

Nama : Dinianti Siti Nur Halizah

NPM : 2114201016

Mahasiswa	Mata Kuliah			
	Matematika	Statistika	Limnologi	MKA
Andi	68	57	73	61
Rina	83	94	91	86
Budi	72	81	63	59
Siska	55	73	77	66
Dina	92	68	75	87

Mahasiswa:

1=Andi

2=Rina

3=Budi

4=Siska

5=Dina

Tukey

Method

Null hypothesis All means are equal
Alternative hypothesis Not all means are equal
Significance level $\alpha = 0,05$

Equal variances were assumed for the analysis.

Factor Information

<u>Factor</u>	<u>Level</u>	<u>Values</u>
Mahasiswa	5	1; 2; 3; 4; 5

Analysis of Variance

<u>Source</u>	<u>DF</u>	<u>Adj SS</u>	<u>Adj MS</u>	<u>F-Value</u>	<u>P-Value</u>
Mahasiswa	4	1619	404,68	5,26	0,008
Error	15	1154	76,95		
Total	19	2773			

Model Summary

<u>S</u>	<u>R-sq</u>	<u>R-sq(adj)</u>	<u>R-sq(pred)</u>
8,77211	58,37%	47,27%	26,00%

Means

<u>Mahasiswa</u>	<u>N</u>	<u>Mean</u>	<u>StDev</u>	<u>95% CI</u>
1	4	64,75	7,14	(55,40; 74,10)
2	4	88,50	4,93	(79,15; 97,85)
3	4	68,75	9,81	(59,40; 78,10)
4	4	67,75	9,64	(58,40; 77,10)
5	4	80,50	10,97	(71,15; 89,85)

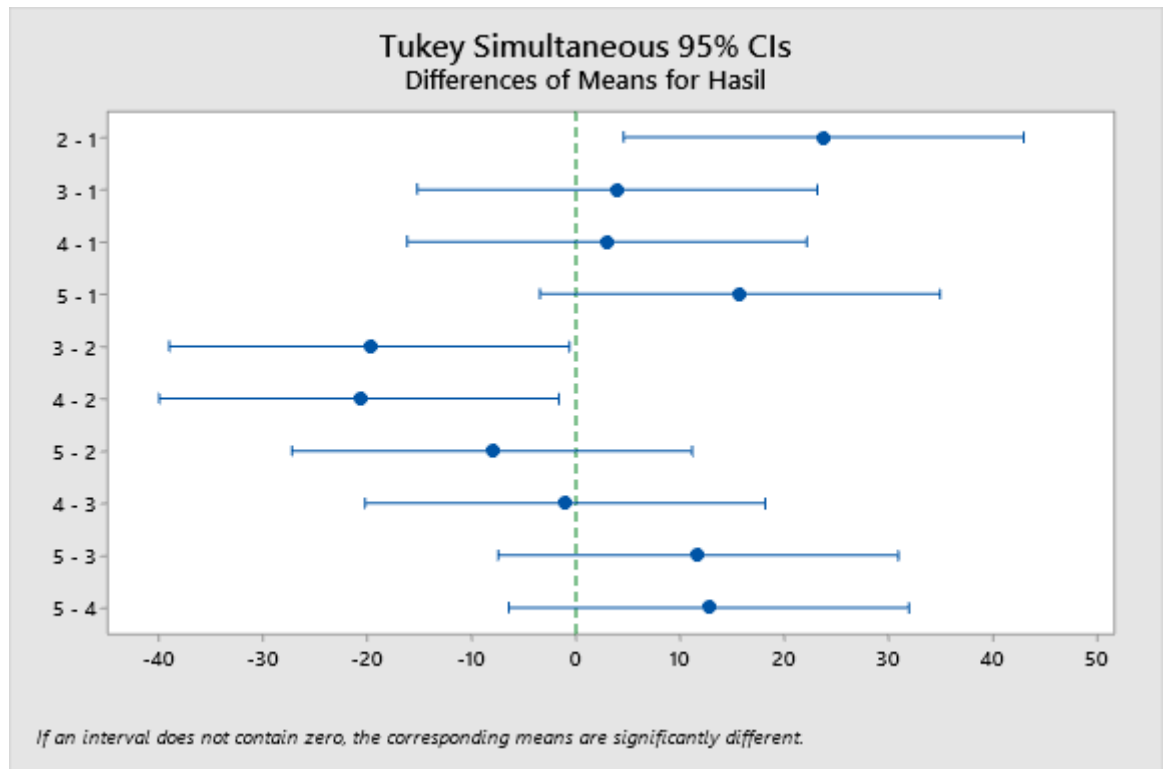
Pooled StDev = 8,77211

Tukey Pairwise Comparisons

Grouping Information Using the Tukey Method and 95% Confidence

<u>Mahasiswa</u>	<u>N</u>	<u>Mean</u>	<u>Grouping</u>
2	4	88,50	A
5	4	80,50	A B
3	4	68,75	B
4	4	67,75	B
1	4	64,75	B

Means that do not share a letter are significantly different.



