



Lampiran I

Nama panelis :  
Umur :

Tanggal pengujian:

Anda diminta untuk menguji 5 macam produk di hadapan anda dan berikan tanda V pada kode produk yang sesuai dengan pendapat anda. Terima kasih.

1.

Penampakan	415	247	198	637	325
Tidak menarik					
Cukup menarik					
Menarik					
Sangat menarik					

3.

Rasa	415	247	198	637
Tidak tajam				
Sedikit tajam				
Cukup tajam				
Tajam				

2.

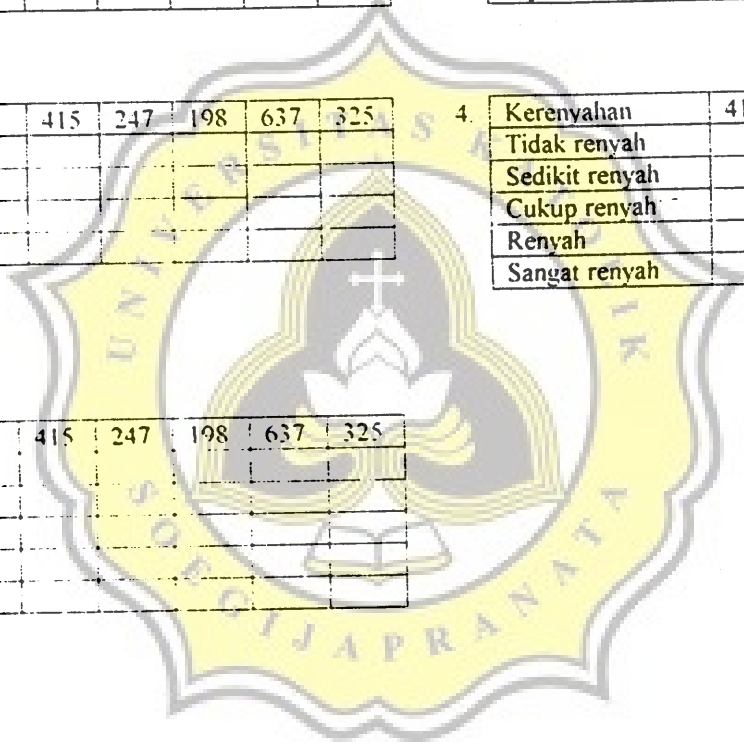
Aroma	415	247	198	637	325
Tidak tajam					
Cukup tajam					
Tajam					
Sangat Tajam					

4.

Kerenyahan	415	247	198	637
Tidak renyah				
Sedikit renyah				
Cukup renyah				
Renyah				
Sangat renyah				

5.

Kesukaan	415	247	198	637	325
Sangat tidak suka					
Tidak suka					
Cukup suka					
Suka					
Sangat suka					



Lampiran 2

Anova pengukuran membujur ekstrudat dengan berbagai tingkat penambahan tepung terigu

----- O N E W A Y -----

Variable BUJUR  
By Variable PLK

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	4	48.5415	12.1354	33.0442	.0000
Within Groups	995	365.4104	.3672		
Total	999	413.9519			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Grp 0	200	2.1062	.5072	.0359	2.0354 TO 2.1769
Grp 1	200	2.3524	.6671	.0472	2.2593 TO 2.4454
Grp 2	200	2.6227	.4772	.0337	2.5562 TO 2.6893
Grp 3	200	2.6357	.5959	.0421	2.5526 TO 2.7187
Grp 4	200	2.6850	.7423	.0525	2.5815 TO 2.7886
Total	1000	2.4804	.6437	.0204	2.4404 TO 2.5203

GROUP	MINIMUM	MAXIMUM
Grp 0	1.3200	4.0100
Grp 1	1.1400	4.0100
Grp 2	1.0700	4.0600
Grp 3	.8200	5.5000
Grp 4	.7200	4.4800
TOTAL	.7200	5.5000

Levene Test for Homogeneity of Variances

Statistic	df1	df2	2-tail Sig.
14.6750	4	995	.167

- - - - - O N E W A Y - - - - -

Variable BUJUR  
By Variable PLK

Multiple Range Tests: Duncan test with significance level .05

The difference between two means is significant if  
 $MEAN(J) - MEAN(I) \geq .4285 * RANGE * \sqrt{1/N(I) + 1/N(J)}$   
 with the following value(s) for RANGE:

Step	2	3	4	5
RANGE	2.78	2.92	3.01	3.09

(\*) Indicates significant differences which are shown in the lower triangle

G G G G G  
 r r r r r  
 p p p p p  
 0 1 2 3 4

Mean	PLK
2.1062	Grp 0
2.3524	Grp 1
2.6227	Grp 2
2.6357	Grp 3
2.6850	Grp 4

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\*  
\*  
\*  
\*

Homogeneous Subsets (highest and lowest means are not significantly different)

Subset 1

Group	Grp 0
Mean	2.1062

Subset 2

Group	Grp 1
Mean	2.3524

Subset 3

Group	Grp 2	Grp 3	Grp 4
Mean	2.6227	2.6357	2.6850



Lampiran 3

Anova pengukuran melintang ekstrudat dengan berbagai tingkat penambahan tepung terigu

----- O N E W A Y -----

Variable LINTANG  
By Variable PLK

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	4	10.3929	2.5982	32.9988	.0000
Within Groups	995	78.3432	.0787		
Total	999	88.7360			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Grp 0	200	1.2122	.1686	.0119	1.1887 TO 1.2358
Grp 1	200	1.1748	.2361	.0167	1.1419 TO 1.2077
Grp 2	200	1.1008	.2401	.0170	1.0673 TO 1.1342
Grp 3	200	1.1256	.4644	.0328	1.0608 TO 1.1903
Grp 4	200	.9175	.1903	.0135	.8910 TO .9440
Total	1000	1.1062	.2980	.0094	1.0877 TO 1.1247

GROUP	MINIMUM	MAXIMUM
Grp 0	.2300	2.1500
Grp 1	.5100	2.5400
Grp 2	.7500	3.6400
Grp 3	.6700	4.2300
Grp 4	.6600	1.8300
TOTAL	.2300	4.2300

Levene Test for Homogeneity of Variances

Statistic	df1	df2	2-tail Sig.
5.7817	4	995	.089

Variable LINTANG  
By Variable PLK

Multiple Range Tests: Duncan test with significance level .05

The difference between two means is significant if  
 $MEAN(J) - MEAN(I) \geq .1984 * RANGE * \sqrt{1/N(I) + 1/N(J)}$   
 with the following value(s) for RANGE:

Step	2	3	4	5
RANGE	2.78	2.92	3.01	3.09

(\*) Indicates significant differences which are shown in the lower triangle

Mean	PLK	
.9175	Grp 4	
1.1008	Grp 2	*
1.1256	Grp 3	*
1.1748	Grp 1	* *
1.2122	Grp 0	* * *

G G G G G  
 r r r r r  
 p p p p p  
 4 2 3 1 0

Homogeneous Subsets (highest and lowest means are not significantly different)

Subset 1

Group	Grp 4
Mean	.9175

Subset 2

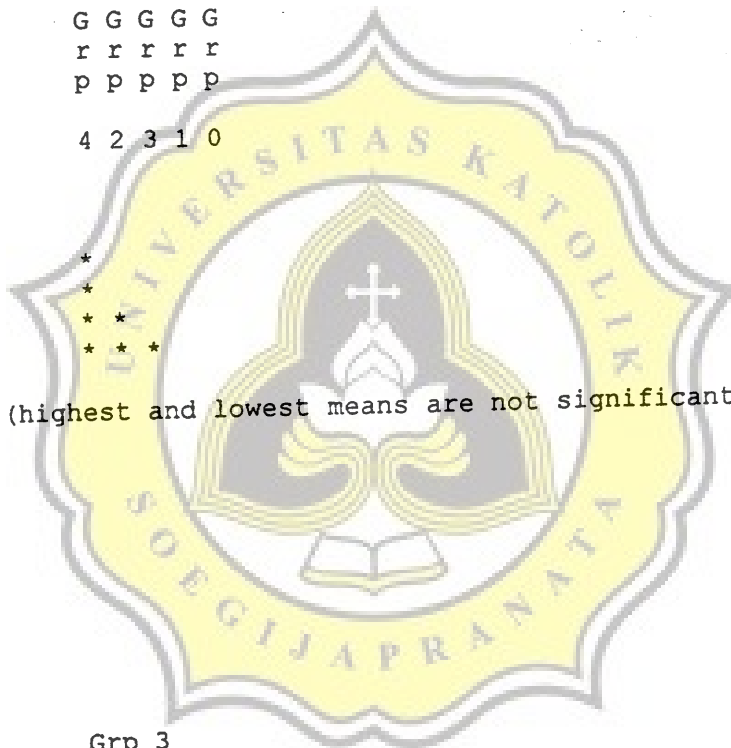
Group	Grp 2	Grp 3
Mean	1.1008	1.1256

Subset 3

Group	Grp 3	Grp 1
Mean	1.1256	1.1748

Subset 4

Group	Grp 1	Grp 0
Mean	1.1748	1.2122



Lampiran 4

Anova expansion ratio ekstrudat dengan berbagai tingkat penambahan tepung terigu

----- O N E W A Y -----

Variable ER  
By Variable PLK

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	4	84.8355	21.2089	32.9975	.0000
Within Groups	995	639.5275	.6427		
Total	999	724.3630			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int	for Mean
Grp 0	200	3.4635	.4817	.0341	3.3964	TO 3.5307
Grp 1	200	3.3566	.6745	.0477	3.2625	TO 3.4506
Grp 2	200	3.1450	.6860	.0485	3.0493	TO 3.2407
Grp 3	200	3.2159	1.3268	.0938	3.0308	TO 3.4009
Grp 4	200	2.6214	.5437	.0384	2.5456	TO 2.6972
Total	1000	3.1605	.8515	.0269	3.1076	TO 3.2133

GROUP	MINIMUM	MAXIMUM
Grp 0	.6571	6.1429
Grp 1	1.4571	7.2571
Grp 2	2.1429	10.4000
Grp 3	1.9143	12.0857
Grp 4	1.8857	5.2286
TOTAL	.6571	12.0857

Levene Test for Homogeneity of Variances

Statistic	df1	df2	2-tail Sig.
5.7824	4	995	.271

- - - - - O N E W A Y - - - - -

Variable ER  
By Variable PLK

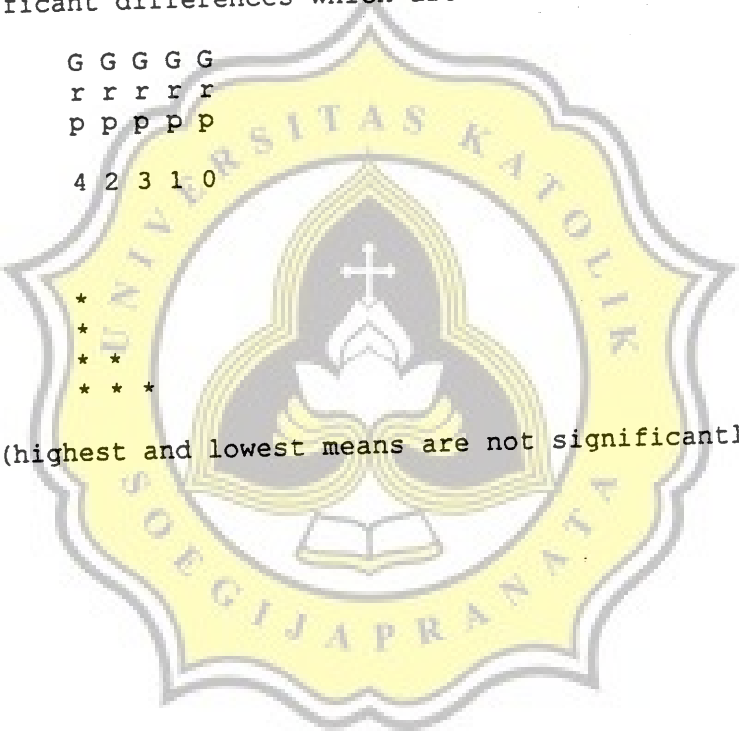
Multiple Range Tests: Duncan test with significance level .05

The difference between two means is significant if  
 $MEAN(J) - MEAN(I) \geq .5669 * RANGE * \sqrt{1/N(I) + 1/N(J)}$   
 with the following value(s) for RANGE:

Step	2	3	4	5
RANGE	2.78	2.92	3.01	3.09

(\*) Indicates significant differences which are shown in the lower triangle

Mean	PLK	G G G G G
2.6214	Grp 4	r r r r r
3.1450	Grp 2	p p p p p
3.2159	Grp 3	4 2 3 1 0
3.3566	Grp 1	* * * * *
3.4635	Grp 0	* * *



Homogeneous Subsets (highest and lowest means are not significantly different)

Subset 1

Group	Grp 4
Mean	2.6214

Subset 2

Group	Grp 2	Grp 3
Mean	3.1450	3.2159

Subset 3

Group	Grp 3	Grp 1
Mean	3.2159	3.3566

Subset 4

Group	Grp 1	Grp 0
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Lampiran 5

