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| Phase 1 Experiment | | | Technical Rep | Number of observation | Phase 2 Experiment | | DF of Phase 1 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 | Animal | | Treatment |
| Treat | Block | Bio Rep | Runs | Tags | Canonical Eff Factor | Average Eff Factor | Average Eff Factor |
| Cage | Animal |
| 2 | 2 | 2 | 2 | 8 | 2 | 4 | 0 | 0 | Yes | 1 | Yes | 1(2) | 1 | 1 |
| 3 | 3 | 12 | 3 | 1 | 0 | No (1DF) | 1 | No(1/9) | 1(3) | 1 | 8/9 |
| 2 | 4 | 16 | 4 | 1 | 0 | No (1DF) | 4 | Yes | 1(6) | 1 | 1 |
| 4 | 1 | 0 | Yes | 3 | Yes | 1(4) | 1 | 1 |
| 5 | 5 | 20 | 5 | 2 | 0 | No (1DF) | 3 | No(1/25) | 1(3) | 1 | 24/25 |
| 2 | 6 | 24 | 6 | 0 | 2 | Yes | 7 | Yes | 1(8) | 1 | 1 |
| 3 | 2 | 0 | No (1DF) | 7 | Yes | 1(9) | 1 | 1 |
| 6 | 2 | 0 | Yes | 5 | Yes | 1(6) | 1 | 1 |
| 7 | 7 | 28 | 7 | 3 | 0 | No (1DF) | 5 | No(1/49) | 1(7) | 1 | 48/49 |
| 2 | 8 | 32 | 8 | 0 | 3 | Yes | 10 | Yes | 1(11) | 1 | 1 |
| 4 | 3 | 0 | No (1DF) | 10 | Yes | 1(12) | 1 | 1 |
| 8 | 3 | 0 | Yes | 7 | Yes | 1(8) | 1 | 1 |
| 3 | 9 | 36 | 9 | 2 | 2 | No (1DF) | 10 | No(1/81) | 1(12) | 1 | 80/81 |
| 9 | 4 | 0 | No (1DF) | 7 | No(1/81) | 1(9) | 1 | 80/81 |
| 2 | 10 | 40 | 10 | 0 | 3 | Yes | 13 | Yes | 1(14) | 1 | 1 |
| 5 | 4 | 0 | No (1DF) | 13 | Yes | 1(15) | 1 | 1 |
| 10 | 4 | 0 | Yes | 9 | Yes | 1(10) | 1 | 1 |

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| Phase 1 Experiment | | | Technical Rep | Number of observation | Phase 2 Experiment | | DF of Phase 1 in the between Runs stratum | | Tag orthogonal to Animal in the within runs stratum  Canonical Eff Factor | DF of residual in between animals stratum  Average Eff Factor | Tag orthogonal to Treatment | Animal | | Treatment |
| Treat | Block | Bio Rep | Runs | Tags | Canonical Eff Factor | Average Eff Factor | Average Eff Factor |
| Cage | Animal |
| 2 | 2 | 4 | 2 | 16 | 2 | 8 | 0 | 0 | No (2DF) | 3 | Yes | 1(6) | 1 | 1 |
| 4 | 0 | 0 | Yes | 3 | Yes | 1(4) | 1 | 1 |
| 2 | 6 | 24 | 3 | 0 | 1 | No (2DF) | 6 | No(1/9) | 1(9) | 1 | 8/9 |
| 3 | 1 | 0 | No (3DF) | 5 | No(1/9) | 1(9) | 1 | 8/9 |
| 6 | 1 | 0 | No (2DF) | 3 | No(1/9) | 1(6) | 1 | 8/9 |
| 2 | 8 | 32 | 4 | 1 | 0 | No (3DF) | 10 | Yes | 1(14) | 1 | 1 |
| 4 | 1 | 0 | No (2DF) | 9 | Yes | 1(12) | 1 | 1 |
| 8 | 1 | 0 | Yes | 7 | Yes | 1(8) | 1 | 1 |
| 2 | 10 | 40 | 5 | 0 | 2 | No (2DF) | 13 | No(1/25) | 1(16) | 1 | 24/25 |
| 5 | 2 | 0 | No (3DF) | 11 | No(1/25) | 1(15) | 1 | 24/25 |
| 10 | 2 | 0 | No (2DF) | 7 | No(1/25) | 1(10) | 1 | 24/25 |

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| Phase 1 Experiment | | | Technical Rep | n | 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 | Animal | | Treatment | |
