**Supplementary Materials**

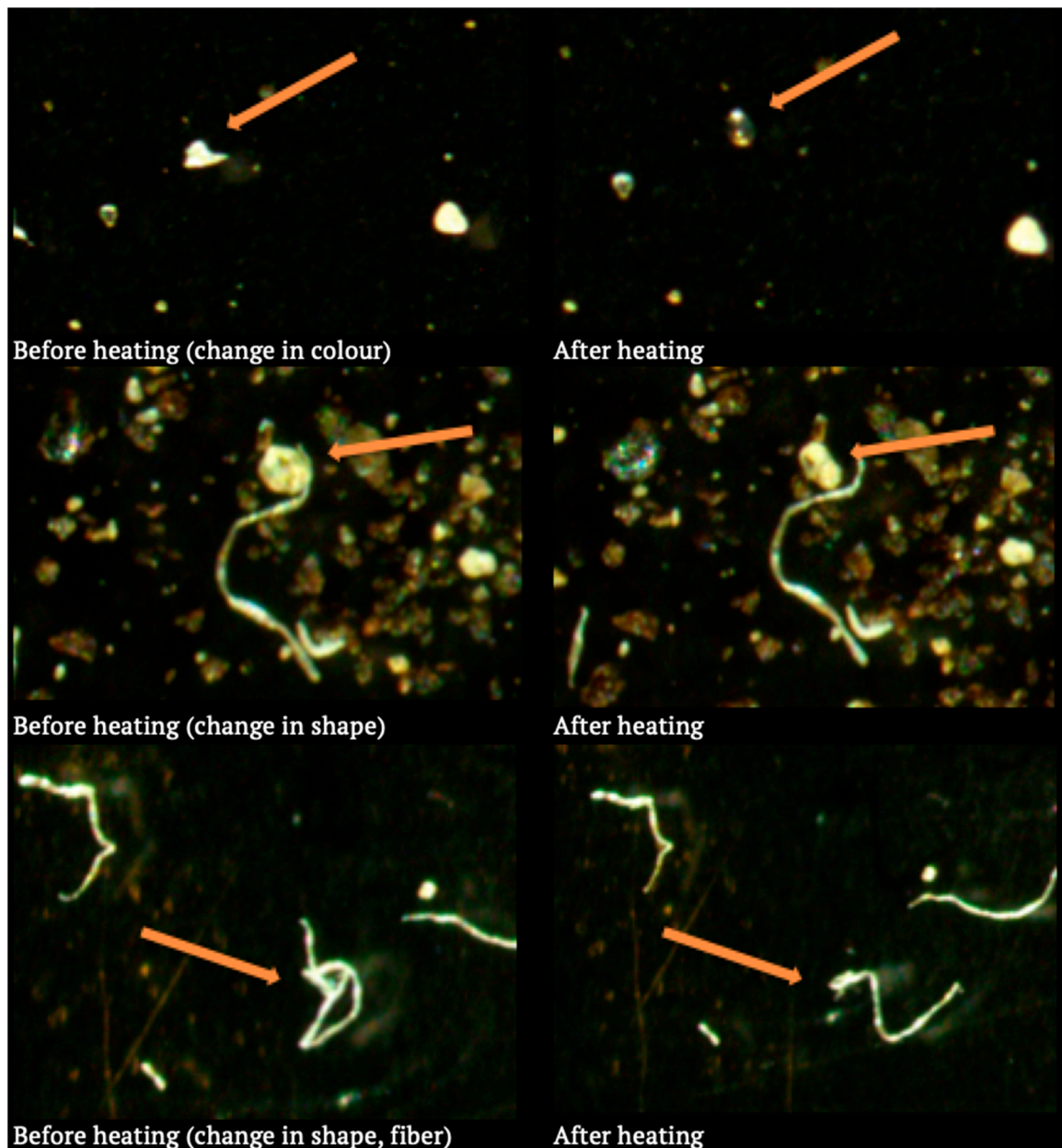Procedure for soil characterization by organic matter content, moisture and pH.

To determine organic carbon content, all samples were weighed and put in crucibles (Margesin & Schinner, 2005). Then, using the Nabertherm LOI Furnace, samples were heated to 550°C by 30 minutes, kept at 550°C for 3 hours and lowered to 105°C for 48 hours. Then all samples were weighed again. The organic carbon content was calculated using the following formula (Margesin & Schinner, 2005; Nelson, 1996):

$$\text{Organic carbon content } [\%] = (\frac{\text{Weight before heating - Weight after heating}}{\text{Weight before heating}} * 1.7) * 100\% \quad (1)$$

To measure moisture content, all samples were weighted before air-drying. Then samples were placed in an oven at 105°C until a constant mass was achieved (Margesin & Schinner, 2005).Then the moisture content was measured using the following formula:

$$\text{Moisture content } [\%] = \frac{\text{Weight after air drying - Weight after oven drying } (105°C)}{\text{Weight after air drying}} * 100\% \quad (2)$$

To measure pH, a distilled water extraction was made and then measured using a portable pH meter.

