

ANALYSIS OF DETERMINING RAW MATERIAL REQUIREMENTS EFFECTIVELY AND EFFICIENTLY BY APPLYING THE MRP METHOD

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ABSTRACT

This research aims to analyze the effective and efficient lot sizing method for determining raw material requirements in implementing MRP. The research stages are through testing 3 lot sizing methods namely LFL, EOQ, and POQ. The initial stage of data processing is in the form of a MPS obtained from demand recap data and BOM which are components of the product as input. The next step is the MRP process, namely the netting process, the lotting process, the offsetting process, and the explosion process. This stage is in the form of a MRP matrix in tabular form. The next step is to enter the inventory cost calculation process for each method consisting of the storage cost of each component per period and the ordering cost per message. Calculations are carried out for each method to determine the amount of absorption of inventory costs from each method. The results show that the LFL method absorbs inventory costs of Rp.240,000,000, the EOQ method absorbs inventory costs of Rp.251,503,100 and the POQ method absorbs inventory costs of Rp.261,027,683. In this case, LFL has the lowest absorption of inventory costs, according to the current state of the company, does not leave inventory, and is easy to implement for the company. The study results concluded that the most effective and efficient method is LFL according to the current state of the company, does not leave inventory, and is easy to implement for the company. The study results concluded that the most effective and efficient method is LFL according to the current state of the company, does not leave inventory, and is easy to implement for the company. The study results concluded that the most effective and efficient method is LFL

Keywords: raw materials, lot sizing, Material Requirement Planning (MRP)

INTRODUCTION

High quality products through the production process with precise accuracy effectively and efficiently. According to Windarti and Ibrahim (2017) the consistency of needs and desires for each product into product quality and specifications is a condition related to products, human and natural services to meet buyer expectations. In fulfilling the need for orders, companies often carry out the production process several times to maintain the quality of their products. This is due to a decrease in product quality which was originally classified as a grade A product to a grade B product each time it is produced. The following is a table of grade reduction data in January-October 2021.

The company sets a tolerance limit for grade A grade reduction of 8.5% each time it is produced. Table 1 shows that in January, May, July, September and October the company's tolerance limit was exceeded. The problem faced by companies related to the decline in product quality is that raw materials are often damaged so that they do not meet the standard of raw materials.

Table 1. Pallet Production

Month	Producti	Producti	Percenta
	on	on	ge
	Grade A	Grade B	
January	1025	100	9.76%
Februar			
у	965	80	8.29%
March	898	65	7.24%
April	2025	125	6.17%
May	1200	124	10.33%
June	984	80	8.13%
July	919	95	10.34%
August	800	60	7.50%
Septem			
ber	780	70	8.97%
October	820	80	9.76%

Source: Rafansa (2021)

This happens because the company does not implement ordering scheduling, the amount of raw material needed, the time needed for raw materials and production time so that it

has an impact on product quality because the production process is less effective efficient. With the existing and problems, the researcher proposes to apply MRP in controlling raw material inventory. According to Heizer and Render (2015; 642) Material Requirements Planning (MRP) has benefits as a better response to customer orders as the result of improved adherence to schedules, faster response to market changes, improved utilization of facilities and labor, and reduced inventory level. According to Eddy Herianto (2010:276) the purpose of Material Requirements Planning (MRP) is to minimize inventory, reduce risk due to production or delivery delays, realistic commitments, and increase efficiency.

LITERATURE REVIEW

Definition of Supply

According to Jacobs and Chase (2016) the supply of goods and resources used by the company for the course of the production or operational process. Inventory will become a large asset at a certain time so that the statement of financial position and inventory is difficult to cash back so the company suppresses inventory in the company



called inventory.

According to Karongkong et al (2018) an item that is stored for a certain period depends on the demand period or which will be resold in the next period for the use of a separate company called inventory.

MRP

Heizer and Render (2016) a suspended demand technique that utilizes material inventory expected receipts and material requirements planning. Diana (2013) the concept that analyzes related to the right way in planning the needs of goods in the production process so that the goods that are needed can be available according to expectations and when needed.

Lot sizing on MRP

Lot For Lot (LFL) is one of the lot size determination techniques that produces exactly as needed. The decision is consistent with the MRP objective, which is to meet the needs of the dependent request. The Lot For Lot (LFL) technique orders materials only when they are needed. If the company already has the cost of ordering (preparation), the cost of holding each unit for a certain period of time, and a production schedule, the company can

enter the order into the company's net needs plan.