Anova intensitas warna ekstrudat dengan berbagai tingkat penambahan tepung terigu

----- O N E W A Y -----

Variable WARNA  
By Variable PLK

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	4	720.1391	180.0348	8.6336	.0028
Within Groups	10	208.5269	20.8527		
Total	14	928.6660			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Grp 0	3	60.0633	4.8075	2.7756	48.1208 TO 72.0058
Grp 1	3	66.4667	3.3704	1.9459	58.0941 TO 74.8392
Grp 2	3	74.1133	2.5490	1.4717	67.7812 TO 80.4455
Grp 3	3	77.4033	3.4067	4.2763	59.0039 TO 95.8028
Grp 4	3	78.0300	2.9044	1.6769	70.8149 TO 85.2451
Total	15	71.2153	4.1445	2.1029	66.7050 TO 75.7256

GROUP	MINIMUM	MAXIMUM
Grp 0	54.8600	64.3400
Grp 1	63.3600	70.0500
Grp 2	71.1800	75.7900
Grp 3	70.0900	84.9000
Grp 4	75.6600	81.2700
TOTAL	54.8600	84.9000

Levene Test for Homogeneity of Variances

Statistic	df1	df2	2-tail Sig.
.8716	4	10	.514

- - - - - O N E W A Y - - - - -

Variable WARNA  
By Variable PLK

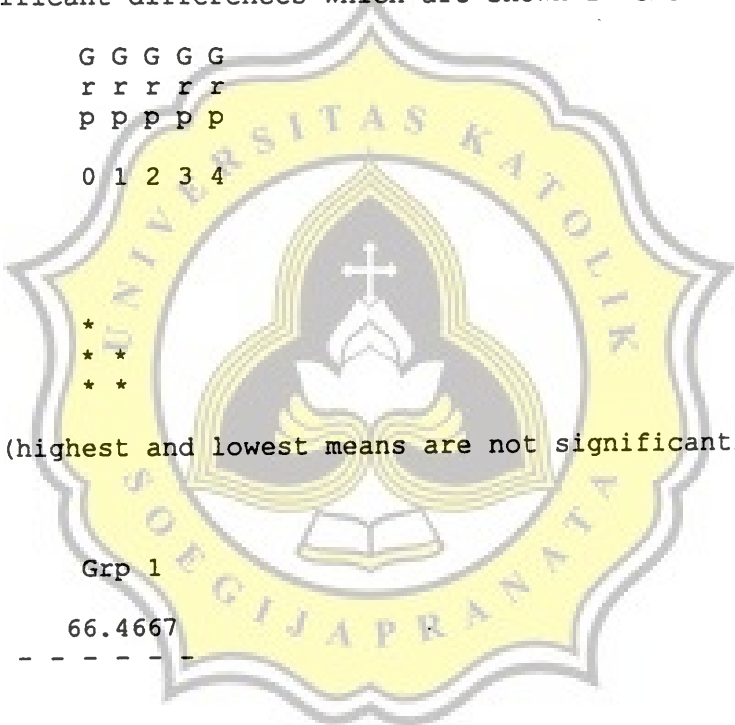
Multiple Range Tests: Duncan test with significance level .05

The difference between two means is significant if  
 $MEAN(J) - MEAN(I) \geq 3.2290 * RANGE * \sqrt{1/N(I) + 1/N(J)}$   
 with the following value(s) for RANGE:

Step	2	3	4	5
RANGE	3.15	3.29	3.38	3.43

(\*) Indicates significant differences which are shown in the lower triangle

Mean	PLK	0	1	2	3	4
60.0633	Grp 0					
66.4667	Grp 1					
74.1133	Grp 2		*			
77.4033	Grp 3		*	*		
78.0300	Grp 4		*	*	*	



Homogeneous Subsets (highest and lowest means are not significantly different)

Subset 1

Group	Grp 0	Grp 1
Mean	60.0633	66.4667

Subset 2

Group	Grp 1	Grp 2
Mean	66.4667	74.1133

Subset 3

Group	Grp 2	Grp 3	Grp 4
Mean	74.1133	77.4033	78.0300

Lampiran 6

Anova tingkat kekerasan ekstrudat dengan berbagai tingkat penambahan tepung terigu

----- O N E W A Y -----

Variable KRSAN  
By Variable PLK

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	4	210.5035	52.6259	4.2476	.0290
Within Groups	10	123.8959	12.3896		
Total	14	334.3993			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int	for Mean
Grp 0	3	62.3633	2.2036	1.2723	56.8891	TO 67.8375
Grp 1	3	70.6733	2.2564	1.3027	65.0681	TO 76.2785
Grp 2	3	72.4933	2.2739	1.3128	66.8446	TO 78.1420
Grp 3	3	68.6067	3.0463	3.4908	53.5867	TO 83.6266
Grp 4	3	72.3800	3.2051	1.8505	64.4180	TO 80.3420
Total	15	69.3033	4.8873	1.2619	66.5968	TO 72.0098

GROUP	MINIMUM	MAXIMUM
Grp 0	59.8600	64.0100
Grp 1	68.8900	73.2100
Grp 2	69.9400	74.3000
Grp 3	62.4900	74.5800
Grp 4	68.8100	75.0100
TOTAL	59.8600	75.0100

Levene Test for Homogeneity of Variances

Statistic	df1	df2	2-tail Sig.
1.0258	4	10	.440

----- O N E W A Y -----

Variable KRSAN  
By Variable PLK

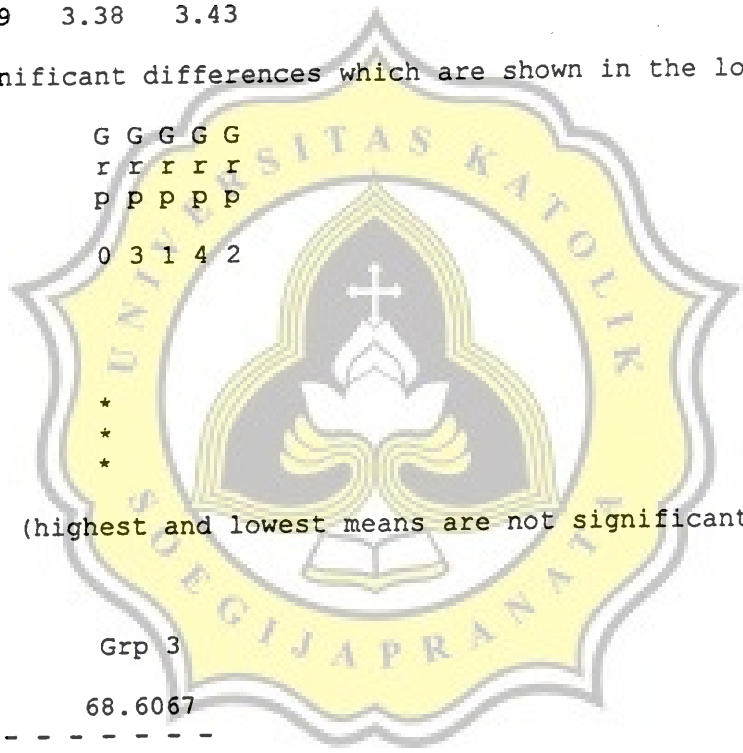
Multiple Range Tests: Duncan test with significance level .05

The difference between two means is significant if  
 $MEAN(J) - MEAN(I) \geq 2.4889 * RANGE * \sqrt{1/N(I) + 1/N(J)}$   
 with the following value(s) for RANGE:

Step	2	3	4	5
RANGE	3.15	3.29	3.38	3.43

(\*) Indicates significant differences which are shown in the lower triangle

Mean	PLK				
62.3633	Grp 0				
68.6067	Grp 3				
70.6733	Grp 1	*			
72.3800	Grp 4	*	*		
72.4933	Grp 2	*	*	*	



Homogeneous Subsets (highest and lowest means are not significantly different)

Subset 1

Group	Grp 0	Grp 3
Mean	62.3633	68.6067

Subset 2

Group	Grp 3	Grp 1	Grp 4	Grp 2
Mean	68.6067	70.6733	72.3800	72.4933

Lampiran 7

Anova kadar protein ekstrudat dengan berbagai tingkat penambahan tepung terigu

----- O N E W A Y -----

Variable PROT  
By Variable PLK

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	4	8.2221	2.0555	1.7497	.2155
Within Groups	10	11.7476	1.1748		
Total	14	19.9697			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int	for Mean
Grp 0	3	2.1467	.9976	.5760	.9316	TO 4.0249
Grp 1	3	2.3367	1.2643	.7299	.8040	TO 5.4774
Grp 2	3	2.6600	.2771	.1600	1.9716	TO 3.3484
Grp 3	3	2.8700	.9597	.5541	.4858	TO 5.2542
Grp 4	3	3.8233	1.5107	.8722	.0705	TO 7.5762
Total	15	2.6473	1.1943	.3084	1.9859	TO 3.3087

GROUP	MINIMUM	MAXIMUM
Grp 0	.4300	2.3500
Grp 1	1.3800	3.7700
Grp 2	2.5000	2.9800
Grp 3	1.8600	3.7700
Grp 4	2.3400	5.3600
TOTAL	.4300	5.3600

Levene Test for Homogeneity of Variances

Statistic	df1	df2	2-tail Sig.
1.1321	4	10	.395

- - - - - O N E W A Y - - - - -

Variable PROT  
By Variable PLK

Multiple Range Tests: Duncan test with significance level .05

The difference between two means is significant if  
 $MEAN(J) - MEAN(I) \geq .7664 * RANGE * \sqrt{1/N(I) + 1/N(J)}$   
 with the following value(s) for RANGE:

Step	2	3	4	5
RANGE	3.15	3.29	3.38	3.43

(\*) Indicates significant differences which are shown in the lower triangle

Mean	PLK	G G G G G	0	1	2	3	4
2.1467	Grp 0	r r r r r					
2.3367	Grp 1	p p p p p					
2.6600	Grp 2						
2.8700	Grp 3						
3.8233	Grp 4						

Homogeneous Subsets (highest and lowest means are not significantly different)

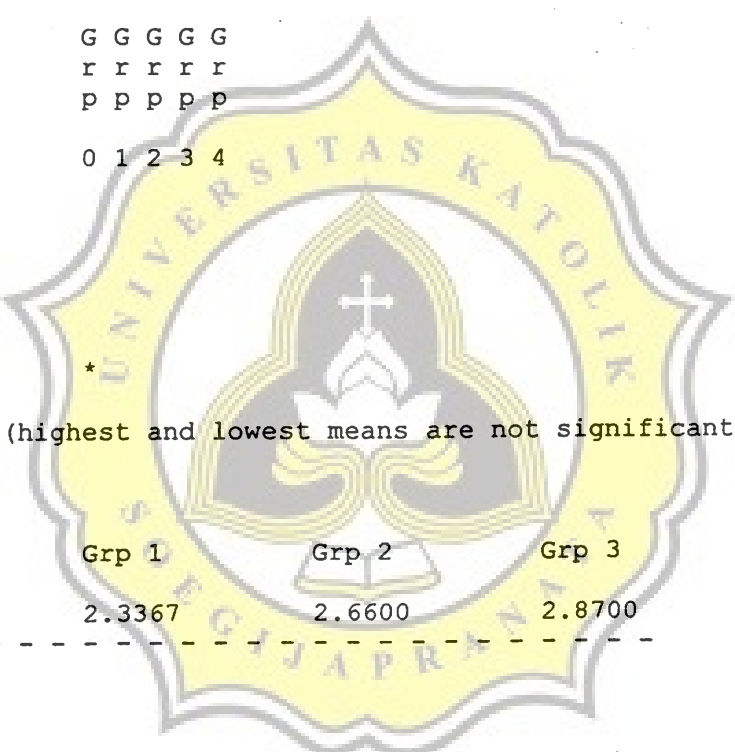
Subset 1

Group	Grp 0	Grp 1	Grp 2	Grp 3
Mean	1.5467	2.3367	2.6600	2.8700

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Subset 2

Group	Grp 1	Grp 2	Grp 3	Grp 4
Mean	2.3367	2.6600	2.8700	3.8233



Lampiran 8

Anova kadar gula ekstrudat dengan berbagai tingkat penambahan tepung terigu

----- O N E W A Y -----

Variable GULA  
By Variable PLK

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	4	24.0000	6.0000	1.3636	.2818
Within Groups	20	88.0000	4.4000		
Total	24	112.0000			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int	for Mean
Grp 0	5	20.8000	1.0954	.4899	19.4398	TO 22.1602
Grp 1	5	22.0000	2.0000	.8944	19.5167	TO 24.4833
Grp 2	5	22.4000	2.6077	1.1662	19.1622	TO 25.6378
Grp 3	5	23.2000	2.6833	1.2000	19.8683	TO 26.5317
Grp 4	5	23.6000	1.6733	.7483	21.5223	TO 25.6777
Total	25	22.4000	2.1602	.4320	21.5083	TO 23.2917

