

LAMPIRAN DATA

Data Organoleptik

N0	Rasa					Warna					Aroma					Tekstur					Jumlah	Rata-rata
	P0	P1	P2	P3	P4	P0	P1	P2	P3	P4	P0	P1	P2	P3	P4	P0	P1	P2	P3	P4		
1	4	4	3	5	3	4	3	4	5	5	4	3	3	5	4	3	3	4	5	3	77	3.85
2	3	4	4	5	4	3	4	4	5	4	3	3	4	5	4	3	4	4	5	4	79	3.95
3	4	4	3	5	4	4	3	4	5	4	5	3	4	4	3	3	5	5	4	4	80	4
4	4	4	3	5	3	4	3	4	5	5	4	3	3	5	4	3	4	3	5	3	77	3.85
5	4	4	3	5	3	4	3	4	5	5	4	4	3	5	3	3	4	4	5	5	80	4
6	4	4	3	5	3	3	3	4	4	5	3	4	4	4	3	5	2	4	5	1	73	3.65
7	4	4	2	5	2	3	4	5	5	4	3	3	5	5	4	5	4	3	5	3	78	3.9
8	4	5	3	5	3	4	4	3	4	3	4	3	3	5	3	4	4	5	4	3	76	3.8
9	4	3	5	5	3	3	4	4	4	5	4	4	4	5	3	4	4	5	4	3	80	4
10	5	4	3	5	1	4	3	4	5	1	5	5	3	2	3	3	2	2	4	1	65	3.25
11	3	2	4	4	3	3	3	2	4	2	3	4	4	3	2	4	3	4	5	2	64	3.2
12	3	4	4	3	2	2	4	3	2	4	4	4	5	4	2	4	3	4	4	2	67	3.35
13	4	3	4	4	2	2	2	3	4	4	3	3	4	4	2	4	4	4	3	2	65	3.25
14	3	4	4	5	2	3	4	4	3	3	3	3	4	4	3	3	4	5	4	5	73	3.65
15	5	4	3	5	3	5	3	3	5	5	5	5	4	4	3	3	3	4	4	3	79	3.95
Jumlah	58	57	51	71	41	51	50	55	65	59	57	54	57	64	46	54	53	60	66	44	1113	55.65
Rata-rata	3.87	3.80	3.40	4.73	2.73	3.40	3.33	3.67	4.33	3.93	3.80	3.60	3.80	4.27	3.07	3.60	3.53	4.00	4.40	2.93	74.2	3.71

UJI ANOVA

RASA

Data Pengamatan

N0	Rasa					Jumlah	Rata-rata
	P0	P1	P2	P3	P4		
1	4	4	3	5	3	19	3.80
2	3	4	4	5	4	20	4.00
3	4	4	3	5	4	20	4.00
4	4	4	3	5	3	19	3.80
5	4	4	3	5	3	19	3.80
6	4	4	3	5	3	19	3.80
7	4	4	2	5	2	17	3.40
8	4	5	3	5	3	20	4.00
9	4	3	5	5	3	20	4.00
10	5	4	3	5	1	18	3.60
11	3	2	4	4	3	16	3.20
12	3	4	4	3	2	16	3.20
13	4	3	4	4	2	17	3.40
14	3	4	4	5	2	18	3.60
15	5	4	3	5	3	20	4.00
Jumlah	58	57	51	71	41	278	55.60
Rata-rata	3.87	3.80	3.40	4.73	2.73	18.53	3.71

Keterangan:

G = Grand total (jumlah seluruh data)
= 278
N = Jumlah total pengamatan (t x r)
= 5 x 15
= 75

Faktor Koreksi (FK)

FK = G^2 / N
= $(278)^2 / 75$
= $77.284 / 75$
= 1.030,4533

Jumlah Kuadrat Total (JKT)

JKT = $\sum \sum Y_{ij}^2 - FK$
= $1.096,0000 - 1.030,4533$
= 65,5467

Jumlah Kuadrat Perlakuan (JKP)