Fisher

Method

Null hypothesis All means are equal
 Alternative hypothesis Not all means are equal
 Significance level $\alpha = 0,05$

Equal variances were assumed for the analysis.

Factor Information

Factor	Level	Values
Mahasiswa	5	1; 2; 3; 4; 5

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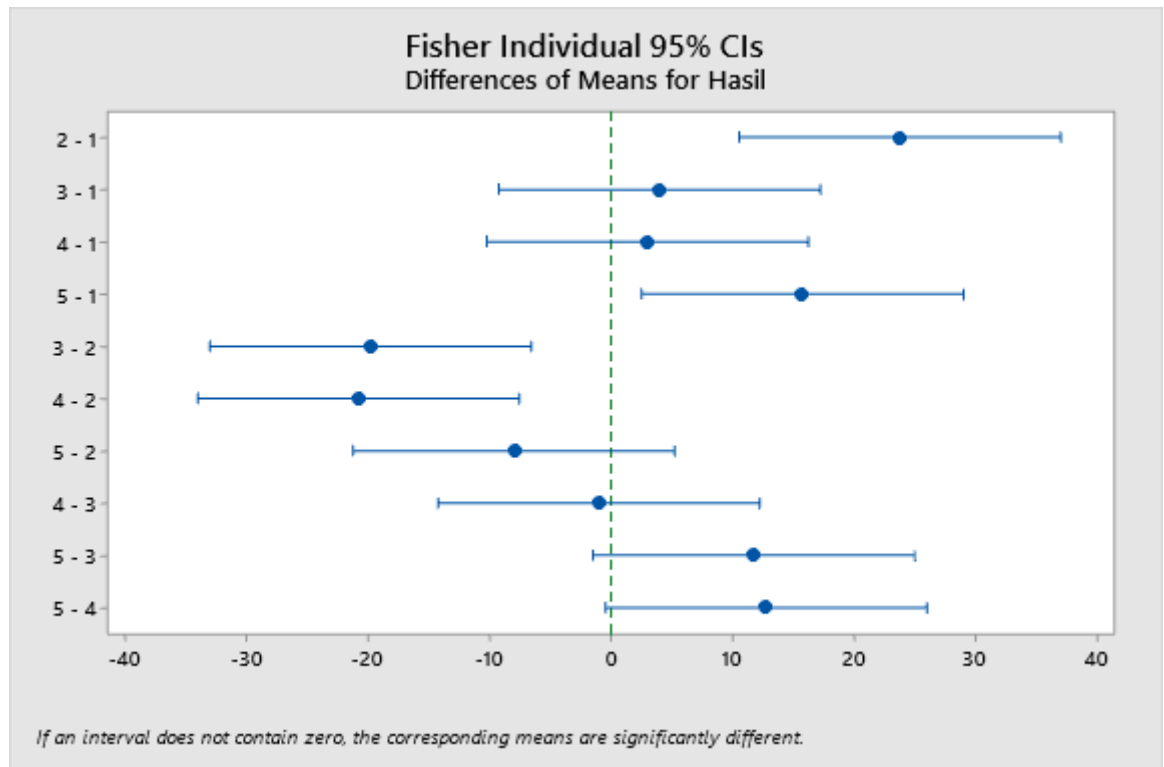
Pooled StDev = 8,77211

Fisher Pairwise Comparisons

Grouping Information Using the Fisher LSD Method and 95% Confidence

<u>Mahasiswa</u>	<u>N</u>	<u>Mean</u>	<u>Grouping</u>
2	4	88,50	A
5	4	80,50	A B
3	4	68,75	B C
4	4	67,75	B C
1	4	64,75	C

Means that do not share a letter are significantly different.



Dunnet

Method

Null hypothesis All means are equal
 Alternative hypothesis Not all means are equal
 Significance level $\alpha = 0,05$

Equal variances were assumed for the analysis.