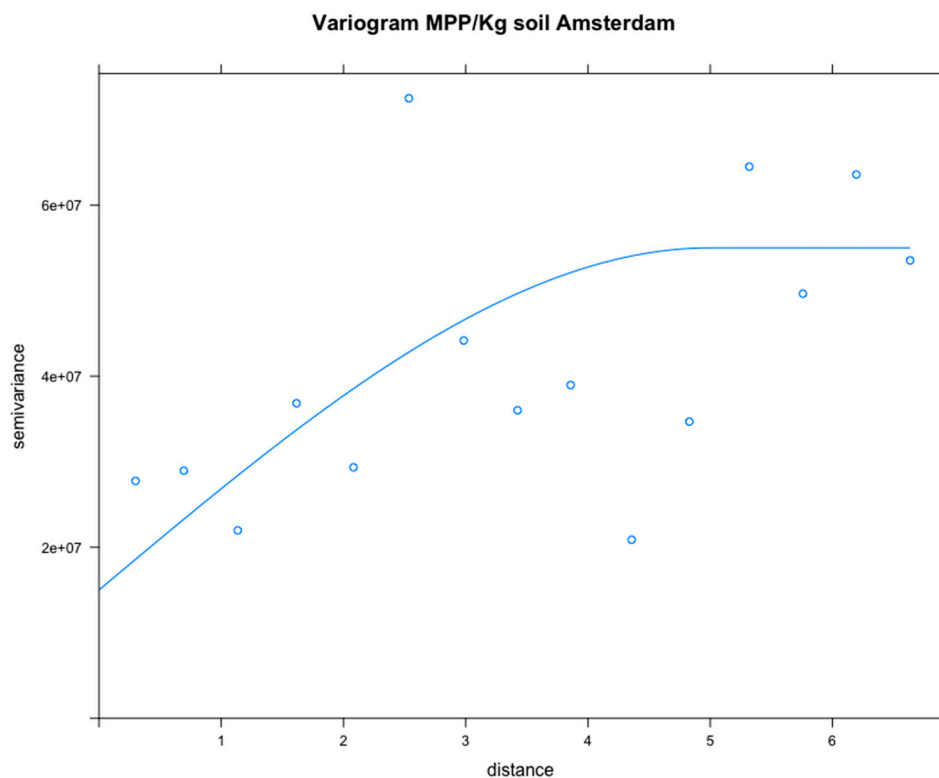**Figure S1.** Pictures of plastic particles after and before heating (according to Zhang et al. 2018).

**Table S1.** Statistical data of microplastic particles per kg per city district in Amsterdam. No significant differences between city districts were observed after a Kruskal-Wallis test.

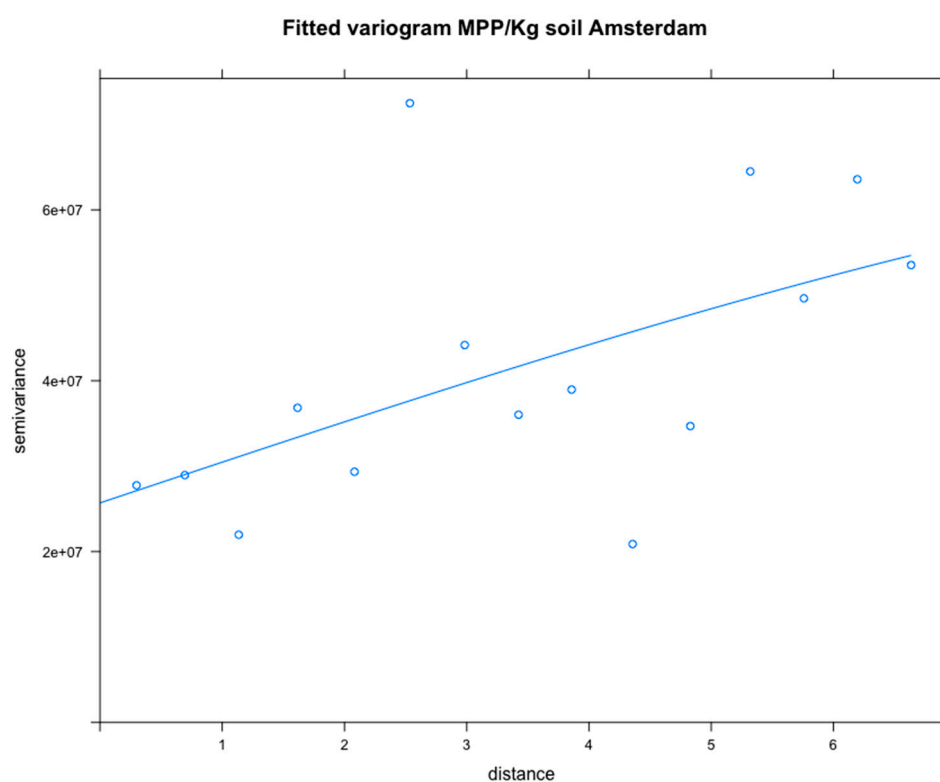| City District | n samples | Mean [MPs kg⁻¹] | Standard deviation [MPs kg⁻¹] | Median [MPs kg⁻¹] | Q1 [MPs kg⁻¹] | Q3[MPs kg⁻¹] |
|---|---|---|---|---|---|---|
| Amsterdamse Bos | 31 | 4237 | 4704 | 2000 | 1000 | 5794 |
| Nieuw-West | 9 | 9378 | 13,532 | 2000 | 600 | 17,600 |
| Noord | 3 | 2800 | 1217 | 2200 | 2100 | 3200 |
| Oost | 4 | 9385 | 10,658 | 5996 | 3194 | 12,187 |
| West | 6 | 4333 | 3704 | 2800 | 2050 | 7450 |
| Zuid | 6 | 5230 | 2714 | 4600 | 3050 | 6900 |
| Zuid Oost | 13 | 2337 | 2879 | 1198 | 600 | 2395 |

