Lampiran 01 Konversi Perhitungan Dosis Pemberian Mengkudu Antar Jenis Hewan.

Mengkudu untuk manusia = 2-3 buah / hari (Bangun & Sarwono 2002).

2 buah = ± 400 gr.

Berat kering = ± 20 % = 80 gram

Konversi dari manusia ke ayam = 0,07 (Laurence & Bacharanch 1964).

= 0,07 x 80 gram = 5,6 gram/ekor/hari

Perlakuan :

- 5 % dalam 1 kg ransum, artinya bila dalam 1 kg ransum terdapat

  $\frac{5}{100} x$ 1000 gram = 50 gram mengkudu

- 10% dalam ransum , artinya bila dalam 1 kg ransum terdapat

  $\frac{10}{100} x$ 1000 gram = 100 gram mengkudu

- 1 kg ransum pada ayam untuk pakan selama 2 minggu (14 hari), sehingga:
  - Dosis 5% mengandung sekitar 50 gram/14 = 3,57 gram/ekor/hari.
  - Dosis 10% mengandung sekitar 100 gram/14 = 7,14 gram/ekor/hari

Maka, dosis untuk penelitian masih dalam kisaran dosis normal berdasarkan penggunaan untuk manusia.

Lampiran 02 Hasil Analisis Proksimat Ransum

Tabel 03. Hasil Analisis Proksimat Ransum

Kadar (%)	Perlakuan		
	Po (0%)	P1 (5%)	P2 (10%)
Protein	19,84	18,26	16,78
Lemak	3,37	5,03	4,55
Karbohidrat	53,96	56,67	55,65
Serat kasar	4,52	5,96	7,45
Abu	3,48	5,04	4,90
Air	14,83	9,04	10,67

Sumber : PAU Pangan dan Gizi, September 2003

Lampiran 03 Perhitungan statistik data rata-rata konsumsi ransum harian

Tabel 04 Data rata-rata konsumsi ransum harian(gram/ekor/hari)

Ulangan	Perlakuan P0 (0%)	P1 (5%)	P2 (10%)	Jumlah
1	147,57	136,20	135,81	
2	111,53	157,84	132,34	
3	174,57	164,47	155,14	
4	141,43	160,19	160,54	
5	-	169,67	149,39	
6	-	176,43	157,45	
Total	575,10	964,80	890,67	2430,57
Rataan	143,78	160,80	148,45	151,91
SD	25,87	13,81	11,77	

Sumber : data primer Nuryati, 2003

Uji Homogenitas - Uji Bartlett (Gaspersz 1994)

$$JKP_0 = \left\{(147,57)^2 + \ldots + (141,43)^2\right\} - \frac{(575,10)^2}{4} = 2007,97$$

$$JKP_1 = \left\{(136,20)^2 + \ldots + (176,43)^2\right\} - \frac{(964,80)^2}{6} = 950,74$$

$$JKP_2 = \left\{(135,81)^2 + \ldots + (157,45)^2\right\} - \frac{(890,67)^2}{6} = 692,11$$

$$SP_0^2 = \frac{JKP_0}{dbP_0} = \frac{2007,97}{3} = 669,32 \rightarrow \log SP_0^2 = 2,83$$

$$SP_1^2 = \frac{JKP_1}{dbP_1} = \frac{950,74}{5} = 190,15 \rightarrow \log SP_1^2 = 2,28$$

$$SP_2^2 = \frac{JKP_2}{dbP_2} = \frac{692,11}{5} = 138,42 \rightarrow \log SP_2^2 = 2,14$$

Tabel 05 Uji Bartlett data rata-rata konsumsi ransum harian

Perlakuan	db	$^1/_{db}$	JK	S_i^2	log S_i^2	db.log S_i^2
P0	3	0,33	2007,97	669,32	2,83	8,49
P1	5	0,20	950,74	190,15	2,28	11,40
P2	5	0,20	692,11	138,42	2,14	10,70
Total	13	0,73	3.650,82			30,59

$s^2 = \frac{\text{total JK}}{\text{total db}} = \frac{3.650,82}{13} = 280,83 \rightarrow \log s^2 = 2,45$

$X^2 = 2,3026 \quad [(13)(2,45) - (30,59)] = 2,9013$

Faktor koreksi $C = 1 + \frac{1}{3(3-1)} [(0,73 - {}^1/_{13})] = 1,1088$

X^2 (terkoreksi) = (1/1,1088) (2,9013) = 2,62

X^2 (tabel) $\rightarrow X^2 (0,05 : 2) = 5.99$

Kesimpulan : X^2 (*terkoreksi*) < X^2 (*tabel*), maka data **homogen.**

Standar deviasi (s)

$$s = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n-1}}$$

$$= \sqrt{\frac{\{(147,57 - 151,91)^2 + ... + (157,45 - 151,91)^2\}}{15}}$$

$$= 17,25$$

Koefisien Keragaman (KK)

$$\textbf{Rataan total} = \frac{(\sum\sum Y_{i\,j})}{n} = \frac{(2430,57)}{16} = 151,91$$

$$\textbf{KK} = \frac{\sqrt{KTG}}{RataanTotal} x100\% = \frac{\sqrt{280,83}}{151,91} x100\% = 11,03\%$$

Uji Normalitas- Kolmogorov Smirnov (Steel & Torrie 1996)