EOQ is the value of the amount of material needed during each purchase using the most economical cost. The formula used in calculating EOQ according to Sugiono (2009) is:

$$EOQ = \sqrt{\frac{2SD}{H}}$$

The technique of determining the lot size for meeting material needs based on the number of demand periods that must be fulfilled (excluding zero requests) for each order is called POQ. The formula used in the POQ technique according to Martono (2018) is as follows:

$$POQ = \frac{EOQ}{Rata - rata\ permintaan\ tiap\ periode}$$

METHOD

The researcher conducted interviews with the owner of the company as well as the leader of the company to find out the main problems at this time, the product that was having problems, the production process and the company's business flow. Researchers also conducted direct field observations to find out the causes of the problems that occurred and the production process

directly. The initial step in implementing MRP is input in the form of MPS data, BOM and Inventory Costs. MPS is an arrangement of finished product requirements consisting of a schedule of needs and the number of needs in the short term. BOM is the structure of the product that composes the final product on the pallet product which is divided into 3 levels starting from finished or final products, semi-finished products and raw materials as listed in Figure 1.

RESULT AND DISCUSSION

Table 2. Master Production Schedule (MPS)

Year	January-December 2021													
					Need	s plan								
Mont h	1	2	3	4	5	6	7	8	9	1 0	1	1 2		
Maste r Produ ction Sched ule(M PS) TOT AL	1 0 8 5	10 40	9 6 3	2 1 4 0	1 3 0 0	1 0 8 9	1 0 1 4	9 0 0	8 6 0	9 4 0	1 2 1 0	1 3 2 0		
Grade A. Pallet s	1 0 2 5	96 5	8 9 8	2 0 2 5	1 2 0 0	9 8 4	9 1 9	8 0 0	7 8 0	8 2 0	1 0 6 5	1 2 6 0		
Grade B. Pallet s	6	75	6 5	1 1 5	1 0 0	1 0 5	9 5	1 0 0	8	1 2 0	1 4 5	6		

Source: Rafansa (2021)

The next stage of MRP is the MRP process which consists of the netting process, the lotting process. offsetting process and explosion process. The MRP process is summarized in the form of an MRP matrix which directly applies 3 lot sizing methods.

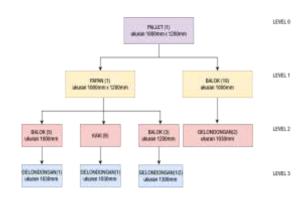


Figure 1. Bill of Materials (BOM) Product Pallet

Table3. Storage Fee

No	Items	Nominal
1	Grade A . Pallets	1,667
2	Board Assemblies	833
3	Beam 1000mm	167
4	Beam 1000mm	167
5	Foot	125
6	Beam 1200mm	250
7	1030mm . spindle	1,250
8	1030 spindle	1,250
9	1030 spindle	1,250
10	1300 spindle	1,250

Source: Rafansa (2021)

Table4. Ordering Fee

Information	Nominal	Time	Unit
Shipping costs	2,000,000	1	One time delivery
G D C (2	001)		

Source: Rafansa (2021)

LFL

The MRP stage uses the LFL lot sizing method. Figure 2 lists the MRP matrix using the LFL method at level 0. At level 0 there are only finished products in the form of pallets.

Pallet													
ПЕН РЕБИОО	Dar'28	1	2	3	4	5	6	7	:	,	10	"	12
6R		1025	965	191	2025	1200	984	919	880	790	121	1065	1250
SR													
OHI													
MR		1025	965	191	2025	1200	984	919	280	700	121	1065	1260
POR		1025	965	191	2025	1200	984	919	880	700	121	1065	1250
POR ₄ I	1025	965	242	2025	1200	914	919	280	790	126	1065	1260	

Figure 1. MRP Matrix Level 0 LFL



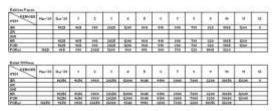


Figure 2 LFL Level 1 MRP Matrix

Figure 3 lists the MRP matrix using the LFL method at level 1. At level 1 there are 2 items in the form of semi-finished goods and 1000mm beams.

