory within the company which can then lead to various types of risks and create high costs that the company must incur for the excess inventory.

The definition of raw materials according to Hanggana (2006:11) is something that is used to produce finished goods, these materials must stick together with the finished goods. In a company, raw materials and auxiliary materials have a very important meaning, because they are the capital for the

production process to production results. The process of grouping raw materials and auxiliary materials has the objective of controlling materials and charging HPP costs (cost of production). Material control is prioritized on materials with relatively high values, namely raw materials.

Demand for products in the form of goods and services is the quantity of goods or services that consumers are willing to buy at various price levels in a certain period. It can be said, people are willing to buy to show the emphasis on consumption of a product that is influenced by the price level. The meaning of the word willing in this case is that consumers have the desire and at the same time have the ability to buy a product or service and that ability is in the form of money or income. The meaning of ability is often referred to as purchasing power.

Transport or transportation is the transfer of goods and or people from the place of origin to the destination. The transportation process is a movement starting from the place of origin, then where the activity begins, where the destination is, and where the activity ends. The elements of transportation itself are the cargo being transported, the vehicles as a means of transportation, the roads that can be traversed, the terminals of origin and destination, and the human resources, organization or management that drives the transportation activities. Nasution (2008: 15).

According to Revzan (2008: 57) Distribution Channels are the paths that are passed by the flow of goods from producers to intermediaries that ultimately reach the user. The definition of distribution itself that is put forward is still narrow because so far the term goods is still often interpreted as a physical form, so that as a result it will tend to describe the transfer of services or a combination of goods and services.

The demand for surimi products is very high. In determining the contract taken, in this case the fulfillment target, the Group Management makes targets from historical data and then predicts contract fulfillment based on experience. Manage Group has made a monthly production production plan for a certain Fiscal Year, but has not yet broken down the delivery to each customer / buyer. This often causes non-commitment to deliver products to customers, often some shipments are delayed from the schedule that has been submitted to the customer, because there is no good management of product delivery. On the other hand, customers have product demands that are far greater than the production capacity of the Management Group, so that in addition to product quality which can be used as a competitive advantage, management of timely delivery is also required so that the Management Group can also excel in terms of service quality. Contract plan as in table 1.

Table 1 Contract Plan for Surimi to Manage the Group in 2020

No	buyers	Quantity Requirements (Tons)	Fulfillment Target (Tons)	Lost Contracts	
				(Tons)	(%)
1	Fujian Anjoy	2,500	1.175	1,325	53.00
2	Maruha Nichiro Group	2,700	1925	775	28.70
3	Future Seafood Group	3,000	1,850	1,150	38,33
4	Nippon Suisan	600	150	450	75.00
5	Tokai Denpun Group	600	575	25	4,17
6	Matsuda Group	600	475	125	20,83
7	QI Group	2,100	1050	1050	50.00
8	Haixin	900	500	400	44,44
9	Tinstark	900	525	375	41.67
10	Xiamen Chenkun	900	425	475	52,78
11	Halifa	600	400	200	33,33
12	Others2	2,100	650	1,450	69.05
<b>Total</b>		<b>17,500</b>	<b>9,700</b>	<b>7,800</b>	<b>44,57</b>

Source: Manage Groups (2020)

From Table 1 above it can be seen that there are contracts that cannot be fulfilled by the Group management. From requests that the Tata Group cannot fulfill, information is obtained that customers meet their product demands by importing surimi products from surimi exporters from other countries. It is feared that the relatively high demand that cannot be managed will be the cause of reduced customer trust if the Group Management is unable to support it with timely and quantity delivery. For more details, we can simplify related to contract fulfillment targets and lost contracts that cannot be fulfilled into the following diagram:

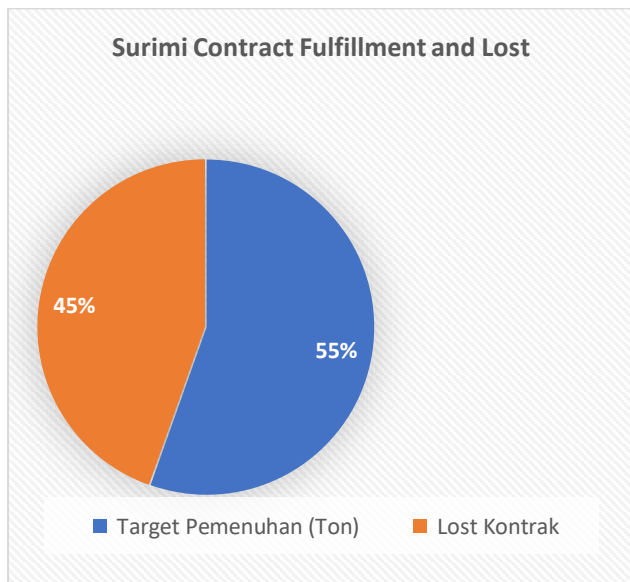


Fig 4 Comparison of Targets and Realization of Exports Manage Groups

Source: Manage Groups (2020)