GROUP	MINIMUM	MAXIMUM
Grp 0	20.0000	22.0000
Grp 1	20.0000	24.0000
Grp 2	20.0000	26.0000
Grp 3	20.0000	26.0000
Grp 4	22.0000	26.0000
TOTAL	20.0000	26.0000

Levene Test for Homogeneity of Variances

Statistic	df1	df2	2-tail Sig.
1.8286	4	20	.163

----- O N E W A Y -----

Variable GULA  
By Variable PLK

Multiple Range Tests: Duncan test with significance level .05

The difference between two means is significant if  
 $MEAN(J) - MEAN(I) \geq 1.4832 * RANGE * \sqrt{1/N(I) + 1/N(J)}$   
with the following value(s) for RANGE:

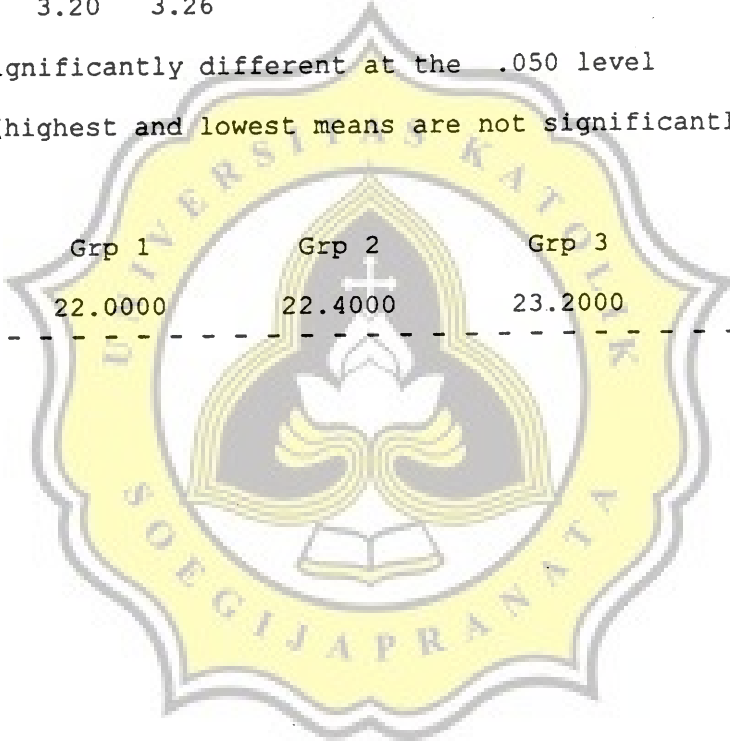
Step	2	3	4	5
RANGE	2.95	3.09	3.20	3.26

- No two groups are significantly different at the .050 level

Homogeneous Subsets (highest and lowest means are not significantly different)

Subset 1

Group	Grp 0	Grp 1	Grp 2	Grp 3	Grp 4
Mean	20.8000	22.0000	22.4000	23.2000	23.6000





Lampiran 9

Anova uji inderawi dengan parameter kenampakan pada berbagai tingkat penambahan tepung terigu

----- O N E W A Y -----

Variable KNMPK  
By Variable PRODUK

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	4	84.1920	21.0480	18.7594	.0000
Within Groups	120	134.6400	1.1220		
Total	124	218.8320			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Grp 0	25	2.8400	1.2477	.2495	2.3250 TO 3.3550
Grp 1	25	3.8000	1.1902	.2380	3.3087 TO 4.2913
Grp 2	25	2.5200	1.1225	.2245	2.0567 TO 2.9833
Grp 3	25	3.0000	1.0408	.2082	2.5704 TO 3.4296
Grp 4	25	1.2800	.5416	.1083	1.0564 TO 1.5036
Total	125	2.6880	1.3284	.1188	2.4528 TO 2.9232

GROUP	MINIMUM	MAXIMUM
Grp 0	1.0000	5.0000
Grp 1	1.0000	5.0000
Grp 2	1.0000	5.0000
Grp 3	1.0000	5.0000
Grp 4	1.0000	3.0000
TOTAL	1.0000	5.0000

Levene Test for Homogeneity of Variances

Statistic	df1	df2	2-tail Sig.
3.3690	4	120	.540

- - - - - O N E W A Y - - - - -

Variable KNMPK  
By Variable PRODUK

Multiple Range Tests: Duncan test with significance level .05

The difference between two means is significant if  
 $MEAN(J) - MEAN(I) \geq .7490 * RANGE * \sqrt{1/N(I) + 1/N(J)}$   
 with the following value(s) for RANGE:

Step	2	3	4	5
RANGE	2.80	2.95	3.04	3.11

(\*) Indicates significant differences which are shown in the lower triangle

G G G G G  
 r r r r r  
 p p p p p  
 4 2 0 3 1

Mean	PRODUK
1.2800	Grp 4
2.5200	Grp 2
2.8400	Grp 0
3.0000	Grp 3
3.8000	Grp 1

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\*  
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\* \* \* \*

Homogeneous Subsets (highest and lowest means are not significantly different)

Subset 1

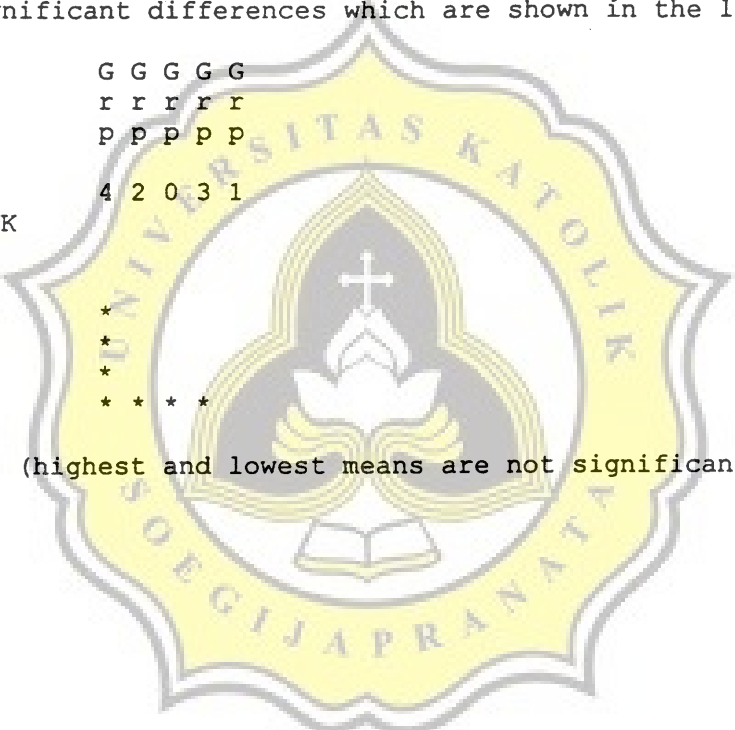
Group	Grp 4
Mean	1.2800
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Subset 2

Group	Grp 2	Grp 0	Grp 3
Mean	2.5200	2.8400	3.0000
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Subset 3

Group	Grp 1
Mean	3.8000
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Lampiran 10

Anova uji inderawi ekstrudat dengan parameter aroma pada berbagai tingkat penambahan tepung terigu

----- ONEWAY -----

Variable AROMA  
By Variable PRODUK

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	4	129.6320	32.4080	34.8973	.0000
Within Groups	120	111.4400	.9287		
Total	124	241.0720			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int	for Mean
Grp 0	25	3.6000	1.0801	.2160	3.1541 TO	4.0459
Grp 1	25	3.8800	1.1662	.2332	3.3986 TO	4.3614
Grp 2	25	2.5600	1.1576	.2315	2.0822 TO	3.0378
Grp 3	25	2.0000	.8165	.1633	1.6630 TO	2.3370
Grp 4	25	1.1200	.3317	.0663	.9831 TO	1.2569
Total	125	2.6320	1.3943	.1247	2.3852 TO	2.8788

GROUP	MINIMUM	MAXIMUM
Grp 0	1.0000	5.0000
Grp 1	2.0000	5.0000
Grp 2	1.0000	5.0000
Grp 3	1.0000	4.0000
Grp 4	1.0000	2.0000
TOTAL	1.0000	5.0000

Levene Test for Homogeneity of Variances

Statistic	df1	df2	2-tail Sig.
9.5778	4	120	.481

Variable AROMA  
By Variable PRODUK

Multiple Range Tests: Duncan test with significance level .05

The difference between two means is significant if  
 $MEAN(J) - MEAN(I) \geq .6814 * RANGE * \sqrt{1/N(I) + 1/N(J)}$   
 with the following value(s) for RANGE:

Step	2	3	4	5
RANGE	2.80	2.95	3.04	3.11

(\*) Indicates significant differences which are shown in the lower triangle

G G G G G  
 r r r r r  
 p p p p p

4 3 2 0 1

Mean	PRODUK
1.1200	Grp 4
2.0000	Grp 3
2.5600	Grp 2
3.6000	Grp 0
3.8800	Grp 1

\*  
\* \*  
\* \* \*  
\* \* \*

Homogeneous Subsets (highest and lowest means are not significantly different)

Subset 1

Group Grp 4  
 Mean 1.1200  
 -----

Subset 2

Group Grp 3  
 Mean 2.0000  
 -----

Subset 3

Group Grp 2  
 Mean 2.5600  
 -----

Subset 4

Group Grp 0 Grp 1



Mean            3.6000            3.8800

---

Lampiran 11

Anova uji inderawi ekstrudat dengan parameter rasa pada berbagai tingkat penambahan tepung terigu

----- O N E W A Y -----

Variable RASA  
By Variable PRODUK

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	4	117.4080	29.3520	36.3567	.0000
Within Groups	120	96.8800	.8073		
Total	124	214.2880			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int	for Mean
Grp 0	25	3.8800	.9274	.1855	3.4972	TO 4.2628
Grp 1	25	3.7600	.8794	.1759	3.3970	TO 4.1230
Grp 2	25	2.2000	1.1180	.2236	1.7385	TO 2.6615
Grp 3	25	2.5200	.9626	.1925	2.1226	TO 2.9174
Grp 4	25	1.3200	.4761	.0952	1.1235	TO 1.5165
Total	125	2.7360	1.3146	.1176	2.5033	TO 2.9687

GROUP	MINIMUM	MAXIMUM
Grp 0	2.0000	5.0000
Grp 1	2.0000	5.0000
Grp 2	1.0000	5.0000
Grp 3	1.0000	5.0000
Grp 4	1.0000	2.0000
TOTAL	1.0000	5.0000

Levene Test for Homogeneity of Variances

Statistic	df1	df2	2-tail Sig.
2.5966	4	120	.050

- - - - - O N E W A Y - - - - -

Variable RASA  
By Variable PRODUK

Multiple Range Tests: Duncan test with significance level .05

The difference between two means is significant if  
 $MEAN(J) - MEAN(I) \geq .6353 * RANGE * \sqrt{1/N(I) + 1/N(J)}$   
 with the following value(s) for RANGE:

Step	2	3	4	5
RANGE	2.80	2.95	3.04	3.11

(\*) Indicates significant differences which are shown in the lower triangle

Mean	PRODUK	
1.3200	Grp 4	
2.2000	Grp 2	*
2.5200	Grp 3	*
3.7600	Grp 1	* * *
3.8800	Grp 0	* * *

G G G G G  
 r r r r r  
 p p p p p  
 4 2 3 1 0

Homogeneous Subsets (highest and lowest means are not significantly different)

Subset 1

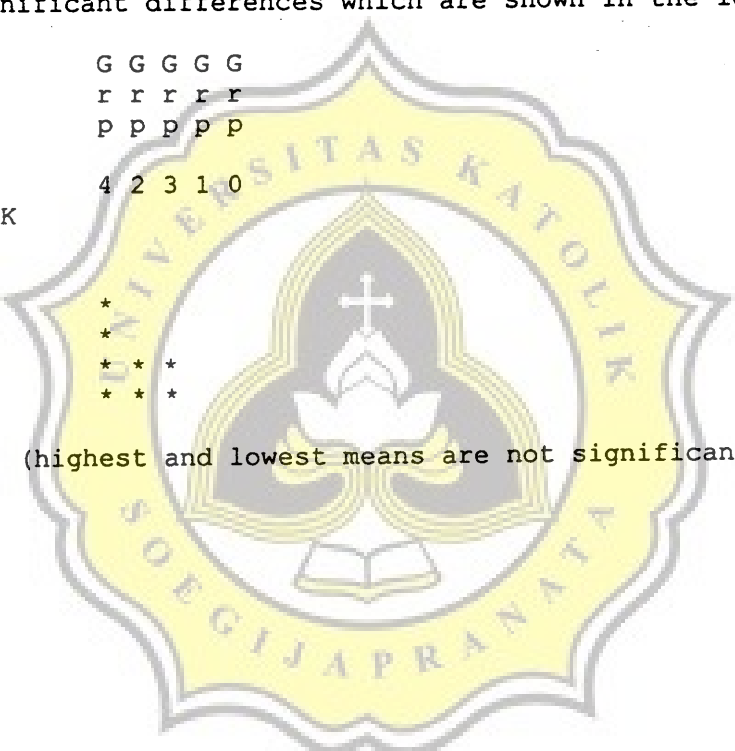
Group	Grp 4
Mean	1.3200

Subset 2

Group	Grp 2	Grp 3
Mean	2.2000	2.5200

Subset 3

Group	Grp 1	Grp 0
Mean	3.7600	3.8800



Lampiran 12

Anova uji inderawi ekstrudat dengan parameter kerenyahan pada berbagai tingkat penambahan tepung terigu