Tabel 06 Uji Normalitas data rata-rata konsumsi ransum harian

x_i	frekuensi kumulatif	$F_n(x_i)$	$Z = \frac{x - \bar{x}}{s}$	$F_0(xi)$	$\lvert F_n(x_i) - F_0(x_i) \rvert$	$\lvert F_n(x_{i-1}) - F_0(x_i) \rvert$
111,53	1	0,0625	-2,3409	0,0096	0,0529	0,0096
132,34	2	0,1250	-1,1345	0,1282	0,0032	0,0657
135,81	3	0,1875	- 0,9333	0,1762	0,0113	0,0512
136,20	4	0,2500	-0,9107	0,1814	0,0686	0,0061
141,43	5	0,3125	-0,6075	0,2709	0,0416	0,0209
147,57	6	0,3750	-0,2516	0,4013	0,0263	0,0888
149,39	7	0,4375	-0,1461	0,4424	0,0049	0,0674
155,14	8	0,5000	0,1872	0,5753	0,0753	**0,1378**
157,45	9	0,5625	0,3212	0,6255	0,0630	0,1255
157,84	10	0,6250	0,3438	0,6331	0,0081	0,0706
160,19	11	0,6875	0,4800	0,6844	0,0031	0,0594
160,54	12	0,7500	0,5003	0,6915	0,0585	0,0004
164,47	13	0,8125	0,7281	0,7673	0,0452	0,0173
169,67	14	0,8750	1,0296	0,8485	0,0265	0,0360
174,57	15	0,9375	1,3136	0,9049	0,0326	0,0299
176,43	16	1,0000	1,4214	0,9222	0,0778	0,0153

$\bar{x}$ = 151,91

s = 17,25

D(terkoreksi) = 0,1378

D(tabel) →(0,05 :16) = 0,327

Kesimpulan : D(*terkoreksi*) < D(*tabel*), maka data **terdistribusi normal.**

Uji F – ANOVA

$$FK = \frac{\left(\sum\sum Y_{ij}\right)^2}{\sum_{i=1}^{n} n_i} = \frac{(2430{,}57)^2}{16} = 369.229{,}41$$

$$JKT = \sum\sum\left(Y_{ij}\right)^2 - FK = \left\{(147{,}57)^2 + \ldots + (157{,}45)^2\right\} - FK$$

$$= 373.691{,}17 - 369.229{,}41$$

$$= 4.461{,}76$$

$$JKP = \sum_i\left(\sum_j Y_{ij}\right)^2 - FK = \left\{\frac{(575{,}10)}{4} + \frac{(964{,}80)}{6} + \frac{(890{,}67)}{6}\right\} - FK$$

$$= 370.040{,}35 - 369.229{,}41$$

$$= 810{,}94$$

$$JKG = JKT - JKP = 4.461{,}76 - 810{,}94 = 3.650{,}82$$

$$KTP = JKP / dbP = 810{,}94 / 2 = 405{,}47$$

$$KTG = JKG / dbG = 3.650{,}82 / 13 = 280{,}83$$

$$Fhit = KTP / KTG = 405{,}47 / 280{,}83 = 1{,}44$$

Tabel 07 ANOVA data rata-rata konsumsi ransum harian

Sumber keragaman	db	JK	KT	F hitung	F tabel 5%	F tabel 1%
Perlakuan	2	810,94	405,47	$1{,}44^{ns}$	3,81	6,70
Galat	13	3.650,82	280,83			
Total	15	4.461,76				

ns = non significant

Lampiran 04 Perhitungan statistik data rata-rata karbohidrat ransum terkonsumsi

Tabel 08 Data rata-rata karbohidrat ransum terkonsumsi (gram/ekor/hari)

	Perlakuan			
Ulangan	P0 (0%)	P1 (5%)	P2 (10%)	Jumlah
1	79,63	77,18	75,58	
2	60,18	89,45	73,65	
3	94,20	93,21	86,34	
4	76,32	90,78	89,34	
5	-	96,15	83,14	
6	-	99,98	87,62	
Total	310,33	546,75	495,67	1.352,75
Rataan	77,58	91,13	82,61	84,55
SD	13,96	7,82	6,55	

Sumber : data primer Nuryati, 2003

Uji Homogenitas - Uji Bartlett

$$JKP_0 = \left\{(79,63)^2 + \ldots + (76,32)^2\right\} - \frac{(310,33)^2}{4} = 584,77$$

$$JKP_1 = \left\{(77,18)^2 + \ldots + (99,98)^2\right\} - \frac{(546,75)^2}{6} = 305,40$$

$$JKP_2 = \left\{(75,58)^2 + \ldots + (87,62)^2\right\} - \frac{(495,67)^2}{6} = 214,29$$

$$SP_0^2 = \frac{JKP_0}{dbP_0} = \frac{548,77}{3} = 194,92 \rightarrow \log SP_0^2 = 2,29$$

$$SP_1^2 = \frac{JKP_1}{dbP_1} = \frac{305,40}{5} = 61,08 \rightarrow \log SP_1^2 = 1,79$$

$$SP_2^2 = \frac{JKP_2}{dbP_2} = \frac{214,29}{5} = 42,86 \rightarrow \log SP_2^2 = 1,63$$

Tabel 09 Uji Bartlett data rata-rata karbohidrat ransum terkonsumsi

Perlakuan	db	$^1/_{db}$	JK	S_i^2	log S_i^2	db.log S_i^2
P0	3	0,33	584,77	194,92	2,29	6,87
P1	5	0,20	305,40	61,08	1,79	8,95
P2	5	0,20	214,29	42,86	1,63	8,15
Total	13	0,73	1.104,46			23,97

$s^2 = \frac{\text{total JK}}{\text{total db}} = \frac{1.104,46}{13} = 84,96 \rightarrow \log s^2 = 1,93$