| Treat | Block | Bio Rep | Runs | Tags | Can Eff Factor | Ave Eff Factor | Can Eff Factor | Ave Eff Factor |
| Cage | Animal |
| 3 | 2 | 2 | 2 | 12 | 3 | 4 | 0 | 1(1) | Yes | 1 | Yes | 1(3) | 1 | 1, 3/4 | 6/7 |
| 2 | 4 | 24 | 6 | 0 | 2(2) | Yes | 6 | Yes | 1(8) | 1 | 15/16 (2) | 15/16 |
| 4 | 0 | 2(2) | Yes | 4 | Yes | 1(6) | 1 | 15/16 (2) | 15/16 |
| 2 | 6 | 36 | 9 | 0 | 4(2) | Yes | 10 | Yes | 1(12) | 1 | 23/24, 7/8 | 0.9148 |
| 3 | 1 | 3(2) | No (1DF) | 9 | Yes | 1(12) | 1 | 23/24, 7/8 | 0.9148 |
| 6 | 1 | 3(2) | Yes | 7 | Yes | 1(9) | 1 | 23/24, 7/8 | 0.9148 |
| 2 | 8 | 48 | 12 | 1 | 4(2) | Yes | 15 | Yes | 1(18) | 1 | 15/16 (2) | 15/16 |
| 4 | 1 | 4(2) | Yes | 13 | Yes | 1(16) | 1 | 15/16 (2) | 15/16 |
| 8 | 1 | 4(2) | Yes | 10 | Yes | 1(12) | 1 | 15/16 (2) | 15/16 |
| 2 | 10 | 60 | 15 | 0 | 7(2) | Yes | 19 | Yes | 1(21) | 1 | 19/20, 9/10 | 0.9243 |
| 5 | 2 | 5(2) | Yes | 17 | Yes | 1(20) | 1 | 19/20, 9/10 | 0.9243 |
| 10 | 2 | 5(2) | Yes | 13 | Yes | 1(15) | 1 | 19/20, 9/10 | 0.9243 |

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| Phase 1 Experiment | | | Technical Rep | n | 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 | Animal | | Treatment | |
| Treat | Block | Bio Rep | Runs | Tags | Can Eff Factor | Ave Eff Factor | Can Eff Factor | Ave Eff Factor |
| Cage | Animal |
| 3 | 2 | 4 | 2 | 24 | 3 | 8 | 0 | 1(1) | No(2) | 5 | Yes | 1(9) | 1 | 1, 15/16 | 30/31 |
| 4 | 0 | 1(1) | No(2) | 5 | Yes | 1(7) | 1 | 1, 15/16 | 30/31 |
| 2 | 8 | 48 | 6 | 0 | 2(2) | No(2) | 16 | Yes | 1(20) | 1 | 63/64(2) | 63/64 |
| 4 | 0 | 2(2) | Yes | 16 | Yes | 1(18) | 1 | 63/64(2) | 63/64 |
| 8 | 0 | 2(2) | Yes | 15 | Yes | 1(14) | 1 | 63/64(2) | 63/64 |

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| Phase 1 Experiment | | | Technical Rep | n | Phase 2 Experiment | | DF of Phase 1 in the between Runs stratum (Trt DF) | | Tag orthogonal to Animal in the within runs stratum | DF of residual in between animals stratum | Tag orthogonal to Treatment | Animal | | Treatment | |
| Treat | Block | Bio Rep | Runs | Tags | Can Eff Factor | Ave Eff Factor | Can Eff Factor | Ave Eff Factor |
| Cage | Animal |
| 4 | 2 | 2 | 2 | 16 | 4 | 4 | 1 | 0 | No (1DF) | 2 | Yes | 1(6) | 1 | 1(3) | 1 |
| 3 | 3 | 24 | 6 | 2 | 0 | No (1DF) | 5 | No(1/9) | 1(9) | 1 | 1(2), 8/9 | 24/25 |
| 2 | 4 | 32 | 8 | 1 | 2 | No (1DF) | 8 | Yes | 1(12) | 1 | 1(3) | 1 |
| 4 | 3 | 0 | No (1DF) | 8 | Yes | 1(12) | 1 | 1(3) | 1 |
| 5 | 5 | 40 | 10 | 4 | 0 | No (1DF) | 11 | No(1/25) | 1(15) | 1 | 1(2), 24/25 | 72/73 |
