# Supplementary Material of "Meta-analysis nutrient budgets in organic farms across Europe"

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*Supplementary Table 1: Summary of the meta-analysis results. Shown are the number of studies and farms investigated, means and 95%-confidence interval (95%-CI), and the countries of origin.*

| | | | Number of Studies | Farms | Mean | 95%-CI | Investigated countries (number of studies/number of farms) |
|---|---|---|---|---|---|---|---|
| Average | N | | 44 | 621 | 45 | [30/61] | AUT(5/26), BEL(1/5), CHE(2/12), DEU(15/194), DNK(6/50), EST(1/11), FIN(1/7), FRA(3/152), GBR(8/48), HUN(1/10), ITA(5/22), NOR(5/68), ROU(1/14), SWE(1/2) |
| | P | | 36 | 556 | 0 | [-2/2] | AUT(5/26), BEL(1/5), CHE(4/20), DEU(8/161), DNK(4/30), EST(1/11), FIN(1/7), FRA(2/104), GBR(8/49), HUN(1/10), IRL(1/21), ITA(2/12), NOR(6/83), ROU(1/14), SWE(2/3) |
| | K | | 32 | 520 | -12 | [-21/-3] | AUT(5/26), BEL(1/5), CHE(2/12), DEU(8/161), DNK(4/21), EST(1/11), FIN(1/7), FRA(1/81), GBR(8/49), HUN(1/10), ITA(2/12), NOR(5/105), ROU(1/14), SWE(3/6) |
| Budget Method | N | farm-gate | 30 | 380 | 58 | [43/74] | AUT(3/23), BEL(1/5), CHE(1/10), DEU(12/142), DNK(5/47), EST(1/11), FIN(1/7), FRA(1/56), GBR(7/39), HUN(1/10), ITA(2/12), NOR(2/4), ROU(1/14) |
| | | soil surface | 19 | 241 | 17 | [-14/49] | AUT(2/3), CHE(1/2), DEU(4/52), DNK(1/3), FRA(2/96), GBR(1/9), ITA(3/10), NOR(3/64), SWE(1/2) |
| | P | farm-gate | 24 | 397 | 2 | [-1/5] | AUT(3/23), BEL(1/5), CHE(1/10), DEU(7/120), DNK(3/27), EST(1/11), FIN(1/7), FRA(1/76), GBR(7/40), HUN(1/10), IRL(1/21), ITA(2/12), NOR(4/21), ROU(1/14) |
| | | soil surface | 15 | 159 | -5 | [-8/-2] | AUT(2/3), CHE(3/10), DEU(2/41), DNK(1/3), FRA(1/28), GBR(1/9), NOR(2/62), SWE(2/3) |
| | K | farm-gate | 19 | 334 | -4 | [-15/6] | AUT(3/23), BEL(1/5), CHE(1/10), DEU(7/120), DNK(2/14), EST(1/11), FIN(1/7), FRA(1/53), GBR(7/40), HUN(1/10), ITA(2/12), NOR(2/15), ROU(1/14) |
| | | soil surface | 16 | 186 | -26 | [-41/-11] | AUT(2/3), CHE(1/2), DEU(2/41), DNK(2/7), FRA(1/28), GBR(1/9), NOR(3/90), SWE(3/6) |
| Farm Type | N | arable | 16 | 139 | 19 | [-18/56] | AUT(2/2), CHE(1/2), DEU(4/37), DNK(1/3), FRA(1/20), GBR(1/1), ITA(3/10), NOR(2/62), SWE(1/2), |
| | | dairy / beef | 17 | 233 | 77 | [57/97] | AUT(3/23), BEL(1/5), DEU(5/77), DNK(3/34), FIN(1/7), FRA(1/36), GBR(6/29), ITA(1/7), NOR(1/1), ROU(1/14), |
| | | mixed | 13 | 225 | 18 | [5/32] | CHE(1/10), DEU(6/58), DNK(2/13), EST(1/11), FRA(2/96), GBR(2/17), HUN(1/10), ITA(1/5), NOR(2/5) |
| | | vegetable | 3 | 24 | 117 | [46/188] | AUT(1/1), DEU(1/22), GBR(1/1) |
| | P | arable | 11 | 119 | -4 | [-7/-1] | AUT(2/2), CHE(3/10), DEU(1/20), DNK(1/3), FRA(1/19), GBR(1/1), NOR(2/62), SWE(1/2) |
| | | dairy / beef | 17 | 248 | 1 | [-1/3] | AUT(3/23), BEL(1/5), DEU(3/68), DNK(2/20), FIN(1/7), FRA(1/34), GBR(6/30), IRL(1/21), ITA(1/7), NOR(3/18), ROU(1/14), SWE(1/1) |
| | | mixed | 8 | 165 | -2 | [-5/1] | CHE(1/10), DEU(3/51), DNK(1/7), EST(1/11), FRA(2/51), GBR(2/17), HUN(1/10), ITA(1/5), NOR(1/3) |
| | | vegetable | 3 | 24 | 12 | [-23/48] | AUT(1/1), DEU(1/22), GBR(1/1) |
| | K | arable | 10 | 114 | -31 | [-49/-14] | AUT(2/2), CHE(1/2), DEU(1/20), DNK(1/3), FRA(1/19), GBR(1/1), NOR(2/62), SWE(2/5) |
| | | dairy / beef | 14 | 236 | 2 | [-8/12] | AUT(3/23), BEL(1/5), DEU(3/68), DNK(1/7), FIN(1/7), FRA(1/34), GBR(6/30), ITA(1/7), NOR(2/40), ROU(1/14), SWE(1/1) |
| | | mixed | 8 | 146 | -12 | [-24/0] | CHE(1/10), DEU(3/51), DNK(2/11), EST(1/11), FRA(1/28), GBR(2/17), HUN(1/10), ITA(1/5), NOR(1/3) |
| | | vegetable | 3 | 24 | -44 | [-142/54] | AUT(1/1), DEU(1/22), GBR(1/1) |

