

| Table S1: List of Experiments |              |       |        |            |                   |             |             |           |           |
|-------------------------------|--------------|-------|--------|------------|-------------------|-------------|-------------|-----------|-----------|
| Experiment                    | Cluster      | Type  | Crop   | Soil       | Nitrogen          |             | Phosphorous |           | no. of BE |
| Experiment                    | Cluster      | Type  | Crop   | Soil       | N source          | N form      | P source    | P form    | no. of BE |
| ABI_2015                      | ABI_2015_A   | Field | Maize  | Sanitz_B   | HAST-NP_A         | Synthetic N | NP_A        | Soluble P | 5         |
| ABI_2016                      | ABI_2016_A   | Field | Maize  | Sanitz_B   | Sulfammo32-ActivN | Synthetic N | ActivN      | Soluble P | 5         |
| AFBI_2014a                    | AFBI_2014a_A | Field | Barley | Newforge   | CAN_C             | Synthetic N | noP         | Control   | 4         |
| AFBI_2014b                    | AFBI_2014b_A | Field | Barley | Poyntzpass | CAN_C             | Synthetic N | Phosphate   | Soluble P | 4         |
| AFBI_2015c                    | AFBI_2015c_A | Field | Wheat  | Newforge   | CAN_C             | Synthetic N | noP         | Control   | 4         |
| AFBI_2015d                    | AFBI_2015d_A | Field | Wheat  | Poyntzpass | CAN_C             | Synthetic N | Phosphate   | Soluble P | 4         |
| AFBI_2016a                    | AFBI_2016a_A | Field | Wheat  | Newforge   | CAN_C             | Synthetic N | noP         | Control   | 4         |
| AFBI_2016b                    | AFBI_2016b_A | Field | Wheat  | Poyntzpass | CAN_C             | Synthetic N | Phosphate   | Soluble P | 4         |
| ARO_2013                      | ARO_2013_A   | Pot   | Tomato | Ramat      | Solution_I        | Synthetic N | SP_A        | Soluble P | 1         |
| ARO_2013                      | ARO_2013_B   | Pot   | Tomato | Ramat      | Solution_I        | Synthetic N | SP_A        | Soluble P | 1         |
| ARO_2013                      | ARO_2013_C   | Pot   | Tomato | Ramat      | CompMan_I         | Organic N   | CompMan_I   | Manure    | 1         |
| ARO_2013                      | ARO_2013_D   | Pot   | Tomato | Ramat      | CompMan_I         | Organic N   | CompMan_I   | Manure    | 1         |
| ARO_2014                      | ARO_2014_A   | Pot   | Tomato | Ramat      | Solution_I        | Synthetic N | TSP_E       | Soluble P | 4         |
| ARO_2014                      | ARO_2014_B   | Pot   | Tomato | Ramat      | Solution_I        | Synthetic N | TSP_E       | Soluble P | 4         |
| ARO_2014                      | ARO_2014_C   | Pot   | Tomato | Ramat      | Solution_I        | Synthetic N | TSP_E       | Soluble P | 4         |
| ARO_2014                      | ARO_2014_D   | Pot   | Tomato | Ramat      | Solution_I        | Synthetic N | TSP_E       | Soluble P | 4         |
| ARO_2015                      | ARO_2015_A   | Pot   | Tomato | Ramat      | Solution_I        | Synthetic N | TSP_E       | Soluble P | 3         |
| ARO_2015                      | ARO_2015_B   | Pot   | Tomato | Ramat      | Solution_I        | Synthetic N | TSP_E       | Soluble P | 3         |
| ARO_2015                      | ARO_2015_C   | Pot   | Tomato | Ramat      | Solution_I        | Synthetic N | TSP_E       | Soluble P | 3         |
| ARO_2017                      | ARO_2017_A   | Field | Tomato | Ramat      | Solution_I        | Synthetic N | TSP_E       | Soluble P | 4         |

| Experimental design |              |       |        |               |             |             |             |                    |           |
|---------------------|--------------|-------|--------|---------------|-------------|-------------|-------------|--------------------|-----------|
| Experiment          | Cluster      | Type  | Crop   | Soil          | Nitrogen    |             | Phosphorous |                    | no. of BE |
| Experiment          | Cluster      | Type  | Crop   | Soil          | N source    | N form      | P source    | P form             | no. of BE |
| ARO_2017            | ARO_2017_B   | Field | Tomato | Ramat         | Solution_I  | Synthetic N | TSP_E       | Soluble P          | 4         |
| ARO_2017            | ARO_2017_C   | Field | Tomato | Ramat         | Solution_I  | Synthetic N | TSP_E       | Soluble P          | 4         |
| AUAS_2013           | AUAS_2013_A  | Pot   | Tomato | Chernozem     | CAN_A       | Synthetic N | noP         | Control            | 18        |
| AUAS_2015           | AUAS_2015_A  | Pot   | Tomato | Chernozem     | CAN_A       | Synthetic N | noP         | Control            | 18        |
| AUAS_2016           | AUAS_2016_A  | Pot   | Tomato | Chernozem     | NovaTec     | Ammonium    | noP         | Control            | 9         |
| AUAS_2016           | AUAS_2016_B  | Pot   | Tomato | Chernozem     | CAN_A       | Synthetic N | noP         | Control            | 9         |
| BUAS_2013a          | BUAS_2013a_A | Pot   | Tomato | Romania_mix_A | OrgFert_B   | Organic N   | OrgFert_B   | Organic fertilizer | 3         |
| BUAS_2013b          | BUAS_2013b_A | Field | Tomato | Romania_A     | Multi-K     | Synthetic N | noP         | Control            | 3         |
| BUAS_2013c          | BUAS_2013c_A | Field | Maize  | Romania_B     | NPK_A       | Synthetic N | NPK_A       | Soluble P          | 7         |
| BUAS_2013d          | BUAS_2013d_A | Field | Maize  | Romania_C     | NPK_A       | Synthetic N | NPK_A       | Soluble P          | 7         |
| BUAS_2014a          | BUAS_2014a_A | Pot   | Tomato | Romania_mix_B | OrgFert_B   | Organic N   | OrgFert_B   | Organic fertilizer | 3         |
| BUAS_2014b          | BUAS_2014b_A | Field | Tomato | Romania_D     | Multi-K     | Synthetic N | noP         | Control            | 3         |
| BUAS_2014c          | BUAS_2014c_A | Field | Wheat  | Romania_E     | Man_E-NPK_A | Synthetic N | Man_E-NPK_A | Soluble P          | 5         |
| BUAS_2014d          | BUAS_2014d_A | Field | Wheat  | Romania_F     | Man_E-NPK_A | Synthetic N | Man_E-NPK_A | Soluble P          | 5         |
| BUAS_2015a          | BUAS_2015a_A | Pot   | Tomato | Romania_mix_C | OrgFert_C   | Organic N   | OrgFert_C   | Organic fertilizer | 3         |
| BUAS_2015b          | BUAS_2015b_A | Field | Tomato | Romania_G     | Multi-K     | Synthetic N | noP         | Control            | 5         |
| BUAS_2015c          | BUAS_2015c_A | Field | Wheat  | Romania_H     | Man_F-NPK_A | Synthetic N | Man_F-NPK_A | Soluble P          | 6         |
| BUAS_2015d          | BUAS_2015d_A | Field | Maize  | Romania_I     | Man_F-NPK_A | Synthetic N | Man_F-NPK_A | Soluble P          | 6         |
| BUAS_2016a          | BUAS_2016a_A | Pot   | Tomato | Romania_mix_D | OrgFert_D   | Organic N   | OrgFert_D   | Organic fertilizer | 5         |
| BUAS_2016b          | BUAS_2016b_A | Field | Tomato | Romania_J     | Multi-K     | Synthetic N | noP         | Control            | 5         |
| BUAS_2016c          | BUAS_2016c_A | Pot   | Tomato | Romania_mix_D | OrgFert_D   | Organic N   | noP         | Control            | 5         |