| 2 | 6 | 48 | 12 | 1 | 4 | No (1DF) | 14 | Yes | 1(17) | 1 | 1(3) | 1 |
| 3 | 2 | 3 | No (1DF) | 14 | Yes | 1(18) | 1 | 1(3) | 1 |
| 6 | 5 | 0 | No (1DF) | 14 | Yes | 1(18) | 1 | 1(3) | 1 |
| 7 | 7 | 56 | 14 | 6 | 0 | No (1DF) | 17 | Yes | 1(21) | 1 | 1(2), 48/49 | 144/145 |
| 2 | 8 | 64 | 16 | 1 | 6 | No (1DF) | 20 | Yes | 1(24) | 1 | 1(3) | 1 |
| 4 | 3 | 6 | No (1DF) | 20 | Yes | 1(24) | 1 | 1(3) | 1 |
| 8 | 7 | 6 | No (1DF) | 20 | Yes | 1(24) | 1 | 1(3) | 1 |
| 3 | 9 | 72 | 18 | 2 | 6 | No (1DF) | 23 | Yes | 1(27) | 1 | 1(2), 80/81 | 240/241 |
| 9 | 8 | 0 | No (1DF) | 23 | Yes | 1(27) | 1 | 1(2), 80/81 | 240/241 |
| 2 | 10 | 80 | 20 | 1 | 8 | No (1DF) | 26 | Yes | 1(30) | 1 | 1(3) | 1 |
| 5 | 4 | 5 | No (1DF) | 26 | Yes | 1(30) | 1 | 1(3) | 1 |
| 10 | 9 | 0 | No (1DF) | 26 | Yes | 1(30) | 1 | 1(3) | 1 |

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| Phase 1 Experiment | | | Technical Rep | n | Phase 2 Experiment | | DF of Phase 1 in the between Runs stratum (Trt DF) | | Tag orthogonal to Animal in the within runs stratum | DF of residual in between animals stratum | Tag orthogonal to Treatment | Animal | | Treatment | |
| Treat | Block | Bio Rep | Runs | Tags | Can Eff Factor | Ave Eff Factor | Can Eff Factor | Ave Eff Factor |
| Cage | Animal |
| 4 | 2 | 2 | 2 | 16 | 2 | 8 | 0 | 0 | No (2DF) | 1 | No (1DF) | 1(6) | 1 | 1, 1/2(2) | 3/5 |
| 3 | 3 | 24 | 3 | 1 | 0 | No (3DF) | 3 | No (1/9) | 1(9) | 1 | 8/9 (3) | 8/9 |
| 2 | 4 | 32 | 4 | 1 | 0 | No (3DF) | 8 | Yes | 1(14) | 1 | 1 (3) | 1 |
| 4 | 1 | 0 | No (2DF) | 7 | Yes | 1(12) | 1 | 1 (3) | 1 |
| 5 | 5 | 40 | 5 | 2 | 0 | No (3DF) | 9 | No (1/18) | 1(15) | 1 | 24/25 (3) | 24/25 |
| 2 | 6 | 48 | 6 | 1 | 1 | No (3DF) | 14 | No (1/18) | 1(20) | 1 | 1, 17/18(2) | 51/53 |
| 3 | 2 | 0 | No (3DF) | 15 | No (1/18) | 1(21) | 1 | 1, 17/18(2) | 51/53 |
| 6 | 2 | 0 | No (2DF) | 13 | No (1/18) | 1(18) | 1 | 1, 17/18(2) | 51/53 |
| 7 | 7 | 56 | 7 | 3 | 0 | No (3DF) | 15 | No (1/49) | 1(21) | 1 | 48/49 (3) | 48/49 |
| 2 | 8 | 64 | 8 | 1 | 2 | No (3DF) | 22 | Yes | 1(28) | 1 | 1 (3) | 1 |
| 4 | 3 | 0 | No (3DF) | 22 | Yes | 1(28) | 1 | 1 (3) | 1 |
| 8 | 3 | 0 | No (2DF) | 19 | Yes | 1(24) | 1 | 1 (3) | 1 |
| 3 | 9 | 72 | 9 | 1 | 3 | No (3DF) | 24 | No (1/81) | 1(30) | 1 | 80/81 (3) | 80/81 |
| 9 | 4 | 0 | No (3DF) | 21 | No (1/81) | 1(27) | 1 | 80/81 (3) | 80/81 |
| 2 | 10 | 80 | 10 | 1 | 3 | No (3DF) | 28 | No (1/50) | 1(34) | 1 | 1, 49/50(2) | 147/149 |
| 5 | 4 | 0 | No (3DF) | 29 | No (1/50) | 1(35) | 1 | 1, 49/50(2) | 147/149 |
| 10 | 4 | 0 | No (2DF) | 25 | No (1/50) | 1(35) | 1 | 1, 49/50(2) | 147/149 |