Based on Figure 4 of the diagram above, it can be seen that even most of the requests for Surimi products by buyers cannot be fulfilled by the Manage Group. This can affect customer satisfaction on the ability to fulfill requests. However, these conditions can be offset by a commitment to fulfillment and prompt delivery of the agreed contract. The targets and realization of the exports that were carried out by

the Tata Group were limited to product tonnages. With more detailed data and with the right forecasting method, it is possible to forecast the acquisition of raw materials and export plans.

Forecasting function can be seen at the time of decision making. A good decision is a decision based on various considerations of what will happen when the decision is implemented (Ginting, 2007).

To find out the product needs in the next period, forecasting methods can be used. Several forecasting methods that can be used are moving averages, Weighted Moving Average, Exponential Smoothing, and Exponentially Weighted Moving Average, Stationary Data With Additive Seasonal Effects, and Stationary Data With Multiplicative Seasonal Effects, Holt-Winter's Method for Addictive Seasonal Effects and Holt-Winter's Method for Multiplicative Seasonal Effects (Nasution, 2008:37). Selection of the appropriate forecasting technique can be done by selecting one of the methods according to the characteristics of product demand. It is hoped that by using the correct forecasting method and lot sizing technique, the total inventory cost incurred by the company will be minimized, and of course it can maintain customer confidence regarding the accuracy of delivery.

The characteristics of product demand can be identified by looking at demand patterns from two or more periods. From the demand pattern, it is observed whether the demand pattern is classified as stationary, trend, and/or has a seasonal pattern. Then forecasting is carried out using forecasting techniques that are in accordance with demand patterns and a reliability test of the forecasting technique must be carried out to find out whether the forecasting technique can be applied and can be used as an approach to actual demand. The demand pattern for itoyori surimi products can be seen in Figure 1.5. In the figure it is quite clear that the demand for itoyori surimi products has a seasonal demand pattern. However, this demand also has the potential to have a stationary or trend pattern.



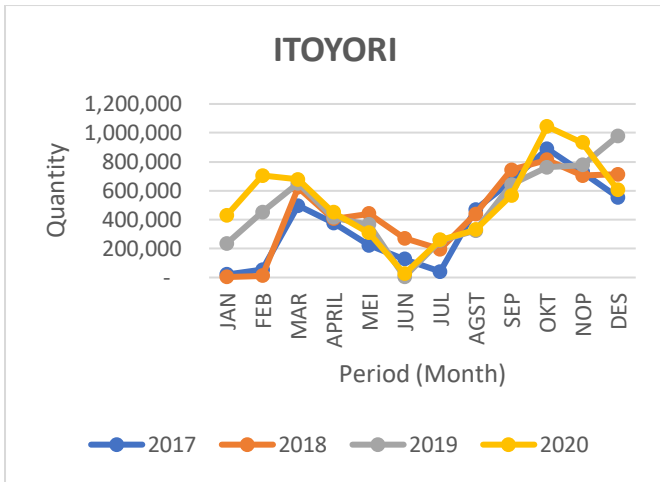


Fig 5 The pattern of demand for Itoyori products  
Source: Research Results (processed by researchers); 2022

In the production process, it is known as making a master production schedule or Master Production Schedule, abbreviated as MPS, to find out the material schedule to be produced, when the goods will be needed, how much is needed, which can then be reduced to the need for raw materials so that it can be used as a basis for preparing material purchasing plans. . Based on the background of this problem, the researcher feels interested in conducting research on "Forecasting Demand for Surimi Products and Implementation of the Master Production Schedule to Maintain Customer Trust, Case Studies of Itoyori Products in Group Management".