| Experimental design |              |       |        |               |                  |             |             |           |           |
|---------------------|--------------|-------|--------|---------------|------------------|-------------|-------------|-----------|-----------|
| Experiment          | Cluster      | Type  | Crop   | Soil          | Nitrogen         |             | Phosphorous |           | no. of BE |
| Experiment          | Cluster      | Type  | Crop   | Soil          | N source         | N form      | P source    | P form    | no. of BE |
| BUAS_2016c          | BUAS_2016c_B | Pot   | Tomato | Romania_mix_E | DuraTec          | Ammonium    | DuraTec     | Soluble P | 5         |
| BUAS_2016d          | BUAS_2016d_A | Field | Wheat  | Romania_K     | Man_G-NPK_A      | Synthetic N | Man_G-NPK_A | Soluble P | 6         |
| BUAS_2016e          | BUAS_2016e_A | Field | Maize  | Romania_L     | Man_G-NPK_A      | Synthetic N | Man_G-NPK_A | Soluble P | 6         |
| CUB_2014a           | CUB_2014a_A  | Pot   | Tomato | CUB_A         | CAN_A            | Synthetic N | TSP_A       | Soluble P | 3         |
| CUB_2014b           | CUB_2014b_A  | Field | Tomato | CUB_A         | CAN_A-OrgFert_A  | Synthetic N | OrgFert_A   | Manure    | 6         |
| CUB_2015a           | CUB_2015a_A  | Pot   | Tomato | CUB_B         | CAN_A            | Synthetic N | TSP_A       | Soluble P | 5         |
| CUB_2015b           | CUB_2015b_A  | Field | Tomato | CUB_B         | OrgFert_A        | Organic N   | OrgFert_A   | Manure    | 6         |
| CUB_2016a           | CUB_2016a_A  | Field | Tomato | CUB_C         | OrgFert_A        | Organic N   | OrgFert_A   | Manure    | 3         |
| CULS_2013a          | CULS_2013a_A | Pot   | Maize  | Humpolec_A    | CalciumNitrate_A | Synthetic N | noP         | Control   | 2         |
| CULS_2013a          | CULS_2013a_B | Pot   | Maize  | Humpolec_A    | CalciumNitrate_A | Synthetic N | TSP_B       | Soluble P | 2         |
| CULS_2014a          | CULS_2014a_A | Pot   | Wheat  | Humpolec_B    | AN_A-BioAsh_B    | Synthetic N | BioAsh_B    | Ashes     | 2         |
| CULS_2014a          | CULS_2014a_B | Pot   | Wheat  | Humpolec_B    | AN_A-BioAsh_A    | Synthetic N | BioAsh_A    | Ashes     | 2         |
| CULS_2014a          | CULS_2014a_C | Pot   | Wheat  | Podebrady     | AN_A-BioAsh_B    | Synthetic N | BioAsh_B    | Ashes     | 2         |
| CULS_2014a          | CULS_2014a_D | Pot   | Wheat  | Podebrady     | AN_A-BioAsh_A    | Synthetic N | BioAsh_A    | Ashes     | 2         |
| CULS_2014b          | CULS_2014b_A | Pot   | Maize  | Humpolec_B    | AN_A-BioAsh_B    | Synthetic N | BioAsh_B    | Ashes     | 2         |
| CULS_2014b          | CULS_2014b_B | Pot   | Maize  | Humpolec_B    | AN_A-BioAsh_A    | Synthetic N | BioAsh_A    | Ashes     | 2         |
| CULS_2014b          | CULS_2014b_C | Pot   | Maize  | Podebrady     | AN_A-BioAsh_B    | Synthetic N | BioAsh_B    | Ashes     | 2         |
| CULS_2014b          | CULS_2014b_D | Pot   | Maize  | Podebrady     | AN_A-BioAsh_A    | Synthetic N | BioAsh_A    | Ashes     | 2         |
| CULS_2014c          | CULS_2014c_A | Field | Maize  | Humpolec_C    | CAN_B            | Synthetic N | noP         | Control   | 2         |
| CULS_2014c          | CULS_2014c_B | Field | Maize  | Humpolec_C    | CAN_B            | Synthetic N | RP_C        | Rock P    | 2         |
| CULS_2014c          | CULS_2014c_C | Field | Maize  | Humpolec_C    | CAN_B            | Synthetic N | TSP_B       | Soluble P | 2         |

| Experimental design |              |       |       |            |                  |             |             |               |           |
|---------------------|--------------|-------|-------|------------|------------------|-------------|-------------|---------------|-----------|
| Experiment          | Cluster      | Type  | Crop  | Soil       | Nitrogen         |             | Phosphorous |               | no. of BE |
| Experiment          | Cluster      | Type  | Crop  | Soil       | N source         | N form      | P source    | P form        | no. of BE |
| CULS_2014c          | CULS_2014c_D | Field | Maize | Humpolec_C | CAN_B            | Synthetic N | RP_C        | Rock P        | 2         |
| CULS_2014c          | CULS_2014c_E | Field | Maize | Humpolec_C | CAN_B            | Synthetic N | TSP_B       | Soluble P     | 2         |
| CULS_2014d          | CULS_2014d_A | Field | Maize | Lukavec_A  | CAN_B            | Synthetic N | noP         | Control       | 2         |
| CULS_2014d          | CULS_2014d_B | Field | Maize | Lukavec_A  | CAN_B            | Synthetic N | RP_C        | Rock P        | 2         |
| CULS_2014d          | CULS_2014d_C | Field | Maize | Lukavec_A  | CAN_B            | Synthetic N | TSP_B       | Soluble P     | 2         |
| CULS_2014d          | CULS_2014d_D | Field | Maize | Lukavec_A  | CAN_B            | Synthetic N | RP_C        | Rock P        | 2         |
| CULS_2014d          | CULS_2014d_E | Field | Maize | Lukavec_A  | CAN_B            | Synthetic N | TSP_B       | Soluble P     | 2         |
| CULS_2014e          | CULS_2014e_A | Pot   | Maize | Humpolec_A | CalciumNitrate_A | Synthetic N | noP         | Control       | 3         |
| CULS_2014e          | CULS_2014e_B | Pot   | Maize | Humpolec_A | CalciumNitrate_A | Synthetic N | RP_C        | Rock P        | 3         |
| CULS_2014e          | CULS_2014e_C | Pot   | Maize | Humpolec_A | CalciumNitrate_A | Synthetic N | TSP_B       | Soluble P     | 3         |
| CULS_2014f          | CULS_2014f_A | Pot   | Maize | Lukavec_B  | CalciumNitrate_A | Synthetic N | noP         | Control       | 3         |
| CULS_2014f          | CULS_2014f_B | Pot   | Maize | Lukavec_B  | CalciumNitrate_A | Synthetic N | RP_C        | Rock P        | 3         |
| CULS_2014f          | CULS_2014f_C | Pot   | Maize | Lukavec_B  | CalciumNitrate_A | Synthetic N | TSP_B       | Soluble P     | 3         |
| CULS_2015a          | CULS_2015a_A | Pot   | Wheat | Lhota      | AN_A-PSS         | Synthetic N | PSS         | Biochar       | 1         |
| CULS_2015a          | CULS_2015a_B | Pot   | Wheat | Lhota      | AN_A-TSS-a       | Mixture     | TSS         | Biochar       | 1         |
| CULS_2015a          | CULS_2015a_C | Pot   | Wheat | Lhota      | AN_A-SS_B-a      | Synthetic N | SS_B        | Sewage sludge | 1         |
| CULS_2015a          | CULS_2015a_D | Pot   | Wheat | Lhota      | AN_A             | Synthetic N | RP_C        | Rock P        | 1         |
| CULS_2015a          | CULS_2015a_E | Pot   | Wheat | Lhota      | AN_A             | Synthetic N | BioAsh_A    | Ashes         | 1         |
| CULS_2015a          | CULS_2015a_F | Pot   | Wheat | Lhota      | AN_A             | Synthetic N | SSA_A       | Ashes         | 1         |
| CULS_2015a          | CULS_2015a_G | Pot   | Wheat | Lhota      | AN_A-BioChar_A   | Synthetic N | BioChar_A   | Biochar       | 1         |
| CULS_2015a          | CULS_2015a_H | Pot   | Wheat | Lhota      | AN_A             | Synthetic N | TSP_B       | Soluble P     | 1         |