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| Phase 1 Experiment | | | Technical Rep | n | 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 | Animal | | Treatment | |
| Treat | Block | Bio Rep | Runs | Tags | Can Eff Factor | Ave Eff Factor | Can Eff Factor | Ave Eff Factor |
| Cage | Animal |
| 5 | 2 | 2 | 2 | 20 | 5 | 4 | 0 | 2 (2Trt) | Yes | 2 | Yes | 1 (6) | 1 | 1(2), 7/8, 5/8 | 70/83 |
| 2 | 4 | 40 | 10 | 0 | 4 (4Trt) | Yes | 10 | Yes | 1 (14) | 1 | 15/16(4) | 15/16 |
| 4 | 0 | 4 (4Trt) | Yes | 8 | Yes | 1 (12) | 1 | 15/16(4) | 15/16 |
| 2 | 6 | 60 | 15 | 1 | 6 (4Trt) | No(1DF) | 16 | Yes | 1 (21) | 1 | 23/24(2), 11/12, 5/6 | 0.9137 |
| 3 | 1 | 6 (4Trt) | No(1DF) | 15 | Yes | 1 (20) | 1 | 23/24(2), 11/12, 5/6 | 0.9137 |
| 6 | 1 | 6 (4Trt) | No(1DF) | 13 | Yes | 1 (18) | 1 | 23/24(2), 11/12, 5/6 | 0.9137 |
| 2 | 8 | 80 | 20 | 1 | 4 (4Trt) | No(1DF) | 25 | Yes | 1 (30) | 1 | 15/16 (4), | 15/16 |
| 4 | 0 | 9 (4Trt) | No(1DF) | 22 | Yes | 1 (27) | 1 | 15/16 (4), | 15/16 |
| 8 | 5 | 4 (4Trt) | No(1DF) | 18 | Yes | 1 (23) | 1 | 15/16 (4), | 15/16 |
| 2 | 10 | 100 | 25 | 1 | 11 (4Trt) | No(1DF) | 31 | Yes | 1 (36) | 1 | 19/20(2), 37/40 7/8 | 0.9240 |
| 5 | 5 | 8 (4Trt) | No(1DF) | 28 | Yes | 1 (33) | 1 | 19/20(2), 37/40 7/8 | 0.9240 |
| 10 | 5 | 7 (4Trt) | No(1DF) | 24 | Yes | 1 (29) | 1 | 19/20(2), 37/40 7/8 | 0.9240 |

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| Phase 1 Experiment | | | Technical Rep | n | 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 | Animal | | Treatment | |
| Treat | Block | Bio Rep | Runs | Tags | Can Eff Factor | Ave Eff Factor | Can Eff Factor | Ave Eff Factor |
| Cage | Animal |
| 5 | 2 | 4 | 2 | 40 | 5 | 8 | 0 | 2(2 Trt) | No(2DF) | 10 | Yes | 1(16) | 1 | 1 (2), 15/16 (2) | 30/31 |
| 4 | 0 | 2(2 Trt) | Yes | 10 | Yes | 1(14) | 1 | 1 (2), 15/16 (2) | 30/31 |
| 2 | 8 | 80 | 10 | 0 | 4(4 Trt) | No(2DF) | 28 | Yes | 1(36) | 1 | 0.994(2), 0.959(2) | 781/800 |
| 4 | 0 | 4(4 Trt) | Yes | 28 | Yes | 1(32) | 1 | 0.994(2), 0.959(2) | 781/800 |
| 8 | 0 | 4(4 Trt) | Yes | 24 | Yes | 1(28) | 1 | 0.994(2), 0.959(2) | 781/800 |

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| Phase 1 Experiment | | | Technical Rep | n | Phase 2 Experiment | | DF of Phase 1 in the between Runs stratum (Trt DF) | | Tag orthogonal to Animal in the within runs stratum | DF of residual in between animals stratum | Tag orthogonal to Treatment | Animal | | Treatment | |
| Treat | Block | Bio Rep | Runs | Tags | Can Eff Factor | Ave Eff Factor | Can Eff Factor | Ave Eff Factor |
| Cage | Animal |
| 6 | 2 | 2 | 2 | 24 | 6 | 4 | 0 | 2(2) | Yes | 3 | Yes | 1(8) | 1 | 1(3), 3/4(2) | 15/17 |