**II. EASE OF USE**

**A. Forecasting / Forecasting**

Since the 1960s all types of organizations have shown improvements to obtain better forecasting results. According to Makridakis (1983) the commitment to improve the results of a forecast is caused by several factors. First, because of the increasingly complex organization and organizational environment, this makes it more difficult to make decisions by considering all factors. Second, as the organization grows, the magnitude and importance of a decision will increase, most decisions require complete forecasting and analysis. Third, most organizational environments change rapidly. Fourth, the organization moves systemically. Fifth, what is perhaps most important is the development of forecasting methods carried out by practitioners with direct application.

According to Makridakis (1983) forecasting is divided into two basic categories, namely quantitative and qualitative. Quantitative methods can be divided into time series and casual methods. Time Series models are based on data that is collected, recorded, or observed in a time sequence and forecasts are based on certain patterns of data. and qualitative is divided into exploratory and normative methods.

**B. Master Production Schedule(MPS)**

Basically, the abbreviated Master Production Schedule (MPS) or commonly called the master production schedule is a plan regarding the final product of a company or manufacturing industry that produces products related to quantity and within a period of time. MPS is used to disaggregate and also implement a production plan. If the production plan is the result of the production planning process expressed in aggregate form.

Master production scheduling activities are basically concerned with how to prepare and update MPS, further process transactions from MPS, perform maintenance of MPS records, evaluate the effectiveness of MPS, and provide an evaluation report in regular time periods for the purpose of providing feedback. back and for review. Based on the description above, it can be seen that MPS is closely related to statements related to production and not statements about market demand. MPS is familiarly defined as the anticipated build schedule for items that have been prepared by the master production schedule planner (MPS). MPS is a communication bridge between the marketing department and the manufacturing department, so it is appropriate for the marketing department to also know the information contained in the MPS, especially those related to ATP (Available To Promise) so that it can provide accurate promises to customers (Gaspersz, 2005).

**III. RESEARCH METHODS**

This type of research is a quantitative descriptive research. Descriptive research aims to describe the problems that occur in the field. These problems can be forms, changes, relationships, activities, characteristics, similarities, and differences between each phenomenon (Sukmadinata, 2006). According to Sugiyono (2018) descriptive research is research conducted to determine the value of an independent variable, either one or more (independent) variables without making comparisons, or connected with other variables.

Quantitative descriptive method is a quantitative research in the form of a numerical description (statistics). The point is that this research is related to the elaboration of statistical figures. Descriptive research is not intended to test a particular hypothesis, but only describes "what is" about a variable, symptom or condition. Indeed, often in descriptive research one wants to prove estimates but it is not too common. In general, descriptive type research is not intended to test hypotheses (Arikunto, 2005: 234)

The descriptive problem formulation relates to two things: (1) characteristic problem; and (2) the problem of frequency. An example of a problem statement related to characteristics is "What forecasting method is appropriate for the demand for Surimi products. An example of a problem formulation related to frequency is "How much is the MAPE value of forecasting using Holt-Winter's Method for Addictive Seasonal Effects?", "How effective is the use of information and communication technology in the Manage Group environment?":

#### IV. RESULTS AND DISCUSSION

##### ❖ *Analysis and Discussion*

Based on the observational data and data processing that has been done, analysis and discussion can be carried out regarding the best forecasting method, and the creation of a Master Production Schedule.

##### ➤ *Surimi Itoyori Forecasting*

In this study, the pattern of product demand shows a seasonal demand pattern and is likely to have a stationary pattern and trend, so that the forecasting method can be used Stationary Data with Additive Seasonal Effects, Stationary Data With Multiplicative Seasonal Effects, Holt-Winter's Method for Additive Seasonal Effects, and Holt -Winter's Method for Multiplicative Seasonal Effects. This method has been tested and is suitable for forecasting surimi itoyori products.

Looking at the comparison results from the smallest MSE value, the tracking signal limit and the smallest MAD for the Surimi Itoyori Product, the selected forecasting results have been obtained. The chosen method for Surimi Itoyori products is Stationary Data With Additive Seasonal Effects with  $\alpha = 0.2$ ; and  $\beta = 0.1$ ; has the second smallest MSE value of 33,841,293,024. Table 4.14 shows that the selected method has the second smallest MAD value of 1,617,154 and as shown in Table 4.10 and in Figure 4.11 the selected method meets the Tracking Signal control limits so that this forecasting method is reliable and selected as the best forecasting method for Itoyori products. This method can well describe the pattern of demand for Itoyori surimi products for the next period.