$X^2 = 2,3026 \quad [(13)(1,93) - (23,97)] = 2,5789$

Faktor koreksi $C = 1 + \frac{1}{3(3-1)} [(0,73 - {}^1/_{13})] = 1,1088$

X^2 (*terkoreksi*) = (1/ 1,1088) (2, 5789) = 2,33

X^2 (tabel) = X^2 (0,05 : 2) = 5.99

Kesimpulan X^2 (*terkoreksi*) < X^2 (tabel), maka data **homogen.**

Standar deviasi (s)

$$s = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n-1}}$$

$$= \sqrt{\frac{\sum \{(79,63 - 84,55)^2 + \ldots + (87,62 - 84,55)^2\}}{15}}$$

$$= 10,27$$

Koefisien Keragaman (KK)

$$\text{Rataan total} = \frac{(\sum\sum Y_{ij})}{n} = \frac{(1352,75)}{16} = 84,55$$

$$KK = \frac{\sqrt{KTG}}{RataanTotal} x100\% = \frac{\sqrt{84,96}}{84,55} x100\% = 10,90\%$$

Uji Normalitas- Kolmogorov Smirnov

Tabel 10 Uji Normalitas data rata-rata karbohidrat ransum terkonsumsi

x_i	frekuensi kumulatif	$F_n(x_i)$	$Z = \frac{x - \bar{x}}{s}$	$F_0(xi)$	$\lvert F_n(x_i) - F_0(x_i) \rvert$	$\lvert F_n(x_{i-1}) - F_0(x_i) \rvert$
60,18	1	0,0625	-2,3729	0,0089	0,0536	0,0089
73,65	2	0,1250	-1,0613	0,1446	0,0196	0,0821
75,58	3	0,1875	- 0,8734	0,1922	0,0047	0,0672
76,32	4	0,2500	-0,8014	0,2119	0,0381	0,0244
77,18	5	0,3125	-0,7176	0,2358	0,0767	0,0142
79,63	6	0,3750	-0,4791	0,3156	0,0594	0,0031
83,14	7	0,4375	-0,1373	0,4443	0,0068	0,0693
86,34	8	0,5000	0,1743	0,5675	0,0675	**0,1300**
87,62	9	0,5625	0,2989	0,6179	0,0554	0,1179
89,34	10	0,6250	0,4664	0,6790	0,0540	0,1165
89,45	11	0,6875	0,4771	0,6844	0,0031	0,0594
90,78	12	0,7500	0,6066	0,7274	0,0226	0,0399
93,21	13	0,8125	0,8432	0,7995	0,0130	0,0495
94,20	14	0,8750	0,9396	0,8264	0,0486	0,0139
96,15	15	0,9375	1,1295	0,8708	0,0667	0,0142
99,98	16	1,0000	1,5024	0,9332	0,0668	0,0143

$\bar{x}$ = 84,55

s = 10,27

D(terkoreksi) = 0,1300

D(tabel) →(0,05 :16) = 0,327

Kesimpulan : D(*terkoreksi*) < D(*tabel*), maka data **terdistribusi normal.**

Uji F – ANOVA

$$FK = \frac{(\sum\sum Y_{ij})^2}{\sum_{i=1}^{n} n_i} = \frac{(1.352,75)^2}{16} = 114.370,79$$

$$JKT = \sum\sum(Y_{ij})^2 - FK = \{(79,63)^2 + ... + (87,62)^2\} - FK$$

$$= 115.951,36 - 114.370,79$$

$$= 1.580,57$$

$$JKP = \sum_i(\sum_j Y_{ij})^2 - FK = \left\{\frac{(310,33)}{4} + \frac{(546,75)}{6} + \frac{(495,67)}{6}\right\} - FK$$

$$= 114.846,90 - 114.370,79$$

$$= 476,11$$

$$JKG = JKT - JKP = 1.580,57 - 476,11 = 1.104,46$$

$$KTP = JKP / dbP = 476,11/2 = 238,06$$

$$KTG = JKG / dbG = 1.104,46/13 = 84,96$$

$$Fhitung = KTP / KTG = 238,06/84,96 = 2,80$$

Tabel 11 ANOVA data rata-rata karbohidrat ransum terkonsumsi

Sumber keragaman	db	JK	KT	F hitung	F tabel 5%	F tabel 1%
Perlakuan	2	476,11	238,06	$2,80^{ns}$	3,81	6,70
Galat	13	1.104,46	84,96			
Total	15	1.580,57				

ns = non significant

Lampiran 05 Data rata-rata senyawa gula feses

Tabel 12 Data rata-rata senyawa gula feses (gram /ekor/hari)

Ulangan	Perlakuan			Jumlah
	P0 (0%)	P1 (5%)	P2 (10%)	
1	15,81	9,00	9,54	
2	5,53	9,59	5,03	
3	20,13	2,18	10,30	
4	12,38	5,04	23,53	
5	-	21,20	9,51	
6	-	22,88	24,60	
Total	53,85	99,89	82,51	236,25
Rataan	13,46	16,65	13,75	14,77

Sumber; Data primer PAU Pangan dan Gizi, Desember 2003.

Lampiran 06 Perhitungan statistik data rata-rata senyawa gula terabsorpsi

Tabel 13 Data rata-rata senyawa gula terabsorpsi (gram/ekor/hari)

Ulangan	Perlakuan P0 (0%)	P1 (5%)	P2 (10%)	Jumlah
1	63,82	68,18	66,04	
2	54,65	69,86	68,62	
3	74,07	81,03	76,04	
4	63,94	75,74	65,81	
5	-	74,95	73,63	
6	-	77,10	63,02	
Total	256,48	446,86	413,16	1.116,50
Rataan	64,12	74,48	68,86	69,78
SD	7,93	4,75	5,01	