--- O N E W A Y ---

Variable RENYAHAN  
By Variable PRODUK

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	4	27.0080	6.7520	4.8552	.0012
Within Groups	120	166.8800	1.3907		
Total	124	193.8880			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Grp 0	25	4.0000	1.0000	.2000	3.5872 TO 4.4128
Grp 1	25	3.6800	1.2152	.2430	3.1784 TO 4.1816
Grp 2	25	3.2800	1.0214	.2043	2.8584 TO 3.7016
Grp 3	25	3.0400	1.1719	.2344	2.5563 TO 3.5237
Grp 4	25	2.6800	1.4353	.2871	2.0875 TO 3.2725
Total	125	3.3360	1.2504	.1118	3.1146 TO 3.5574

GROUP	MINIMUM	MAXIMUM
Grp 0	2.0000	5.0000
Grp 1	1.0000	5.0000
Grp 2	2.0000	5.0000
Grp 3	1.0000	5.0000
Grp 4	1.0000	5.0000
TOTAL	1.0000	5.0000

Levene Test for Homogeneity of Variances

Statistic	df1	df2	2-tail Sig.
1.7345	4	120	.147

- - - - - O N E W A Y - - - - -

Variable RENYAHAN  
By Variable PRODUK

Multiple Range Tests: Duncan test with significance level .05

The difference between two means is significant if  
 $MEAN(J) - MEAN(I) \geq .8339 * RANGE * \sqrt{1/N(I) + 1/N(J)}$   
 with the following value(s) for RANGE:

Step	2	3	4	5
RANGE	2.80	2.95	3.04	3.11

(\*) Indicates significant differences which are shown in the lower triangle

Mean	PRODUK				
2.6800	Grp 4				
3.0400	Grp 3				
3.2800	Grp 2				
3.6800	Grp 1	*			
4.0000	Grp 0	*	*	*	

G G G G G  
 r r r r r  
 p p p p p  
 4 3 2 1 0

Homogeneous Subsets (highest and lowest means are not significantly different)

Subset 1

Group	Grp 4	Grp 3	Grp 2
Mean	2.6800	3.0400	3.2800

Subset 2

Group	Grp 3	Grp 2	Grp 1
Mean	3.0400	3.2800	3.6800

Subset 3

Group	Grp 1	Grp 0
Mean	3.6800	4.0000



Lampiran 13

Anova uji inderawi ekstrudat dengan parameter kesukaan pada berbagai tingkat penambahan tepung terigu

----- O N E W A Y -----

Variable KSKAN  
By Variable PRODUK

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	4	96.1120	24.0280	28.5821	.0000
Within Groups	120	100.8800	.8407		
Total	124	196.9920			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct	Conf Int	for Mean
Grp 0	25	4.0400	.9345	.1869	3.6542	TO	4.4258
Grp 1	25	4.0000	.8165	.1633	3.6630	TO	4.3370
Grp 2	25	2.0000	.5774	.1155	1.7617	TO	2.2383
Grp 3	25	2.7600	.9256	.1851	2.3779	TO	3.1421
Grp 4	25	2.1600	1.2138	.2428	1.6590	TO	2.6610
Total	125	2.9920	1.2604	.1127	2.7689	TO	3.2151

GROUP	MINIMUM	MAXIMUM
Grp 0	1.0000	5.0000
Grp 1	2.0000	5.0000
Grp 2	1.0000	3.0000
Grp 3	1.0000	5.0000
Grp 4	1.0000	5.0000
TOTAL	1.0000	5.0000

Levene Test for Homogeneity of Variances

Statistic	df1	df2	2-tail Sig.
3.2423	4	120	.065

- - - - - O N E W A Y - - - - -

Variable KSKAN  
By Variable PRODUK

Multiple Range Tests: Duncan test with significance level .05

The difference between two means is significant if  
 $MEAN(J) - MEAN(I) \geq .6483 * RANGE * \sqrt{1/N(I) + 1/N(J)}$   
 with the following value(s) for RANGE:

Step	2	3	4	5
RANGE	2.80	2.95	3.04	3.11

(\*) Indicates significant differences which are shown in the lower triangle

		G G G G G
		r r r r r
		p p p p p
		2 4 3 1 0
Mean	PRODUK	
2.0000	Grp 2	
2.1600	Grp 4	
2.7600	Grp 3	* *
4.0000	Grp 1	* * *
4.0400	Grp 0	* * *

Homogeneous Subsets (highest and lowest means are not significantly different)

Subset 1

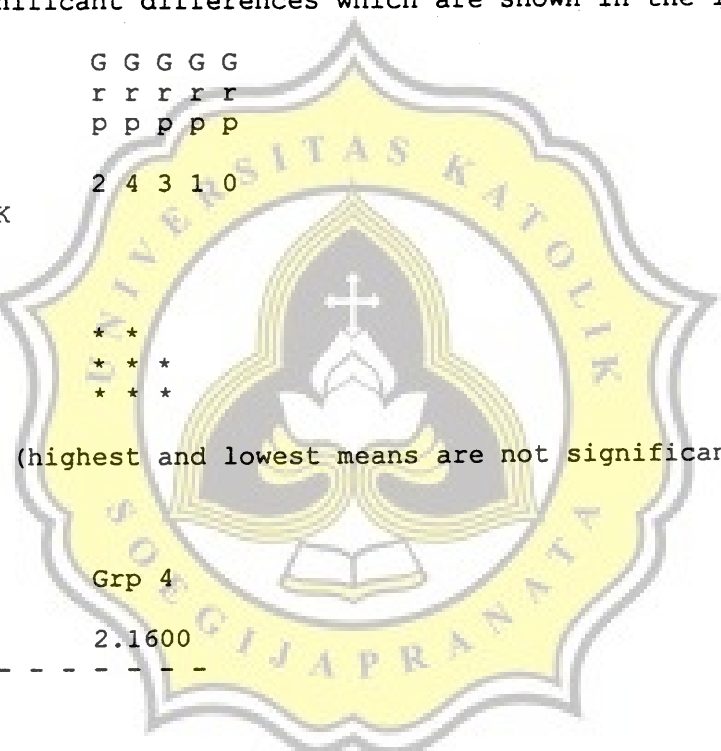
Group	Grp 2	Grp 4
Mean	2.0000	2.1600

Subset 2

Group	Grp 3
Mean	2.7600

Subset 3

Group	Grp 1	Grp 0
Mean	4.0000	4.0400



Lampiran 14

Normalitas pengukuran melintang ekstrudat dengan transformasi sqrt

TR3  
 By PLK .00  
 Valid cases: 200.0 Missing cases: .0 Percent missing: .0

Mean	1.0981	Std Err	.0057	Min	.4796	Skewness	1.6403
Median	1.0954	Variance	.0065	Max	1.4663	S E Skew	.1719
5% Trim	1.0984	Std Dev	.0806	Range	.9867	Kurtosis	18.4875
95% CI for Mean	(1.0868, 1.1093)			IQR	.0819	S E Kurt	.3422

Frequency Stem & Leaf

2.00 Extremes (.48), (.89)  
 1.00 9 t 3  
 1.00 9 f 4  
 1.00 9 s 6  
 .00 9 .  
 11.00 10 \* 00000111111  
 16.00 10 t 222222233333333  
 19.00 10 f 444444444555555555  
 38.00 10 s 66666666666666666667777777777777777  
 21.00 10 . 888888888999999999999  
 26.00 11 \* 000000000000011111111111111  
 12.00 11 t 22222222222  
 20.00 11 f 44444444444444455555555  
 6.00 11 s 666777  
 9.00 11 . 888999999  
 6.00 12 \* 000001  
 7.00 12 t 2222233  
 1.00 12 f 4  
 3.00 Extremes (1.27), (1.28), (1.47)

Stem width: .10  
 Each leaf: 1 case(s)

Hi-Res Chart # 34:Normal q-q plot of tr3 for plk: .00  
 Hi-Res Chart # 35:Detrended normal q-q plot of tr3 for plk: .00

	Statistic	df	Significance
K-S (Lilliefors)	.1001	200	.0150







Normalitas pengukuran melintang ekstrudat dengan berbagai tingkat penambahan tepung terigu

TR3  
 By PLK 3.00

Valid cases: 200.0 Missing cases: .0 Percent missing: .0

Mean	1.0474	Std Err	.0120	Min	.8185	Skewness	3.7530
Median	1.0247	Variance	.0287	Max	2.0567	S E Skew	.1719
5% Trim	1.0196	Std Dev	.1694	Range	1.2382	Kurtosis	15.6249
95% CI for Mean	(1.0238, 1.0710)		IQR	.0577	S E Kurt	.3422	

Frequency Stem & Leaf

8.00 Extremes (.82), (.87), (.88), (.89), (.90)

3.00 9 \* 1

21.00 9 t 2222333333

4.00 9 f 5&

9.00 9 s 6777

7.00 9 . 888&

44.00 10 \* 00000000001111111111

53.00 10 t 22222222222222223333333333

18.00 10 f 444444555

9.00 10 s 6677

5.00 10 . 88&

2.00 11 \* &

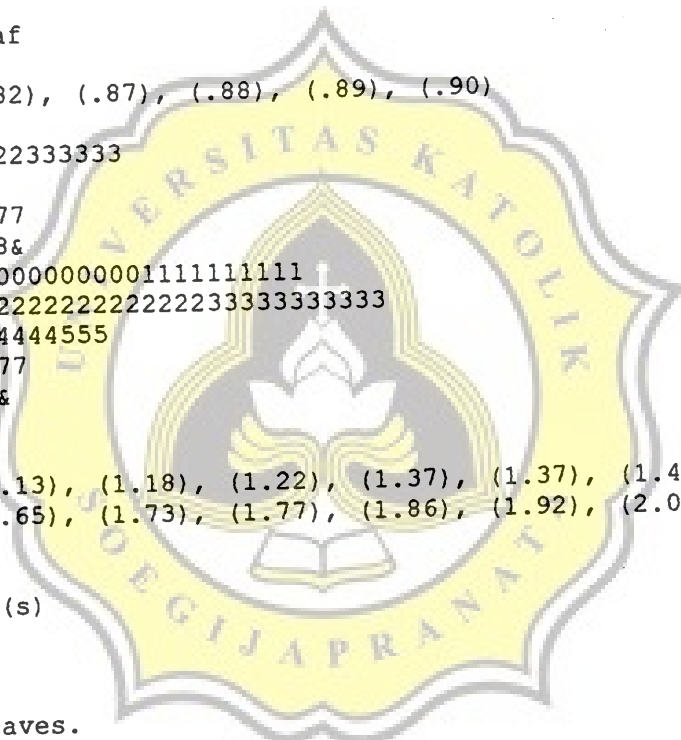
2.00 11 t 2

8.00 Extremes (1.13), (1.18), (1.22), (1.37), (1.37), (1.45), (1.62)

7.00 Extremes (1.65), (1.73), (1.77), (1.86), (1.92), (2.06)

Stem width: .10

Each leaf: 2 case(s)



& denotes fractional leaves.