| Experimental design |              |       |        |            |               |             |             |               |           |
|---------------------|--------------|-------|--------|------------|---------------|-------------|-------------|---------------|-----------|
| Experiment          | Cluster      | Type  | Crop   | Soil       | Nitrogen      |             | Phosphorous |               | no. of BE |
| Experiment          | Cluster      | Type  | Crop   | Soil       | N source      | N form      | P source    | P form        | no. of BE |
| CULS_2015b          | CULS_2015b_A | Pot   | Maize  | Zamberk_A  | AN_A          | Synthetic N | noP         | Control       | 11        |
| CULS_2015b          | CULS_2015b_B | Pot   | Maize  | Zamberk_A  | AN_A-BioAsh_B | Synthetic N | BioAsh_B    | Ashes         | 6         |
| CULS_2015b          | CULS_2015b_C | Pot   | Maize  | Zamberk_A  | AN_A-BioAsh_A | Synthetic N | BioAsh_A    | Ashes         | 10        |
| CULS_2015b          | CULS_2015b_D | Pot   | Maize  | Zamberk_A  | AN_A-SS_B-b   | Mixture     | SS_B        | Sewage sludge | 10        |
| CULS_2015b          | CULS_2015b_E | Pot   | Maize  | Zamberk_A  | AN_A-TSS-b    | Mixture     | TSS         | Biochar       | 6         |
| CULS_2015b          | CULS_2015b_F | Pot   | Maize  | Zamberk_A  | Dig_B         | Organic N   | Dig_B       | Digestates    | 10        |
| CULS_2015b          | CULS_2015b_G | Pot   | Maize  | Zamberk_A  | AN_A          | Synthetic N | RP_C        | Rock P        | 11        |
| CULS_2015c          | CULS_2015c_A | Field | Maize  | Humpolec_D | CAN_B         | Synthetic N | noP         | Control       | 2         |
| CULS_2015c          | CULS_2015c_B | Field | Maize  | Humpolec_D | UAN           | Synthetic N | noP         | Control       | 2         |
| CULS_2015c          | CULS_2015c_C | Field | Maize  | Humpolec_D | CAN_B         | Synthetic N | noP         | Control       | 2         |
| CULS_2015d          | CULS_2015d_A | Pot   | Tomato | Humpolec_A | AN_A          | Synthetic N | noP         | Control       | 4         |
| CULS_2016a          | CULS_2016a_A | Pot   | Wheat  | Lhota      | AN_A          | Synthetic N | PSS         | Biochar       | 1         |
| CULS_2016a          | CULS_2016a_B | Pot   | Wheat  | Lhota      | AN_A          | Synthetic N | TSS         | Biochar       | 1         |
| CULS_2016a          | CULS_2016a_C | Pot   | Wheat  | Lhota      | AN_A          | Synthetic N | SS_B        | Sewage sludge | 1         |
| CULS_2016a          | CULS_2016a_D | Pot   | Wheat  | Lhota      | AN_A          | Synthetic N | RP_C        | Rock P        | 1         |
| CULS_2016a          | CULS_2016a_E | Pot   | Wheat  | Lhota      | AN_A          | Synthetic N | BioAsh_A    | Ashes         | 1         |
| CULS_2016a          | CULS_2016a_F | Pot   | Wheat  | Lhota      | AN_A          | Synthetic N | SSA_A       | Ashes         | 1         |
| CULS_2016a          | CULS_2016a_G | Pot   | Wheat  | Lhota      | AN_A          | Synthetic N | BioChar_A   | Biochar       | 1         |
| CULS_2016a          | CULS_2016a_H | Pot   | Wheat  | Lhota      | AN_A          | Synthetic N | TSP_B       | Soluble P     | 1         |
| CULS_2016b          | CULS_2016b_A | Pot   | Maize  | Zamberk_B  | noN           | Control     | noP         | Control       | 1         |
| CULS_2016b          | CULS_2016b_B | Pot   | Maize  | Zamberk_B  | noN           | Control     | BioAsh_A    | Ashes         | 1         |

| Experimental design |              |       |       |            |                  |             |             |           |           |
|---------------------|--------------|-------|-------|------------|------------------|-------------|-------------|-----------|-----------|
| Experiment          | Cluster      | Type  | Crop  | Soil       | Nitrogen         |             | Phosphorous |           | no. of BE |
| Experiment          | Cluster      | Type  | Crop  | Soil       | N source         | N form      | P source    | P form    | no. of BE |
| CULS_2016b          | CULS_2016b_C | Pot   | Maize | Zamberk_B  | AN_A             | Synthetic N | noP         | Control   | 1         |
| CULS_2016b          | CULS_2016b_D | Pot   | Maize | Zamberk_B  | AN_A             | Synthetic N | BioAsh_A    | Ashes     | 1         |
| CULS_2016b          | CULS_2016b_E | Pot   | Maize | Zamberk_B  | AN_A             | Synthetic N | noP         | Control   | 1         |
| CULS_2016b          | CULS_2016b_F | Pot   | Maize | Zamberk_B  | AN_A             | Synthetic N | BioAsh_A    | Ashes     | 1         |
| CULS_2016b          | CULS_2016b_G | Pot   | Maize | Zamberk_B  | AN_A             | Synthetic N | noP         | Control   | 1         |
| CULS_2016b          | CULS_2016b_H | Pot   | Maize | Zamberk_B  | AN_A             | Synthetic N | BioAsh_A    | Ashes     | 1         |
| CULS_2016c          | CULS_2016c_A | Pot   | Maize | 1          | AN_A             | Synthetic N | noP         | Control   | 2         |
| CULS_2016c          | CULS_2016c_B | Pot   | Maize | 101        | AN_A             | Synthetic N | noP         | Control   | 2         |
| CULS_2016c          | CULS_2016c_C | Pot   | Maize | 2          | AN_A             | Synthetic N | noP         | Control   | 2         |
| CULS_2016c          | CULS_2016c_D | Pot   | Maize | 14         | AN_A             | Synthetic N | noP         | Control   | 2         |
| CULS_2016d          | CULS_2016d_A | Field | Maize | Humpolec_E | CalciumNitrate_A | Synthetic N | RP_E        | Rock P    | 3         |
| CULS_2016d          | CULS_2016d_B | Field | Maize | Humpolec_E | NovaTec          | Ammonium    | RP_E        | Rock P    | 3         |
| CULS_2016e          | CULS_2016e_A | Field | Maize | Lipa       | CalciumNitrate_A | Synthetic N | RP_E        | Rock P    | 3         |
| CULS_2016e          | CULS_2016e_B | Field | Maize | Lipa       | NovaTec          | Ammonium    | RP_E        | Rock P    | 3         |
| CULS_2017a          | CULS_2017a_A | Pot   | Wheat | Citov      | AN_A             | Synthetic N | -           | NA        | 2         |
| CULS_2017a          | CULS_2017a_B | Pot   | Wheat | Citov      | AN_A             | Synthetic N | RP_D        | Rock P    | 2         |
| CULS_2017a          | CULS_2017a_C | Pot   | Wheat | Citov      | AN_A             | Synthetic N | TSP_B       | Soluble P | 2         |
| FiBL_2013a          | FiBL_2013a_A | Pot   | Maize | Buus       | CAN_A            | Synthetic N | RP_A        | Soluble P | 3         |
| FiBL_2013a          | FiBL_2013a_B | Pot   | Maize | DOK-M      | CAN_A            | Synthetic N | RP_A        | Soluble P | 3         |
| FiBL_2013a          | FiBL_2013a_C | Pot   | Maize | Le-Caron   | CAN_A            | Synthetic N | RP_A        | Soluble P | 3         |
| FiBL_2014a          | FiBL_2014a_A | Pot   | Maize | Buus       | CAN_A            | Synthetic N | noP         | Control   | 4         |

| Experiment details |              |       |       |           |                 |             |             |            |           |
|--------------------|--------------|-------|-------|-----------|-----------------|-------------|-------------|------------|-----------|
| Experiment         | Cluster      | Type  | Crop  | Soil      | Nitrogen        |             | Phosphorous |            | no. of BE |
| Experiment         | Cluster      | Type  | Crop  | Soil      | N source        | N form      | P source    | P form     | no. of BE |
| FiBL_2014a         | FiBL_2014a_B | Pot   | Maize | Buus      | CAN_A           | Synthetic N | TSP_A       | Soluble P  | 4         |
| FiBL_2014a         | FiBL_2014a_C | Pot   | Maize | Buus      | CAN_A           | Synthetic N | RP_B        | Rock P     | 4         |
| FiBL_2014a         | FiBL_2014a_D | Pot   | Maize | Buus      | CAN_A-Dig_A     | Organic N   | Dig_A       | Digestates | 4         |
| FiBL_2014a         | FiBL_2014a_E | Pot   | Maize | Buus      | CAN_A-Comp_B    | Synthetic N | Comp_B      | Compost    | 4         |
| FiBL_2014b         | FiBL_2014b_A | Field | Maize | Buus      | Hornmeal        | Organic N   | Comp_B      | Compost    | 2         |
| FiBL_2014b         | FiBL_2014b_B | Field | Maize | Buus      | Hornmeal        | Organic N   | Comp_B      | Compost    | 2         |
| FiBL_2014c         | FiBL_2014c_A | Field | Maize | Hagenwil  | Man_B           | Organic N   | Man_C       | Manure     | 2         |
| FiBL_2015a         | FiBL_2015a_A | Pot   | Maize | Buus      | CAN_A           | Synthetic N | noP         | Control    | 5         |
| FiBL_2015a         | FiBL_2015a_B | Pot   | Maize | Buus      | CAN_A           | Synthetic N | RP_C        | Rock P     | 5         |
| FiBL_2015a         | FiBL_2015a_C | Pot   | Maize | Buus      | CAN_A-Comp_B    | Synthetic N | Comp_B      | Compost    | 5         |
| FiBL_2015a         | FiBL_2015a_D | Pot   | Maize | Buus      | CAN_A-Dig_A     | Organic N   | Dig_A       | Digestates | 5         |
| FiBL_2015a         | FiBL_2015a_E | Pot   | Maize | Buus      | CAN_A-CompMan_B | Mixture     | CompMan_B   | Manure     | 5         |
| FiBL_2015a         | FiBL_2015a_F | Pot   | Maize | Buus      | CAN_A-CompMan_A | Mixture     | CompMan_A   | Manure     | 5         |
| FiBL_2015b         | FiBL_2015b_A | Pot   | Maize | Dompierre | CAN_A           | Synthetic N | noP         | Control    | 5         |
| FiBL_2015b         | FiBL_2015b_B | Pot   | Maize | Dompierre | CAN_A           | Synthetic N | RP_C        | Rock P     | 5         |
| FiBL_2015b         | FiBL_2015b_C | Pot   | Maize | Dompierre | CAN_A-Comp_B    | Synthetic N | Comp_B      | Compost    | 5         |
| FiBL_2015b         | FiBL_2015b_D | Pot   | Maize | Dompierre | CAN_A-Dig_A     | Organic N   | Dig_A       | Digestates | 5         |
| FiBL_2015b         | FiBL_2015b_E | Pot   | Maize | Dompierre | CAN_A-CompMan_B | Mixture     | CompMan_B   | Manure     | 5         |
| FiBL_2015b         | FiBL_2015b_F | Pot   | Maize | Dompierre | CAN_A-CompMan_A | Mixture     | CompMan_A   | Manure     | 5         |
| FiBL_2015c         | FiBL_2015c_A | Pot   | Maize | Buus      | CAN_A           | Synthetic N | noP         | Control    | 3         |
| FiBL_2015c         | FiBL_2015c_B | Pot   | Maize | Buus      | CAN_A-CompMan_A | Mixture     | CompMan_A   | Manure     | 3         |