Sumber; Data primer Nuryati, 2003

Uji Homogenitas -Uji Bartlett

$$JKP_0 = \{(63,82)^2 + ... + (63,94)^2\} - \frac{(256,48)^2}{4} = 188,81$$

$$JKP_1 = \{(68,18)^2 + ... + (77,10)^2\} - \frac{(446,86)^2}{6} = 112,61$$

$$JKP_2 = \{(66,04)^2 + ... + (63,02)^2\} - \frac{(413,16)^2}{6} = 125,72$$

$$SP_0^2 = \frac{JKP_0}{dbP_0} = \frac{188,81}{3} = 62,94 \rightarrow \log SP_0^2 = 1,80$$

$$SP_1^2 = \frac{JKP_1}{dbP_1} = \frac{112,61}{5} = 22,52 \rightarrow \log SP_1^2 = 1,35$$

$$SP_2^2 = \frac{JKP_2}{dbP_2} = \frac{125,72}{5} = 25,15 \rightarrow \log SP_2^2 = 1,40$$

Tabel 14 Uji Bartlett data rata-rata senyawa gula terabsorpsi

Perlakuan	db	$^1/_{db}$	JK	S_i^2	log S_i^2	db.log S_i^2
P0	3	0,33	188,81	62,94	1,80	5,40
P1	5	0,20	112,61	22,52	1,35	6,75
P2	5	0,20	125,72	25,15	1,40	7,00
Total	13	0,73	427,14			19,15

$s^2 = \frac{\text{total JK}}{\text{total db}} = \frac{427,14}{13} = 32,87 \rightarrow \log s^2 = 1,52$

$X^2 = 2,3026 \quad [(13)(1,52) - (19,15)] = 1,4046$

Faktor koreksi $C = 1 + \frac{1}{3(3-1)} [(0,73 - {}^1/_{13})] = 1,1088$

X^2 (*terkoreksi*) = (1/ 1,1088) (1,4046) = 1,27

X^2 (*tabel*) $\rightarrow X^2 (0,05 : 2) = 5.99$

Kesimpulan X^2 (*terkoreksi*) < X^2 (*tabel*), maka data **homogen.**

Standar deviasi (s)

$$s = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n-1}}$$

$$= \sqrt{\frac{\sum \{(63,82 - 69,78)^2 + \ldots + (63,02 - 69,78)^2\}}{15}}$$

$$= 6,80$$

Koefisien Keragaman (KK)

$$\text{Rataan total} = \frac{(\sum\sum Y_{ij})}{n} = \frac{(1.116,50)}{16} = 69,78$$

$$KK = \frac{\sqrt{KTG}}{Rataan Total} x100\% = \frac{\sqrt{32,86}}{69,78} x100\% = 8,22\%$$

Uji Normalitas

Tabel 15 Uji normalitas data rata-rata senyawa gula terabsorpsi

x_i	frekuensi kumulatif	$F_n(x_i)$	$Z = \frac{x - \bar{x}}{s}$	$F_0(xi)$	$\lvert F_n(x_i) - F_0(x_i) \rvert$	$\lvert F_n(x_{i-1}) - F_0(x_i) \rvert$
54,65	1	0,0625	-2,2250	0,0131	0,0494	0,0131
63,02	2	0,1250	-0,9941	0,1611	0,0361	0,0986
63,82	3	0,1875	- 0,8765	0,1908	0,0033	0,0658
63,94	4	0,2500	-0,8588	0,1949	0,0551	0,0074
65,81	5	0,3125	-0,5838	0,2810	0,0315	0,0310
66,04	6	0,3750	-0,5500	0,2912	0,0838	0,0213
68,18	7	0,4375	-0,2353	0,4071	0,0304	0,0321
68,62	8	0,5000	-0,1706	0,4325	0,0675	0,0050
69,86	9	0,5625	-0,0118	0,5040	0,0585	0,0040
73,63	10	0,6250	0,5662	0,7140	0,0890	**0,1515**
74,07	11	0,6875	0,6309	0,7357	0,0482	0,1107
74,95	12	0,7500	0,7603	0,7764	0,0264	0,0889
75,74	13	0,8125	0,8765	0,8092	0,0033	0,0592
76,04	14	0,8750	0,9206	0,8212	0,0538	0,0087
77,10	15	0,9375	1,0765	0,8588	0,0787	0,0162
81,03	16	1,0000	1,6544	0,9505	0,0495	0,0130

$\bar{x}$ = 69,78

s = 6,80

D(terkoreksi) = 0,1515

D(tabel) →(0,05 :16) = 0,327

Kesimpulan : D(*terkoreksi*) < D(*tabel*), maka data **terdistribusi normal.**

Uji F – ANOVA

$$FK = \frac{\left(\sum\sum Y_{ij}\right)^2}{\sum_{i=1}^{n} n_i} = \frac{(1.116{,}50)^2}{16} = 77.910{,}77$$

$$JKT = \sum\sum\left(Y_{ij}\right)^2 - FK = \left\{(63{,}82)^2 + \ldots + (63{,}02)^2\right\} - FK$$

$$= 78.603{,}48 - 77.910{,}77$$

$$= 692{,}71$$

$$JKP = \sum_i\left(\sum_j Y_{ij}\right)^2 - FK = \left\{\frac{(256{,}48)}{4} + \frac{(446{,}86)}{6} + \frac{(413{,}16)}{6}\right\} - FK$$

$$= 78.176{,}34 - 77.910{,}77$$

$$= 265{,}57$$

$$JKG = JKT - JKP = 692{,}71 - 265{,}57 = 427{,}14$$

$$KTP = JKP / dbP = 265{,}57 / 2 = 132{,}78$$

$$KTG = JKG / dbG = 427{,}14 / 13 = 32{,}86$$

$$Fhitung = KTP / KTG = 132{,}78 / 32{,}86 = 4{,}04$$

Tabel 16 ANOVA data rata-rata senyawa gula terabsorpsi

Sumber keragaman	db	JK	KT	F hitung	F tabel 5%	F tabel 1%
Perlakuan	2	265,57	132,78	4,04*	3,81	6,70
Galat	13	427,14	32,86			
Total	15	692,71				