JKP = $\sum (T_i^2 / r) - FK$
= $(58^2 + 57^2 + 51^2 + 71^2 + 41^2) / 15 - 1.030,4533$
= $(3.364 + 3.249 + 2.601 + 5.041 + 1.681) / 15 - 1.030,4533$
= $15.936 / 15 - 1.030,4533$

$$= 1.062,4000 - 1.030,4533$$

$$= 31,9467$$

Jumlah Kuadrat Galat (JKG)

$$\text{JKG} = \text{JKT} - \text{JKP}$$

$$= 65,5467 - 31,9467$$

$$= 33,6000$$

Derajat Bebas (db)

$$\text{db Perlakuan} = t - 1$$

$$= 5 - 1$$

$$= 4$$

$$\text{db Galat} = t(r - 1)$$

$$= 5 \times (15 - 1)$$

$$= 70$$

$$\text{db Total} = N - 1$$

$$= 75 - 1$$

$$= 74$$

Kuadrat Tengah (KT)

$$\text{KT Perlakuan} = \text{JKP} / \text{db Perlakuan}$$

$$= 31,9467 / 4$$

$$= 7,9867$$

$$\text{KT Galat} = \text{JKG} / \text{db Galat}$$

$$= 33,6000 / 70$$

$$= 0,4800$$

F Hitung

$$\text{F hitung} = \text{KT Perlakuan} / \text{KT Galat}$$

$$= 7,9867 / 0,480$$

$$= 16,638$$

Tabel ANOVA

Sumber Keragaman	db	JK	KT	F hitung	F tabel 5%	F tabel 1%
Perlakuan	4	31.9467	7.9867	16.6389 **	2.50	3.60
Galat	70	33.6000	0.4800	-	-	-
Total	74	65.5467	-	-	-	-

Keterangan: ** = berbeda sangat nyata pada taraf 1% (F hitung > F tabel 1%)

F tabel 5% = 2,50 (db1=4, db2=70). F tabel 1% = 3,60 (db1=4, db2=70)

Uji BNT (Beda Nyata Terkecil)

$$\text{BNT}\alpha = t_{\alpha}(\text{db galat}) \times \sqrt{(2 \text{ KTG} / r)}$$

Nilai BNT

KTG = 0,4800

r = 15 (jumlah panelis/ulangan)

t tabel 5% (db=70) = 1,994

t tabel 1% (db=70) = 2,648

BNT 5% = $1,994 \times \sqrt{(2 \times 0,4800 / 15)}$
 = $1,994 \times \sqrt{(0,0640)}$
 = $1,994 \times 0,2530$
 = 0,5044

BNT 1% = $2,648 \times \sqrt{(2 \times 0,4800 / 15)}$
 = $2,648 \times 0,2530$
 = 0,6699

Perbandingan Antar Perlakuan

Perbandingan	Rata-rata 1	Rata-rata 2	Selisih	BNT 5%	BNT 1%	Keterangan
P3 - P0	4.73	3.87	0.87	0.5044	0.6699	**
P3 - P1	4.73	3.80	0.93	0.5044	0.6699	**
P3 - P2	4.73	3.40	1.33	0.5044	0.6699	**
P3 - P4	4.73	2.73	2.00	0.5044	0.6699	**
P0 - P1	3.87	3.80	0.07	0.5044	0.6699	ns
P0 - P2	3.87	3.40	0.47	0.5044	0.6699	ns
P0 - P4	3.87	2.73	1.13	0.5044	0.6699	**
P1 - P2	3.80	3.40	0.40	0.5044	0.6699	ns
P1 - P4	3.80	2.73	1.07	0.5044	0.6699	**
P2 - P4	3.40	2.73	0.67	0.5044	0.6699	*

Keterangan:

** = berbeda sangat nyata (selisih > BNT 1%)

* = berbeda nyata (BNT 5% < selisih ≤

BNT 1%) ns = tidak berbeda nyata

(selisih ≤ BNT 5%)

Notasi

Perlakuan	Rata-rata
P3	4.73 a
P0	3.87 b
P1	3.80 b
P2	3.40 bc
P4	2.73 c

Keterangan: Angka yang diikuti huruf yang sama menunjukkan tidak berbeda nyata pada taraf uji BNT 5% maupun 1%

