1. Bobot mutlak Ikan nila/g

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Ulangan | Perlakuan | | |  |
| A | B | C | D |
| 1 | 18,78 | 22,44 | 19,66 | 20,87 |
| 2 | 17,48 | 24,10 | 21,53 | 20,10 |
| 3 | 18,32 | 22,69 | 20,87 | 19,10 |
| Jumlah | 54,58 | 69,23 | 62,06 | 60,07 |
| Rata-rata | 18,19 | 23,08 | 20,69 | 20,02 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Descriptives** | | | | | | | | |
| BM | | | | | | | | |
|  | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
| Lower Bound | Upper Bound |
| A | 3 | 18.1933 | .65919 | .38058 | 16.5558 | 19.8309 | 17.48 | 18.78 |
| B | 3 | 23.0767 | .89500 | .51673 | 20.8534 | 25.3000 | 22.44 | 24.10 |
| C | 3 | 20.6867 | .94838 | .54755 | 18.3307 | 23.0426 | 19.66 | 21.53 |
| D | 3 | 20.0233 | .88749 | .51239 | 17.8187 | 22.2280 | 19.10 | 20.87 |
| Total | 12 | 20.4950 | 1.96587 | .56750 | 19.2459 | 21.7441 | 17.48 | 24.10 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Test of Homogeneity of Variances** | | | | | |
|  | | Levene Statistic | df1 | df2 | Sig. |
| BM | Based on Mean | .187 | 3 | 8 | .902 |
| Based on Median | .060 | 3 | 8 | .980 |
| Based on Median and with adjusted df | .060 | 3 | 6.824 | .979 |
| Based on trimmed mean | .174 | 3 | 8 | .911 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ANOVA** | | | | | |
| BM | | | | | |
|  | Sum of Squares | df | Mean Square | F | Sig. |
| Between Groups | 36.666 | 3 | 12.222 | 16.727 | .001 |
| Within Groups | 5.845 | 8 | .731 |  |  |
| Total | 42.511 | 11 |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **BM** | | | | |
| Student-Newman-Keulsa | | | | |
| Perlakuan | N | Subset for alpha = 0.05 | | |
| 1 | 2 | 3 |
| A | 3 | 18.1933 |  |  |
| D | 3 |  | 20.0233 |  |
| C | 3 |  | 20.6867 |  |
| B | 3 |  |  | 23.0767 |
| Sig. |  | 1.000 | .370 | 1.000 |
| Means for groups in homogeneous subsets are displayed. | | | | |
| a. Uses Harmonic Mean Sample Size = 3.000. | | | | |

2. Laju Pertumbuhan harian/ %/hari

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Perlakuan | Perlakuan | | |  |
| A | B | C | D |
| 1 | 2,96 | 3,22 | 2,73 | 2,83 |
| 2 | 2,83 | 3,30 | 2,86 | 2,81 |
| 3 | 2,91 | 3,19 | 2,83 | 2,73 |
| Jumlah | 8,69 | 9,72 | 8,41 | 8,37 |
| Rata-rata | 2,90 | 3,24 | 2,80 | 2,79 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Descriptives** | | | | | | | | |
| LPS | | | | | | | | |
|  | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
| Lower Bound | Upper Bound |
| A | 3 | 2.9000 | .06557 | .03786 | 2.7371 | 3.0629 | 2.83 | 2.96 |
| B | 3 | 3.2367 | .05686 | .03283 | 3.0954 | 3.3779 | 3.19 | 3.30 |
| C | 3 | 2.8067 | .06807 | .03930 | 2.6376 | 2.9758 | 2.73 | 2.86 |
| D | 3 | 2.7900 | .05292 | .03055 | 2.6586 | 2.9214 | 2.73 | 2.83 |
| Total | 12 | 2.9333 | .19518 | .05634 | 2.8093 | 3.0573 | 2.73 | 3.30 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Test of Homogeneity of Variances** | | | | | |
|  | | Levene Statistic | df1 | df2 | Sig. |
| LPS | Based on Mean | .108 | 3 | 8 | .953 |
| Based on Median | .039 | 3 | 8 | .989 |
| Based on Median and with adjusted df | .039 | 3 | 7.629 | .989 |
| Based on trimmed mean | .100 | 3 | 8 | .958 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ANOVA** | | | | | |
| LPS | | | | | |
|  | Sum of Squares | df | Mean Square | F | Sig. |
| Between Groups | .389 | 3 | .130 | 34.667 | .000 |
| Within Groups | .030 | 8 | .004 |  |  |
| Total | .419 | 11 |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **LPS** | | | |
| Student-Newman-Keulsa | | | |
| Perlakuan | N | Subset for alpha = 0.05 | |
| 1 | 2 |
| D | 3 | 2.7900 |  |
| C | 3 | 2.8067 |  |
| A | 3 | 2.9000 |  |
| B | 3 |  | 3.2367 |
| Sig. |  | .131 | 1.000 |
| Means for groups in homogeneous subsets are displayed. | | | |
| a. Uses Harmonic Mean Sample Size = 3.000. | | | |