| 3 | 3 | 36 | 9 | 2(2) | 2(2) | No(1DF) | 5 | No(1/9) | 1(11) | 1 | 0.9149, 0.9113, 8/9, 0.7445, 0.7315 | 0.8298 |
| 1 | 3(3) | No (1DF) | 6 | No(1/9) | 1(12) | 1 | 1, 0.894, 8/9, 5/6, 0.606 | 0.8204 |
| 2 | 4 | 48 | 12 | 0 | 4(4) | Yes | 12 | Yes | 1(17) | 1 | 1, 15/16(2), 13/16(2) | 0.8937 |
| 4 | 1 | 4(4) | Yes | 11 | Yes | 1(16) | 1 | 1, 15/16(2), 13/16(2) | 0.8937 |
| 5 | 5 | 60 | 15 | 2(2) | 4(4) | No (1DF) | 12 | No(0.0342) | 1(18) | 1 | 0.9519, 0.8926, 0.8832, 0.8211, 0.7973 | 0.8657 |
| 1 | 6(4) | No (1DF) | 13 | No(1/25) | 1(19) | 1 | 24/25, 19/20, 17/20(2), 3/4 | 0.8650 |
| 2 | 5(4) | No (1DF) | 14 | No(1/25) | 1(20) | 1 | 24/25, 19/20, 17/20(2), 3/4 | 0.8650 |
| 2 | 6 | 72 | 18 | 0 | 8(4) | Yes | 21 | Yes | 1(26) | 1 | 1, 7/8(4) | 0.8974 |
| 3 | 2 | 6(4) | No (1DF) | 21 | Yes | 1(25) | 1 | 1, 7/8(4) | 0.8974 |
| 6 | 2 | 6(4) | No (1DF) | 18 | Yes | 1(24) | 1 | 1, 7/8(4) | 0.8974 |
| 7 | 7 | 84 | 21 | 3 | 7(5) | No (1DF) | 22 | No(1/49) | 1(28) | 1 | 0.947, 0.919, 25/28, 0.854, 0.795 | 0.8784 |
| 2 | 8 | 96 | 24 | 0 | 11(5) | Yes | 30 | Yes | 1(35) | 1 | 15/16(2), 7/8 (3) | 0.8990 |
| 4 | 2 | 9(5) | Yes | 28 | Yes | 1(33) | 1 | 15/16(2), 7/8 (3) | 0.8990 |
| 8 | 3 | 8(4) | No (1DF) | 26 | Yes | 1(32) | 1 | 15/16(2), 7/8 (3) | 0.8990 |
| 3 | 9 | 108 | 27 | 2 | 11(5) | No (1DF) | 33 | No(1/81) | 1(39) | 1 | 0.927, 11/12, 0.887, 31/36, 0.840 | 0.8852 |
| 9 | 4 | 9(5) | No (1DF) | 30 | No(1/81) | 1(36) | 1 | 0.937, 8/9(2), 0.884, 5/6 | 0.8852 |
| 2 | 10 | 120 | 30 | 0 | 14(5) | Yes | 39 | Yes | 1(44) | 1 | 9/10(5) | 9/10 |
| 5 | 4 | 10(5) | No (1DF) | 39 | Yes | 1(45) | 1 | 9/10(5) | 9/10 |
| 10 | 4 | 10(5) | No (1DF) | 34 | Yes | 1(40) | 1 | 9/10(5) | 9/10 |

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| Phase 1 Experiment | | | Technical Rep | n | 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 | Animal | | Treatment | |
| Treat | Block | Bio Rep | Runs | Tags | Can Eff Factor | Ave Eff Factor | Can Eff Factor | Ave Eff Factor |
| Cage | Animal |
| 6 | 2 | 2 | 2 | 24 | 3 | 8 | 0 | 1(1) | No (2DF) | 2 | No (4/9) | 1(9) | 1 | 1(2), 3/4 2/3, 1/3 | 0.6383 |
| 2 | 4 | 48 | 6 | 0 | 2(2) | No (2DF) | 13 | Yes | 1(20) | 1 | 1(3), 15/16(2) | 0.974 |
| 4 | 0 | 2(2) | Yes | 13 | Yes | 1(30) | 1 | 1(3), 15/16(2) | 0.974 |
| 2 | 6 | 72 | 9 | 0 | 4(4) | No (2DF) | 23 | No(4/81) | 1(30) | 1 | 47/48, 0.960, 0.942, 15/16, 0.903 | 0.9438 |
| 3 | 1 | 3(3) | No (3DF) | 22 | No(4/81) | 1(30) | 1 | 0.974, 26/27, 23/24, 25/27, 0.901 | 0.9437 |
| 6 | 1 | 4(3) | No (3DF) | 19 | No(4/81) | 1(27) | 1 | 0.974, 26/27, 23/24, 25/27, 0.901 | 0.9437 |
| 2 | 8 | 96 | 12 | 0 | 5(4) | No (2DF) | 34 | Yes | 1(41) | 1 | 1, 63/64(2), 61/64(2) | 0.9746 |