WARNA

Data Pengamatan

N0	Warna					Jumlah	Rata-rata
	P0	P1	P2	P3	P4		
1	4	3	4	5	5	21	4.20
2	3	4	4	5	4	20	4.00
3	4	3	4	5	4	20	4.00
4	4	3	4	5	5	21	4.20
5	4	3	4	5	5	21	4.20
6	3	3	4	4	5	19	3.80
7	3	4	5	5	4	21	4.20
8	4	4	3	4	3	18	3.60
9	3	4	4	4	5	20	4.00
10	4	3	4	5	1	17	3.40
11	3	3	2	4	2	14	2.80
12	2	4	3	2	4	15	3.00
13	2	2	3	4	4	15	3.00
14	3	4	4	3	3	17	3.40
15	5	3	3	5	5	21	4.20
Jumlah	51	50	55	65	59	280	56.00
Rata-rata	3.40	3.33	3.67	4.33	3.93	18.67	3.73

Keterangan:

G = Grand total
= 280

N = $t \times r$
= 5×15
= 75

Faktor koreksi

(FK) = G^2 / N
= $(280)^2 / 75$
= $78.400 / 75$
= 1.045,3333

Jumlah Kuadrat Total (JKT)

JKT = $\sum \sum Y_{ij}^2 - FK$
= $1.110 - 1.045,3333$
= 64,6667

Jumlah Kuadrat Perlakuan (JKP)

JKP = $\sum (T_i^2 / r) - FK$
= $(51^2 + 50^2 + 55^2 + 65^2 + 59^2) / 15 - 1.045,3333$
= $(2.601 + 2.500 + 3.025 + 4.225 + 3.481) / 15 - 1.045,3333$
= $15.832 / 15 - 1.045,3333$
= $1.055,4667 - 1.045,3333$

$$= 10,1333$$

Jumlah Kuadrat Galat (JKG)

$$\begin{aligned} \text{JKG} &= \text{JKT} - \text{JKP} \\ &= 64,6667 - 10,1333 \\ &= 54,5333 \end{aligned}$$

Derajat Bebas (db)

$$\begin{aligned} \text{db Perlakuan} &= t - 1 \\ &= 5 - 1 \\ &= 4 \\ \text{db Galat} &= t(r-1) \\ &= 5(15-1) \\ &= 70 \\ \text{db Total} &= N - 1 \\ &= 75 - 1 \\ &= 74 \end{aligned}$$

Kuadrat Tengah (KT)

$$\begin{aligned} \text{KT Perlakuan} &= \text{JKP} / \text{db Perlakuan} \\ &= 10,1333 / 4 \\ &= 2,5333 \\ \text{KT Galat} &= \text{JKG} / \text{db Galat} \\ &= 54,5333 / 70 \\ &= 0,7790 \end{aligned}$$

F Hitung

$$\begin{aligned} \text{F hitung} &= \text{KT Perlakuan} / \text{KT Galat} \\ &= 2,5333 / 0,7790 \\ &= 3,2518 \end{aligned}$$

TABEL ANOVA

Sumber Keragaman	db	JK	KT	F hitung	F tabel 5%	F tabel 1%	Ket.
Perlakuan	4	10.1333	2.5333	3.2518 *	2.50	3.60	*
Galat	70	54.5333	0.7790	-	-	-	-
Total	74	64.6667	-	-	-	-	-

Keterangan: * = berbeda nyata pada taraf 5% (F hitung > F tabel 5%)

F tabel 5% (db1=4, db2=70) = 2,50

F tabel 1% = 3,60

UJI BNT 5%

Rumus BNT

$$\text{BNT } \alpha = t_{\alpha}(\text{db galat}) \times \sqrt{(2 \text{ KTG} / r)}$$

Nilai BNT 5%

$$\text{KTG} = 0,7790$$

$$r = 15$$

$$t \text{ tabel } 5\% (db = 70) = 1,994$$

$$\begin{aligned} \text{BNT } 5\% &= 1,994 \times \sqrt{(2 \times 0,7790 / 15)} \\ &= 1,994 \times \sqrt{(0,1039)} \\ &= 1,994 \times 0,3223 \\ &= 0,6427 \end{aligned}$$