| Experimental design |                 |       |       |           |                       |             |             |               |           |
|---------------------|-----------------|-------|-------|-----------|-----------------------|-------------|-------------|---------------|-----------|
| Experiment          | Cluster         | Type  | Crop  | Soil      | Nitrogen              |             | Phosphorous |               | no. of BE |
| Experiment          | Cluster         | Type  | Crop  | Soil      | N source              | N form      | P source    | P form        | no. of BE |
| FiBL_2015d          | FiBL_2015d_A    | Field | Maize | Buus      | Hornmeal              | Organic N   | noP         | Control       | 2         |
| FiBL_2015d          | FiBL_2015d_B    | Field | Maize | Buus      | Hornmeal-Comp_B       | Organic N   | Comp_B      | Compost       | 2         |
| FiBL_2015e          | FiBL_2015e_A    | Field | Maize | Buus      | Hornmeal              | Organic N   | noP         | Control       | 2         |
| FiBL_2015e          | FiBL_2015e_B    | Field | Maize | Buus      | CompMan_A             | Organic N   | CompMan_A   | Manure        | 3         |
| FiBL_2015f          | FiBL_2015f_A    | Field | Maize | Hagenwil  | Man_B                 | Organic N   | noP         | Control       | 2         |
| FiBL_2016a          | FiBL_2016a_A    | Pot   | Maize | Dompierre | CAN_A                 | Synthetic N | noP         | Control       | 1         |
| FiBL_2016a          | FiBL_2016a_B    | Pot   | Maize | Dompierre | CAN_A                 | Synthetic N | RP_E        | Rock P        | 1         |
| FiBL_2016a          | FiBL_2016a_C    | Pot   | Maize | Dompierre | Comp_B                | Organic N   | Comp_B      | Compost       | 1         |
| FiBL_2016a          | FiBL_2016a_D    | Pot   | Maize | Dompierre | CompMan_A             | Organic N   | CompMan_A   | Manure        | 1         |
| FiBL_2016a          | FiBL_2016a_E    | Pot   | Maize | Dompierre | CAN_A                 | Synthetic N | SSA_B       | Ashes         | 1         |
| HKKALKE_2013a       | HKKALKE_2013a_A | Pot   | Wheat | Voerden   | CalciumNitrate_C      | Synthetic N | noP         | Control       | 3         |
| HKKALKE_2013a       | HKKALKE_2013a_B | Pot   | Wheat | Voerden   | CalciumNitrate_C      | Synthetic N | TSP_C       | Soluble P     | 3         |
| HKKALKE_2013a       | HKKALKE_2013a_C | Pot   | Wheat | Voerden   | CalciumNitrate_C      | Synthetic N | RP_A        | Soluble P     | 3         |
| HKKALKE_2013a       | HKKALKE_2013a_D | Pot   | Wheat | Voerden   | CalciumNitrate_C-SS_C | Synthetic N | SS_C        | Sewage sludge | 3         |
| HKKALKE_2013a       | HKKALKE_2013a_E | Pot   | Wheat | Voerden   | CalciumNitrate_C      | Synthetic N | SSA_C       | Ashes         | 3         |
| HKKALKE_2013a       | HKKALKE_2013a_F | Pot   | Wheat | Voerden   | CalciumNitrate_C      | Synthetic N | TP          | Soluble P     | 3         |
| HKKALKE_2013a       | HKKALKE_2013a_G | Pot   | Wheat | Voerden   | CalciumNitrate_C      | Synthetic N | SSA-BOFS    | Soluble P     | 3         |
| HKKALKE_2014a       | HKKALKE_2014a_A | Pot   | Maize | Voerden   | CalciumNitrate_C      | Synthetic N | noP         | Control       | 3         |
| HKKALKE_2014a       | HKKALKE_2014a_B | Pot   | Maize | Voerden   | CalciumNitrate_C      | Synthetic N | TSP_C       | Soluble P     | 3         |
| HKKALKE_2014a       | HKKALKE_2014a_C | Pot   | Maize | Voerden   | CalciumNitrate_C      | Synthetic N | RP_C        | Rock P        | 3         |
| HKKALKE_2014a       | HKKALKE_2014a_D | Pot   | Maize | Voerden   | CalciumNitrate_C-GSS  | Synthetic N | GSS         | Sewage sludge | 3         |

| Experimental design |                 |      |        |                 |                         |             |             |               |           |
|---------------------|-----------------|------|--------|-----------------|-------------------------|-------------|-------------|---------------|-----------|
| Experiment          | Cluster         | Type | Crop   | Soil            | Nitrogen                |             | Phosphorous |               | no. of BE |
| Experiment          | Cluster         | Type | Crop   | Soil            | N source                | N form      | P source    | P form        | no. of BE |
| HKKALKE_2014a       | HKKALKE_2014a_E | Pot  | Maize  | Voerden         | CalciumNitrate_C        | Synthetic N | SSA_C       | Ashes         | 3         |
| HKKALKE_2014a       | HKKALKE_2014a_F | Pot  | Maize  | Voerden         | CalciumNitrate_C-Comp_C | Mixture     | Comp_C      | Compost       | 3         |
| HKKALKE_2014a       | HKKALKE_2014a_G | Pot  | Maize  | Voerden         | CalciumNitrate_C        | Synthetic N | SSA-BOFS    | Soluble P     | 3         |
| HKKALKE_2015a       | HKKALKE_2015a_A | Pot  | Maize  | Voerden         | AmmoniumSulphate        | Ammonium    | noP         | Control       | 2         |
| HKKALKE_2015a       | HKKALKE_2015a_B | Pot  | Maize  | Voerden         | AmmoniumSulphate        | Ammonium    | TSP_C       | Soluble P     | 2         |
| HKKALKE_2015a       | HKKALKE_2015a_C | Pot  | Maize  | Voerden         | AmmoniumSulphate        | Ammonium    | RP_C        | Rock P        | 2         |
| HKKALKE_2015a       | HKKALKE_2015a_D | Pot  | Maize  | Voerden         | AmmoniumSulphate-Dig_C  | Synthetic N | Dig_C       | Digestates    | 2         |
| HKKALKE_2015a       | HKKALKE_2015a_E | Pot  | Maize  | Voerden         | AmmoniumSulphate        | Ammonium    | SSA_C       | Ashes         | 2         |
| HKKALKE_2015a       | HKKALKE_2015a_F | Pot  | Maize  | Voerden         | AmmoniumSulphate        | Ammonium    | SSA-BOFS    | Soluble P     | 2         |
| JKI_2013a           | JKI_2013a_A     | Pot  | Tomato | UHOH campus - A | CalciumNitrate_B        | Synthetic N | CalciumdiHP | Soluble P     | 4         |
| JKI_2013b           | JKI_2013b_A     | Pot  | Maize  | UHOH campus - A | CalciumNitrate_B        | Synthetic N | CalciumdiHP | Soluble P     | 4         |
| JKI_2014a           | JKI_2014a_A     | Pot  | Tomato | Karlsruhe_A     | CalciumNitrate_B        | Synthetic N | CalciumdiHP | Soluble P     | 3         |
| JKI_2014b           | JKI_2014b_A     | Pot  | Maize  | Karlsruhe_A     | CalciumNitrate_B        | Synthetic N | CalciumdiHP | Soluble P     | 3         |
| JKI_2016a           | JKI_2016a_A     | Pot  | Maize  | Sanitz_A        | noN                     | Control     | noP         | Control       | 1         |
| JKI_2016a           | JKI_2016a_B     | Pot  | Maize  | Bayern          | noN                     | Control     | noP         | Control       | 1         |
| UCPH_2013a          | UCPH_2013a_A    | Pot  | Wheat  | NDT-A           | CAN_A                   | Synthetic N | noP         | Control       | 3         |
| UCPH_2013a          | UCPH_2013a_B    | Pot  | Wheat  | NDT-A           | CAN_A                   | Synthetic N | TSP_A       | Soluble P     | 3         |
| UCPH_2013a          | UCPH_2013a_C    | Pot  | Wheat  | NDT-A           | CAN_A                   | Synthetic N | RP_A        | Soluble P     | 3         |
| UCPH_2013a          | UCPH_2013a_D    | Pot  | Wheat  | NDT-A           | CAN_A-SS_A              | Synthetic N | SS_A        | Sewage sludge | 3         |
| UCPH_2013a          | UCPH_2013a_E    | Pot  | Wheat  | NDT-A           | CAN_A                   | Synthetic N | SSA_A       | Ashes         | 3         |
| UCPH_2013a          | UCPH_2013a_F    | Pot  | Wheat  | NDT-A           | CAN_A-Man_A             | Synthetic N | Man_A       | Manure        | 3         |