| 4 | 0 | 5(4) | Yes | 34 | Yes | 1(39) | 1 | 1, 63/64(2), 61/64(2) | 0.9746 |
| 8 | 0 | 4(4) | Yes | 30 | Yes | 1(35) | 1 | 1, 63/64(2), 61/64(2) | 0.9746 |
| 2 | 10 | 120 | 15 | 0 | 7(5) | No (2DF) | 44 | No(0.0178) | 1(51) | 1 | 39/40, 0.974, 0.962 19/20, 0.949 | 0.9619 |
| 5 | 2 | 5(4) | No (3DF) | 42 | No(0.0178) | 1(50) | 1 | 0.982, 0.974, 77/80 0.954, 15/16 | 0.9617 |
| 10 | 2 | 5(4) | No (3DF) | 37 | No(0.0178) | 1(45) | 1 | 0.982, 0.974, 77/80 0.954, 15/16 | 0.9617 |
| 2 | 5(4) | No (3DF) | 37 | No(0.04) | 1(45) | 1 | 79/80, 77/80(2), 24/25, 15/16 | 0.9617 |

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| Phase 1 Experiment | | | Technical Rep | n | 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 | Animal | | Treatment | |
| Treat | Block | Bio Rep | Runs | Tags | Can Eff Factor | Ave Eff Factor | Can Eff Factor | Ave Eff Factor |
| Cage | Animal |
| 7 | 2 | 2 | 2 | 28 | 7 | 4 | 0 | 3(3) | Yes | 3 | Yes | 1(9) | 1 | 1(3), 7/8, 5/8, 1/2 | 0.7749 |
| 2 | 4 | 56 | 14 | 0 | 6(6) | Yes | 14 | Yes | 1(20) | 1 | 7/8(6) | 7/8 |
| 4 | 0 | 6(6) | No(1DF) | 12 | Yes | 1(18) | 1 | 7/8(6) | 7/8 |
| 2 | 6 | 84 | 21 | 0 | 10(6) | No(1DF) | 23 | Yes | 1(30) | 1 | 7/8(5), 19/24 | 0.8599 |
| 3 | 1 | 9(6) | No(1DF) | 23 | Yes | 1(30) | 1 | 0.934, 7/8(3), 0.816, 19/24 | 0.8586 |
| 2(2) | 8(6) | No(1DF) | 22 | Yes | 1(29) | 1 | 7/8(3), 0.874, 0.870, 0.791 | 0.8588 |
| 6 | 1 | 9(6) | No(1DF) | 20 | Yes | 1(27) | 1 | 0.934, 7/8(3), 0.816, 19/24 | 0.8586 |
| 2 | 8 | 112 | 28 | 1 | 12(6) | No(1DF) | 35 | Yes | 1(42) | 1 | 7/8(6) | 7/8 |
| 4 | 1 | 12(6) | No(1DF) | 33 | Yes | 1(40) | 1 | 7/8(6) | 7/8 |
| 8 | 1 | 12(6) | No(1DF) | 29 | Yes | 1(36) | 1 | 7/8(6) | 7/8 |
| 2 | 10 | 140 | 35 | 1 | 16(6) | No(1DF) | 44 | Yes | 1(51) | 1 | 7/8(5), 33/40 | 0.8663 |
| 5 | 4 | 15(6) | No(1DF) | 43 | Yes | 1(50) | 1 | 7/8(5), 33/40 | 0.8663 |
| 10 | 2 | 15(6) | No(1DF) | 38 | Yes | 1(45) | 1 | 7/8(5), 33/40 | 0.8663 |

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| Phase 1 Experiment | | | Technical Rep | n | 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 | Animal | | Treatment | |
| Treat | Block | Bio Rep | Runs | Tags | Can Eff Factor | Ave Eff Factor | Can Eff Factor | Ave Eff Factor |
| Cage | Animal |
| 7 | 2 | 4 | 2 | 56 | 7 | 8 | 0 | 3(3) | No(2DF) | 15 | Yes | 1(23) | 1 | 1(3), 31/32(2), 7/8 | 0.9666 |
| 4 | 0 | 3(3) | Yes | 15 | Yes | 1(21) | 1 | 1(3), 31/32(2), 7/8 | 0.9666 |
| 2 | 8 | 112 | 14 | 0 | 6(6) | No(3DF) | 39 | Yes | 1(48) | 1 | 63/64 (6) | 63/64 |
| 4 | 0 | 6(6) | Yes | 40 | Yes | 1(46) | 1 | 63/64 (6) | 63/64 |