Perbandingan Rata- rata

Perbandingan	Rata-rata 1	Rata-rata 2	Selisih	BNT 5% = 0.6427	Keterangan
P3-P4	4.33	3.93	0.4000	$0.4000 < 0.6427$	Tidak berbeda nyata (ns)
P3-P2	4.33	3.67	0.6600	$0.6600 > 0.6427$	Berbeda nyata (*)
P3-P0	4.33	3.40	0.9300	$0.9300 > 0.6427$	Berbeda nyata (*)
P3-P1	4.33	3.33	1.0000	$1.0000 > 0.6427$	Berbeda nyata (*)
P4-P2	3.93	3.67	0.2600	$0.2600 < 0.6427$	Tidak berbeda nyata (ns)
P4-P0	3.93	3.40	0.5300	$0.5300 < 0.6427$	Tidak berbeda nyata (ns)
P4-P1	3.93	3.33	0.6000	$0.6000 < 0.6427$	Tidak berbeda nyata (ns)
P2-P0	3.67	3.40	0.2700	$0.2700 < 0.6427$	Tidak berbeda nyata (ns)
P2-P1	3.67	3.33	0.3400	$0.3400 < 0.6427$	Tidak berbeda nyata (ns)
P0-P1	3.40	3.33	0.0700	$0.0700 < 0.6427$	Tidak berbeda nyata (ns)

Notasi

No.	Perlakuan	Jumlah (Ti)	Rata-rata ($\bar{Y}_i$)
1	P3	65	4.33 a
2	P4	59	3.93 ab
3	P2	55	3.67 b
4	P0	51	3.40 b
5	P1	50	3.33 b

AROMA

Data Pengamatan

N0	Aroma					Jumlah	Rata-rata
	P0	P1	P2	P3	P4		
1	4	3	3	5	4	19	3.80
2	3	3	4	5	4	19	3.80
3	5	3	4	4	3	19	3.80
4	4	3	3	5	4	19	3.80
5	4	4	3	5	3	19	3.80
6	3	4	4	4	3	18	3.60
7	3	3	5	5	4	20	4.00
8	4	3	3	5	3	18	3.60
9	4	4	4	5	3	20	4.00
10	5	5	3	2	3	18	3.60
11	3	4	4	3	2	16	3.20
12	4	4	5	4	2	19	3.80
13	3	3	4	4	2	16	3.20
14	3	3	4	4	3	17	3.40
15	5	5	4	4	3	21	4.20
Jumlah	57	54	57	64	46	278	55.60
Rata-rata	3.80	3.60	3.80	4.27	3.07	18.53	3.71

Keterangan :

$$\begin{aligned}
 \text{Jumlah Perlakuan (t)} &= 5 \\
 \text{Jumlah Ulanga (n)} &= 15 \\
 \text{Total Pengamatan (N)} &= t \times n \\
 &= 5 \times 15 \\
 &= 75 \\
 \text{Grand Total (Y..)} &= 278
 \end{aligned}$$

Faktor Koreksi (FK)

$$\begin{aligned}
 FK &= (Y..)^2 / N \\
 &= (278)^2 / 75 \\
 &= 77.284 / 75 \\
 &= 1.030,453
 \end{aligned}$$

Jumlah Kuadrat Total (JKT)

$$\begin{aligned}
 JKT &= \sum \sum Y_{ij}^2 - FK \\
 &= 1.082 - 1.030,45 \\
 &= 51,547
 \end{aligned}$$

Jumlah Kuadrat Perlakuan (JKP)

$$\begin{aligned}
 JKP &= (\sum Ti^2) / n - FK \\
 &= (57^2 + 54^2 + 57^2 + 64^2 + 46^2) / 15 - 1.030,453 \\
 &= (3.249 + 2.916 + 3.249 + 4.096 + 2.116) / 15 - 1.030,453 \\
 &= 15.626 / 15 - 1.030,453
 \end{aligned}$$

$$= 1.041,733 - 1.030,453$$

$$= 11,280$$

Jumlah Kuadrat Galat (JKG)

$$JKG = JKT - JKP$$

$$= 51,547 - 11,280$$

$$= 40,267$$

Derajat Bebas (db)

$$\text{db Perlakuan} = t - 1$$

$$= 5 - 1$$

$$= 4$$

$$\text{db Galat} = N - t$$

$$= 75 - 5$$

$$= 70$$

$$\text{db Total} = N - 1$$

$$= 75 - 1$$

$$= 74$$

Kuadrat Tengah (KT)