| Experimental design |               |      |        |                  |                  |             |             |               |           |
|---------------------|---------------|------|--------|------------------|------------------|-------------|-------------|---------------|-----------|
| Experiment          | Cluster       | Type | Crop   | Soil             | Nitrogen         |             | Phosphorous |               | no. of BE |
| Experiment          | Cluster       | Type | Crop   | Soil             | N source         | N form      | P source    | P form        | no. of BE |
| UCPH_2013a          | UCPH_2013a_G  | Pot  | Wheat  | NDT-A            | CAN_A-Comp_A     | Mixture     | Comp_A      | Compost       | 3         |
| UCPH_2013b          | UCPH_2013b_A  | Pot  | Wheat  | NDT-A            | CAN_A-SS_A       | Synthetic N | SS_A        | Sewage sludge | 3         |
| UCPH_2013b          | UCPH_2013b_B  | Pot  | Wheat  | NDT-A            | CAN_A            | Synthetic N | SSA_A       | Ashes         | 3         |
| UCPH_2013b          | UCPH_2013b_C  | Pot  | Wheat  | NDT-A            | CAN_A-Comp_A     | Mixture     | Comp_A      | Compost       | 3         |
| UCPH_2013b          | UCPH_2013b_D  | Pot  | Wheat  | NDT-E            | CAN_A            | Synthetic N | noP         | Control       | 3         |
| UCPH_2013b          | UCPH_2013b_E  | Pot  | Wheat  | NDT-E            | CAN_A            | Synthetic N | SSA_A       | Ashes         | 3         |
| UCPH_2014a          | UCPH_2014a_A  | Pot  | Maize  | NDT-A            | CAN_A            | Synthetic N | noP         | Control       | 7         |
| UCPH_2014a          | UCPH_2014a_B  | Pot  | Maize  | NDT-A            | CAN_A            | Synthetic N | SSA_A       | Ashes         | 7         |
| UCPH_2014a          | UCPH_2014a_C  | Pot  | Maize  | NDT-A            | CAN_A-SS_A       | Synthetic N | SS_A        | Sewage sludge | 7         |
| UCPH_2014a          | UCPH_2014a_D  | Pot  | Maize  | CRUCIAL-U_A      | CAN_A            | Synthetic N | noP         | Control       | 7         |
| UCPH_2015a          | UCPH_2015a_A  | Pot  | Maize  | CRUCIAL-U_B      | Solution_A       | Synthetic N | noP         | Control       | 4         |
| UCPH_2015a          | UCPH_2015a_B  | Pot  | Maize  | CRUCIAL-U_B      | Solution_A       | Synthetic N | noP         | Control       | 4         |
| UCPH_2015a          | UCPH_2015a_C  | Pot  | Maize  | CRUCIAL-CMA      | Solution_A       | Synthetic N | noP         | Control       | 4         |
| UCPH_2015a          | UCPH_2015a_D  | Pot  | Maize  | CRUCIAL-CMA      | Solution_A       | Synthetic N | noP         | Control       | 4         |
| UHOHa_2013a         | UHOHa_2013a_A | Pot  | Maize  | C-Loess_A        | CalciumNitrate_C | Synthetic N | noP         | Control       | 9         |
| UHOHa_2013b         | UHOHa_2013b_A | Pot  | Tomato | JR               | CalciumNitrate_C | Synthetic N | CalciumdiHP | Soluble P     | 3         |
| UHOHa_2013b         | UHOHa_2013b_B | Pot  | Tomato | JR + Manure      | Man_D            | Organic N   | Man_D       | Manure        | 3         |
| UHOHa_2013c         | UHOHa_2013c_A | Pot  | Maize  | UHOH vineyard    | CalciumNitrate_C | Synthetic N | noP         | Control       | 4         |
| UHOHa_2014a         | UHOHa_2014a_A | Pot  | Maize  | Kleinhohenheim_D | CalciumNitrate_C | Synthetic N | CalciumdiHP | Soluble P     | 7         |
| UHOHa_2014b         | UHOHa_2014b_A | Pot  | Maize  | UHOH vineyard    | CalciumNitrate_C | Synthetic N | CalciumdiHP | Soluble P     | 4         |
| UHOHa_2014c         | UHOHa_2014c_A | Pot  | Tomato | UHOH vineyard    | CalciumNitrate_C | Synthetic N | CalciumdiHP | Soluble P     | 4         |

| Experimental design |               |       |        |                        |                  |             |             |           |           |
|---------------------|---------------|-------|--------|------------------------|------------------|-------------|-------------|-----------|-----------|
| Experiment          | Cluster       | Type  | Crop   | Soil                   | Nitrogen         |             | Phosphorous |           | no. of BE |
| Experiment          | Cluster       | Type  | Crop   | Soil                   | N source         | N form      | P source    | P form    | no. of BE |
| UHOHa_2014d         | UHOHa_2014d_A | Pot   | Tomato | Karlsruhe_B            | CalciumNitrate_C | Synthetic N | CalciumdiHP | Soluble P | 3         |
| UHOHa_2014d         | UHOHa_2014d_B | Pot   | Tomato | Karlsruhe_B_sterilized | CalciumNitrate_C | Synthetic N | CalciumdiHP | Soluble P | 3         |
| UHOHa_2014e         | UHOHa_2014e_A | Pot   | Tomato | Karlsruhe_B            | CalciumNitrate_C | Synthetic N | CalciumdiHP | Soluble P | 2         |
| UHOHa_2014e         | UHOHa_2014e_B | Pot   | Tomato | Karlsruhe_B            | CalciumNitrate_C | Synthetic N | CalciumdiHP | Soluble P | 2         |
| UHOHa_2014e         | UHOHa_2014e_C | Pot   | Tomato | Karlsruhe_B            | CalciumNitrate_C | Synthetic N | CalciumdiHP | Soluble P | 2         |
| UHOHa_2014f         | UHOHa_2014f_A | Pot   | Maize  | IHOF_E                 | CalciumNitrate_B | Synthetic N | CalciumdiHP | Soluble P | 10        |
| UHOHa_2014g         | UHOHa_2014g_A | Pot   | Maize  | IHOF_F                 | Duratec          | Ammonium    | Duratec     | Soluble P | 4         |
| UHOHa_2014g         | UHOHa_2014g_A | Pot   | Maize  | IHOF_F                 | CalciumNitrate_B | Synthetic N | CalciumdiHP | Soluble P | 4         |
| UHOHa_2014h         | UHOHa_2014h_A | Pot   | Maize  | Baven_B+Kleinh_D       | CalciumNitrate_C | Synthetic N | MAP         | Soluble P | 5         |
| UHOHa_2014i         | UHOHa_2014i_A | Pot   | Maize  | Karlsruhe_B            | CalciumNitrate_C | Synthetic N | CalciumdiHP | Soluble P | 2         |
| UHOHa_2014i         | UHOHa_2014i_B | Pot   | Maize  | Karlsruhe_B            | CalciumNitrate_C | Synthetic N | CalciumdiHP | Soluble P | 2         |
| UHOHa_2014i         | UHOHa_2014i_C | Pot   | Maize  | Karlsruhe_B            | CalciumNitrate_C | Synthetic N | CalciumdiHP | Soluble P | 2         |
| UHOHa_2014j         | UHOHa_2014j_A | Field | Maize  | IHOF_A                 | NovaTec          | Ammonium    | MAP         | Soluble P | 4         |
| UHOHa_2014k         | UHOHa_2014k_A | Field | Maize  | IHOF_A                 | NovaTec          | Ammonium    | MAP         | Soluble P | 3         |
| UHOHa_2014l         | UHOHa_2014l_A | Pot   | Maize  | IHOF_C                 | CalciumNitrate_B | Synthetic N | CalciumdiHP | Soluble P | 3         |
| UHOHa_2015a         | UHOHa_2015a_A | Pot   | Maize  | Karlsruhe_C            | CalciumNitrate_C | Synthetic N | CalciumdiHP | Soluble P | 2         |
| UHOHa_2015b         | UHOHa_2015b_A | Field | Maize  | IHOF_B                 | CompMan_A        | Organic N   | CompMan_A   | Manure    | 2         |
| UHOHa_2015b         | UHOHa_2015b_B | Field | Maize  | IHOF_B                 | HAST             | Synthetic N | noP         | Control   | 2         |
| UHOHa_2015b         | UHOHa_2015b_C | Field | Maize  | IHOF_B                 | NovaTec          | Ammonium    | DAP         | Soluble P | 2         |
| UHOHa_2015c         | UHOHa_2015c_A | Field | Maize  | IHOF_B                 | NovaTec          | Ammonium    | DAP         | Soluble P | 3         |
| UHOHa_2015d         | UHOHa_2015d_A | Pot   | Maize  | Kleinhohenheim_E       | CalciumNitrate_C | Synthetic N | CalciumdiHP | Soluble P | 1         |