Hi-Res Chart # 41:Normal q-q plot of tr3 for plk: 3.00

Hi-Res Chart # 42:Detrended normal q-q plot of tr3 for plk: 3.00

	Statistic	df	Significance
K-S (Lilliefors)	.3204	200	.0152

uji normalitas pengukuran ekstrudat dengan berbagai tingkat penambahan tepung terigu

TR3  
By PLK 4.00  
Valid cases: 200.0 Missing cases: .0 Percent missing: .0

Mean	.9537	Std Err	.0063	Min	.8124	Skewness	2.4099
Median	.9327	Variance	.0080	Max	1.3528	S E Skew	.1719
5% Trim	.9435	Std Dev	.0894	Range	.5404	Kurtosis	8.2313
95% CI for Mean	(.9412, .9662)			IQR	.1000	S E Kurt	.3422

Frequency Stem & Leaf

1.00	8 *	1
.00	8 t	
8.00	8 f	44445555
18.00	8 s	66666666677777777
15.00	8 .	888888888999999
39.00	9 *	0000000000000000111111111111111111
38.00	9 t	2222222222222222333333333333333333
12.00	9 f	444444555555
7.00	9 s	6677777
7.00	9 .	8888888
28.00	10 *	000000000000000000001111111111
14.00	10 t	222222222222333
3.00	10 f	444
1.00	10 s	6
1.00	10 .	9
1.00	11 *	0
1.00	11 t	2
6.00	Extremes	(1.32), (1.32), (1.34), (1.35)



Stem width: .10  
Each leaf: 1 case(s)

Hi-Res Chart # 43: Normal q-q plot of tr3 for plk: 4.00  
Hi-Res Chart # 44: Detrended normal q-q plot of tr3 for plk: 4.00

	Statistic	df	Significance
K-S (Lilliefors)	.1643	200	.0610

Lampiran 15

Normalitas tanpa transformasi pada ekstrudat dengan uji panelis

RENYAHAN  
By PRODUK .00

Valid cases: 25.0 Missing cases: .0 Percent missing: .0

Mean	4.0000	Std Err	.2000	Min	2.0000	Skewness	.8152
Median	4.0000	Variance	1.0000	Max	5.0000	S E Skew	.4637
5% Trim	4.0556	Std Dev	1.0000	Range	3.0000	Kurtosis	-.2036
95% CI for Mean	(3.5872, 4.4128)			IQR	1.5000	S E Kurt	.9017

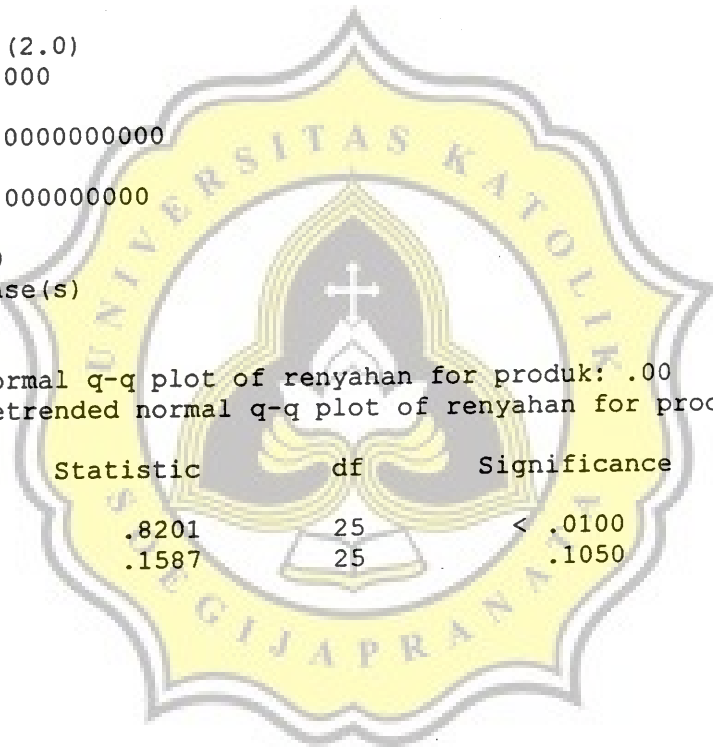
Frequency Stem & Leaf

3.00	Extremes	(2.0)
3.00	3 *	000
.00	3 .	
10.00	4 *	0000000000
.00	4 .	
9.00	5 *	0000000000

Stem width: 1.00  
Each leaf: 1 case(s)

Hi-Res Chart # 131: Normal q-q plot of renyahan for produk: .00  
Hi-Res Chart # 132: Detrended normal q-q plot of renyahan for produk: .00

	Statistic	df	Significance
Shapiro-Wilks	.8201	25	< .0100
K-S (Lilliefors)	.1587	25	.1050





RENYAHAN  
By PRODUK 1.00

Valid cases: 25.0 Missing cases: .0 Percent missing: .0

Mean	3.6800	Std Err	.2430	Min	1.0000	Skewness	-.9883
Median	4.0000	Variance	1.4767	Max	5.0000	S E Skew	.4637
5% Trim	3.7556	Std Dev	1.2152	Range	4.0000	Kurtosis	.1648
95% CI for Mean	(3.1784, 4.1816)			IQR	1.5000	S E Kurt	.9017

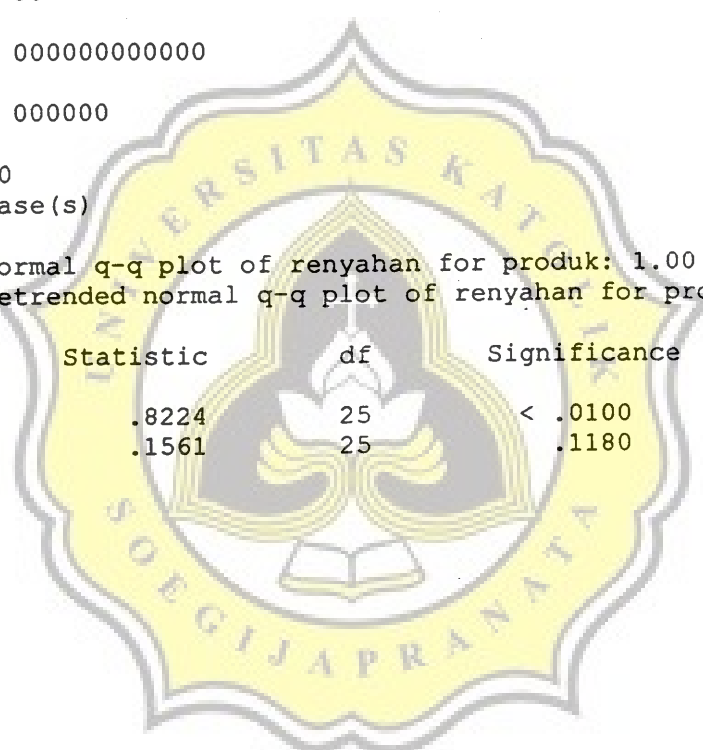
Frequency Stem & Leaf

2.00	Extremes	(1.0)
3.00	2 *	000
.00	2 .	
2.00	3 *	00
.00	3 .	
12.00	4 *	00000000000000
.00	4 .	
6.00	5 *	000000

Stem width: 1.00  
Each leaf: 1 case(s)

Hi-Res Chart # 133:Normal q-q plot of renyahan for produk: 1.00  
Hi-Res Chart # 134:Detrended normal q-q plot of renyahan for produk: 1.00

	Statistic	df	Significance
Shapiro-Wilks	.8224	25	< .0100
K-S (Lilliefors)	.1561	25	.1180



RENYAHAN  
 By PRODUK 2.00

Valid cases: 25.0 Missing cases: .0 Percent missing: .0

Mean	3.2800	Std Err	.2043	Min	2.0000	Skewness	.4002
Median	3.0000	Variance	1.0433	Max	5.0000	S E Skew	.4637
5% Trim	3.2556	Std Dev	1.0214	Range	3.0000	Kurtosis	-.8326
95% CI for Mean	(2.8584, 3.7016)			IQR	1.5000	S E Kurt	.9017

Frequency	Stem &	Leaf
6.00	2 *	000000
.00	2 .	
10.00	3 *	0000000000
.00	3 .	
5.00	4 *	00000
.00	4 .	
4.00	5 *	0000

Stem width: 1.00  
 Each leaf: 1 case(s)

Hi-Res Chart # 135: Normal q-q plot of renyahan for produk: 2.00  
 Hi-Res Chart # 136: Detrended normal q-q plot of renyahan for produk: 2.00

	Statistic	df	Significance
Shapiro-Wilks	.8640	25	< .0100
K-S (Lilliefors)	.2480	25	.0004



RENYAHAN

By PRODUK 3.00

Valid cases: 25.0 Missing cases: .0 Percent missing: .0

Mean	3.0400	Std Err	.2344	Min	1.0000	Skewness	.0832
Median	3.0000	Variance	1.3733	Max	5.0000	S E Skew	.4637
5% Trim	3.0444	Std Dev	1.1719	Range	4.0000	Kurtosis	.4308
95% CI for Mean	(2.5563, 3.5237)			IQR	2.0000	S E Kurt	.9017

Frequency	Stem &	Leaf
3.00	1 *	000
.00	1 .	
4.00	2 *	0000
.00	2 .	
10.00	3 *	0000000000
.00	3 .	
5.00	4 *	00000
.00	4 .	
3.00	5 *	000

Stem width: 1.00  
 Each leaf: 1 case(s)

Hi-Res Chart # 137: Normal q-q plot of renyahan for produk: 3.00  
 Hi-Res Chart # 138: Detrended normal q-q plot of renyahan for produk: 3.00

	Statistic	df	Significance
Shapiro-Wilks	.9140	25	.0429
K-S (Lilliefors)	.1936	25	.0165



RENYAHAN  
By PRODUK 4.00

Valid cases: 25.0 Missing cases: .0 Percent missing: .0

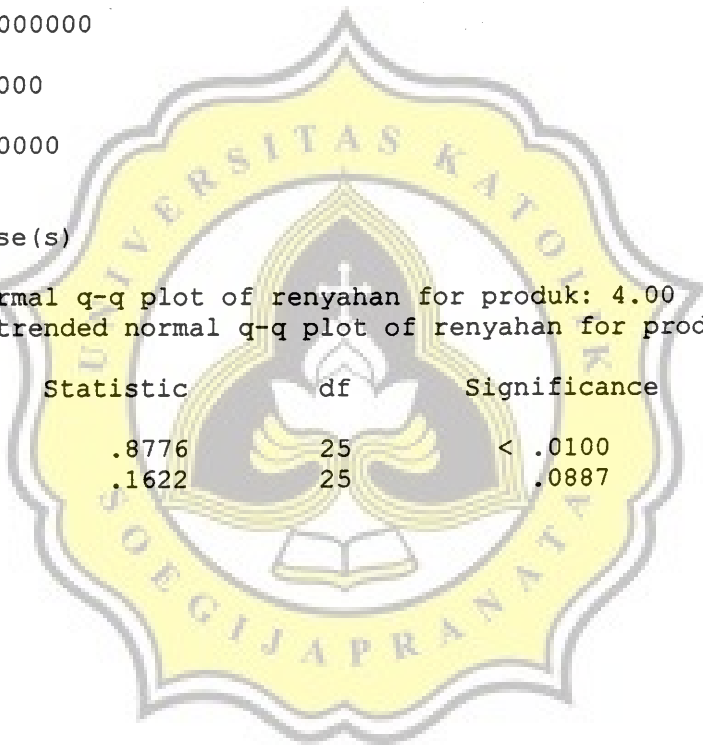
Mean	2.6800	Std Err	.2871	Min	1.0000	Skewness	.3413
Median	3.0000	Variance	2.0600	Max	5.0000	S E Skew	.4637
5% Trim	2.6444	Std Dev	1.4353	Range	4.0000	Kurtosis	1.1209
95% CI for Mean	(2.0875, 3.2725)			IQR	3.0000	S E Kurt	.9017

Frequency	Stem &	Leaf
7.00	1 *	0000000
.00	1 .	
5.00	2 *	00000
.00	2 .	
6.00	3 *	0000000
.00	3 .	
3.00	4 *	000
.00	4 .	
4.00	5 *	0000

Stem width: 1.00  
Each leaf: 1 case(s)

Hi-Res Chart # 139: Normal q-q plot of renyahan for produk: 4.00  
Hi-Res Chart # 140: Detrended normal q-q plot of renyahan for produk: 4.00

	Statistic	df	Significance
Shapiro-Wilks	.8776	25	< .0100
K-S (Lilliefors)	.1622	25	.0887



Lampiran 16

Normalitas ekstrudat dengan transformasi

KSKAN  
By PRODUK .00

Valid cases: 25.0 Missing cases: .0 Percent missing: .0

Mean	4.0400	Std Err	.1869	Min	1.0000	Skewness	1.4160
Median	4.0000	Variance	.8733	Max	5.0000	S E Skew	.4637
5% Trim	4.1333	Std Dev	.9345	Range	4.0000	Kurtosis	3.3838
95% CI for Mean	(3.6542, 4.4258)			IQR	1.0000	S E Kurt	.9017

Frequency Stem & Leaf

1.00	Extremes	(1.0)
4.00	3 *	0000
.00	3 .	
12.00	4 *	000000000000
.00	4 .	
8.00	5 *	00000000

Stem width: 1.00  
Each leaf: 1 case(s)

Hi-Res Chart # 141:Normal q-q plot of kskan for produk: .00  
Hi-Res Chart # 142:Detrended normal q-q plot of kskan for produk: .00

	Statistic	df	Significance
Shapiro-Wilks	.7957	25	< .0100
K-S (Lilliefors)	.1971	25	.0134



KSKAN  
By PRODUK 1.00

Valid cases: 25.0 Missing cases: .0 Percent missing: .0

Mean	4.0000	Std Err	.1633	Min	2.0000	Skewness	-.4992
Median	4.0000	Variance	.6667	Max	5.0000	S E Skew	.4637
5% Trim	4.0444	Std Dev	.8165	Range	3.0000	Kurtosis	-.0430
95% CI for Mean	(3.6630, 4.3370)		IQR	1.5000	S E Kurt	.9017	

Frequency Stem & Leaf

1.00	Extremes	(2.0)
5.00	3 *	00000
.00	3 .	
12.00	4 *	0000000000000
.00	4 .	
7.00	5 *	0000000

Stem width: 1.00  
Each leaf: 1 case(s)

Hi-Res Chart # 143:Normal q-q plot of kskan for produk: 1.00  
Hi-Res Chart # 144:Detrended normal q-q plot of kskan for produk: 1.00

	Statistic	df	Significance
Shapiro-Wilks	.8502	25	< .0100
K-S (Lilliefors)	.2200	25	.0030