Figure 4 lists the MRP Matrix using the LFL method at level 2. At level 2 there are 4 items in the form of 1000mm beams, legs, 1200mm beams and 1030mm logs.\

PERIOR	06e/20	Nov'31	Dur'30	1	2	3	4	5	į	7	1	,	1	Ħ	£
GR.		5125	485	4490	1925	6000	4531	66	400	3900	400	5005	600	- 1	-
9R															
OHI															
ie.		925	485	4490	1925	6300	4531	66	400	3900	400	505	600		
POR		925	485	4490	1025	6300	4531	66	400	3900	400	505	600		
PORAL	925	403	481	1925	5000	60	4515	400	3800	400	5325	638			

ENORE HEI	0le/20	Nov 21	Der'30	1	2	3	4	5	ķ	7	=	,	1	Ħ	12
38		925	1815	302	18225	1000	199	1271	7299	100	7391	9515	1941	-	-
9R															
OHI															
e.		5025	1815	#12	10225	1000	194	1271	7290	100	7391	9515	1941		
POR		5025	1815	3802	10225	1000	199	1271	7290	100	7391	9515	1941		
PORAL	9225	985	1962	11225	1000	1156	1271	7200	7101	7310	55	1940			

-														
:20 No	-21	Der'30	1	2	3	4	5	į	1	=	,	1	Ħ	12
3	65	2195	2694	6075	3830	2652	2751	200	2340	2491	315	3300		
3	65	2195	3994	6075	3880	2952	2751	200	2340	2401	315	3700		
3	65	2195	2694	6075	3830	2652	2751	200	2349	2491	315	3700		
3175	216	2884	6075	300	2952	2757	2400	234	2461	316	370			
֡	3	305 305 305	3/15 23/6 3/15 23/6 3/15 23/6	3075 2395 2494 3075 2395 2494 3075 2395 2494	305 286 364 605 305 286 364 605 305 286 364 605	305 2366 3664 605 360 305 2366 3664 605 360 305 2366 3664 605 360	3075 2395 3394 4475 3400 2452 3075 2395 3394 4475 3400 2452 3075 2395 2394 4475 3400 2452	2005 2005 2004 MITS 2000 2002 2051 2005 2005 2004 MITS 2000 2002 2051 2005 2005 2004 MITS 2000 2002 2051 2005 2005 2004 MITS 2000 2002 2051	2075 2365 2464 8475 2440 2452 2251 200 2075 2365 2464 8475 3400 2452 2251 200 2075 2365 2464 8475 3400 2452 2251 200	265 266 2664 8675 3400 2652 2571 2600 2340	2875 2895 2894 8875 3880 2492 2751 2600 2380 2884	2875 2895 2894 4875 3800 2852 2751 2800 2240 2864 2965 2875	2675 2565 2564 5675 2560 2562 2571 2600 2360 2664 2565 2770 2675 2770	2675 2565 2664 M/TS 3400 2652 2757 2000 2240 2664 2665 37100 2675 2755 2665 2664 M/TS 3400 2652 2757 2000 2240 2664 2665 37100 2675 2755

Gladage 1	Olan .														
PERIOR	064/20	Nov'21	Der'30	1	2	3	4	5	ı	7	:	9	1	Ħ	ε
GR.		1025	965	191	2025	200	914	59	200	700	121	165	288		
SR															
OHI															
ire.		1025	965	181	2025	200	914	99	230	700	121	1965	288		
POR		1025	965	181	2025	200	914	99	330	700	121	165	288		
PORal	1025	96	180	3125	210	504	99	200	78	120	193	288			

Figure 3. MRP Level 2 LFL Matrix

Figure 5 lists the MRP Matrix using the LFL method at level 3. At level 3 there are 3 items in the form of 1030mm logs, 1030mm logs and 13000mm logs.

Golandan gon 11	Sinn															
300KB3	Supt 20	0kt/20	Nov'20	Dar'20	1	2	3	4	5	ı	2	1	,	11	1	12
GR .		1025	965	191	2/25	200	914	919	280	710	129	1065	1250			
GR SR OHI NR POR																
OH .																
88		1025	965	191	2/25	1200	914	919	280	789	429	1065	1254			
POR		1025	945	191	2/25	200	914	919	200	789	129	1065	1254			
POR _{el}	1125	965	190	2105	200	914	99	396	790	129	1065	1254				
PERXOE METI	Supt 20	0kt/20	Nov'21	Der/30	1	2	3	4	5	ı	2	1	,	11	11	12
GR		1025	945	191	2/05	200	914	919	200	700	121	1065	1250			
SR OHI																
DHI .																
8		1025	965	191	2/25	200	914	919	200	789	\$29	1065	1254			
POR		1025	965	191	2/25	200	914	919	200	780	429	1065	284			
POR _{el}	1125	965	190	2105	200	914	99	316	790	129	1065	1284				
Eclandarien () PERIODE		0k+'20	Nov'28	Dar 20	1	2	3	4	5		,	:	,	11	1	12
BR .		98	40	449	1063	600	490	- 61	400	390	49	500	636			
58																
OH .											\neg					
GR SR OHI NR POR		98	43	449	103	600	490	- 61	410	390	49	500	636			
POR		98	40	441	103	600	490	- 61	410	390	49	500	636			