| Experiment  | Cluster       | Type | Crop   | Soil             | Nitrogen         |             | Phosphorous    |               | no. of BE |
|-------------|---------------|------|--------|------------------|------------------|-------------|----------------|---------------|-----------|
| Experiment  | Cluster       | Type | Crop   | Soil             | N source         | N form      | P source       | P form        | no. of BE |
| UHOHa_2015d | UHOHa_2015d_B | Pot  | Maize  | Kleinhohenheim_E | CalciumNitrate_C | Synthetic N | CalciumdiHP    | Soluble P     | 1         |
| UHOHa_2015e | UHOHa_2015e_A | Pot  | Maize  | Kleinhohenheim_E | CalciumNitrate_C | Synthetic N | CalciumdiHP    | Soluble P     | 1         |
| UHOHa_2015g | UHOHa_2015g_A | Pot  | Maize  | Kleinhohenheim_F | Comp_D           | Organic N   | Comp_D         | Compost       | 1         |
| UHOHa_2015g | UHOHa_2015g_B | Pot  | Maize  | Kleinhohenheim_F | SS_D             | Organic N   | SS_D           | Sewage sludge | 1         |
| UHOHa_2015g | UHOHa_2015g_C | Pot  | Maize  | Kleinhohenheim_F | CompMan_A        | Organic N   | CompMan_A      | Manure        | 1         |
| UHOHa_2015h | UHOHa_2015h_A | Pot  | Maize  | Kleinhohenheim_F | MinN             | Synthetic N | noP            | Control       | 1         |
| UHOHa_2015h | UHOHa_2015h_B | Pot  | Maize  | Kleinhohenheim_F | MinA             | Ammonium    | noP            | Control       | 1         |
| UHOHa_2015h | UHOHa_2015h_C | Pot  | Maize  | Kleinhohenheim_F | CompMan_A        | Organic N   | CompMan_A      | Manure        | 1         |
| UHOHa_2015h | UHOHa_2015h_D | Pot  | Maize  | Kleinhohenheim_F | CompMan_C        | Organic N   | CompMan_C      | Manure        | 1         |
| UHOHa_2015h | UHOHa_2015h_E | Pot  | Maize  | Kleinhohenheim_F | CompMan_A-DMPP   | Organic N   | CompMan_A-DMPP | Manure        | 1         |
| UHOHa_2015h | UHOHa_2015h_F | Pot  | Maize  | Kleinhohenheim_F | CompMan_C-DMPP   | Organic N   | CompMan_C-DMPP | Manure        | 1         |
| UHOHa_2015i | UHOHa_2015i_A | Pot  | Tomato | Kleinhohenheim_F | Duratec          | Ammonium    | Duratec        | Soluble P     | 3         |
| UHOHa_2015i | UHOHa_2015i_B | Pot  | Tomato | Kleinhohenheim_F | CompMan_C        | Organic N   | CompMan_C      | Manure        | 3         |
| UHOHa_2016a | UHOHa_2016a_A | Pot  | Maize  | Karlsruhe_C      | CalciumNitrate_C | Synthetic N | CalciumdiHP    | Soluble P     | 1         |
| UHOHa_2016c | UHOHa_2016c_A | Pot  | Maize  | IHOF_D           | NovaTec          | Ammonium    | CalciumdiHP    | Soluble P     | 4         |
| UHOHa_2016d | UHOHa_2016d_A | Pot  | Maize  | IHOF_D           | CAN_A            | Synthetic N | CalciumdiHP    | Soluble P     | 4         |
| UHOHa_2016e | UHOHa_2016e_A | Pot  | Maize  | IHOF_D           | NovaTec          | Ammonium    | CalciumdiHP    | Soluble P     | 3         |
| UHOHa_2016f | UHOHa_2016f_A | Pot  | Maize  | IHOF_D           | CAN_A            | Synthetic N | CalciumdiHP    | Soluble P     | 3         |
| UHOHa_2016g | UHOHa_2016g_A | Pot  | Maize  | HeiHo            | NovaTec          | Ammonium    | CalciumdiHP    | Soluble P     | 3         |
| UHOHa_2016h | UHOHa_2016h_A | Pot  | Maize  | HeiHo            | CAN_A            | Synthetic N | CalciumdiHP    | Soluble P     | 3         |
| UHOHa_2016i | UHOHa_2016i_A | Pot  | Maize  | HeiHo            | NovaTec          | Ammonium    | CalciumdiHP    | Soluble P     | 3         |

| Experimental design |               |       |       |                  |                  |             |             |           |           |
|---------------------|---------------|-------|-------|------------------|------------------|-------------|-------------|-----------|-----------|
| Experiment          | Cluster       | Type  | Crop  | Soil             | Nitrogen         |             | Phosphorous |           | no. of BE |
| Experiment          | Cluster       | Type  | Crop  | Soil             | N source         | N form      | P source    | P form    | no. of BE |
| UHOHa_2016j         | UHOHa_2016j_A | Pot   | Maize | HeiHo            | CAN_A            | Synthetic N | CalciumdiHP | Soluble P | 3         |
| UHOHa_2016k         | UHOHa_2016k_A | Field | Maize | IHOF_D           | NovaTec          | Ammonium    | DAP         | Soluble P | 10        |
| UHOHa_2016l         | UHOHa_2016l_A | Field | Wheat | Horb_A           | ASN_CAN          | Ammonium    | noP         | Control   | 6         |
| UHOHa_2016m         | UHOHa_2016m_A | Pot   | Maize | Horb_B           | CAN_A            | Synthetic N | CalciumdiHP | Soluble P | 1         |
| UHOHa_2016m         | UHOHa_2016m_B | Pot   | Maize | Horb_B           | NovaTec          | Ammonium    | CalciumdiHP | Soluble P | 1         |
| UHOHa_2016m         | UHOHa_2016m_C | Pot   | Maize | Horb_B           | CAN_A            | Synthetic N | CalciumdiHP | Soluble P | 1         |
| UHOHa_2016m         | UHOHa_2016m_D | Pot   | Maize | Horb_B           | NovaTec          | Ammonium    | CalciumdiHP | Soluble P | 1         |
| UHOHa_2016n         | UHOHa_2016n_A | Pot   | Maize | Horb_C           | CalciumNitrate_B | Synthetic N | CalciumdiHP | Soluble P | 2         |
| UHOHa_2016n         | UHOHa_2016n_B | Pot   | Maize | Horb_C           | CalciumNitrate_B | Synthetic N | CalciumdiHP | Soluble P | 2         |
| UHOHa_2016o         | UHOHa_2016o_A | Field | Maize | IHOF_F           | NovaTec-DAP      | Synthetic N | DAP         | Soluble P | 1         |
| UHOHb_2013a         | UHOHb_2013a_A | Pot   | Maize | Kleinhohenheim_A | CalciumNitrate_B | Synthetic N | noP         | Control   | 4         |
| UHOHb_2013a         | UHOHb_2013a_B | Pot   | Maize | Kleinhohenheim_A | CalciumNitrate_B | Synthetic N | noP         | Control   | 13        |
| UHOHb_2013b         | UHOHb_2013b_A | Pot   | Maize | Kleinhohenheim_A | CalciumNitrate_B | Synthetic N | SSA_C       | Ashes     | 1         |
| UHOHb_2013b         | UHOHb_2013b_B | Pot   | Maize | Kleinhohenheim_A | CalciumNitrate_B | Synthetic N | SSA_C       | Ashes     | 1         |
| UHOHb_2014a         | UHOHb_2014a_A | Pot   | Maize | Weinberg         | AS-Man_D         | Mixture     | noP         | Control   | 1         |
| UHOHb_2014a         | UHOHb_2014a_B | Pot   | Maize | Weinberg         | AS-Man_D         | Mixture     | RP_D-Man_D  | Rock P    | 1         |
| UHOHb_2014a         | UHOHb_2014a_C | Pot   | Maize | Weinberg         | CaN-Man_D        | Mixture     | RP_D-Man_D  | Rock P    | 1         |
| UHOHb_2014a         | UHOHb_2014a_D | Pot   | Maize | Weinberg         | AS-Man_D         | Mixture     | RP_D-Man_D  | Rock P    | 1         |
| UHOHb_2014b         | UHOHb_2014b_A | Pot   | Maize | C-Loess_B        | CalciumNitrate_B | Synthetic N | RP_D        | Rock P    | 4         |
| UHOHb_2014c         | UHOHb_2014c_A | Pot   | Maize | C-Loess_B        | CalciumNitrate_B | Synthetic N | RP_D        | Rock P    | 4         |
| UHOHb_2014d         | UHOHb_2014d_A | Pot   | Maize | C-Loess_B        | CalciumNitrate_B | Synthetic N | RP_D        | Rock P    | 4         |