Kuadrat Tengah Perlakuan (KTP):

$$KTP = JKP / \text{db Perlakuan}$$

$$= 11,280 / 4$$

$$= 2,820$$

Kuadrat Tengah Galat (KTG):

$$KTG = JKG / \text{db Galat}$$

$$= 40,267 / 70$$

$$= 0,5752$$

F Hitung

$$F_{\text{hitung}} = KTP / KTG$$

$$= 2,820 / 0,5752$$

$$= 4,902$$

F Tabel

$$F_{\text{tabel 5\%}} (\alpha = 0,05 ; \text{db1} = 4 ; \text{db2} = 70) = 2,50$$

$$F_{\text{tabel 1\%}} (\alpha = 0,01 ; \text{db1} = 4 ; \text{db2} = 70) = 3,60$$

Tabel Anova

Sumber Keragaman	Db	JK	KT	F Hitung	F Tab 5%	F Tab 1%
Perlakuan	4	11,280	2,820	4,902 **	2,50	3,60
Galat	70	40,267	0,5752	-	-	-
Total	74	51,547	-	-	-	-

Keterangan: ** = berbeda sangat nyata (F hitung > F tabel 1%)

Nilai BNT 5%

$$\text{BNT } \alpha = t(\alpha, \text{db Galat}) \times \sqrt{(2 \times \text{KTG} / n)}$$

Nilai t-tabel (two-tail) dengan db = 70 dan $\alpha = 5\%$:

$$t(0,05 ; 70) = 1,994$$

$$\begin{aligned} \text{BNT } 5\% &= 1,994 \times \sqrt{(2 \times 0,5752 / 15)} \\ &= 1,994 \times \sqrt{(0,07669)} \\ &= 1,994 \times 0,2769 \\ &= 0,552 \end{aligned}$$

Rata-rata Perlakuan

Perlakuan	Rata-rata
P3	4,267 a
P0	3,800 b
P2	3,800 b
P1	3,600 bc
P4	3,067 c

TEKSTUR

Data Pengamatan

N0	Tekstur					Jumlah	Rata-rata
	P0	P1	P2	P3	P4		
1	3	3	4	5	3	18	3.60
2	3	4	4	5	4	20	4.00
3	3	5	5	4	4	21	4.20
4	3	4	3	5	3	18	3.60
5	3	4	4	5	5	21	4.20
6	5	2	4	5	1	17	3.40
7	5	4	3	5	3	20	4.00
8	4	4	5	4	3	20	4.00
9	4	4	5	4	3	20	4.00
10	3	2	2	4	1	12	2.40
11	4	3	4	5	2	18	3.60
12	4	3	4	4	2	17	3.40
13	4	4	4	3	2	17	3.40
14	3	4	5	4	5	21	4.20
15	3	3	4	4	3	17	3.40
Jumlah	54	53	60	66	44	277	55.40
Rata-rata	3.60	3.53	4.00	4.40	2.93	18.47	3.69

Keterangan :

$$\begin{aligned}
 \text{Jumlah perlakuan} & (t) = 5 \\
 \text{Jumlah ulangan} & (n) = 15 \\
 \text{Total pengamatan} & (N) = t \times n \\
 & = 5 \times 15 \\
 & = 75
 \end{aligned}$$

$$\text{Gren total} = 277$$

Faktor Koreksi (FK)

$$\begin{aligned}
 FK & = (Y..)^2 / N \\
 & = (277)^2 / 75 \\
 & = 76.729 / 75 \\
 & = 1.023,053
 \end{aligned}$$

Jumlah Kuadrat Total (JKT)

$$\begin{aligned}
 JKT & = \sum \sum Y_{ij}^2 - FK \\
 & = 1095 - 1.023,053 \\
 & = 71,947
 \end{aligned}$$

Jumlah Kuadrat Perlakuan (JKP)

$$\begin{aligned}
 JKP & = (\sum Ti^2) / n - FK \\
 & = (54^2 + 53^2 + 60^2 + 66^2 + 44^2) / 15 - 1.023,053 \\
 & = (2.916 + 2.809 + 3.600 + 4.356 + 1.936) / 15 - 1.023,053 \\
 & = 15.617 / 15 - 1.023,053 \\
 & = 18,080
 \end{aligned}$$

Jumlah Kuadrat Galat (JKG)

$$\begin{aligned}
 JKG &= JKT - JKP \\
 &= 71,947 - 18,080 \\
 &= 53,867
 \end{aligned}$$

Derajat Bebas (db)

$$\begin{aligned}
 \text{db Perlakuan} &= t - 1 \\
 &= 5 - 1 \\
 &= 4 \\
 \text{db Galat} &= N - t \\
 &= 75 - 5 \\
 &= 70 \\
 \text{db Total} &= N - 1 \\
 &= 75 - 1 \\
 &= 74
 \end{aligned}$$