| 8 | 0 | 6(6) | Yes | 36 | Yes | 1(42) | 1 | 63/64 (6) | 63/64 |

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| Phase 1 Experiment | | | Technical Rep | n | Phase 2 Experiment | | DF of Phase 1 in the between Runs stratum (Trt DF) | | Tag orthogonal to Animal in the within runs stratum | DF of residual in between animals stratum | Tag orthogonal to Treatment | Animal | | Treatment | |
| Treat | Block | Bio Rep | Runs | Tags | Can Eff Factor | Ave Eff Factor | Can Eff Factor | Ave Eff Factor |
| Cage | Animal |
| 8 | 2 | 2 | 2 | 32 | 8 | 4 | 0 | 3(3) | No(1DF) | 4 | Yes | 1(11) | 1 | 1(4), 3/4(2), 1/2 | 0.8077 |
| 3 | 3 | 48 | 12 | 2 | 3(3) | No(1DF) | 10 | No(1/9) | 1(18) | 1 | 1(3), 8/9 2/3(3) | 0.8116 |
| 1 | 4(4) | No(1DF) | 9 | No(1/9) | 1(17) | 1 | 1(2), 8/9 5/6(2), 2/3(2) | 0.8211 |
| 2(2) | 3(3) | No(1DF) | 8 | No(1/9) | 1(16) | 1 | 1, 0.913(2), 8/9. 0.746(2), 2/3 | 0.8238 |
| 2 | 4 | 64 | 16 | 0 | 7(7) | No(1DF) | 15 | Yes | 1(23) | 1 | 0.963(2),  7/8(2),  0.787(2),  3/4 | 0.8498 |
| 4 | 3 | 4(4) | No(1DF) | 16 | Yes | 1(24) | 1 | 1(3),  3/4(4) | 0.84 |
| 2 | 5(5) | No(1DF) | 15 | Yes | 1(23) | 1 | 1(2), 7/8(2),  3/4(3) | 0.8448 |
| 2(2) | 4(4) | No(1DF) | 14 | Yes | 1(22) | 1 | 1, 0.934(2),  0.809(2),  3/4(2) | 0.8456 |
| 0 | 7(7) | No(1DF) | 13 | Yes | 1(21) | 1 | 0.963(2),  7/8(2),  0.787(2),  3/4 | 0.8498 |
| 5 | 5 | 80 | 20 | 4 | 5(5) | No(1DF) | 22 | No(1/25) | 1(30) | 1 | 1, 24/25, 4/5(5) | 0.8442 |
| 3 | 6(6) | No(1DF) | 21 | No(1/25) | 1(29) | 1 | 0.984, 9/10, 0.876, 4/5(4) | 0.8465 |
| 3 | 6(6) | No(1DF) | 20 | No(1/25) | 1(28) | 1 | 0.984, 9/10, 0.876, 4/5(4) | 0.8465 |
| 1 | 8(7) | No(1DF) | 19 | No(1/25) | 1(27) | 1 | 9/10(3), 43/50, 4/5(3) | 0.8489 |
| 2 | 6 | 96 | 24 | 1 | 10(6) | No(1DF) | 28 | Yes | 1(36) | 1 | 1, 5/6(6) | 0.8537 |
| 3 | 2 | 9(6) | No(1DF) | 28 | Yes | 1(36) | 1 | 1, 5/6(6) | 0.8537 |
| 6 | 5 | 6(6) | No(1DF) | 28 | Yes | 1(36) | 1 | 1, 5/6(6) | 0.8537 |
| 7 | 7 | 112 | 28 | 6 | 7(7) | No(1DF) | 34 | No(1/49) | 1(42) | 1 | 6/7(6), 41/49 | 0.8542 |
| 2 | 8 | 128 | 32 | 1 | 14(7) | No(1DF) | 40 | Yes | 1(48) | 1 | 0.919(2), 7/8, 0.831(2), 13/16 (2) | 0.8550 |
| 4 | 3 | 12(7) | No(1DF) | 40 | Yes | 1(48) | 1 | 0.919(2), 7/8, 0.831(2), 13/16 (2) | 0.8550 |
| 8 | 7 | 8(7) | No(1DF) | 40 | Yes | 1(48) | 1 | 7/8 (6), 3/4 | 0.8547 |
| 6 | 9(7) | No(1DF) | 39 | Yes | 1(47) | 1 | 0.914,  7/8(4),  13/16,  0.774 | 0.8548 |
| 5 | 10(7) | No(1DF) | 38 | Yes | 1(46) | 1 | 15/16, 7/8 (3), 13/16(3) | 0.8550 |
| 3 | 9 | 144 | 36 | 2 | 15(7) | No(1DF) | 46 | No(1/81) | 1(54) | 1 | 8/9(2), 71/81,  5/6(4) | 0.8546 |
| 9 | 8 | 9(7) | No(1DF) | 46 | No(1/81) | 1(54) | 1 | 8/9(4),  71/81, 7/9(2) | 0.8523 |