KSKAN  
By PRODUK 2.00

Valid cases: 25.0 Missing cases: .0 Percent missing: .0

Mean	2.0000	Std Err	.1155	Min	1.0000	Skewness	.0000
Median	2.0000	Variance	.3333	Max	3.0000	S E Skew	.4637
5% Trim	2.0000	Std Dev	.5774	Range	2.0000	Kurtosis	.4387
95% CI for Mean	(1.7617, 2.2383)			IQR	.0000	S E Kurt	.9017

Frequency Stem & Leaf

4.00 Extremes (1)  
 .00 0 \*  
 17.00 0 t 222222222222222222  
 4.00 Extremes (3)

Stem width: 10.00  
 Each leaf: 1 case(s)

Hi-Res Chart # 145:Normal q-q plot of kskan for produk: 2.00  
 Hi-Res Chart # 146:Detrended normal q-q plot of kskan for produk: 2.00

	Statistic	df	Significance
Shapiro-Wilks	.7455	25	< .0100
K-S (Lilliefors)	.3400	25	.0000



KSKAN  
By PRODUK 3.00

Valid cases: 25.0 Missing cases: .0 Percent missing: .0

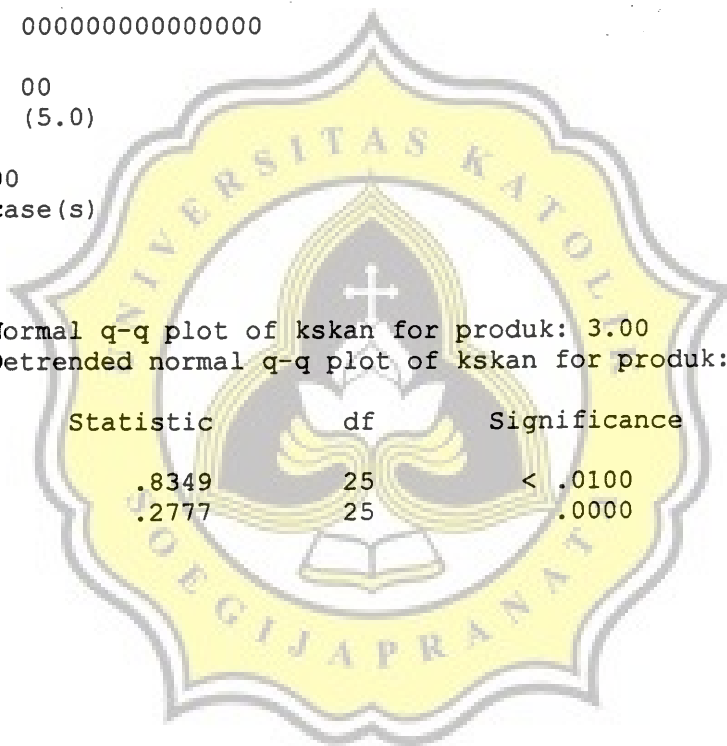
Mean	2.7600	Std Err	.1851	Min	1.0000	Skewness	-.1629
Median	3.0000	Variance	.8567	Max	5.0000	S E Skew	.4637
5% Trim	2.7444	Std Dev	.9256	Range	4.0000	Kurtosis	.9664
95% CI for Mean	(2.3779, 3.1421)			IQR	1.0000	S E Kurt	.9017

Frequency	Stem &	Leaf
3.00	1 *	000
.00	1 .	
4.00	2 *	0000
.00	2 .	
15.00	3 *	0000000000000000
.00	3 .	
2.00	4 *	00
1.00	Extremes	(5.0)

Stem width: 1.00  
Each leaf: 1 case(s)

Hi-Res Chart # 147:Normal q-q plot of kskan for produk: 3.00  
Hi-Res Chart # 148:Detrended normal q-q plot of kskan for produk: 3.00

	Statistic	df	Significance
Shapiro-Wilks	.8349	25	< .0100
K-S (Lilliefors)	.2777	25	.0000





KSKAN  
By PRODUK 4.00

Valid cases: 25.0 Missing cases: .0 Percent missing: .0

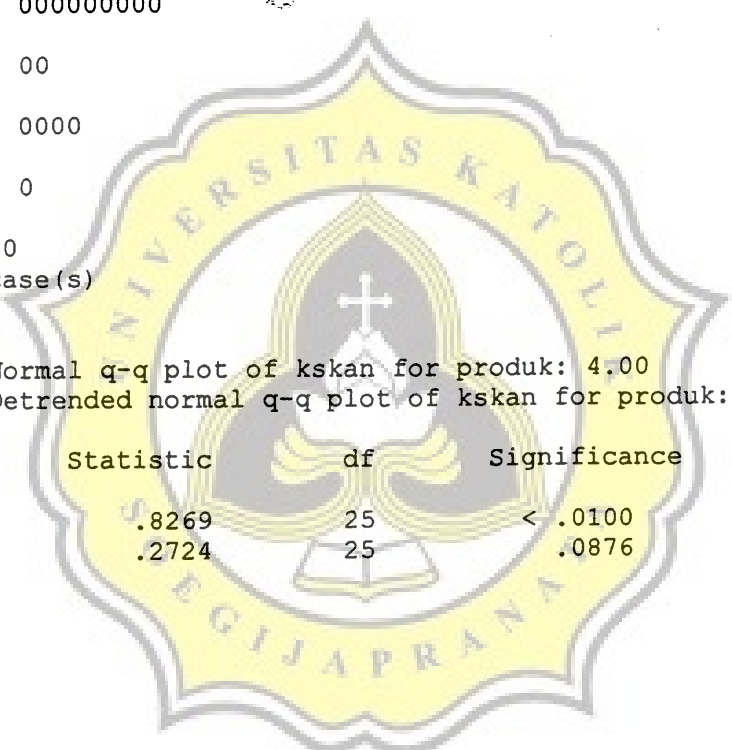
Mean	2.1600	Std Err	.2428	Min	1.0000	Skewness	.8845
Median	2.0000	Variance	1.4733	Max	5.0000	S E Skew	.4637
5% Trim	2.0778	Std Dev	1.2138	Range	4.0000	Kurtosis	.2539
95% CI for Mean	(1.6590, 2.6610)			IQR	2.0000	S E Kurt	.9017

Frequency	Stem &	Leaf
9.00	1 *	000000000
.00	1 .	
9.00	2 *	000000000
.00	2 .	
2.00	3 *	00
.00	3 .	
4.00	4 *	0000
.00	4 .	
1.00	5 *	0

Stem width: 1.00  
Each leaf: 1 case(s)

Hi-Res Chart # 149:Normal q-q plot of kskan for produk: 4.00  
Hi-Res Chart # 150:Detrended normal q-q plot of kskan for produk: 4.00

	Statistic	df	Significance
Shapiro-Wilks	.8269	25	< .0100
K-S (Lilliefors)	.2724	25	.0876



Lampiran 17

Normalitas tanpa transformasi pada ekstrudat dengan penambahan tepung terigu

KNMPK  
By PRODUK .00

Valid cases: 25.0 Missing cases: .0 Percent missing: .0

Mean	2.8400	Std Err	.2495	Min	1.0000	Skewness	.4672
Median	3.0000	Variance	1.5567	Max	5.0000	S E Skew	.4637
5% Trim	2.8222	Std Dev	1.2477	Range	4.0000	Kurtosis	-.5641
95% CI for Mean (2.3250, 3.3550)		IQR			1.5000	S E Kurt	.9017

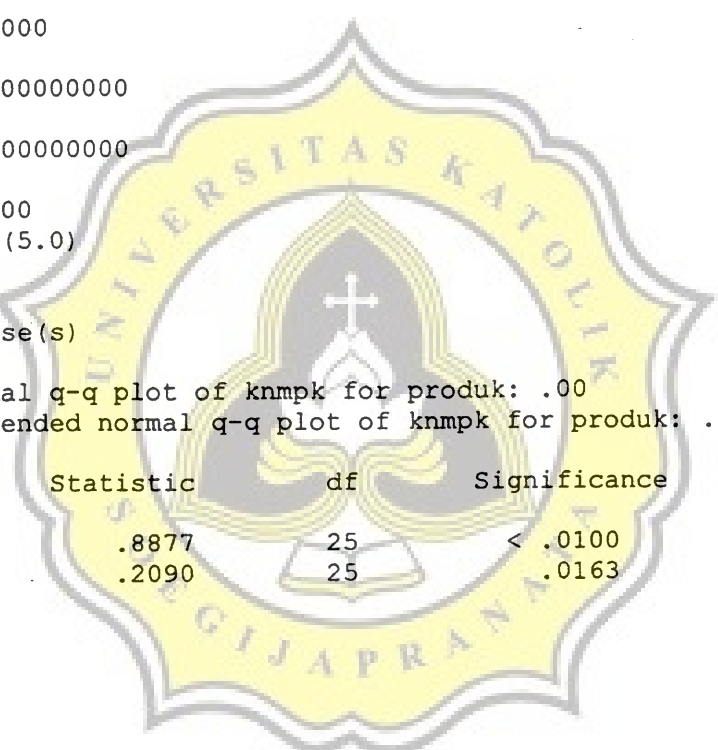
Frequency Stem & Leaf

3.00	1 *	000
.00	1 .	
8.00	2 *	00000000
.00	2 .	
8.00	3 *	00000000
.00	3 .	
2.00	4 *	00
4.00	Extremes	(5.0)

Stem width: 1.00  
Each leaf: 1 case(s)

Hi-Res Chart # 1:Normal q-q plot of knmpk for produk: .00  
Hi-Res Chart # 2:Detrended normal q-q plot of knmpk for produk: .00

	Statistic	df	Significance
Shapiro-Wilks	.8877	25	< .0100
K-S (Lilliefors)	.2090	25	.0163



KNMPK  
By PRODUK 1.00

Valid cases: 25.0 Missing cases: .0 Percent missing: .0

Mean	3.8000	Std Err	.2380	Min	1.0000	Skewness	.7091
Median	4.0000	Variance	1.4167	Max	5.0000	S E Skew	.4637
5% Trim	3.8778	Std Dev	1.1902	Range	4.0000	Kurtosis	.3832
95% CI for Mean	(3.3087, 4.2913)			IQR	2.0000	S E Kurt	.9017

Frequency	Stem & Leaf
1.00	1 * 0
.00	1 .
3.00	2 * 000
.00	2 .
5.00	3 * 00000
.00	3 .
7.00	4 * 0000000
.00	4 .
9.00	5 * 000000000

Stem width: 1.00  
Each leaf: 1 case(s)

Hi-Res Chart # 3: Normal q-q plot of knmpk for produk: 1.00  
Hi-Res Chart # 4: Detrended normal q-q plot of knmpk for produk: 1.00

	Statistic	df	Significance
Shapiro-Wilks	.8614	25	< .0100
K-S (Lilliefors)	.1567	25	.1153



KNMPK  
By PRODUK 2.00

Valid cases: 25.0 Missing cases: .0 Percent missing: .0

Mean	2.5200	Std Err	.2245	Min	1.0000	Skewness	.7144
Median	2.0000	Variance	1.2600	Max	5.0000	S E Skew	.4637
5% Trim	2.4667	Std Dev	1.1225	Range	4.0000	Kurtosis	.2162
95% CI for Mean	(2.0567, 2.9833)			IQR	1.0000	S E Kurt	.9017

Frequency	Stem &	Leaf
4.00	1 *	0000
.00	1 .	
10.00	2 *	0000000000
.00	2 .	
7.00	3 *	0000000
.00	3 .	
2.00	4 *	00
2.00	Extremes	(5.0)

Stem width: 1.00  
Each leaf: 1 case(s)

Hi-Res Chart # 5: Normal q-q plot of knmpk for produk: 2.00  
Hi-Res Chart # 6: Detrended normal q-q plot of knmpk for produk: 2.00

	Statistic	df	Significance
Shapiro-Wilks	.8833	25	< .0100
K-S (Lilliefors)	.2384	25	.00308



KNMPK  
By PRODUK 3.00

Valid cases: 25.0 Missing cases: .0 Percent missing: .0

Mean	3.0000	Std Err	.2082	Min	1.0000	Skewness	.4820
Median	3.0000	Variance	1.0833	Max	5.0000	S E Skew	.4637
5 $\frac{3}{4}$ Trim	2.9889	Std Dev	1.0408	Range	4.0000	Kurtosis	-.0401
95 $\frac{3}{4}$ CI for Mean (2.5704, 3.4296)				IQR	1.5000	S E Kurt	.9017

Frequency	Stem &	Leaf
1.00	1 *	0
.00	1 .	
7.00	2 *	0000000
.00	2 .	
11.00	3 *	00000000000
.00	3 .	
3.00	4 *	000
3.00	Extremes	(5.0)

Stem width: 1.00  
Each leaf: 1 case(s)

Hi-Res Chart # 7: Normal q-q plot of knmpk for produk: 3.00  
Hi-Res Chart # 8: Detrended normal q-q plot of knmpk for produk: 3.00



Statistic	df	Significance
Shapiro-Wilks	.8858	25 < .0100
K-S (Lilliefors)	.2600	25 .0351

Shapiro-Wilks  
K-S (Lilliefors)