Kuadrat Tengah (KT)

Kuadrat Tengah Perlakuan (KTP):

$$\begin{aligned}
 KTP &= JKP / \text{db Perlakuan} \\
 &= 18,080 / 4 \\
 &= 4,520
 \end{aligned}$$

Kuadrat Tengah Galat (KTG):

$$\begin{aligned}
 KTG &= JKG / \text{db Galat} \\
 &= 53,867 / 70 \\
 &= 0,770
 \end{aligned}$$

F Hitung

$$\begin{aligned}
 F_{\text{hitung}} &= KTP / KTG \\
 &= 4,52 / 0,7695 \\
 &= 5,874
 \end{aligned}$$

Tabel Anova

Sumber Keragaman	Db	JK	KT	F Hitung	F Tab 5%
Perlakuan	4	18,080	4,520	5,874	2,503
Galat	70	53,867	0,770	-	-
Total	74	71,947	-	-	-

UJI BNT 5 %

$$\begin{aligned}
 \text{BNT 5\%} &= 1,994 \times \sqrt{(2 \times 0,770 / 15)} \\
 &= 1,994 \times \sqrt{(0,10266)} \\
 &= 0,639
 \end{aligned}$$

Rata-rata Perlakuan

Perlakuan	Rata-rata
P3	4,40 a
P2	4,00 ab
P0	3,60 b
P1	3,53 bc
P4	2,93 c

DATA HASIL ANALISIS TEKSTUR

Data Pengamatan

Kode Sampel	Ulangan 1 (gram)	Ulangan 2 (gram)	Total (Ti)	Rata-rata
P0	392.0	402.5	794.5	397.25
P1	431.0	487.0	918.0	459.00
P2	463.0	648.5	1111.5	555.75
P3	448.0	693.0	1141.0	570.50
P4	765.0	815.0	1580.0	790.00
Total	2499.0	3046.0	5545.0	554.50

Keterangan : Rancangan yang digunakan adalah Rancangan Acak Lengkap (RAL) dengan 5 perlakuan dan 2 ulangan.

Faktor Koreksi (FK)

$$\begin{aligned} \text{FK} &= \text{GT}^2 / (t \times r) \\ &= (5545)^2 / (5 \times 2) \\ &= 30.747.025 / 10 \\ &= 3.074.702,50 \end{aligned}$$

Jumlah Kuadrat Total (JKT)

$$\begin{aligned} \text{JKT} &= \Sigma y^2 - \text{FK} \\ &= (392^2 + 402,5^2 + 431^2 + 487^2 + 463^2 + 648,5^2 + 448^2 + 693^2 + 765^2 + 815^2) - \text{FK} \\ &= 3.303.924,50 - 3.074.702,50 \\ &= 229.222,00 \end{aligned}$$

Jumlah Kuadrat Perlakuan (JKP)

$$\begin{aligned} \text{JKP} &= \Sigma(T_i^2 / r) - \text{FK} \\ &= [(794,5^2/2) + (918^2/2) + (1111,5^2/2) + (1141^2/2) + (1580^2/2)] - \text{FK} \\ &= [315.420,125 + 421.362 + 617.711,125 + 650.680,5 + 1.248.200] - \\ &\quad 3.074.702,50 \\ &= 3.253.833,75 - 3.074.702,50 \\ &= 179.131,25 \end{aligned}$$

Jumlah Kuadrat Galat

$$\begin{aligned} (\text{JKG}) \text{JKG} &= \\ \text{JKT} - \text{JKP} \\ &= 229.222,00 - 179.131,25 \\ &= 50.090,75 \end{aligned}$$

$$\text{Derajat bebas (db) Perlakuan} = t-1=5-1=4$$

$$\begin{aligned} \text{Db Galat} &= t(r-1) \\ &= 5(2-1) \\ &= 5 \end{aligned}$$

$$\begin{aligned} \text{db Total} &= (t \times r) - 1 \\ &= 10 - 1 \\ &= 9 \end{aligned}$$