3. Survival Rate/%

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Kelompok | Perlakuan | | | |
| A | B | C | D |
| 1 | 81,25 | 87,50 | 87,50 | 87,50 |
| 2 | 81,25 | 93,75 | 87,50 | 87,50 |
| 3 | 75,00 | 93,75 | 87,50 | 81,25 |
| Jumlah | 237,50 | 275,00 | 262,50 | 256,25 |
| Rata-rata | 79,17 | 91,67 | 87,50 | 85,42 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Descriptives** | | | | | | | | |
| SR | | | | | | | | |
|  | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
| Lower Bound | Upper Bound |
| A | 3 | 79.1667 | 3.60844 | 2.08333 | 70.2028 | 88.1305 | 75.00 | 81.25 |
| B | 3 | 91.6667 | 3.60844 | 2.08333 | 82.7028 | 100.6305 | 87.50 | 93.75 |
| C | 3 | 87.5000 | .00000 | .00000 | 87.5000 | 87.5000 | 87.50 | 87.50 |
| D | 3 | 85.4167 | 3.60844 | 2.08333 | 76.4528 | 94.3805 | 81.25 | 87.50 |
| Total | 12 | 85.9375 | 5.41266 | 1.56250 | 82.4985 | 89.3765 | 75.00 | 93.75 |

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| --- | --- | --- | --- | --- | --- |
| **Test of Homogeneity of Variances** | | | | | |
|  | | Levene Statistic | df1 | df2 | Sig. |
| SR | Based on Mean | 5.333 | 3 | 8 | .026 |
| Based on Median | .333 | 3 | 8 | .802 |
| Based on Median and with adjusted df | .333 | 3 | 6.000 | .802 |
| Based on trimmed mean | 4.201 | 3 | 8 | .046 |

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| --- | --- | --- | --- | --- | --- |
| **ANOVA** | | | | | |
| SR | | | | | |
|  | Sum of Squares | df | Mean Square | F | Sig. |
| Between Groups | 244.141 | 3 | 81.380 | 8.333 | .008 |
| Within Groups | 78.125 | 8 | 9.766 |  |  |
| Total | 322.266 | 11 |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **SR** | | | |
| Student-Newman-Keulsa | | | |
| Perlakuan | N | Subset for alpha = 0.05 | |
| 1 | 2 |
| A | 3 | 79.1667 |  |
| D | 3 |  | 85.4167 |
| C | 3 |  | 87.5000 |
| B | 3 |  | 91.6667 |
| Sig. |  | 1.000 | .091 |
| Means for groups in homogeneous subsets are displayed. | | | |
| a. Uses Harmonic Mean Sample Size = 3.000. | | | |