| Experimental design |               |       |       |                     |                  |             |             |           |           |
|---------------------|---------------|-------|-------|---------------------|------------------|-------------|-------------|-----------|-----------|
| Experiment          | Cluster       | Type  | Crop  | Soil                | Nitrogen         |             | Phosphorous |           | no. of BE |
| Experiment          | Cluster       | Type  | Crop  | Soil                | N source         | N form      | P source    | P form    | no. of BE |
| UHOHb_2014e         | UHOHb_2014e_A | Pot   | Maize | C-Loess_B           | CalciumNitrate_B | Synthetic N | CalciumdiHP | Soluble P | 1         |
| UHOHb_2014e         | UHOHb_2014e_B | Pot   | Maize | C-Loess_B           | AmmoniumSulphate | Ammonium    | CalciumdiHP | Soluble P | 1         |
| UHOHb_2014f         | UHOHb_2014f_A | Field | Maize | IHOF_A              | NovaTec          | Ammonium    | EasyStartE4 | Soluble P | 1         |
| UHOHb_2014f         | UHOHb_2014f_B | Field | Maize | IHOF_A              | NovaTec          | Ammonium    | MAP         | Soluble P | 2         |
| UHOHb_2014f         | UHOHb_2014f_C | Field | Maize | IHOF_A              | NovaTec          | Ammonium    | MAP         | Soluble P | 2         |
| UHOHb_2014f         | UHOHb_2014f_D | Field | Maize | IHOF_A              | NovaTec          | Ammonium    | MAP         | Soluble P | 2         |
| UHOHb_2014g         | UHOHb_2014g_A | Pot   | Maize | Weinberg            | noN              | Control     | noP         | Control   | 1         |
| UHOHb_2014g         | UHOHb_2014g_B | Pot   | Maize | Weinberg            | noN              | Control     | noP         | Control   | 1         |
| UHOHb_2014g         | UHOHb_2014g_C | Pot   | Maize | Weinberg            | CalciumNitrate_B | Synthetic N | noP         | Control   | 1         |
| UHOHb_2014g         | UHOHb_2014g_D | Pot   | Maize | Weinberg            | CalciumNitrate_B | Synthetic N | noP         | Control   | 1         |
| UHOHb_2014g         | UHOHb_2014g_E | Pot   | Maize | Weinberg            | AmmoniumSulphate | Ammonium    | noP         | Control   | 1         |
| UHOHb_2014g         | UHOHb_2014g_F | Pot   | Maize | Weinberg            | AmmoniumSulphate | Ammonium    | noP         | Control   | 1         |
| UHOHb_2014g         | UHOHb_2014g_G | Pot   | Maize | Weinberg            | AmmoniumSulphate | Ammonium    | noP         | Control   | 1         |
| UHOHb_2015a         | UHOHb_2015a_A | Pot   | Maize | Low P-sorbing Soil  | CalciumNitrate_B | Synthetic N | RP_D        | Rock P    | 1         |
| UHOHb_2015a         | UHOHb_2015a_B | Pot   | Maize | High P-sorbing Soil | CalciumNitrate_B | Synthetic N | RP_D        | Rock P    | 1         |
| UHOHb_2015a         | UHOHb_2015a_C | Pot   | Maize | Low P-sorbing Soil  | AmmoniumSulphate | Ammonium    | RP_D        | Rock P    | 1         |
| UHOHb_2015a         | UHOHb_2015a_D | Pot   | Maize | High P-sorbing Soil | AmmoniumSulphate | Ammonium    | RP_D        | Rock P    | 1         |
| UHOHb_2015b         | UHOHb_2015b_A | Pot   | Maize | Kleinhohenheim_B    | AmmoniumSulphate | Ammonium    | RP_D        | Rock P    | 7         |
| UHOHb_2015c         | UHOHb_2015c_A | Pot   | Wheat | Barvendorf_A        | CalciumNitrate_B | Synthetic N | RP_D        | Rock P    | 1         |
| UHOHb_2015c         | UHOHb_2015c_B | Pot   | Wheat | Barvendorf_A        | AmmoniumSulphate | Ammonium    | RP_D        | Rock P    | 4         |
| UHOHb_2015d         | UHOHb_2015d_A | Field | Maize | IHOF_B              | NovaTec          | Ammonium    | DAP         | Soluble P | 2         |

| Experimental design |                |       |        |                  |                  |             |             |           |           |
|---------------------|----------------|-------|--------|------------------|------------------|-------------|-------------|-----------|-----------|
| Experiment          | Cluster        | Type  | Crop   | Soil             | Nitrogen         |             | Phosphorous |           | no. of BE |
| Experiment          | Cluster        | Type  | Crop   | Soil             | N source         | N form      | P source    | P form    | no. of BE |
| UHOHb_2015d         | UHOHb_2015d_B  | Field | Maize  | IHOF_B           | NovaTec          | Ammonium    | DAP         | Soluble P | 2         |
| UHOHb_2015e         | UHOHb_2015e_A  | Pot   | Maize  | Kleinhohenheim_G | NovaTec          | Ammonium    | noP         | Control   | 2         |
| UHOHb_2015e         | UHOHb_2015e_B  | Pot   | Maize  | Kleinhohenheim_G | NovaTec          | Ammonium    | RP_D        | Rock P    | 2         |
| UHOHb_2015e         | UHOHb_2015e_C  | Pot   | Maize  | Kleinhohenheim_G | NovaTec          | Ammonium    | Struvite    | Soluble P | 2         |
| UHOHb_2015e         | UHOHb_2015e_D  | Pot   | Maize  | Kleinhohenheim_G | NovaTec          | Ammonium    | SSA_C       | Ashes     | 2         |
| UHOHc_2014a         | UHOHc_2014a_A  | Pot   | Tomato | UHOH campus      | CalciumNitrate_B | Synthetic N | CalciumdiHP | Soluble P | 2         |
| UHOHc_2014b         | UHOHc_2014b_A  | Pot   | Maize  | UHOH campus      | CalciumNitrate_B | Synthetic N | CalciumdiHP | Soluble P | 2         |
| UHOHc_2016          | UHOHc_2016_A   | Pot   | Tomato | UHOH campus      | CalciumNitrate_B | Synthetic N | CalciumdiHP | Soluble P | 2         |
| UHOHc_2016          | UHOHc_2016_B   | Pot   | Tomato | UHOH campus      | CalciumNitrate_B | Synthetic N | CalciumdiHP | Soluble P | 2         |
| UNINAa_2013a        | UNINAa_2013a_A | Pot   | Tomato | peat moss_UNINAa | Solution_B       | Synthetic N | Solution_B  | Soluble P | 4         |
| UNINAa_2013a        | UNINAa_2013a_B | Pot   | Tomato | peat moss_UNINAa | Solution_B       | Synthetic N | Solution_B  | Soluble P | 4         |
| UNINAa_2013a        | UNINAa_2013a_C | Pot   | Tomato | peat moss_UNINAa | Solution_B       | Synthetic N | Solution_B  | Soluble P | 4         |
| UNINAa_2013a        | UNINAa_2013a_D | Pot   | Tomato | peat moss_UNINAa | Solution_C       | Synthetic N | Solution_C  | Soluble P | 4         |
| UNINAa_2013a        | UNINAa_2013a_E | Pot   | Tomato | peat moss_UNINAa | Solution_C       | Synthetic N | Solution_C  | Soluble P | 4         |
| UNINAa_2013a        | UNINAa_2013a_F | Pot   | Tomato | peat moss_UNINAa | Solution_C       | Synthetic N | Solution_C  | Soluble P | 4         |
| UNINAa_2013a        | UNINAa_2013a_G | Pot   | Tomato | peat moss_UNINAa | Solution_D       | Synthetic N | Solution_D  | Soluble P | 4         |
| UNINAa_2013a        | UNINAa_2013a_H | Pot   | Tomato | peat moss_UNINAa | Solution_D       | Synthetic N | Solution_D  | Soluble P | 4         |
| UNINAa_2013a        | UNINAa_2013a_I | Pot   | Tomato | peat moss_UNINAa | Solution_D       | Synthetic N | Solution_D  | Soluble P | 4         |
| UNINAa_2014a        | UNINAa_2014a_A | Pot   | Tomato | peat moss_UNINAa | Solution_E       | Synthetic N | Solution_E  | Soluble P | 2         |
| UNINAa_2014a        | UNINAa_2014a_B | Pot   | Tomato | peat moss_UNINAa | Solution_E       | Synthetic N | Solution_E  | Soluble P | 2         |
| UNINAa_2014a        | UNINAa_2014a_C | Pot   | Tomato | peat moss_UNINAa | Solution_E       | Synthetic N | Solution_E  | Soluble P | 2         |