Figure 4. MRP Level 3 LFL Matrix

EOQ

The MRP stage using the EOQ lot sizing method in Figure 6 lists the MRP matrix using the EOQ method at level 0. At level 0 there are only finished products in the form of pallets. Figure 7 lists the MRP matrix using the EOQ method at level 1. At level 1 there are 2 items in the form of semi-finished goods and 1000mm beams.

Pallet													
PERIODE	Der '20	1	2	3	4	5	6	7	*	9	10	11	12
GR		1025	965	898	2025	1200	984	919	800	780	820	1065	1260
SR													
OHI		571	1202	304	1471	271	883	1560	760	1576	756	1287	27
NB		1025	394		1721		713	36		20		309	
POR		1596	1596		3192		1596	1596		1596		1596	
PORel	1596	1596		3192		1596	1596		1596		1596		

Figure 5. MRP Matrix Level 0 EOQ

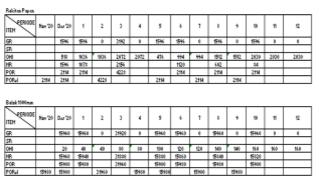


Figure 6. Matrix MRP Level 1 EOQ

PERIODE OLE SR SR SH SR POR POR POR SR FOR	720 Mev 7 1657 1657 1657 2666	9710	٠	2	3	4	5	٠	7	4	,	10	Ħ	12
GR SR OHI MR POR PORJ 2	99%	9710		21101				1 1	1 1	1 1				
SR SH SR POR PORJ 2	99%	9710		27101			16579	- 0	10570			-		
SHI SR POR PORAL 2	1057		_		_	-	70517	-	195.70	-	10579			-
BR POR PORAL 2	1057		4710	995	9625	125	1136	1136	1547	1547	1251	1251	1251	1251
POR 2		571	1110	1167	742	163	1445	1100	1734	1041	2923	1621	7631	PEST
PORM 2			-	24942			10021		16231	-	19211	-		_
Kai	1982 1983		26542	Link		16231		10231	- Francis	10311		-		
Kati														
Trans.														
EERHOOE OA	30 Nev3	0 Der'20	1	2	3	4	5		7	1	,	10	11	2
IBH \														
GR .	1902	19025		30052	- 1		19025	. 0	19126	- 0	19025		- 1	- 4
SR														
OHI .	1735		16581	14046	14146	10146	589	14010	13114	10:04	12330	12331	12330	12334
98	1902		-	2:504	$\overline{}$		400		50%	_	5852	-		_
POR	3831		-	36310	$\overline{}$		19199		10190	_	19190	-		_
PORM 3	GH 99	4	36300			10190		10190		1000				
Belak (200mm PEFRODE Obt	20 Nev?	0 Dwr'29	1	2	3	4	5	ı	7	4	,	10	Ħ	2
gr	634	6342		12514			6342		640		6342	-	-	-
98		100	-	10,000	-	-	10-00	-		_	10-60	-		_
OHI .	586	328	329	640	540	649	396	330	990	960	1929	1520	1929	191
98	634			12364			5712		9940		5042			
POR	1300			13984			6502		6910		6502			
PORM 1	3004		13864			6510		6592		1912				
Golandan yan 1904m EEFROOE OA		Der'29	1	2	3	4	5		7	4	,	10	Ħ	12
gr T	1590	1511		286		1541	1511		1541		1940	-		
SR	1	120												
	241	497	490	913	963	242	1490	1490	5734	1739	141	90	141	141
OHI .	1591	1050	- "	2699		605	35%		90					
OHI NR POR	1990					605 1946	354 1948	\Box	90 946					

Figure 7. MRP LEVEL 2 EOQ MATRIX

Figure 8 lists the MRP Matrix using the EOQ method at level 2. At level 2 there are 4 items in the form of 1000mm beams, feet, 1200mm beams and 1030mm logs.

