|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Phase 1 Experiment | | | n | DF of residual in between animals stratum | Treatment average efficiency factor | Phase 2 Experiment | | DF in the between Runs stratum | | Tag orthogonal to Animal in the within runs stratum | DF of residual in between animals stratum | | Tag orthogonal to Treatment | Treatment | |
| Treat | Block | Bio Rep | Runs | Tags | Can Eff Factor | Ave Eff Factor |
| Cage | Animal |
| 4 | 4 | 3 | 24 | 5 | 8/9 | 6 | 4 | 0 | 2 | Yes | 3 | 5 | Yes | 8/9(3) | 8/9 |
| 5 | 5 | 4 | 40 | 11 | 15/16 | 10 | 4(4) | 0 | No(1DF) | 10 | 10 | Yes | 15/16(4) | 15/16 |
| 6 | 6 | 5 | 60 | 19 | 0.96 | 15 | 3(3) | 4(3) | Yes | 13 | 14 | Yes | 0.938, 9/10, 0.874, 0.822, 0.786 | 0.860561 |
| 7 | 7 | 6 | 84 | 29 | 35/36 = 0.9722 | 21 | 6(6) | 4(4) | No(1DF) | 21 | 21 | Yes | 0.921, 0.874, 0.863, 0.840, 0.814, 0.780 | 0.846248 |
| 7 | 7 | 4 | 56 | 15 | 0.875 | 14 | 6(6) | 0 | No(1DF) | 14 | 14 | Yes | 7/8(6) | 7/8 |
| 8 | 8 | 7 | 112 | 41 | 0.9796 | 28 | 5(5) | 8(5) | Yes | 29 | 32 | Yes | 13/14(2), 6/7, 41/49(2), 11/14(2) | 0.847846 |
| 4 | 4 | 3 | 24 | 5 | 8/9 | 3 | 8 | 0 | 1 | Yes | 4 | 5 | Yes | 8/9(3) | 8/9 |
| 5 | 5 | 4 | 40 | 11 | 15/16 | 5 | 2(2) | 0 | No(3DF) | 8 | 8 | Yes | 15/16(4) | 15/16 |
| 7 | 7 | 4 | 56 | 15 | 0.875 | 7 | 3(3) | 0 | No(3DF) | 12 | 12 | Yes | 7/8(6) | 7/8 |
| 8 | 8 | 7 | 112 | 41 | 48/49 | 14 | 0 | 6 | Yes | 35 | 41 | Yes | 48/49 (7) | 48/49 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Phase 1 Design** | | | | | **Phase 2 Design** | | | | | | | | |
| v | *nB* | *rb* | Between Animals Residual DF | *E* | *nRuns* | *nTags* | *Between Runs stratum* | | *Between Animals within Runs stratum* | | | | |
| Animal DF | Trt DF | Tag DF | Residual DF | Tag ⊥ Trt | *Treatment efficiency factors* | |
| *ei* | *E* |
| 3 | 2 | 2 | 3 |  | 3 | 4 | 1 | 1 | 1 | 1 | Yes | 1, 3/4 | 6/7 |
| 4 | 4 | 9 |  | 6 |  | 2 | 2 | 1 | 6 | Yes | 15/16(2) | 15/16 |
| 6 | 6 | 15 |  | 9 |  | 4 | 2 | 1 | 10 | Yes | 23/24, 7/8 | 0.9148 |
| 8 | 8 | 21 |  | 12 |  | 5 | 2 | 1 | 15 | Yes | 15/16 (2) | 15/16 |
| 10 | 10 | 27 |  | 15 |  | 7 | 2 | 1 | 19 | Yes | 19/20, 9/10 | 0.9243 |
| 4 | 4 | 9 |  | 3 | 8 | 1 | 1 | 3 | 5 | Yes | 1, 15/16 | 30/31 |
| 8 | 8 | 21 |  | 6 |  | 2 | 2 | 3 | 16 | Yes | 63/64 (2) | 63/64 |