KNMPK  
By PRODUK 4.00

Valid cases: 25.0 Missing cases: .0 Percent missing: .0

Mean	1.2800	Std Err	.1083	Min	1.0000	Skewness	1.8637
Median	1.0000	Variance	.2933	Max	3.0000	S E Skew	.4637
5% Trim	1.2111	Std Dev	.5416	Range	2.0000	Kurtosis	2.9378
95% CI for Mean	(1.0564, 1.5036)		IQR	.5000	S E Kurt	.9017	

Frequency Stem & Leaf  
19.00 1 \* 00000000000000000000  
6.00 Extremes (2.0), (3.0)

Stem width: 1.00  
Each leaf: 1 case(s)

Hi-Res Chart # 9: Normal q-q plot of knmpk for produk: 4.00  
Hi-Res Chart # 10: Detrended normal q-q plot of knmpk for produk: 4.00

	Statistic	df	Significance
Shapiro-Wilks	.5696	25	< .0100
K-S (Lilliefors)	.4574	25	.0615



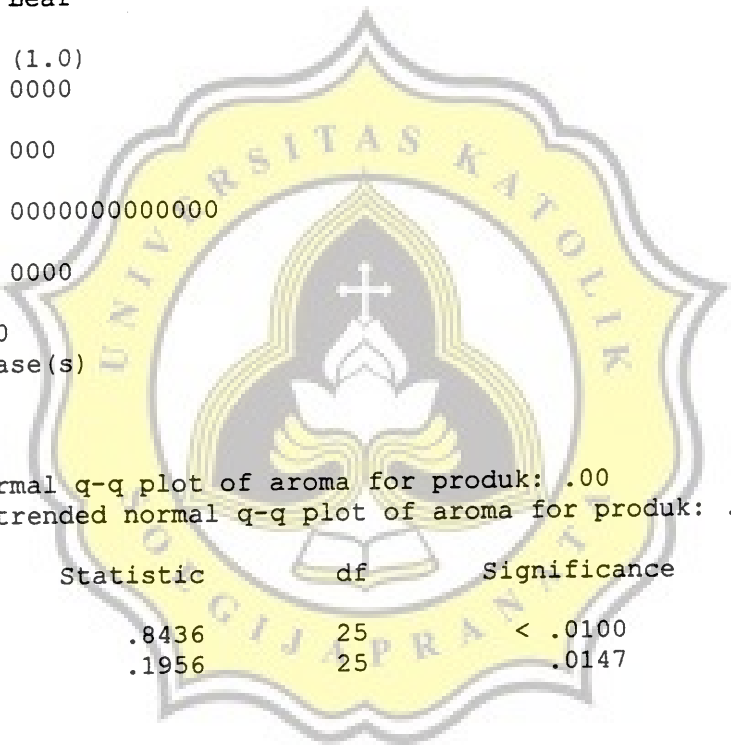
Lampiran 18

Uji normalitas ekstrudat dengan parameter aroma

AROMA  
 By PRODUK .00  
 Valid cases: 25.0 Missing cases: .0 Percent missing: .0

Mean	3.6000	Std Err	.2160	Min	1.0000	Skewness	.8194
Median	4.0000	Variance	1.1667	Max	5.0000	S E Skew	.4637
5% Trim	3.6556	Std Dev	1.0801	Range	4.0000	Kurtosis	.0455
95% CI for Mean	(3.1541, 4.0459)			IQR	1.0000	S E Kurt	.9017

Frequency Stem & Leaf  
 1.00 Extremes (1.0)  
 4.00 2 \* 0000  
 .00 2 .  
 3.00 3 \* 000  
 .00 3 .  
 13.00 4 \* 0000000000000000  
 .00 4 .  
 4.00 5 \* 0000  
 Stem width: 1.00  
 Each leaf: 1 case(s)



Hi-Res Chart # 11:Normal q-q plot of aroma for produk: .00  
 Hi-Res Chart # 12:Detrended normal q-q plot of aroma for produk: .00

	Statistic	df	Significance
Shapiro-Wilks	.8436	25	< .0100
K-S (Lilliefors)	.1956	25	.0147

AROMA  
By PRODUK 1.00

Valid cases: 25.0 Missing cases: .0 Percent missing: .0

Mean	3.8800	Std Err	.2332	Min	2.0000	Skewness	.4342
Median	4.0000	Variance	1.3600	Max	5.0000	S E Skew	.4637
5% Trim	3.9222	Std Dev	1.1662	Range	3.0000	Kurtosis	1.3640
95% CI for Mean (3.3986, 4.3614)		IQR			2.0000	S E Kurt	.9017

Frequency	Stem &	Leaf
4.00	2 *	0000
.00	2 .	
6.00	3 *	000000
.00	3 .	
4.00	4 *	0000
.00	4 .	
11.00	5 *	00000000000

Stem width: 1.00  
Each leaf: 1 case(s)

Hi-Res Chart # 13:Normal q-q plot of aroma for produk: 1.00  
Hi-Res Chart # 14:Detrended normal q-q plot of aroma for produk: 1.00

	Statistic	df	Significance
Shapiro-Wilks	.8061	25	< .0100
K-S (Lilliefors)	.1748	25	.0474





AROMA  
By PRODUK 2.00

Valid cases: 25.0 Missing cases: .0 Percent missing: .0

Mean	2.5600	Std Err	.2315	Min	1.0000	Skewness	.6301
Median	2.0000	Variance	1.3400	Max	5.0000	S E Skew	.4637
5% Trim	2.5111	Std Dev	1.1576	Range	4.0000	Kurtosis	.1752
95% CI for Mean	(2.0822, 3.0378)			IQR	1.0000	S E Kurt	.9017

Frequency	Stem &	Leaf
4.00	1 *	0000
.00	1 .	
10.00	2 *	0000000000
.00	2 .	
6.00	3 *	000000
.00	3 .	
3.00	4 *	000
2.00	Extremes	(5.0)

Stem width: 1.00  
Each leaf: 1 case(s)

Hi-Res Chart # 15: Normal q-q plot of aroma for produk: 2.00  
Hi-Res Chart # 16: Detrended normal q-q plot of aroma for produk: 2.00

	Statistic	df	Significance
Shapiro-Wilks	.8902	25	.0117
K-S (Lilliefors)	.2457	25	.0004



AROMA  
By PRODUK 3.00

Valid cases: 25.0 Missing cases: .0 Percent missing: .0

Mean	2.0000	Std Err	.1633	Min	1.0000	Skewness	.4992
Median	2.0000	Variance	.6667	Max	4.0000	S E Skew	.4637
5% Trim	1.9556	Std Dev	.8165	Range	3.0000	Kurtosis	-.0430
95% CI for Mean	(1.6630, 2.3370)			IQR	1.5000	S E Kurt	.9017

Frequency	Stem &	Leaf
7.00	1 *	0000000
.00	1 .	
12.00	2 *	000000000000
.00	2 .	
5.00	3 *	00000
1.00	Extremes	(4.0)

Stem width: 1.00  
Each leaf: 1 case(s)

Hi-Res Chart # 17: Normal q-q plot of aroma for produk: 3.00  
Hi-Res Chart # 18: Detrended normal q-q plot of aroma for produk: 3.00

	Statistic	df	Significance
Shapiro-Wilks	.8502	25	< .0100
K-S (Lilliefors)	.2600	25	.0001



AROMA

By PRODUK 4.00

Valid cases: 25.0 Missing cases: .0 Percent missing: .0

Mean	1.1200	Std Err	.0663	Min	1.0000	Skewness	2.4907
Median	1.0000	Variance	.1100	Max	2.0000	S E Skew	.4637
5% Trim	1.0778	Std Dev	.3317	Range	1.0000	Kurtosis	4.5634
95% CI for Mean (.9831, 1.2569)				IQR	.0000	S E Kurt	.9017

Frequency Stem & Leaf

22.00 1 \* 0000000000000000000000  
 3.00 Extremes (2.0)

Stem width: 1.00  
 Each leaf: 1 case(s)

Hi-Res Chart # 19: Normal q-q plot of aroma for produk: 4.00  
 Hi-Res Chart # 20: Detrended normal q-q plot of aroma for produk: 4.00

	Statistic	df	Significance
Shapiro-Wilks	.3835	25	< .0100
K-S (Lilliefors)	.5213	25	.0713



Lampiran 19

Normalitas ekstrudat dengan parameter rasa

RASA  
By PRODUK .00

Valid cases: 25.0 Missing cases: .0 Percent missing: .0

Mean	3.8800	Std Err	.1855	Min	2.0000	Skewness	-.7681
Median	4.0000	Variance	.8600	Max	5.0000	S E Skew	.4637
5% Trim	3.9222	Std Dev	.9274	Range	3.0000	Kurtosis	.1107
95% CI for Mean	(3.4972, 4.2628)		IQR	1.0000	S E Kurt	.9017	

Frequency Stem & Leaf

6.00	Extremes	(2), (3)
.00	0 t	
13.00	0 f	44444444444444
6.00	Extremes	(5)

Stem width: 10.00  
Each leaf: 1 case(s)

Hi-Res Chart # 21:Normal q-q plot of rasa for produk: .00  
Hi-Res Chart # 22:Detrended normal q-q plot of rasa for produk: .00

	Statistic	df	Significance
Shapiro-Wilks	.8228	25	< .0100
K-S (Lilliefors)	.2085	25	.0065



RASA  
By PRODUK 1.00

Valid cases: 25.0 Missing cases: .0 Percent missing: .0

Mean	3.7600	Std Err	.1759	Min	2.0000	Skewness	.2858
Median	4.0000	Variance	.7733	Max	5.0000	S E Skew	.4637
5% Trim	3.7889	Std Dev	.8794	Range	3.0000	Kurtosis	.4273
95% CI for Mean	(3.3970, 4.1230)			IQR	1.0000	S E Kurt	.9017

Frequency	Stem & Leaf
2.00	2 * 00
.00	2 .
7.00	3 * 0000000
.00	3 .
11.00	4 * 00000000000
.00	4 .
5.00	5 * 00000

Stem width: 1.00  
Each leaf: 1 case(s)

Hi-Res Chart # 23:Normal q-q plot of rasa for produk: 1.00  
Hi-Res Chart # 24:Detrended normal q-q plot of rasa for produk: 1.00

	Statistic	df	Significance
Shapiro-Wilks	.8743	25	< .0100
K-S (Lilliefors)	.1925	25	.0177



RASA  
By PRODUK 2.00

Valid cases: 25.0 Missing cases: .0 Percent missing: .0

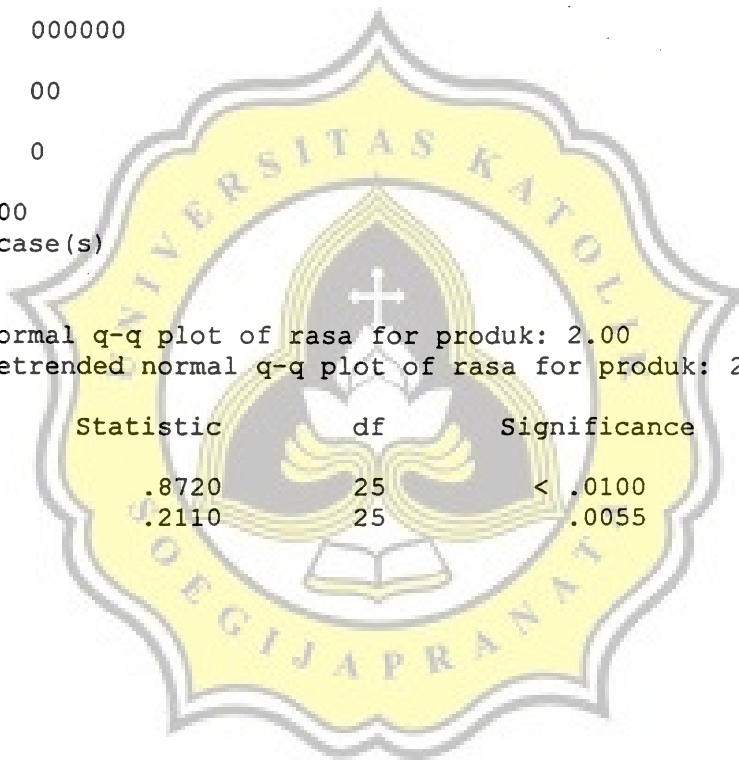
Mean	2.2000	Std Err	.2236	Min	1.0000	Skewness	.7389
Median	2.0000	Variance	1.2500	Max	5.0000	S E Skew	.4637
5% Trim	2.1222	Std Dev	1.1180	Range	4.0000	Kurtosis	.0626
95% CI for Mean	(1.7385, 2.6615)			IQR	2.0000	S E Kurt	.9017

Frequency	Stem &	Leaf
8.00	1 *	00000000
.00	1 .	
8.00	2 *	00000000
.00	2 .	
6.00	3 *	0000000
.00	3 .	
2.00	4 *	00
.00	4 .	
1.00	5 *	0

Stem width: 1.00  
Each leaf: 1 case(s)