Figure 9 lists the MRP Matrix using the EOQ method at level 3. at level 3 there are 3 items in the form of 1030mm logs, 1030mm logs and 13000mm logs.

	VIV. 12	100000	Course	10.00		1000	Charles		2.5.5	1,000		0.00	1.7		100000	11
EPRODE IN	Seat 24	00x7#	Han 124	Dar-10	7.5	1	- 1	• 0	. * .	15.	1	* 1	. 3.0		.0	9
8 7		411	1794	- 4	435	. 4		2094		2194	- 4	2094				
ň.			-0.00		- 11.7							-				
10		- 34	- 46	181	194	.04	111	104	224	167	361	Desi.	Desi	346	344	
6		411	7816		2946		1.11	1111	77.7	1112	77.7	1719	-			715
OP.		4314	1796		4104			2094		2256		20%				
Official Control	4111		-	4111	_		1414		2014		3494					
114	Sout St	1000	19x 51	DP-31	8	1	7.	1			1	*	*	"		,
Append					_		_			-	_	_		_		-
104	Seart or	1000	10000	10.11	8.		7	55.5				2.5				
n n		940	280	-	940		-	2929		100	- 1	2907	-		_	
16		19	964	701	109	199	277	102	100	148	347	40	44)	40	461	- 4
R I		4940	7940		1274	1000	1	1104	1	Hill		1174	183			-
96		460	289		483		10	2474		2475		2475				
Office :	460	EN.	_	460	-		pela	_	2016	-	2414	-				
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epycer Dr	Olean Sout St		No. St	Derila	20	1	9.	•	*	*	9	90	•	*	300	,
epucer Di	4.11		0200	Dur'le	281	1	2	His	*	100	9	HIS	•	*	10.	,
epicer Di	4.11	06×104				1		His		110	-	His				,
epoce De 6	4.11	00×10 300 410		Derita E	1094	1 	3 3H	7.15	*	101.0) H	HIA NO		*	91	-
de inge 0	4.11	06×104				1 3 354		His		110	-	His				,

Figure 8. MRP Level 3 EOQ Matrix

POQ

The MRP stage using the POQ lot sizing method in Figure 10 lists the MRP matrix using the POQ method at level 0. At level 0 it is only a finished product in the form of a pallet. Figure 11 lists the MRP Matrix using the EOQ method at level 1. At level 1 there are 2 items in the form of semi-finished goods and 1000mm beams.

Pallot													
PERIODE	Dar '20	1	2	3	4	5	6	7	*	9	10	11	12
GR		1025	965	898	2025	1200	984	919	\$00	780	\$20	1065	1260
SR													
OHI		965	0	2025	0	984	0	800	0	820	0	1260	0
NR		1025		898		1200		919		780		1065	
POR		1990		2923		2184		1719		1600		2325	
P0Ral	1990		2923		2184		1719		1600		2325		

Picture 9. Matrix MRP Level 0 POQ



PERIODE	Hau'èe	Der '20	+		-			6	¥			10	11	12
6		1990		2422		2101		1719		16.00		2226		
n H														
HI		1912	E912		0	1710	1719	0	0	1219	EDER			
6		1990				2404				16.00				
on		4913				3903				3925				
OFI ₂ 1	4913				2903				2919					
	4412				2402									
alak 1000mm		Der '20	,	,	à				7			10		12
elak 1000mm PERIODE EM			,					_	7	_	٠			12
elak 1000mm PERIODE		10000 Drt.,50	1	3 20230		4 21040	6	6 17100	7	é 16000	9	10	11	4à 0
elek 1000mm PERIODE EM		19900	_	19220	à	21040	0	17190	7	16000	0	23280		
elek 1000mm PERIODE EM		10000	4 0 E9E20		à	21040		_	7	16000 E7E90	_			
alak 1000mm		19900	_	19220	à	21040	0	17190	7	16000	0	23280		