* = Berbeda nyata

Uji Lanjut BNT

$$P0 - P1 = 2{,}160\sqrt{32{,}86}\left(\frac{1}{4}+\frac{1}{6}\right) = 7{,}99$$

$10{,}36 > 7{,}99 \rightarrow$ Berbeda nyata

$$P0 - P2 = 2{,}160\sqrt{32{,}86}\left(\frac{1}{6}+\frac{1}{6}\right) = 4{,}74$$

$4{,}74 < 7{,}99 \rightarrow$ Tidak berbeda nyata

$$P1 - P2 = 2{,}160\sqrt{32{,}86}\left(\frac{1}{6}+\frac{1}{6}\right) = 7{,}99$$

$5{,}26 < 7{,}99 \rightarrow$ Tidak berbeda nyata

P0	P2	P1
$64{,}12^{b}$	$68{,}86^{ab}$	$74{,}48^{a}$
b	a	

Lampiran 07 Perhitungan statistik data rata-rata bobot badan awal perlakuan

Tabel 17 Data rata-rata bobot badan awal perlakuan (gram)

Ulangan	Perlakuan			
	P0 (0%)	P1 (5%)	P2 (10%)	Jumlah
1	700	700	700	
2	700	825	675	
3	700	710	790	
4	700	700	700	
5	-	700	800	
6	-	670	650	
Total	2.800	4.305	4.315	11.420,00
Rataan	700	717,50	719,17	713,75
SD	0,00	54,38	61,68	

Sumber; Data primer Nuryati, 2003

Uji Homogenitas (Uji Bartlett)

$$JKP_0 = \left\{(700)^2 + \ldots + (700)^2\right\} - \frac{(2.800)^2}{4} = 0,00$$

$$JKP_1 = \left\{(700)^2 + \ldots + (670)^2\right\} - \frac{(4.305)^2}{6} = 14.787,50$$

$$JKP_2 = \left\{(700)^2 + \ldots + (650)^2\right\} - \frac{(4.315)^2}{6} = 19.020,83$$

$$SP_0^2 = \frac{JKP_0}{dbP_0} = \frac{0,00}{3} = 0,00 \rightarrow \log SP_0^2 = 0,00$$

$$SP_1^2 = \frac{JKP_1}{dbP_1} = \frac{14.787,50}{5} = 2.957,50 \rightarrow \log SP_1^2 = 3,47$$

$$SP_2^2 = \frac{JKP_2}{dbP_2} = \frac{19.020,83}{5} = 3,804,17 \rightarrow \log SP_2^2 = 3,58$$

Tabel 18 Uji Bartlett rata-rata bobot badan awal perlakuan

Perlakuan	db	$^1/_{db}$	JK	S_i^2	log S_i^2	db.log S_i^2
P0	3	0,33	0,00	0,00	0,00	0,00
P1	5	0,20	14.787,50	2.957,50	3,47	17,35
P2	5	0,20	19.020,83	3.804,17	3,58	17,90
Total	13	0,73	33.808,33			35,25

$s^2 = \frac{\text{total JK}}{\text{total db}} = \frac{33.808,33}{13} = 2.600,64 \rightarrow \log s^2 = 3,42$

$X^2 = 2,3026\ [(13)(3,42) - (35,25)] = 21,21$

Faktor koreksi $C = 1 + \frac{1}{3(3-1)}\ [(0,73 - {}^1/_{13})] = 1,1088$

X^2 (terkoreksi) = (1/ 1,1088) (21,21) = 19,13

X^2 (tabel) $\rightarrow X^2 (0,05 : 2) = 5.99$

Kesimpulan X^2 (*terkoreksi*) > X^2 (*tabel*), maka data **tidak homogen.**

Kesamaan nilai tengah dengan adanya keheterogenan ragam masih dapat diuji melalui uji kira-kira F' dengan melakukan pembobotan pada kuadrat nilai tengah (KT). Hasil perhitungannya disajikan dalam tabel 20.

Standar deviasi (s)

$$s = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n-1}}$$

$$= \sqrt{\frac{\sum \{(700 - 713,75)^2 + \ldots + (650 - 713,75)^2\}}{15}}$$

$$= 48,18$$

Koefisien Keragaman (KK)

$$\text{Rataan total} = \frac{(\sum\sum Y_{ij})}{n} = \frac{(11.420{,}00)}{16} = 713{,}75$$

$$KK = \frac{\sqrt{KTG}}{RataanTotal} x100\% = \frac{\sqrt{2600}}{713{,}75} x100\% = 7{,}14\%$$

Uji Normalitas

Tabel 19 Uji normalitas data rata-rata bobot badan awal perlakuan

x_i	frekuensi kumulatif	$F_n(x_i)$	$Z = \frac{x - \bar{x}}{s}$	$F_0(xi)$	$\lvert F_n(x_i) - F_0(x_i) \rvert$	$\lvert F_n(x_{i-1}) - F_0(x_i) \rvert$
650	1	0,0625	-1,3232	0,0934	0,0309	0,0934
670	2	0,1250	-0,9080	0,1814	0,0564	0,1189
675	3	0,1875	-0,8043	0,2105	0,0230	0,0855
700	12	0,7500	-0,2854	0,3878	0,3622	0,2003
710	13	0,8125	-0,0778	0,4681	0,3444	**0,2819**
790	14	0,8750	1,5826	0,9429	0,0679	0,1304
800	15	0,9375	1,7902	0,9633	0,0258	0,0883
825	16	1,0000	2,3090	0,9896	0,0104	0,0521