4. konsumsi pakan/g

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Ulangan | perlakuan | | | |
| A | B | C | D |
| 1 | 340,00 | 345,00 | 360,00 | 395,00 |
| 2 | 330,00 | 350,00 | 362,00 | 390,00 |
| 3 | 335,00 | 350,50 | 355,00 | 385,00 |
|  |  |  |  |  |
| Jumlah | 1.005,00 | 1.045,50 | 1.077,00 | 1.170,00 |
| rata | 335,00 | 348,50 | 359,00 | 390,00 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Descriptives** | | | | | | | | | |
|  | | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
| Lower Bound | Upper Bound |
| Pakan | A | 3 | 335.0000 | 5.00000 | 2.88675 | 322.5793 | 347.4207 | 330.00 | 340.00 |
| B | 3 | 348.3333 | 2.88675 | 1.66667 | 341.1622 | 355.5044 | 345.00 | 350.00 |
| C | 3 | 359.0000 | 3.60555 | 2.08167 | 350.0433 | 367.9567 | 355.00 | 362.00 |
| D | 3 | 390.0000 | 5.00000 | 2.88675 | 377.5793 | 402.4207 | 385.00 | 395.00 |
| Total | 12 | 358.0833 | 21.50035 | 6.20662 | 344.4227 | 371.7440 | 330.00 | 395.00 |
| EF | A | 3 | 69.7167 | 4.61556 | 2.66480 | 58.2510 | 81.1824 | 64.64 | 73.66 |
| B | 3 | 96.7300 | 6.70662 | 3.87207 | 80.0698 | 113.3902 | 90.11 | 103.52 |
| C | 3 | 80.8833 | 4.10860 | 2.37210 | 70.6770 | 91.0897 | 76.16 | 83.63 |
| D | 3 | 70.2500 | 5.07170 | 2.92815 | 57.6512 | 82.8488 | 64.40 | 73.41 |
| Total | 12 | 79.3950 | 12.27646 | 3.54391 | 71.5949 | 87.1951 | 64.40 | 103.52 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Test of Homogeneity of Variances** | | | | | |
|  | | Levene Statistic | df1 | df2 | Sig. |
| Pakan | Based on Mean | .178 | 3 | 8 | .908 |
| Based on Median | .255 | 3 | 8 | .856 |
| Based on Median and with adjusted df | .255 | 3 | 7.903 | .856 |
| Based on trimmed mean | .185 | 3 | 8 | .904 |
| EF | Based on Mean | .192 | 3 | 8 | .899 |
| Based on Median | .143 | 3 | 8 | .931 |
| Based on Median and with adjusted df | .143 | 3 | 7.262 | .931 |
| Based on trimmed mean | .189 | 3 | 8 | .901 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ANOVA** | | | | | | |
|  | | Sum of Squares | df | Mean Square | F | Sig. |
| Pakan | Between Groups | 4942.250 | 3 | 1647.417 | 92.379 | .000 |
| Within Groups | 142.667 | 8 | 17.833 |  |  |
| Total | 5084.917 | 11 |  |  |  |
| EF | Between Groups | 1440.056 | 3 | 480.019 | 17.634 | .001 |
| Within Groups | 217.770 | 8 | 27.221 |  |  |
| Total | 1657.825 | 11 |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Pakan** | | | | | |
| Student-Newman-Keulsa | | | | | |
| perlakuan | N | Subset for alpha = 0.05 | | | |
| 1 | 2 | 3 | 4 |
| A | 3 | 335.0000 |  |  |  |
| B | 3 |  | 348.3333 |  |  |
| C | 3 |  |  | 359.0000 |  |
| D | 3 |  |  |  | 390.0000 |
| Sig. |  | 1.000 | 1.000 | 1.000 | 1.000 |
| Means for groups in homogeneous subsets are displayed. | | | | | |
| a. Uses Harmonic Mean Sample Size = 3.000. | | | | | |

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| --- | --- | --- | --- |
| **EF** | | | |
| Student-Newman-Keulsa | | | |
| perlakuan | N | Subset for alpha = 0.05 | |
| 1 | 2 |
| A | 3 | 69.7167 |  |
| D | 3 | 70.2500 |  |
| C | 3 | 80.8833 |  |
| B | 3 |  | 96.7300 |
| Sig. |  | .071 | 1.000 |
| Means for groups in homogeneous subsets are displayed. | | | |
| a. Uses Harmonic Mean Sample Size = 3.000. | | | |