Figure 10. MRP Level 1 POQ . Matrix

Evoluti 1000 mass														
Name of Street		Dec 120			þ	•	,				٠.	*	**	*
GR .	24648	+		+	10010	- 4	+		1942/	-	- 1	+	- 4	+
18	140.0	14000	96.6	14111	-	_	_	_	-	_	-	_		_
CHI PA	1401	14040	90.0	14110	-	_	-	-	19620		_			_
PER	44111								194 (29					
FIRAL MEDI								##12E						
Fig.														
TOTAL DESIGNATION OF THE PER	Ser-21	044'00		è	- 1	4	,		*		٠.	**	**	*
	400	÷	-	4	3607	- 1	+	-	36326	÷	-	+	- 1	+
Sel Sel	1997	3867	1000	3961	-	_			-		-			
18	86217	27541	18567	200	_				16115					
	P9346								200107					
Filhal Titles								14004						
Elmone Bridge	Sec. 110	Des 100		ŧ	,		,		,			11	"	8
			-	_		_	_				_			
GR .	Milita		_		18300	-		_	1009	-	-		_	
24 Cell	20416	23494	20414	20404	14779	4079	147739	9779	+		-			
nin	140375	-	-	-										
FIRE THREE	29222													
F854 1660	_													
Schoolsman Hillman														
elinose and a	Sec. 12	Der 100	,		,	4	,		7			74	"	π
68 28 58 58	410				3110				2525					
24	240	3460	240	2460	-	_	-	-	4		_	_		
100	410	- 750		-255					2915					
FIRE	410								38					
PROJ RIN	_							1925						

Figure 11. MRP Level 2 POQ Matrix

Figure 12 lists the MRP Matrix using the POQ method at level 2. At level 2 there are 4 items in the form of 1000mm beams, legs, 1200mm beams and 1030mm logs.

FENCES	Sept '90	06×124	Nov '91	Bu 91	1	5	- 1	4	*	4			,	**	*	- 12
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Picture 12. Matrix MRP Level 3 POQ

Figure 13 lists the MRP Matrix using the EOQ method at level 3. At level 3 there are 3 items in the form of 1030mm logs, 1030mm logs and 13000mm logs.

Discussion

The results of this study include the MRP calculation process using 3 (three) methods, namely LFL, EOQ and POQ. The LFL method minimizes inventory by emphasizing ordering according to needs in a certain period and not leaving inventory so that the costs absorbed by the LFL method are lower than the EOQ and POQ methods. In accordance with the expectations of companies and researchers to minimize costs and minimize ordering excess needs that lead to storage of raw materials and finished products where the company is less competent in this regard. With these results it can be seen that the lfl method is a suggestion for calculating the future mrp matrix for the company

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Picture 13. Result of Cost Evaluation Method Lot Sizing

Table 5 lists the output of the MRP in the form of a monthly pallet raw material requirement report where the company will find it easier to read the results of the MRP. In looking for and calculating table 5, the researchers carried out stages in the form of recapitulation per order and per month so as to produce reports on raw material needs.

Table5. 2021 Raw Material Needs Report

Tables. 2	OZI IXA	iw materia	ai riccus i	report
Month Items	1030 mm . spindl e	1030mm . spindle	1030mm . spindle	1300mm . spindle
January	0	1148	1148	1148
February	1148	1265	1265	1265
March	1265	950	950	950
April	950	734	734	734
May	734	919	919	919
June	919	1150	1150	1150
July	1150	780	780	780
August	780	920	920	920
September	920	1170	1170	1170
October	1170	0	0	0
November	0	0	0	0
December	0	0	0	0

Source: Rafansa (2021)

In planning the raw material requirements using the MRP method, the researcher tested 3 (three) lot sizing methods using 2021 data. The 2021 LFL method did not cause storage on pallet products so that the costs incurred due to storage were Rp. 0 and the results of calculating the total cost inventory of rp 240,000,000. The EOQ method causes storage on pallet products so that the costs incurred due to storage are Rp.

117,886,406 and the result of calculating the total cost of inventory is rp. 251,503,100. In the POQ method in 2021, it causes storage of pallet products so that the costs incurred due to storage are Rp. 217,027,683 and the result of calculating the total cost of inventory is rp 261,027,683.

CONCLUSION

Testing with 3 lot sizing methods on the application of MRP in companies shows that the LFL method is better than the EOQ and POQ methods. The LFL method does not cause inventory which has been a source of problems for the company due to lack of competence in storage, the LFL method is in accordance with the current state of the company, the LFL method is much easier to implement into the company and the inventory costs incurred are much less than the EOQ method. and the POQ is in line with the company's expectations regarding reduced storage costs. So it can be concluded that the most effective and efficient method for companies today is the LFL method.

Suggestion

Researchers provide suggestions



to further researchers to be able to apply to other companies with different cases and different types of products. So that it will add insight to the reader that the results of research using the same lot sizing method are not necessarily the same results.

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