$\bar{x}$ = 713,75

S = 48,18

D(terkoreksi) = 0,2819

D(tabel) →(0,05: 16) = 0,327

Kesimpulan : D*(terkoreksi)* < D*(tabel)*, maka data **terdistribusi normal.**

Tabel 20 Uji kira-kira F' dengan melakukan pembobotan pada kuadrat nilai tengah (KT) data rata-rata bobot badan awal perlakuan

Perlakuan	Nilai Tengah (y_i)	KT (s_i^2)	Pembobot $w_i=r_i/s_i^2$	Simpangan (y_i-y_w)	$(y_i-y_w)^2$	$w_i/\Sigma w_i$	$[1-(w_i/\Sigma w_i)]^2$	$[1-(w_i/\Sigma w_i)]^2$ /ri-1
P0	700	0	0	-18,23	332,3329	0	1	0,3333
P1	717,5	2957,50	$2,03 \times 10^{-3}$	-0,73	0,5329	0,5623	0,1916	0,0383
P2	719,17	3804,17	$1,58 \times 10^{-3}$	0,94	0,8836	0,4377	0,3162	0,0632
Total			$3,61 \times 10^{-3}$					0,4348

$Jk_w = \Sigma w_i (y_i-y_w)^2 = 2,4779 \times 10^{-3}$

$B = Jk_w / t-1 = 1,2389 \times 10^{-3}$

$W = 1+ [2(1)/8] [0,4348] = 1,1087$

$F' = B/W = \mathbf{2,2350 \times 10^{-3}}$

$f_1 = (t-1) = 3-1 = 2$

$f_2 = \dfrac{1}{(3/8)(0,4348)} = 6$

5% = 5,14

1% = 10,92

Kesimpulan ; karena F' hitung < F', tabel, maka data **homogen.**

Uji F – ANOVA

$$FK = \frac{\left(\sum\sum Y_{ij}\right)^2}{\sum_{i=1}^{n} n_i} = \frac{(11.420)^2}{16} = 8.151.025$$

$$JKT = \sum\sum\left(Y_{ij}\right)^2 - FK = \left\{(700)^2 + \ldots + (650)^2\right\} - FK$$

$$= 8.185.850 - 8.151.025$$

$$= 34.825$$

$$JKP = \sum_i\left(\sum_j Y_{ij}\right)^2 - FK = \left\{\frac{(2.800)}{4} + \frac{(4.305)}{6} + \frac{(4.315)}{6}\right\} - FK$$

$$= 8.152.041,67 - 8.151.025$$

$$= 1.016,67$$

$$JKG = JKT - JKP = 34.825 - 1.016,67 = 33.808,33$$

$$KTP = JKP / dbP = 1.016,67 / 2 = 508,33$$

$$KTG = JKG / dbG = 33.808,33 / 13 = 2.600,64$$

$$Fhitung = KTP / KTG = 508,33 / 2.600,64 = 0,19$$

Tabel 21 ANOVA data rata-rata bobot badan awal perlakuan

Sumber keragaman	db	JK	KT	F hitung	F tabel 5%	F tabel 1%
Perlakuan	2	1.016,67	508,33	0.19^{ns}	3,81	6,70
Galat	13	33.808,33	2.600,64			
Total	15	34.825,00				

ns = non significant

Lampiran 08 Perhitungan statistik data rata-rata bobot badan akhir perlakuan

Tabel 22 Data rata-rata bobot badan akhir perlakuan (gram)

Ulangan	Perlakuan P0 (0%)	P1 (5%)	P2 (10%)	Jumlah
1	2624	2600	2636	
2	2464	2953	2399	
3	2536	2757	2729	
4	2748	2637	2567	
5	-	2743	2728	
6	-	2802	2541	
Total	10.372	16.492	15.600	42.464
Rataan	2.593	2.748,67	2.600	2.654
SD	122,31	125,91	125,93	

Sumber; Data primer Nuryati, 2003

Uji Homogenitas (Uji Bartlett)

$$JKP_0 = \left\{(2.624)^2 + \ldots + (2.748)^2\right\} - \frac{(10.372)^2}{4} = 44.876,00$$

$$JKP_1 = \left\{(2.600)^2 + \ldots + (2.802)^2\right\} - \frac{(16.492)^2}{6} = 79.269,33$$

$$JKP_2 = \left\{(2.636)^2 + \ldots + (2.541)^2\right\} - \frac{(15.600)^2}{6} = 79.292,00$$

$$SP_0^2 = \frac{JKP_0}{dbP_0} = \frac{44.876,00}{3} = 14.958,67 \rightarrow \log SP_0^2 = 4,17$$

$$SP_1^2 = \frac{JKP_1}{dbP_1} = \frac{79.269,33}{5} = 15.853,87 \rightarrow \log SP_1^2 = 4,20$$

$$SP_2^2 = \frac{JKP_2}{dbP_2} = \frac{79.292}{5} = 15.858,40 \rightarrow \log SP_2^2 = 4,20$$

Tabel 23 Uji Bartlett data rata-rata bobot badan akhir perlakuan

Perlakuan	db	$^1/_{db}$	JK	S_i^2	log S_i^2	db.log S_i^2
P0	3	0,33	44.876,00	14.958,67	4,17	12,51
P1	5	0,20	79.269,33	15853,87	4,20	21,00
P2	5	0,20	79.292	15858,40	4,20	21,00
Total	13	0,73	203.437,33			54,51

$s^2 = \frac{\text{total JK}}{\text{total db}} = \frac{203.437,33}{13} = 15.649,03 \rightarrow \log s^2 = 4,20$