| | | | Number of Studies | Farms | Mean | 95%-CI | Investigated countries (number of studies/number of farms) |
|---|---|---|---|---|---|---|---|
| **Farm Type and Budget Method** | N | soil surface farm-gate | arable | 5 | 50 | 14 | [-10/39] | DEU(3/29), FRA(1/20), GBR(1/1) |
| | | | dairy / beef | 17 | 233 | 77 | [57/97] | AUT(3/23), BEL(1/5), DEU(5/77), DNK(3/34), FIN(1/7), FRA(1/36), GBR(6/29), ITA(1/7), NOR(1/1), ROU(1/14) |
| | | | mixed | 7 | 74 | 27 | [10/44] | CHE(1/10), DEU(4/14), DNK(2/13), EST(1/11), GBR(1/8), HUN(1/10), ITA(1/5), NOR(1/3) |
| | | | vegetable | 2 | 23 | 143 | [44/242] | DEU(1/22), GBR(1/1) |
| | | soil surface farm-gate | arable | 11 | 89 | 21 | [-32/74] | AUT(2/2), CHE(1/2), DEU(1/8), DNK(1/3), ITA(3/10), NOR(3/62), SWE(1/2) |
| | | | dairy / beef | | | | | |
| | | | mixed | 7 | 151 | 4 | [-16/25] | DEU(3/44), FRA(2/96), GBR(1/9), NOR(1/2) |
| | | | vegetable | 1 | 1 | 71 | | AUT(1/1) |
| | P | soil surface farm-gate | arable | 2 | 40 | -3 | [-3/-3] | DEU(1/20), FRA(1/19), GBR(1/1) |
| | | | dairy / beef | 16 | 247 | 1 | [-1/3] | AUT(3/23), BEL(1/5), DEU(3/68), DNK(2/20), FIN(1/7), FRA(1/34), GBR(6/30), IRL(1/21), ITA(1/7), NOR(3/18), ROU(1/14) |
| | | | mixed | 5 | 87 | -1 | [-5/2] | CHE(1/10), DEU(2/10), DNK(1/7), EST(1/11), FRA(1/23), GBR(1/8), HUN(1/10), ITA(1/5), NOR(3/3) |
| | | | vegetable | 2 | 23 | 25 | [-20/70] | DEU(1/22), GBR(1/1) |
| | | soil surface farm-gate | arable | 9 | 79 | -5 | [-8/-1] | AUT(2/2), CHE(3/10), DNK(1/3), NOR(3/62), SWE(1/2) |
| | | | dairy / beef | 1 | 1 | -1 | | SWE(1/1) |
| | | | mixed | 4 | 78 | -3 | [-10/3] | DEU(2/41), FRA(1/28), GBR(1/9) |
| | | | vegetable | 1 | 1 | -12 | | AUT(1/1) |
| | K | soil surface farm-gate | arable | 2 | 40 | -15 | [-48/18] | DEU(1/20), FRA(1/19), GBR(1/1) |
| | | | dairy / beef | 12 | 207 | 4 | [-4/12] | AUT(3/23), BEL(1/5), DEU(3/68), DNK(1/7), FIN(1/7), FRA(1/34), GBR(6/30), ITA(1/7), NOR(1/12), ROU(1/14) |
| | | | mixed | 4 | 64 | -9 | [-27/8] | CHE(1/10), DEU(2/10), DNK(1/7), EST(1/11), GBR(1/8), HUN(1/10), ITA(1/5), NOR(1/3) |
| | | | vegetable | 2 | 23 | -80 | [-201/41] | DEU(1/22), GBR(1/1) |
| | | soil surface farm-gate | arable | 8 | 74 | -36 | [-57/-16] | AUT(2/2), CHE(1/2), DNK(1/3), NOR(3/62), SWE(2/5) |
| | | | dairy / beef | 0 | 29 | -51 | [-67/-36] | NOR(1/28), SWE(1/1) |
| | | | mixed | 5 | 82 | -16 | [-30/-2] | DEU(2/41), FRA(1/28), GBR(1/9) |
| | | | vegetable | 1 | 1 | 27 | | AUT(1/1) |

*Supplementary Table 2: Heterogeneity within the data measured as $\tau^2$ for the whole data set without and with moderators for the meta-analysis of the N, P, and K budgets.*

|   | $\tau^2$ without moderators | $\tau^2$ with farm type | $\tau^2$ with kind of balance | $\tau^2$ with both |
|---|---|---|---|---|
| N | 3588 | 2657 | 3207 | 2720 |
| P | 64 | 59 | 52 | 45 |
| K | 939 | 811 | 845 | 646 |