The selected forecasting technique is very appropriate as a basis for determining annual production targets. The results of the forecasting can well describe the actual demand for the next period. After determining the annual and monthly production targets, production targets can be used as a basis for making sales contracts with buyers, both within a monthly period and within a year.

The process of determining sales contracts made by the Management Group is quite good. However, the qualitative and conventional methods have several weaknesses and of course the forecasting inaccuracy is quite large. As a result, many delivery schedules are not in accordance with those predetermined, this is exacerbated by the existence of a new sales contract that gets delivery priority. Quantitative forecasting methods are needed as a consideration in setting production targets and reducing the negative impact of non-commitment when delivering products to buyers.

Researchers suggest the use of quantitative forecasting methods as a basis for determining annual production targets and monthly production targets. The results of this quantitative research can also be used as a basis for determining the quantity of sales contracts and the basis for determining product delivery times. Thus reducing the potential for shipping uncertainty and still being able to maintain buyer trust in the Manage Group company.

##### ➤ *Master Production Schedule (MPS)*

In making MPS products, it is necessary to carry out a second iteration to adjust the master production schedule to the delivery quantity. Because product delivery to buyers is carried out using containers with a capacity of 25 tons per container. In order to obtain a master production schedule that is closer to the actual conditions.

The factory capacity is far greater than the demand for surimi itoyori, so to maximize the potential of the surimi factory, the factory can produce other products in the form of surimi products besides itoyori, frozen fish, and reprocessing or freezing services without worrying about disrupting the itoyori surimi production process.

The management's optimism at the Tata Group is very good in the sense that they set the highest possible target to achieve. By knowing the demand for surimi products using the heuristic method for the future, it is hoped that the company will be able to measure production targets and create a more realistic master production schedule. Companies must be open and able to realize that the demand for and production capacity of itoyori surimi products will be close to that number, so that production planning naturally does not deviate too far from this number.

The production schedule applied to manage the group still has no detailed production period to the next period. Manage groups still apply production methods in weekly periods. The production planning implemented by the company at this time is due to the unknown description of the company's production capabilities for a quite distant or long-term period. This is one of the domino effects of conventional forecasting applied by companies. So it is highly recommended to use quantitative forecasting methods. So that further during peak and low seasons surimi can be put to good use by optimizing its production capacity.

Companies are required to be able to set production targets as high and realistic as possible. Apart from the production schedule for the company's Surimi Itoyori products, the company should have been able to optimize its production capacity much earlier. Companies have the opportunity to seek sales contracts for products other than surimi itoyori. The company is also able to control and maximize the need for raw materials needed. As well as the company is also able to manage the needs of the workforce needed in each period.

#### V. CONCLUSION

Based on the results of the analysis and discussion that have been carried out in the previous chapter, the following will present the conclusions of the research results.

➤ Based on the results of the existing data pattern, it is known that the demand for surimi has a seasonal pattern. Based on the research results of the Tracking Signal limit for Surimi Itoyori Products that have the potential to have a stationary pattern and a trend, the research results show that the forecasting method is Stationary Data with Additive Seasonal Effects, Stationary Data with Multiplicative Seasonal Effects, Holt-Winter's Method for

Additive Seasonal Effects, and Holt-Winter's The Method for Multiplicative Seasonal Effects satisfies the Tracking signal limit and can be used to forecast surimi products.

Quantitative forecasting methods can be used as a basis for determining annual and monthly production targets. The results of quantitative forecasting can be used as a basis for determining the quantity of sales contracts and the basis for determining product delivery times. Thus reducing the potential for shipping uncertainty and being able to maintain buyer trust in the Manage Group company.

- Based on the results of the comparison of the smallest MSE value, the smallest MAD and the Tracking Signal limit for the Surimi Itoyori Product, the selected forecasting results have been obtained. Research shows that the selected method has the second smallest MSE and MAD values. The chosen method also meets the Tracking Signal control limits, meaning that this forecasting method is reliable. Surimi Itoyori product forecasting method with Stationary Data With Additive Seasonal Effects with  $\alpha = 0.2$ ; and  $\beta = 0.1$  was chosen as the best forecasting method for the Itoyori product. This method can well describe the pattern of demand for Itoyori surimi products for the next period.
- In the manufacture of MPS products, it is necessary to carry out a second iteration to adjust the master production schedule to the quantity of delivery. The large factory capacity compared to the demand for surimi, the potential of the surimi factory can be maximized by producing other products in the form of surimi products besides itoyori, frozen fish, and reprocessing or freezing services without worrying about disrupting the itoyori surimi production process. So furthermore during peak and low seasons surimi can be put to good use by optimizing its production capacity.

