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Supplement of

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Polyester microplastic fibers affect soil physical properties and erosion as a function of soil type

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**Table S1. P-values** for the effect of soil type and polyester MP fibers (MP) on the measured soil properties and erosion indicators after an incubation period of six months.

| Parameters            | Soil type | MP   | Soil type*MP |
|-----------------------|-----------|------|--------------|
| Soil bulk density     | <0.0001   | 0.0019 | 0.0005       |
| P\textsubscript{mac} | 0.0894    | 0.7256 | 0.0347       |
| AC                    | 0.2031    | 0.0051 | 0.0044       |
| PAWC                  | <0.0001   | 0.3396 | 0.0001       |
| NFA\textsubscript{dry}| <0.0001   | 0.0258 | 0.3136       |
| WFA\textsubscript{wet}| <0.0001   | 0.0364 | 0.1591       |
| MWD\textsubscript{dry}| <0.0001   | 0.0331 | 0.3561       |
| MWD\textsubscript{wet}| <0.0001   | 0.7761 | 0.8238       |
| Surface runoff        | 0.5555    | 0.7912 | 0.5232       |
| Percolation           | 0.7997    | 0.4785 | 0.6335       |
| Soil erosion          | <0.0001   | 0.6467 | <0.0001      |
| Sediment concentration| <0.0001   | 0.6793 | <0.0001      |

\(P\textsubscript{mac}\), Soil macroporosity index; AC, Air capacity; PAWC, Plant available water capacity; NFA, newly formed aggregates calculated from dry (NFA\textsubscript{dry}) and wet (NFA\textsubscript{wet}) sieving (> 600 μm); MWD, mean weight diameter calculated from dry (MWD\textsubscript{dry}) and wet (MWD\textsubscript{wet}) sieving.
**Table S2.** Soil particles distribution in the various class sizes of sieves obtained through the dry sieving. Mean data of Control (Ctr), polyester MP fibers added treatment (MP), and respective p-value

| Size classes | Vertisol Ctr | Vertisol MP | Vertisol p-value | Entisol Ctr | Entisol MP | Entisol p-value | Anfisol Ctr | Anfisol MP | Anfisol p-value |
|--------------|--------------|-------------|-----------------|-------------|-------------|----------------|-------------|-------------|----------------|
| <0.106 mm    | 6.9          | 7.1         | 0.473           | 16.1        | 18.5        | 0.506          | 14.2        | 22.1        | 0.034          |
| 0.106-0.25 mm| 16.3         | 18.6        | 0.238           | 30.4        | 32.1        | 0.373          | 41.6        | 40.6        | 0.759          |
| 0.25-0.5 mm  | 29.5         | 36.5        | 0.012           | 29.8        | 29.3        | 0.656          | 26.3        | 25.1        | 0.597          |
| 0.5-0.6 mm   | 13.6         | 14.9        | 0.118           | 11.6        | 11.7        | 0.919          | 5.3         | 5.4         | 0.351          |
| 0.6-1 mm     | 13.1         | 11.7        | 0.176           | 6.7         | 5.6         | 0.396          | 5.2         | 3.1         | 0.001          |
| 1-2 mm       | 11.7         | 6.4         | 0.005           | 4.2         | 1.6         | 0.004          | 4.9         | 1.8         | 0.000          |
| >2 mm        | 8.9          | 4.8         | 0.230           | 1.2         | 1.2         | 0.745          | 2.5         | 1.9         | 0.515          |

**Table S3.** Water stable aggregates in the various class sizes of sieves obtained through the wet sieving. Mean data of Control (Ctr), polyester MP fibers added treatment (MP), and respective p-value

| Size classes | Vertisol Ctr | Vertisol MP | Vertisol p-value | Entisol Ctr | Entisol MP | Entisol p-value | Anfisol Ctr | Anfisol MP | Anfisol p-value |
|--------------|--------------|-------------|-----------------|-------------|-------------|----------------|-------------|-------------|----------------|
| <0.106 mm    | 39.7         | 39.2        | 0.935           | 46.5        | 46.8        | 0.920          | 51.7        | 52.2        | 0.880          |
| 0.106-0.25 mm| 27.4         | 33.8        | 0.343           | 26.8        | 27.0        | 0.979          | 34.6        | 32.1        | 0.339          |
| 0.25-0.5 mm  | 26.9         | 21.1        | 0.325           | 19.6        | 18.7        | 0.446          | 12.2        | 13.7        | 0.186          |
| 0.5-0.6 mm   | 4.5          | 3.4         | 0.456           | 5.8         | 6.2         | 0.798          | 1.3         | 1.7         | 0.003          |
| 0.6-1 mm     | 1.5          | 2.5         | 0.044           | 1.3         | 1.3         | 0.952          | 0.2         | 0.23        | 0.468          |
| 1-2 mm       | 0.00         | 0.01        | <0.001          | 0.00        | 0.03        | <0.001         | 0.00        | 0.03        | <0.001         |
| >2 mm        | 0.00         | 0.01        | 0.003           | 0.00        | 0.03        | <0.001         | 0.00        | 0.04        | 0.003          |