Kuadrat Tengah (KT)

$$\begin{aligned} \text{KT Perlakuan} &= \text{JKP} / \text{db Perlakuan} \\ &= 179.131,25 / 4 \\ &= 44.782,81 \end{aligned}$$

$$\begin{aligned} \text{KT Galat} &= \text{JKG} / \text{db Galat} \\ &= 50.090,75 / 5 \\ &= 10.018,15 \end{aligned}$$

F Hitung

$$\begin{aligned} F \text{ hitung} &= \text{KT Perlakuan} / \text{KT Galat} \\ &= 44.782,81 / 10.018,15 \\ &= 4,47 \end{aligned}$$

Tabel ANOVA

Sumber Keragaman	db	JK	KT	F hit	F tab 5%
Perlakuan	4	179.131,25	44.782,81	4,47 tn	5,19
Galat	5	50.090,75	10.018,15	-	-
Total	9	229.222,00	-	-	-

Keterangan: tn = tidak nyata (non significant);

* = nyata

** = sangat nyata

UJI LANJUT BNT (Beda Nyata Terkecil) 5% BNT 5%

$$\text{BNT } \alpha = t(\alpha/2, \text{db galat}) \times \sqrt{(2 \times \text{KTG} / r)}$$

Nilai t Tabel t tabel ($\alpha/2 = 0,025$; db galat = 5) = 2,571

[dari tabel t-Student] **Standar Error (SE)**

$$\begin{aligned} \text{SE} &= \sqrt{(2 \times \text{KTG} / r)} \\ &= \sqrt{(2 \times 10.018,15 / 2)} \\ &= \sqrt{10.018,15} \\ &= 100,09 \end{aligned}$$

Nilai BNT 5%

$$\begin{aligned} \text{BNT 5\%} &= t \times \text{SE} \\ &= 2,571 \times 100,09 \\ &= 257,33 \end{aligned}$$

Tabel Perbandingan Antar Perlakuan

Perbandingan	Rata-rata 1	Rata-rata 2	Selisih	BNT 5% = 257,33	Ket.
P4 - P0	790,00	397,25	392,75	257,33	*
P4 - P1	790,00	459,00	331,00	257,33	*
P4 - P2	790,00	555,75	234,25	257,33	Ns
P4 - P3	790,00	570,50	219,50	257,33	Ns
P3 - P0	570,50	397,25	173,25	257,33	Ns
P3 - P1	570,50	459,00	111,50	257,33	Ns
P3 - P2	570,50	555,75	14,75	257,33	Ns
P2 - P0	555,75	397,25	158,50	257,33	Ns
P2 - P1	555,75	459,00	96,75	257,33	Ns
P1 - P0	459,00	397,25	61,75	257,33	Ns

Keterangan: * = berbeda nyata (selisih $\geq$

BNT 5%) ns = tidak berbeda

nyata (selisih $<$ BNT 5%)

NOTASI

Perlakuan	Rata-rata (gram)
P0	397,25 a
P1	459,00 ab
P2	555,75 ab
P3	570,50 ab
P4	790,00 b

Keterangan: Angka yang diikuti notasi huruf yang sama pada kolom yang sama menunjukkan tidak berbeda nyata pada uji BNT 5%.

UJI ANOVA DAN UJI LANJUT BNT 5%

KETEBALAN

Perlakuan	Ulangan 1	Ulangan 2	Ulangan 3	Total	Rata-rata
P0	2.6	2.7	2.9	8.2	2.7333
P1	2.8	2.8	3.0	8.6	2.8667
P2	2.8	2.7	3.0	8.5	2.8333
P3	2.7	3.0	2.7	8.4	2.8
P4	2.7	2.9	2.8	8.4	2.8
Grand Total				42.1	2.8067

Faktor Koreksi (FK)

$$\begin{aligned} \text{FK} &= (\text{Grand Total})^2 / N \\ &= (42.1)^2 / 15 \\ &= 1772.41 / 15 \\ &= 118.1607 \end{aligned}$$