Factor Information

Factor	Level	Values
Mahasiswa	5	1; 2; 3; 4; 5

Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Mahasiswa	4	1619	404,68	5,26	0,008
Error	15	1154	76,95		
Total	19	2773			

Model Summary

<u>S</u>	<u>R-sq</u>	<u>R-sq(adj)</u>	<u>R-sq(pred)</u>
8,77211	58,37%	47,27%	26,00%

Means

<u>Mahasiswa</u>	<u>N</u>	<u>Mean</u>	<u>StDev</u>	<u>95% CI</u>
1	4	64,75	7,14	(55,40; 74,10)
2	4	88,50	4,93	(79,15; 97,85)
3	4	68,75	9,81	(59,40; 78,10)
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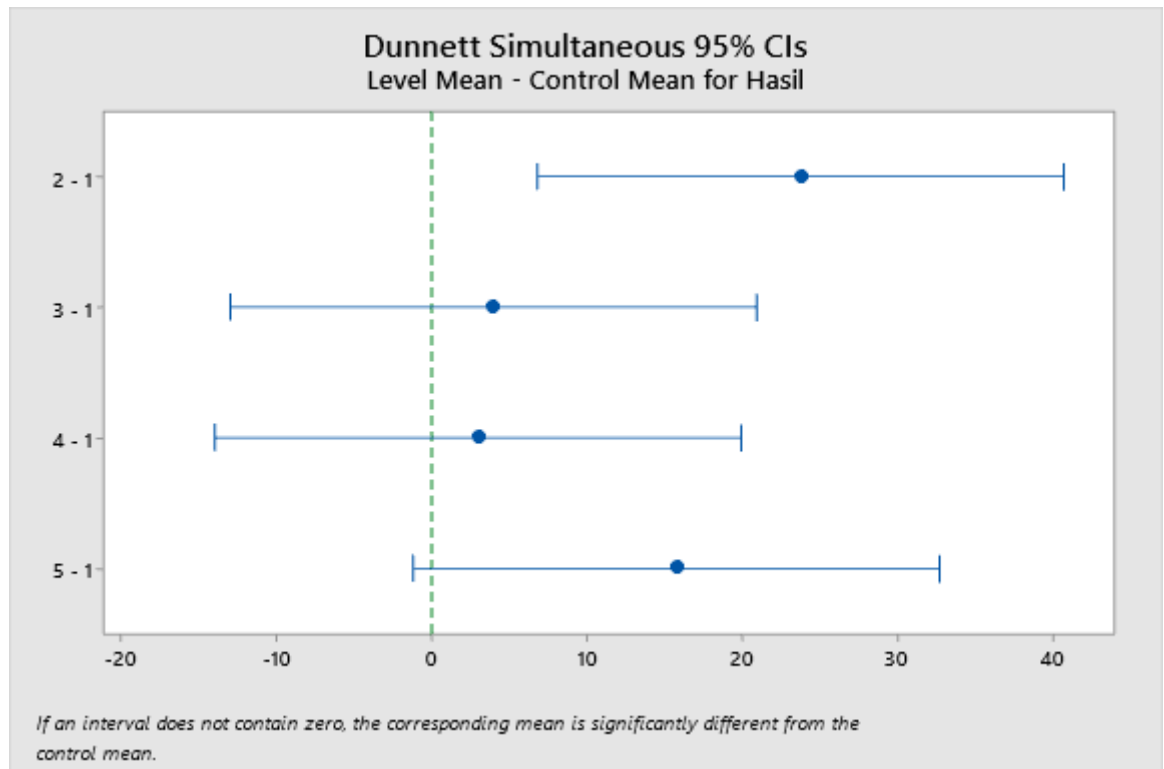
Pooled StDev = 8,77211

Dunnett Multiple Comparisons with a Control

Grouping Information Using the Dunnett Method and 95% Confidence

<u>Mahasiswa</u>	<u>N</u>	<u>Mean</u>	<u>Grouping</u>
1 (control)	4	64,75	A
2	4	88,50	
5	4	80,50	A
3	4	68,75	A
4	4	67,75	A

Means not labeled with the letter A are significantly different from the control level mean.



H0; Residual berdistribusi normal

H1; Residual tidak berdistribusi normal

$P < \alpha$

$0,0008 < 0,05$ (tolak H0)

Kesimpulan : nilai p kurang dari α (tingkat signifikansi) yaitu 5% atau 0,05 maka dapat disimpulkan bahwa residual tidak menyebar atau tidak berdistribusi normal.

Berdasarkan uji tukey, uji fisher, dan uji dunnet nilai mahasiswa 2 (Rina) adalah nilai yang paling bagus.

Jenis Pakan	Varietas Ikan Nila		
	A	B	C
Pakan A	150	200	220
	190	240	170
	120	180	140
Pakan B	170	240	260
	100	180	190
	130	220	210
Pakan C	90	120	100
	120	150	50
	60	100	80
Pakan D	140	210	190
	80	160	150
	110	140	120

Method

Factor coding (-1; 0; +1)

Factor Information

Factor	Type	Level:Values
JENIS PAKAN	Fixed	4 1; 2; 3; 4
VARIETAS	Fixed	3 1; 2; 3

Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
JENIS PAKAN	3	46822	15607	14,56	0,000
VARIETAS	2	19622	9811	9,15	0,001
JENIS PAKAN*VARIETAS	6	7844	1307	1,22	0,331
Error	24	25733	1072		
Total	35	100022			