5. FCR

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Ulangan | Perlakuan | | | |
| A | B | C | D |
| 1 | 1,36 | 1,11 | 1,31 | 1,36 |
| 2 | 1,41 | 0,97 | 1,20 | 1,37 |
| 3 | 1,55 | 1,04 | 1,21 | 1,55 |
|  |  |  |  |  |
| Jumlah | 4,32 | 3,11 | 3,72 | 4,29 |
| Rata-rata | 1,44 | 1,04 | 1,24 | 1,43 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Descriptives** | | | | | | | | |
| FCR | | | | | | | | |
|  | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
| Lower Bound | Upper Bound |
| A | 3 | 1.4400 | .09849 | .05686 | 1.1953 | 1.6847 | 1.36 | 1.55 |
| B | 3 | 1.0400 | .07000 | .04041 | .8661 | 1.2139 | .97 | 1.11 |
| C | 3 | 1.2400 | .06083 | .03512 | 1.0889 | 1.3911 | 1.20 | 1.31 |
| D | 3 | 1.4267 | .10693 | .06173 | 1.1610 | 1.6923 | 1.36 | 1.55 |
| Total | 12 | 1.2867 | .18534 | .05350 | 1.1689 | 1.4044 | .97 | 1.55 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Test of Homogeneity of Variances** | | | | | |
|  | | Levene Statistic | df1 | df2 | Sig. |
| FCR | Based on Mean | .807 | 3 | 8 | .524 |
| Based on Median | .104 | 3 | 8 | .955 |
| Based on Median and with adjusted df | .104 | 3 | 5.599 | .954 |
| Based on trimmed mean | .710 | 3 | 8 | .573 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ANOVA** | | | | | |
| FCR | | | | | |
|  | Sum of Squares | df | Mean Square | F | Sig. |
| Between Groups | .318 | 3 | .106 | 14.278 | .001 |
| Within Groups | .059 | 8 | .007 |  |  |
| Total | .378 | 11 |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **FCR** | | | |
| Student-Newman-Keulsa | | | |
| Perlakuan | N | Subset for alpha = 0.05 | |
| 1 | 2 |
| B | 3 | 1.0400 |  |
| C | 3 |  | 1.2400 |
| D | 3 |  | 1.4267 |
| A | 3 |  | 1.4400 |
| Sig. |  | 1.000 | .051 |
| Means for groups in homogeneous subsets are displayed. | | | |
| a. Uses Harmonic Mean Sample Size = 3.000. | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | Parameter | Treatment | | | |
| A | B | C | D |
| 1. | Bobot Mutlak (g) | 18,19±0.65a | 23,07±0,89c | 20,68±0,94b | 20,02±0,88c |
| 2. | Laju pertumbuhan harian (%/hari) | 2,90±0,06a | 3,23±0,05b | 2,80±0,06a | 2,79±0,05a |
| 3. | Kelulushidupan (%) | 79,17±3,60a | 91,66±3,60b | 87,50±0,00b | 85,41±3,60b |
| 4. | Efisensi pakan (%) | 69,71±4,61a | 96,73±6,70b | 80,88±4,10a | 70,39±5,07a |
| 5. | Volume flok (%) | 15,26±0,288c | 10,73±0,28a | 12,26±0,05b | 18,93±0,15c |

Kualitas air

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| parameter | unit | Treatment | | | |
| P1 | P2 | P3 | P4 |
| temperature | oC | 27,94±1,34 | 28,03±1,25 | 28,04±1,41 | 28,14±131 |
| DO | mg/l | 4,400±0,520 | 4,29±0,449 | 4,23±0,618 | 4,26±0,768 |
| pH | - | 6,49±0,212 | 6,60±0,306 | 6,61±0,297 | 6,67±0,215 |
| NH3 | mg/l | 0,040±0,014 | 0,025±0,006 | 0,045±0,010 | 0,053±0,013 |
| NO2 | mg/l | 0,004±0,001 | 0,003±0,001 | 0,004±0,001 | 0,007±0,001 |
| NO3 | mg/l | 0,248±0,090 | 0,221±0,100 | 0,289±0,009 | 0,312±0,100 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Descriptives** | | | | | | | | |
| flok | | | | | | | | |
|  | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
| Lower Bound | Upper Bound |
| A | 3 | 3.2667 | .28868 | .16667 | 2.5496 | 3.9838 | 3.10 | 3.60 |
| B | 3 | 1.7333 | .20817 | .12019 | 1.2162 | 2.2504 | 1.50 | 1.90 |
| C | 3 | 2.2667 | .05774 | .03333 | 2.1232 | 2.4101 | 2.20 | 2.30 |
| D | 3 | 2.9333 | .15275 | .08819 | 2.5539 | 3.3128 | 2.80 | 3.10 |
| Total | 12 | 2.5500 | .64173 | .18525 | 2.1423 | 2.9577 | 1.50 | 3.60 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Test of Homogeneity of Variances** | | | | | |
|  | | Levene Statistic | df1 | df2 | Sig. |
| flok | Based on Mean | 3.126 | 3 | 8 | .088 |
| Based on Median | .324 | 3 | 8 | .808 |
| Based on Median and with adjusted df | .324 | 3 | 3.789 | .809 |
| Based on trimmed mean | 2.661 | 3 | 8 | .119 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **flok** | | | | |
| Student-Newman-Keulsa | | | | |
| perlakuan | N | Subset for alpha = 0.05 | | |
| 1 | 2 | 3 |
| B | 3 | 1.7333 |  |  |
| C | 3 |  | 2.2667 |  |
| D | 3 |  |  | 2.9333 |
| A | 3 |  |  | 3.2667 |
| Sig. |  | 1.000 | 1.000 | .071 |
| Means for groups in homogeneous subsets are displayed. | | | | |
| a. Uses Harmonic Mean Sample Size = 3.000. | | | | |