Hi-Res Chart # 25:Normal q-q plot of rasa for produk: 2.00  
Hi-Res Chart # 26:Detrended normal q-q plot of rasa for produk: 2.00

	Statistic	df	Significance
Shapiro-Wilks	.8720	25	< .0100
K-S (Lilliefors)	.2110	25	.0055



RASA  
By PRODUK 3.00

Valid cases: 25.0 Missing cases: .0 Percent missing: .0

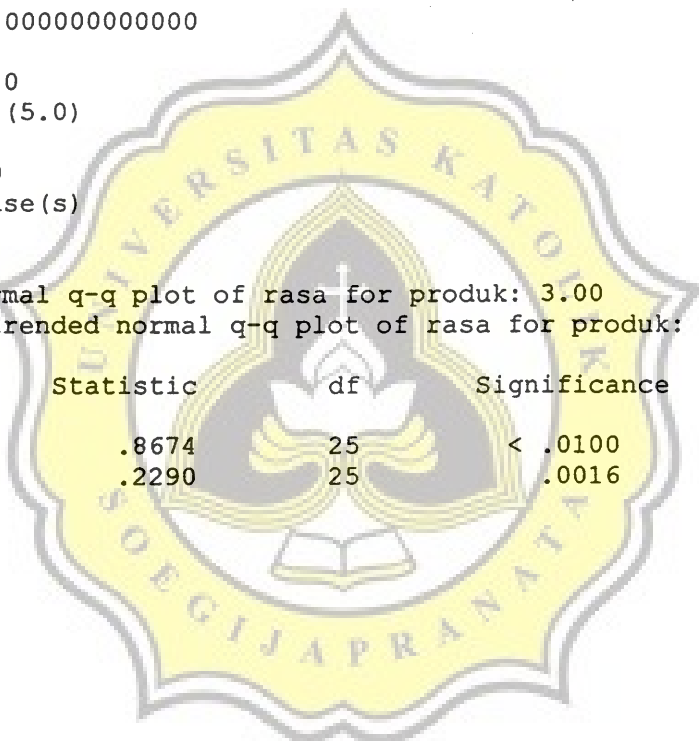
Mean	2.5200	Std Err	.1925	Min	1.0000	Skewness	.2432
Median	3.0000	Variance	.9267	Max	5.0000	S E Skew	.4637
5% Trim	2.4778	Std Dev	.9626	Range	4.0000	Kurtosis	.6443
95% CI for Mean	(2.1226, 2.9174)			IQR	1.0000	S E Kurt	.9017

Frequency	Stem &	Leaf
4.00	1 *	0000
.00	1 .	
7.00	2 *	0000000
.00	2 .	
12.00	3 *	000000000000
.00	3 .	
1.00	4 *	0
1.00	Extremes	(5.0)

Stem width: 1.00  
Each leaf: 1 case(s)

Hi-Res Chart # 27: Normal q-q plot of rasa for produk: 3.00  
Hi-Res Chart # 28: Detrended normal q-q plot of rasa for produk: 3.00

	Statistic	df	Significance
Shapiro-Wilks	.8674	25	< .0100
K-S (Lilliefors)	.2290	25	.0016



RASA  
By PRODUK 4.00

Valid cases: 25.0 Missing cases: .0 Percent missing: .0

Mean	1.3200	Std Err	.0952	Min	1.0000	Skewness	.8219
Median	1.0000	Variance	.2267	Max	2.0000	S E Skew	.4637
5% Trim	1.3000	Std Dev	.4761	Range	1.0000	Kurtosis	1.4473
95% CI for Mean	(1.1235, 1.5165)			IQR	1.0000	S E Kurt	.9017

Frequency	Stem &	Leaf
17.00	1 *	000000000000000000
.00	1 t	
.00	1 f	
.00	1 s	
.00	1 .	
8.00	2 *	00000000

Stem width: 1.00  
Each leaf: 1 case(s)

Hi-Res Chart # 29:Normal q-q plot of rasa for produk: 4.00  
Hi-Res Chart # 30:Detrended normal q-q plot of rasa for produk: 4.00

	Statistic	df	Significance
Shapiro-Wilks	.5893	25	< .0100
K-S (Lilliefors)	.4293	25	.0281





Lampiran 20

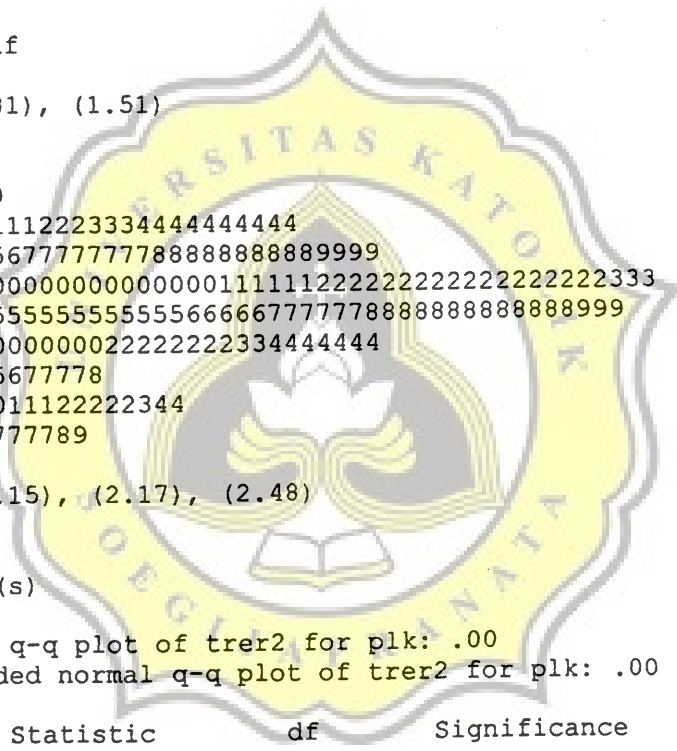
Normalitas expansion ratio ekstrudat dengan transformasi lg

TRER2  
 By PLK .00  
 Valid cases: 200.0 Missing cases: .0 Percent missing: .0  
 Mean 1.8561 Std Err .0096 Min .8106 Skewness 1.6408  
 Median 1.8516 Variance .0186 Max 2.4785 S E Skew .1719  
 5% Trim 1.8567 Std Dev .1362 Range 1.6678 Kurtosis 18.4932  
 95% CI for Mean (1.8371, 1.8751) IQR .1384 S E Kurt .3422

Frequency Stem & Leaf  
 2.00 Extremes (.81), (1.51)  
 1.00 15 . 8  
 2.00 16 \* 03  
 3.00 16 . 999  
 21.00 17 \* 0011122233344444444444  
 26.00 17 . 55567777777788888888889999  
 43.00 18 \* 0000000000000000111112222222222222222333  
 41.00 18 . 55555555555555666667777778888888888999  
 26.00 19 \* 000000000222222223344444444  
 9.00 19 . 555677778  
 14.00 20 \* 00011122222344  
 8.00 20 . 5777789  
 1.00 21 \* 0  
 3.00 Extremes (2.15), (2.17), (2.48)  
 Stem width: .10  
 Each leaf: 1 case(s)

Hi-Res Chart # 3:Normal q-q plot of trer2 for plk: .00  
 Hi-Res Chart # 4:Detrended normal q-q plot of trer2 for plk: .00

	Statistic	df	Significance
K-S (Lilliefors)	.1001	200	.076





Normalitas expansion ratio ekstrudat

By TRER2  
PLK 2.00

Valid cases: 200.0 Missing cases: .0 Percent missing: .0

Mean	1.7663	Std Err	.0112	Min	1.4639	Skewness	4.6833
Median	1.7485	Variance	.0252	Max	3.2249	S E Skew	.1719
5% Trim	1.7530	Std Dev	.1588	Range	1.7611	Kurtosis	37.6152
95% CI for Mean	(1.7442, 1.7885)			IQR	.1060	S E Kurt	.3422

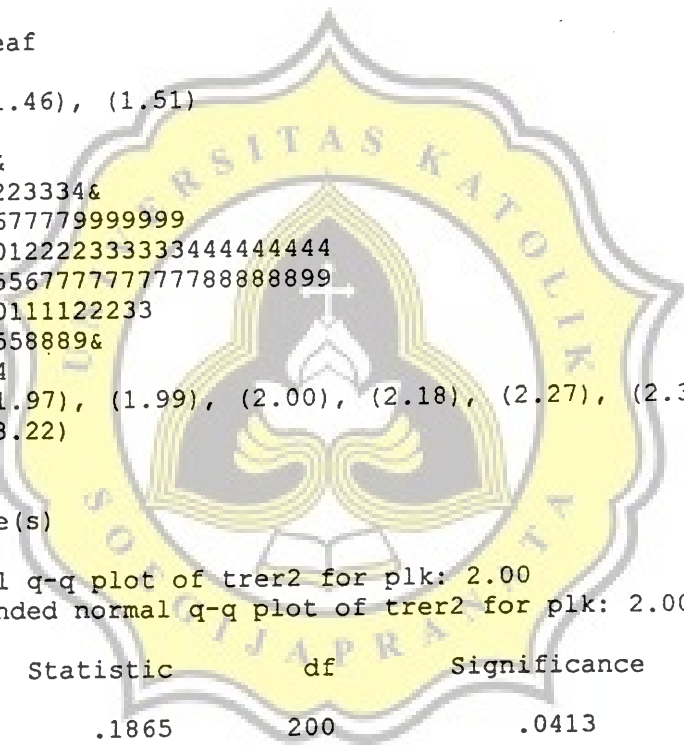
Frequency Stem & Leaf

2.00	Extremes	(1.46), (1.51)
3.00	15 *	3
5.00	15 .	5&
18.00	16 *	0223334&
27.00	16 .	6677779999999
46.00	17 *	00122233333344444444
47.00	17 .	555677777777788888899
22.00	18 *	00111122233
16.00	18 .	5558889&
6.00	19 *	14
7.00	Extremes	(1.97), (1.99), (2.00), (2.18), (2.27), (2.30), (2.47)
1.00	Extremes	(3.22)

Stem width: .10  
Each leaf: 2 case(s)

Hi-Res Chart # 7: Normal q-q plot of trer2 for plk: 2.00  
Hi-Res Chart # 8: Detrended normal q-q plot of trer2 for plk: 2.00

	Statistic	df	Significance
K-S (Lilliefors)	.1865	200	.0413



Normalitas expansion ratio ekstrudat

TRER2  
 By PLK 3.00  
 Valid cases: 200.0 Missing cases: .0 Percent missing: .0

Mean	1.7704	Std Err	.0202	Min	1.3836	Skewness	3.7530
Median	1.7321	Variance	.0820	Max	3.4765	S E Skew	.1719
5% Trim	1.7235	Std Dev	.2863	Range	2.0929	Kurtosis	15.6249
95% CI for Mean	(1.7305, 1.8103)			IQR	.0975	S E Kurt	.3422

Frequency	Stem &	Leaf
8.00	Extremes	(1.38), (1.47), (1.49), (1.51), (1.52)
3.00	15 *	3&
21.00	15 .	555677778
9.00	16 *	234&
30.00	16 .	5566799999999&
68.00	17 *	00111112222233333444444444444444
28.00	17 .	5555577777888&
13.00	18 *	00223&
3.00	18 .	&
2.00	19 *	0
10.00	Extremes	(1.91), (1.99), (2.07), (2.31), (2.46), (2.74), (2.79)
5.00	Extremes	(2.93), (2.99), (3.14), (3.24), (3.48)

Stem width: .10  
 Each leaf: 2 case(s)

i-Res Chart # 9:Normal q-q plot of trer2 for plk: 3.00  
 i-Res Chart # 10:Detrended normal q-q plot of trer2 for plk: 3.00

	Statistic	df	Significance
K-S (Lilliefors)	.3204	200	.0610



Normalitas expansion ratio ekstrudat

TRER2  
By PLK 4.00

Valid cases: 200.0 Missing cases: .0 Percent missing: .0

Mean	1.6121	Std Err	.0107	Min	1.3732	Skewness	2.4099
Median	1.5766	Variance	.0228	Max	2.2866	S E Skew	.1719
5% Trim	1.5949	Std Dev	.1511	Range	.9134	Kurtosis	8.2313
95% CI for Mean	(1.5910, 1.6331)			IQR	.1690	S E Kurt	.3422

Frequency	Stem &	Leaf
1.00	13 .	7
8.00	14 *	22334444
27.00	14 .	555555566777778888999999999
45.00	15 *	11111222222222222233333333333333334444444444
41.00	15 .	55555555566666666777777777778888888888888999
15.00	16 *	000112222334444
22.00	16 .	56667777999999999999999
28.00	17 *	0000111122222233333344444444
3.00	17 .	777
1.00	18 *	0
3.00	18 .	579
6.00	Extremes	(2.23), (2.24), (2.27), (2.28)

Stem width: .10  
Each leaf: 1 case(s)

Hi-Res Chart # 11:Normal q-q plot of trer2 for plk: 4.00  
Hi-Res Chart # 12:Detrended normal q-q plot of trer2 for plk: 4.00

	Statistic	df	Significance
K-S (Lilliefors)	.1643	200	.0723