| 7 | 9(7) | No(1DF) | 45 | No(1/81) | 1(53) | 1 | 8/9(3), 71/81, 5/6(2), 7/9 | 0.8535 |
| 6 | 11(7) | No(1DF) | 44 | No(1/81) | 1(52) | 1 | 8/9(2), 71/81,  5/6(4) | 0.8546 |
| 2 | 10 | 160 | 40 | 1 | 18(7) | No(1DF) | 52 | Yes | 1(60) | 1 | 9/10, 0.885(2), 17/20(2), 0.815(2) | 0.8559 |
| 5 | 4 | 15(7) | No(1DF) | 52 | Yes | 1(60) | 1 | 9/10, 0.885(2), 17/20(2), 0.815(2) | 0.8559 |
| 10 | 9 | 10(7) | No(1DF) | 52 | Yes | 1(60) | 1 | 9/10(4), 8/10(3) | 0.8542 |
|  |  | 8 | 11(7) | No(1DF) | 51 | Yes | 1(59) | 1 | 9/10(3), 17/20(2), 4/5(2) | 0.8551 |
|  |  | 9 | 10(7) | No(1DF) | 50 | Yes | 1(58) | 1 | 9/10(3), 17/20(2), 4/5(2) | 0.8551 |
|  |  | 6 | 13(7) | No(1DF) | 49 | Yes | 1(57) | 1 | 9/10, 0.885(2), 17/20(2), 0.815(2) | 0.8559 |

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| Phase 1 Experiment | | | Technical Rep | n | Phase 2 Experiment | | DF of Phase 1 in the between Runs stratum (Trt DF) | | Tag orthogonal to Animal in the within runs stratum | DF of residual in between animals stratum | Tag orthogonal to Treatment | Animal | | Treatment | |
| Treat | Block | Bio Rep | Runs | Tags | Can Eff Factor | Ave Eff Factor | Can Eff Factor | Ave Eff Factor |
| Cage | Animal |
| 8 | 2 | 2 | 2 | 32 | 4 | 8 | 1 | 0 | No(3DF) | 4 | No(1DF) | 1(14) | 1 | 1(4), 3/4(2), 1/2 | 21/26 |
| 3 | 3 | 48 | 6 | 2 | 0 | No(3DF) | 5 | No(1/9) | 1(21) | 1 | 1(4), 8/9(3) | 56/59 |
| 2 | 4 | 64 | 8 | 1 | 2 | No(3DF) | 18 | Yes | 1(28) | 1 | 1(7) | 1 |
| 4 | 3 | 0 | No(3DF) | 18 | Yes | 1(28) | 1 | 1(7) | 1 |
| 5 | 5 | 80 | 10 | 4 | 0 | No(3DF) | 25 | No(1/25) | 1(35) | 1 | 1(4), 24/25(3) | 56/57 |
| 2 | 6 | 96 | 12 | 1 | 4 | No(3DF) | 32 | No(1/30) | 1(42) | 1 | 1(4), 35/36(2), 17/18 | 0.9837 |
| 3 | 2 | 3 | No(3DF) | 32 | No(1/30) | 1(42) | 1 | 1(4), 35/36(2), 17/18 | 0.9837 |
| 6 | 5 | 0 | No(3DF) | 32 | No(1/30) | 1(42) | 1 | 1(4), 35/36(2), 17/18 | 0.9837 |
| 7 | 7 | 112 | 14 | 6 | 0 | No(3DF) | 39 | Yes | 1(49) | 1 | 1(4), 48/49(3) | 0.9912 |
| 2 | 8 | 128 | 16 | 1 | 6 | No(3DF) | 46 | Yes | 1(56) | 1 | 1(7) | 1 |
| 4 | 3 | 4 | No(3DF) | 46 | Yes | 1(56) | 1 | 1(7) | 1 |
| 8 | 7 | 0 | No(3DF) | 46 | Yes | 1(56) | 1 | 1(7) | 1 |
| 3 | 9 | 144 | 18 | 2 | 6 | No(3DF) | 53 | No(1/81) | 1(63) | 1 | 1(4), 80/81(3) | 0.9947 |
| 9 | 8 | 0 | No(3DF) | 53 | No(1/81) | 1(63) | 1 | 1(4), 80/81(3) | 0.9947 |
| 2 | 10 | 160 | 20 | 1 | 8 | No(3DF) | 60 | No(0.012) | 1(70) | 1 | 1(4), 99/100(2), 49/50 | 0.9942 |
| 5 | 4 | 5 | No(3DF) | 60 | No(0.012) | 1(70) | 1 | 1(4), 99/100(2), 49/50 | 0.9942 |
| 10 | 9 | 0 | No(3DF) | 60 | No(0.012) | 1(70) | 1 | 1(4), 99/100(2), 49/50 | 0.9942 |