$\chi^2 = 2,3026\ [(13)(4,20) - (54,51)] = 0,2072$

Faktor koreksi $C = 1 + \frac{1}{3(3-1)}\ [(0,73 - {}^1/_{13})] = 1,1088$

χ^2 (terkoreksi) = (1/ 1,1088) (0,2072) = 0,1869

χ^2 (tabel) = X^2 (0,05 : 2) = 5.99

Kesimpulan X^2 (*terkoreksi*) < X^2 (*tabel*), maka data **homogen.**

Standar deviasi (s)

$$s = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n-1}}$$

$$= \sqrt{\frac{\sum\{(2624-2654)^2 + \ldots + (2541-2654)^2\}}{15}}$$

$$= 138,95$$

Koefisien Keragaman (KK)

$$\text{Rataan total} = \frac{(\sum\sum Y_{ij})}{n} = \frac{(42.464)}{16} = 2.654$$

$$KK = \frac{\sqrt{KTG}}{RataanTotal} x100\% = \frac{\sqrt{15.649,03}}{2654} x100\% = 4,71\%$$

Uji Normalitas

Tabel 24 Uji normalitas data rata-rata bobot badan akhir perlakuan

x_i	frekuensi kumulatif	$F_n(x_i)$	$Z = \frac{x - \bar{x}}{s}$	$F_0(xi)$	$\lvert F_n(x_i) - F_0(x_i) \rvert$	$\lvert F_n(x_{i-1}) - F_0(x_i) \rvert$
2399	1	0,0625	-1,8352	0,0333	0,0292	0,0333
2464	2	0,1250	-1,3674	0,0853	0,0397	0,0228
2536	3	0,1875	- 0,8492	0,1977	0,0102	0,0727
2541	4	0,2500	-0,8132	0,2090	0,0410	0,0215
2567	5	0,3125	-0,6261	0,2660	0,0465	0,0160
2600	6	0,3750	-0,3886	0,3483	0,0267	0,0358
2624	7	0,4375	-0,2159	0,4149	0,0226	0,0399
2636	8	0,5000	-0,1295	0,4483	0,0517	0,0108
2637	9	0,5625	-0,1223	0,4522	0,1103	0,0478
2728	10	0,6250	0,5327	0,7019	0,0769	**0,1394**
2729	11	0,6875	0,5398	0,7054	0,0179	0,0804
2743	12	0,7500	0,6405	0,7389	0,0111	0,0514
2748	13	0,8125	0,6765	0,7502	0,0623	0,0002
2757	14	0,8750	0,7413	0,7704	0,1046	0,0421
2802	15	0,9375	1,0651	0,8566	0,0809	0,0184
2953	16	1,0000	2,1519	0,9842	0,0158	0,0467

$\bar{x}$ = 2.654

S = 138,95

D(terkoreksi) = 0,1394

D(tabel) →(0,05 :16) = 0,318

Kesimpulan : D*(terkoreksi)*) < D(*tabel*), maka data **terdistribusi normal.**

Uji F – ANOVA

$$FK = \frac{\left(\sum\sum Y_{ij}\right)^2}{\sum_{i=1}^{n} n_i} = \frac{(42.464)^2}{16} = 112.699.456$$

$$JKT = \sum\sum\left(Y_{ij}\right)^2 - FK = \left\{(2624)^2 + \ldots + (2541)^2\right\} - FK$$

$$= 112.989.044 - 112.699.456$$

$$= 289.588$$

$$JKP = \sum_i\left(\sum_j Y_{ij}\right)^2 - FK = \left\{\frac{(10.372)}{4} + \frac{(16\,492)}{6} + \frac{(15.600)}{6}\right\} - FK$$

$$= 112.785.606,70 - 112.699.456$$

$$= 86.150,70$$

$$JKG = JKT - JKP = 289.588 - 86.150,70 = 203.437,30$$

$$KTP = JKP / dbP = 86.150,70 / 2 = 43.075,35$$

$$KTG = JKG / dbG = 203.437,30 / 13 = 15.649,02$$

$$Fhitung = KTP / KTG = 43.075,35 / 15.649,02 = 2,75$$

Tabel 25 ANOVA data rata-rata bobot badan akhir perlakuan

Sumber keragaman	db	JK	KT	F hitung	F tabel 5%	F tabel 1%
Perlakuan	2	86.150,70	43.075,35	2,75^{ns}	3,81	6,70
Galat	13	203.437,30	15.649,02			
Total	15	289.588,00				

ns = non significant

Lampiran 09 Data Temperatur Harian (°C)

Tabel 26 Temperatur Harian (°C)

Tanggal	Waktu			Tanggal	Waktu		
	07.00	12.00	19.00		07.00	12.00	19.00
1/8/2003		28,5	26,5	28	25	30	28
2	25	28	26,5	29	26	30	22
3	24	28	27	30	25,5	30	26
4	24	28	26	31	25	30	26
5	24	27,5	26	1 /9/2003	25,5	29	26,5
6	24	28	26	2	25	30	27
7	24,5	27,5	28	3	25	30	27
8	25,5	29	26	4	25,5	29	27
9	25,5	30	28	5	26	29	30
10	26,5	29	28	6	24	28,5	28,5
11	26,5	28.5	27	7	25	29	26,5
12	26	28.5	28	8	23	28,5	27
13	25	29	28,5	9	24	28	26
14	26	29	28	10	25,5	28,5	27
15	28	29	28	11	25	29,5	27
16	26	29	29	12	25	29	26,5
17	27	29	28	13	25	28	26
18	26	30.5	28	14	25	28	27
19	27	29	28,5	15	25,5	28,5	26,5
20	26,5	29,5	27,5	16	25	27,5	27
21	26,5	29	28	17	24	27	26
22	25,5	29,5	28	18	24,5	27	26
23	24,5	29,5	28,5	19	25	28	
24	24,5	28,5	28	**Jumlah**	**1.1235**	**1.436,5**	**1.328,5**
25	24,5	27	27	**Rata-rata**	**25,20**	**28,73**	**27,11**
26	24,5	27	26				
27	24	29,5	28	**Suhu rata-rata total = 27,03 °C**			