## REFERENCES

- [1]. Arikunto, Suharsimi. 2005. *Prosedur Penelitian Suatu Pendekatan Praktek*. Jakarta: Rineka Cipta
- [2]. Christian, David dan Halim. 2016. *Peramalan Multivariat untuk Menentukan Harga Emas Global*. Surabaya: Universitas Kristen Petra.
- [3]. Elsayed, A. Elsayed. 1994. *Analysis and Control of Production System*. New Jersey : PTR Prentice-Hall, Inc.
- [4]. Fazrina dan Rizki. 2020. *Penerapan Model Arima Untuk Peramalan Jumlah Klaim Program Jaminan Hari Tua Pada Bpjs Ketenagakerjaan Kota Langsa*. Aceh: Universitas Samudra.
- [5]. Gaspersz, Vincent. 2005. *Total Quality Management*. Jakarta: PT. Gramedia Pustaka Utama.
- [6]. Gaspersz, Vincent. 2012. *All In One: Production and Inventori Management*, Edisi 8. Jakarta: PT. Gramedia Pustaka Utama.
- [7]. Ginting. 2007. *Sistem Produksi*. Yogyakarta: Graha Ilmu.
- [8]. Hanggana, Sri. 2006. *Prinsip Dasar Akuntansi Biaya*. Surakarta: Mediatama
- [9]. Imron, Ali. 2018. *Surimi Tuban Kuasai 80% Pasar Ekspor Asia*. Kumparan. <https://kumparan.com/suarabanyuurip/surimi-tuban-kuasai-80-pasar-ekspor-asia>. (diakses pada 10 April 2022)
- [10]. Kotler, Philip & Gerry Armstrong. 2014. *Principle Of Marketing*, 15th edition. New Jersey: Pearson Prentice Hall.
- [11]. Makridakis, S., Wheelwright, S.C., & McGee, V. E. 1999. *Metode dan Aplikasi Peramalan Jilid 1 (Ir. Untung Sus Ardiyanto, M.Sc. & Ir. Abdul Basith, M.Sc. Terjemahan)*. Jakarta: Erlangga.
- [12]. McClelland, Marilyn K. 2018. *Order Promising and the Master Production Schedule*. Greensboro: University of North Carolina.
- [13]. Nasution, Arman, Dkk. 2008. *Perencanaan dan Pengendalian Produksi*. Yogyakarta: Graha Ilmu.
- [14]. Pipatsattayanuwong S, Park JW, Morrissey MT. 1995. *Functional properties and shelf life of fresh surimi from pacific whitting*. *J. Food Sci.* 60(6): 1241-1244.
- [15]. Pujawan, I Nyoman. 2005. *Supply Chain Management. Edisi Pertama*. Surabaya: Guna Widya.
- [16]. Revzan, David A. 2008. *Marketing Organization Through The Channel*
- [17]. Rosnaini. 2007. *Sistem Produksi*. Yogyakarta: Graha Ilmu.
- [18]. Santoso, Singgih. 2009. *Panduan Lengkap Menguasai Statistik Dengan SPSS 17*. Jakarta: PT Elex Media Komputindo.
- [19]. Schiffman, L. G., Kanuk, L. L., & Wisenblit, J. 2014. *Consumer Behaviour*. London: Pearson
- [20]. Sugiyono. 2018. *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung : Alfabeta.
- [21]. Syamsudin, Lukman. 2011. *Manajemen Keuangan Perusahaan*. Jakarta: PT. Raja Grafindo Persada.
- [22]. Tersine, Richard J. 1994. *Principles of Inventory and Materials Management Fourth Edition*. New Jersey : PTR Prentice-Hall, Inc.
- [23]. Tjiptono, Fandy. 2012. *Strategi Pemasaran*, edisi 3. Yogyakarta.
- [24]. Waters. 2003. *Logistics - An introduction to Supply Chain Management is an essential introduction*. New York: Palgrave Macmillan.
- [25]. Widodo J dan Suadi. 2006. *Pengelolaan Sumber Daya Perikanan Laut*. Yogyakarta: Gadjah Mada University Press.