Model Summary

S	R-sq	R-sq(adj)	R-sq(pred)
32,7448	74,27%	62,48%	42,11%

Coefficients

Term	Coef	SE Coef	T-Value	P-Value	VIF
Constant	152,22	5,46	27,89	0,000	
JENIS PAKAN					
1	26,67	9,45	2,82	0,009	1,50
2	36,67	9,45	3,88	0,001	1,50
3	-55,56	9,45	-5,88	0,000	1,50
VARIETAS					
1	-30,56	7,72	-3,96	0,001	1,33
2	26,11	7,72	3,38	0,002	1,33
JENIS PAKAN*VARIETAS					
1 1	5,0	13,4	0,37	0,712	2,00
1 2	1,7	13,4	0,12	0,902	2,00
2 1	-25,0	13,4	-1,87	0,074	2,00
2 2	-1,7	13,4	-0,12	0,902	2,00
3 1	23,9	13,4	1,79	0,087	2,00
3 2	0,6	13,4	0,04	0,967	2,00

Regression Equation

HASIL = 152,22 + 26,67 JENIS PAKAN_1 + 36,67 JENIS PAKAN_2 - 55,56 JENIS PAKAN_3
 - 7,78 JENIS PAKAN_4 - 30,56 VARIETAS_1 + 26,11 VARIETAS_2
 + 4,44 VARIETAS_3
 + 5,0 JENIS PAKAN*VARIETAS_1 1 + 1,7 JENIS PAKAN*VARIETAS_1 2
 - 6,7 JENIS PAKAN*VARIETAS_1 3 - 25,0 JENIS PAKAN*VARIETAS_2 1
 - 1,7 JENIS PAKAN*VARIETAS_2 2 + 26,7 JENIS PAKAN*VARIETAS_2 3
 + 23,9 JENIS PAKAN*VARIETAS_3 1 + 0,6 JENIS PAKAN*VARIETAS_3 2
 - 24,4 JENIS PAKAN*VARIETAS_3 3 - 3,9 JENIS PAKAN*VARIETAS_4 1
 - 0,6 JENIS PAKAN*VARIETAS_4 2 + 4,4 JENIS PAKAN*VARIETAS_4 3

Tukey

Tukey Pairwise Comparisons: JENIS PAKAN*VARIETAS

Grouping Information Using the Tukey Method and 95% Confidence

JENIS PAKAN*VARIETAS	N	Mean	Grouping
2 3	3	220,000	A
2 2	3	213,333	A B
1 2	3	206,667	A B
1 3	3	176,667	A B C
4 2	3	170,000	A B C D
4 3	3	153,333	A B C D
1 1	3	153,333	A B C D
2 1	3	133,333	A B C D
3 2	3	123,333	B C D
4 1	3	110,000	C D

3 1	3	90,000	C D
3 3	3	76,667	D

Means that do not share a letter are significantly different.

Fisher

Grouping Information Using Fisher LSD Method and 95% Confidence

JENIS			
PAKAN*VARIETAS	N	Mean	Grouping
2 3	3	220,000	A
2 2	3	213,333	A
1 2	3	206,667	A B
1 3	3	176,667	A B C
4 2	3	170,000	A B C
4 3	3	153,333	B C D
1 1	3	153,333	B C D
2 1	3	133,333	C D E
3 2	3	123,333	C D E F
4 1	3	110,000	D E F
3 1	3	90,000	E F
3 3	3	76,667	F

Means that do not share a letter are significantly different.

Dunnett Multiple Comparisons with a Control: JENIS PAKAN*VARIETAS

Grouping Information Using the Dunnett Method and 95% Confidence

JENIS			
PAKAN*VARIETAS	N	Mean	Grouping
1 1 (Control)	3	153,333	A
2 3	3	220,000	A
2 2	3	213,333	A
1 2	3	206,667	A
1 3	3	176,667	A
4 2	3	170,000	A
4 3	3	153,333	A
2 1	3	133,333	A
3 2	3	123,333	A
4 1	3	110,000	A
3 1	3	90,000	A
3 3	3	76,667	A

Means not labeled with the letter A are significantly different from the control level mean.

Hipotesis:

H0: Residual berdistribusi normal

H1: Residual tidak berdistribusi normal

$$P < \alpha$$

$$0,027 < 0,05 \text{ (Tolak } H_0)$$

Karena nilai p kurang dari tingkat signifikansi (α), yaitu 5% atau 0.05, dapat disimpulkan bahwa residual tidak berdistribusi normal.

Berdasarkan uji tukey, uji fisher, dan uji dunnet jenis pupuk 2 (B) varietas 3 (C) adalah jenis pupuk dengan varietas yang paling bagus.