| UNINAa_2014a |                |       |        |                  |            |             |             |           |           |
|--------------|----------------|-------|--------|------------------|------------|-------------|-------------|-----------|-----------|
| UNINAa_2015a |                |       |        |                  |            |             |             |           |           |
| UNINAa_2015b |                |       |        |                  |            |             |             |           |           |
| UNINAa_2016a |                |       |        |                  |            |             |             |           |           |
| UNINAa_2016b |                |       |        |                  |            |             |             |           |           |
| Experiment   | Cluster        | Type  | Crop   | Soil             | Nitrogen   |             | Phosphorous |           | no. of BE |
| Experiment   | Cluster        | Type  | Crop   | Soil             | N source   | N form      | P source    | P form    | no. of BE |
| UNINAa_2014a | UNINAa_2014a_D | Pot   | Tomato | peat moss_UNINAa | Solution_F | Synthetic N | Solution_F  | Soluble P | 2         |
| UNINAa_2014a | UNINAa_2014a_E | Pot   | Tomato | peat moss_UNINAa | Solution_F | Synthetic N | Solution_F  | Soluble P | 2         |
| UNINAa_2014a | UNINAa_2014a_F | Pot   | Tomato | peat moss_UNINAa | Solution_F | Synthetic N | Solution_F  | Soluble P | 2         |
| UNINAa_2015a | UNINAa_2015a_A | Pot   | Tomato | peat moss_UNINAa | Solution_G | Synthetic N | Solution_G  | Soluble P | 1         |
| UNINAa_2015a | UNINAa_2015a_B | Pot   | Tomato | peat moss_UNINAa | Solution_G | Synthetic N | Solution_G  | Soluble P | 1         |
| UNINAa_2015a | UNINAa_2015a_C | Pot   | Tomato | peat moss_UNINAa | Solution_G | Synthetic N | Solution_G  | Soluble P | 1         |
| UNINAa_2015a | UNINAa_2015a_D | Pot   | Tomato | peat moss_UNINAa | Solution_H | Synthetic N | Solution_H  | Soluble P | 1         |
| UNINAa_2015a | UNINAa_2015a_E | Pot   | Tomato | peat moss_UNINAa | Solution_H | Synthetic N | Solution_H  | Soluble P | 1         |
| UNINAa_2015a | UNINAa_2015a_F | Pot   | Tomato | peat moss_UNINAa | Solution_H | Synthetic N | Solution_H  | Soluble P | 1         |
| UNINAa_2015b | UNINAa_2015b_A | Field | Tomato | UNINAa soil_A    | Solution_E | Synthetic N | Solution_E  | Soluble P | 2         |
| UNINAa_2015b | UNINAa_2015b_B | Field | Tomato | UNINAa soil_A    | Solution_G | Synthetic N | Solution_G  | Soluble P | 2         |
| UNINAa_2015b | UNINAa_2015b_C | Field | Tomato | UNINAa soil_A    | Solution_E | Synthetic N | Solution_E  | Soluble P | 2         |
| UNINAa_2015b | UNINAa_2015b_D | Field | Tomato | UNINAa soil_A    | Solution_G | Synthetic N | Solution_G  | Soluble P | 2         |
| UNINAa_2016a | UNINAa_2016a_A | Field | Wheat  | UNINAa soil_B    | HAST-NP_B  | Synthetic N | NP_B        | Soluble P | 2         |
| UNINAa_2016a | UNINAa_2016a_B | Field | Wheat  | UNINAa soil_B    | HAST-NP_B  | Synthetic N | NP_B        | Soluble P | 2         |
| UNINAa_2016b | UNINAa_2016b_A | Pot   | Wheat  | peat moss_UNINAa | AN_B       | Synthetic N | noP         | Control   | 2         |
| UNINAa_2016b | UNINAa_2016b_B | Pot   | Wheat  | peat moss_UNINAa | AN_B       | Synthetic N | noP         | Control   | 2         |
| UNINAa_2016b | UNINAa_2016b_C | Pot   | Wheat  | peat moss_UNINAa | AN_B       | Synthetic N | noP         | Control   | 2         |
| UNINAa_2016b | UNINAa_2016b_D | Pot   | Wheat  | peat moss_UNINAa | noN        | Control     | noP         | Control   | 2         |
| UNINAa_2016b | UNINAa_2016b_E | Pot   | Wheat  | peat moss_UNINAa | noN        | Control     | noP         | Control   | 2         |
| UNINAa_2016b | UNINAa_2016b_F | Pot   | Wheat  | peat moss_UNINAa | noN        | Control     | noP         | Control   | 2         |

| UNINAb_2013a |                |       |       |        |                  |             |                |           |           |
|--------------|----------------|-------|-------|--------|------------------|-------------|----------------|-----------|-----------|
| Experiment   | Cluster        | Type  | Crop  | Soil   | Nitrogen         |             | Phosphorous    |           | no. of BE |
| Experiment   | Cluster        | Type  | Crop  | Soil   | N source         | N form      | P source       | P form    | no. of BE |
| UNINAb_2013a | UNINAb_2013a_A | Pot   | Maize | Castel | CalciumNitrate_B | Synthetic N | noP            | Control   | 4         |
| UNINAb_2013a | UNINAb_2013a_B | Pot   | Maize | Castel | CalciumNitrate_B | Synthetic N | TSP_A          | Soluble P | 4         |
| UNINAb_2013a | UNINAb_2013a_C | Pot   | Maize | Castel | CalciumNitrate_B | Synthetic N | RP_A           | Soluble P | 4         |
| UNINAb_2013a | UNINAb_2013a_D | Pot   | Maize | Castel | CompMan_D        | Organic N   | CompMan_D-RP_A | Rock P    | 4         |
| UNINAb_2013a | UNINAb_2013a_E | Pot   | Maize | Castel | CompMan_E        | Organic N   | CompMan_E      | Manure    | 4         |
| UNINAb_2014a | UNINAb_2014a_A | Pot   | Maize | Castel | CalciumNitrate_B | Synthetic N | noP            | Control   | 4         |
| UNINAb_2014a | UNINAb_2014a_B | Pot   | Maize | Castel | CompMan_F        | Organic N   | CompMan_F      | Manure    | 5         |
| UNINAb_2014b | UNINAb_2014b_A | Field | Maize | Castel | HAST             | Synthetic N | noP            | Control   | 1         |
| UNINAb_2014b | UNINAb_2014b_B | Field | Maize | Castel | HAST             | Synthetic N | TSP_D          | Soluble P | 1         |
| UNINAb_2014b | UNINAb_2014b_C | Field | Maize | Castel | CompMan_H        | Organic N   | CompMan_H      | Manure    | 1         |
| UNINAb_2015a | UNINAb_2015a_A | Field | Maize | Castel | HAST             | Synthetic N | noP            | Control   | 1         |
| UNINAb_2015a | UNINAb_2015a_B | Field | Maize | Castel | HAST             | Synthetic N | TSP_D          | Soluble P | 1         |
| UNINAb_2015a | UNINAb_2015a_C | Field | Maize | Castel | CompMan_G        | Organic N   | CompMan_G      | Manure    | 1         |
| UNINAb_2015b | UNINAb_2015b_A | Pot   | Maize | Castel | CalciumNitrate_B | Synthetic N | noP            | Control   | 2         |
| UNINAb_2015b | UNINAb_2015b_B | Pot   | Maize | Castel | CalciumNitrate_B | Synthetic N | TSP_C          | Soluble P | 2         |
| UNINAb_2015b | UNINAb_2015b_C | Pot   | Maize | Castel | CalciumNitrate_B | Synthetic N | RP_F           | Rock P    | 2         |
| UNINAb_2016a | UNINAb_2016a_A | Field | Maize | Castel | AmmoniumSulphate | Ammonium    | noP            | Control   | 4         |
| UNINAb_2016a | UNINAb_2016a_B | Field | Maize | Castel | AmmoniumSulphate | Ammonium    | RP_E           | Rock P    | 4         |