Jumlah Kuadrat (JK)

$$\begin{aligned} \text{JK Total} &= \Sigma(X_{ij}^2) - \text{FK} \\ &= 118.39 - 118.1607 \\ &= 0.2293 \end{aligned}$$

$$\begin{aligned} \text{JK Perlakuan} &= \Sigma(T_i^2/r) - \text{FK} \\ &= 118.19 - 118.1607 \\ &= 0.0293 \end{aligned}$$

$$\begin{aligned} \text{JK Galat} &= \text{JK Total} - \text{JK Perlakuan} \\ &= 0.2293 - 0.0293 \end{aligned}$$

$$= 0.2 \text{ Derajat}$$

Bebas (DB)

$$\begin{aligned} \text{DB Perlakuan} &= t - 1 \\ &= 5 - 1 \\ &= 4 \end{aligned}$$

$$\begin{aligned} \text{DB Galat} &= t (r-1) \\ &= 5 (3-1) \\ &= 10 \end{aligned}$$

$$\begin{aligned} \text{DB Total} &= N - 1 \\ &= 15 - 1 \\ &= 14 \end{aligned}$$

Kuadrat Tengah (KT)

$$\begin{aligned} \text{KT Perlakuan} &= \text{JK Perlakuan} / \text{DB Perlakuan} \\ &= 0.0293 / 4 \\ &= 0.0073 \end{aligned}$$

$$\begin{aligned} \text{KT Galat} &= \text{JK Galat} / \text{DB Galat} \\ &= 0.2 / 10 \\ &= 0.02 \end{aligned}$$

F Hitung

$$\begin{aligned} \text{F Hitung} &= \text{KT Perlakuan} / \text{KT Galat} \\ &= 0.0073 / 0.02 = 0.3667 \end{aligned}$$

F Tabel

- F Tabel 5% (db1=4, db2=10) = 3.48
- F Hitung = 0.3667

Tabel Anova

Sumber Keragaman	DB	JK	KT	F Hitung	F Tabel 1%	F Tabel 5%
Perlakuan	4	0.0293	0.0073	0.3667	5,99	3.48
Galat	10	0.2	0.02	-	-	
Total	14	0.2293	-	-	-	

F Hitung (0.3667) $\leq$ F Tabel 5% (3.48) $\rightarrow$ tidak terdapat perbedaan nyata antar perlakuan pada taraf 5%.

Uji BNT (Beda Nyata Terkecil) Taraf 5%

$$\begin{aligned}
 \text{BNT}_{5\%} &= t(\alpha/2, \text{db galat}) \times \sqrt{(2 \cdot \text{KTG} / r)} \\
 &= t(0.025, 10) \times \sqrt{(2 \times 0.02 / 3)} \\
 &= 2.228 \times \sqrt{(0.013333)} \\
 &= 2.228 \times 0.11547 \\
 &= 0.2573
 \end{aligned}$$

Hasil Uji BNT 5%

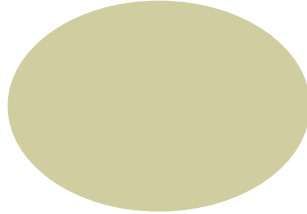
Perlakuan	Rata-rata
P1	2.8667 a
P2	2.8333 a
P3	2.8 a
P4	2.8 a
P0	2.7333 a

WARNA

P0

Nilai	Mean
Read	207.999
Green	206.230
Blue	161.046

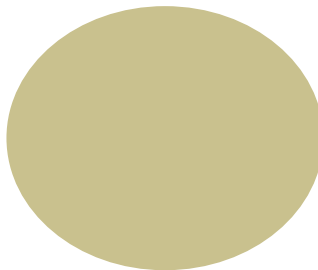
Gambar yang dihasilkan



P1

Nilai	Mean
Read	202.139
Green	192.572
Blue	141.940

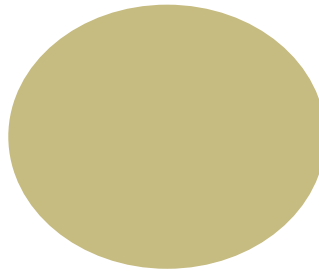
Gambar yang dihasilkan



P2

Nilai	Mean
Read	199.167
Green	187.767
Blue	128.087

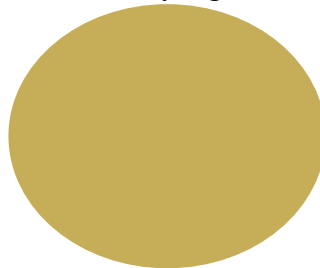
Gambar yang dihasilkan



P3

Nilai	Mean
Read	199.050
Green	174.214
Blue	88.463 0

Gambar yang dihasilkan



P4

Nilai	Mean
Read	171.592
Green	136.059
Blue	49.999 0

Gambar Yang di hasilkan