Sumber ; Data primer Nuryati, 2003

Lampiran 10 Data Kelembaban udara Harian (%)

Tabel 27 Kelembaban Udara harian (%)

Tanggal	Waktu			Tanggal	Waktu		
	07.00	12.00	19.00		07.00	12.00	19.00
1/8/2003		43	65	28	60	46	64
2	64	50	63	29	68,5	53	73
3	57	45	64	30	68	49	73
4	55	42	65	31	66	52	72
5	63,5	50	65	1 /9/2003	69,5	54,5	70,5
6	66	53	68	2	60	54,5	66
7	70,5	55	69	3	63	49	68
8	69,5	51	70	4	69	44,5	68
9	66,5	44	72	5	70	56	77
10	70,5	54	67	6	84	60	71
11	67,5	51	66	7	56	57	65
12	50,5	46	52,5	8	55,5	56	62
13	55	35	62	9	58	44,5	60
14	58	47	65	10	59	50	72
15	65	52,5	64	11	65,5	47,5	64
16	69	55	68	12	73	54,5	74
17	70	55	70	13	77	68,5	72
18	74	55,5	71	14	80,5	60,5	75
19	75	59,5	72	15	76	57,5	74,5
20	72	56,5	72	16	69	61	74
21	72	56	74	17	79	72	83,5
22	67	42	70	18	85	67	83
23	67	52	67	19	85	65	
24	63,5	52	65	**Jumlah**	**3.300,5**	**2.633,5**	**3.364**
25	63,5	51	67	**Rata-rata**	**67,36**	**52,67**	**68,65**
26	63,5	49	68				
27	69	52	61	**Kelembaban rata-rata total =62,82 %**			

Sumber ; Data primer Nuryati, 2003

Lampiran 11 Komposisi Vitamin dan zat Antistres Suplemen

Tabel 28 Komposisi Vitamin Suplemen
(Vitamin dan Antibiotik)

Tiap kg mengandung ;	
Bacitracin MD	35 gr
Vitamin A	5.000.000 IU
Vitamin D_3	500.000 IU
Vitamin E	2.500 IU
Menadione Sodium Bisulfite (Vit. K_3)	1 gr
Vitamin B_1	2 gr
Vitamin B_2	4 gr
Nicotinamic acid	15 gr
Calcium-D-Pantothenate	5 gr
Vitamin B_6	1 gr
Vitamin B_{12}	1 mgr
Vitamin C	20 gr

Sumber : PT Medion Indonesia, 2003.

Tabel 29 Komposisi zat Antistres Suplemen
(Non-antibiotik, Vitamin dan elektrolit)

Tiap kg mengandung ;	
Vitamin A	6.000.000 IU
Vitamin D_3	1.200.000 IU
Vitamin E	2,500 IU
Menadione Sodium Bisulfite (Vit. K_3)	3 gr
Vitamin B_1	2 gr
Vitamin B_2	3 gr
Nicotinamic acid	15 gr
Calcium-D-Pantothenate	5 gr
Vitamin B_6	1 gr
Vitamin B_{12}	2 mgr
Vitamin C	20 gr
Elektrolit ; Na, K, Ca, Mg	790 gr

Sumber : PT Medion Indonesia, 2003.

Lampiran 12 Prosedur Analisis Feses Dengan Metode Anthrone

Prinsip :

Anthrone (9,10-dihydro-9-oxsanthracene) merupakan hasil reduksi anthraquinone. Anthrone bereaksi secara spesifik dengan karbohidrat dalam asam sulfat pekat menghaslikan warna biru kehijauan yang khas.

Pereaksi :

1. Pereaksi anthrone 0,1 % dalam asam sulfat pekat. Dibuat hanya pada waktu hari akan digunakan, tidak stabil, hanya tahan 1 hari.
2. Larutan glukosa standar 0,2 mg/ml: Larutan 200 mg glukosa dalam 100ml akuades. Ambil 10 ml encerkan menjadi 100 ml (1 ml = 0,2 mg glukosa).

Peralatan :

1. Pipet 1 ml, 5 ml.
2. Tabung reaksi
3. Kelereng / corong kecil.
4. Water bath 100 ^{o}C.
5. Spektrofotometer, kuvet.

Cara Kerja :

Pembuatan kurva standar :

1. Pipet ke dalam tabung reaksi 0.0 (blanko), 0.2, 0.4, 0.6, 0.8 dan 1.0 ml larutan glukosa standar. Tambahkan air sampai total volume masing-masing tabung reaksi 1.0 ml.
2. Tambahkan dengan cepat 5 ml pereaksi anthrone ke dalam masing – masing tabung reaksi.
3. Tutup tabung reaksi (dapat digunakan kelereng) campur merata.
4. Tempatkan dalam water bath 100 ^{o}C selama 12 menit (rendam dalam air mendidih).
5. Dinginkan dengan cepat menggunakan air mengalir.
6. Pindahkan ke dalam kuvet, baca absorbansnya pada 630 nm.
7. Buat kurva hubungan antara absorbans dengan mg glukosa.

Lampiran 12 (*Lanjutan*)

Penetapan sampel :

1. Masukkan 1 ml sampel (dari persiapan sampel) ke dalam tabung reaksi.
2. Selanjutnya lakukan tahap (2) sampai (6) seperti pada pembuatan kurva standar.
3. Tentukan konsentrasi total gula dalam sampel