**Table S2.** Microplastic particles [MPP/Kg] per park or recreational area in Amsterdam, the Netherlands.

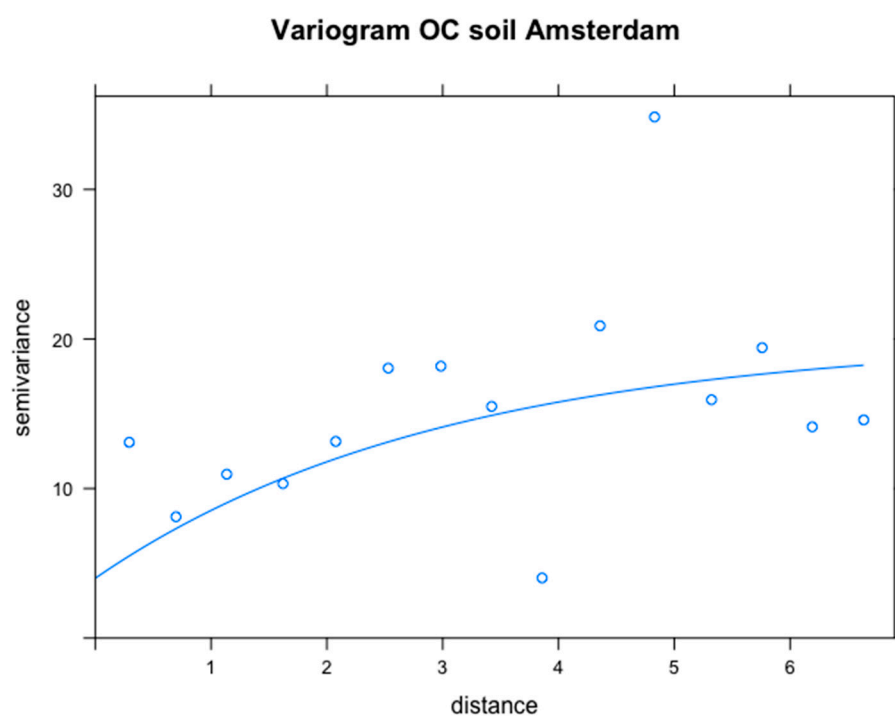| Park or recreational area | n samples | Mean [MPP/kg] | Standard deviation [MPP/Kg] | Median [MPP/Kg] | Min [MPP/Kg] | Max [MPP/Kg] | Q1 [MPP/Kg] | Q3 [MPP/Kg] |
|---|---|---|---|---|---|---|---|---|
| Amsterdamse Bos | 31 | 4251.73 | 4763.03 | 2000 | 200 | 19400 | 10485 | 5991 |
| Beatrixpark | 3 | 3066.67 | 642.91 | 2800 | 2600 | 3800 | 2700 | 3300 |
| Bijlmerweide | 3 | 2861.33 | 3411.99 | 1198 | 600 | 6786 | 899 | 3992 |
| Buiksloterbeek | 1 | 2000 | - | 2000 | 2000 | 2000 | 2000 | 2000 |
| Darwinplantsoen | 1 | 8000 | - | 8000 | 8000 | 8000 | 8000 | 8000 |
| De Hoge Dijk | 2 | 1199 | 1.41 | 1199 | 1198 | 1200 | 1198.5 | 1199.5 |
| Diemerbos | 2 | 1900 | 1838.48 | 1900 | 600 | 3200 | 1250 | 2550 |
| Flevopark | 3 | 1024.73 | 12599.11 | 3992 | 2000 | 24750 | 2996 | 14371 |
| Gaasperpark | 2 | 1000 | 565.69 | 1000 | 600 | 1400 | 800 | 1200 |
| Gaasperzoom | 1 | 200 | - | 200 | 200 | 200 | 200 | 200 |
| Gerbrandypark | 1 | 37,600 | - | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 |
| Gijsbrecht van Aemstelpark | 1 | 9381 | - | 9381 | 9381 | 9381 | 9381 | 9381 |
| Leidsebosje | 1 | 600 | - | 600 | 600 | 600 | 600 | 600 |
| Nelson Mandelapark | 2 | 61975 | 5377.55 | 61975 | 2395 | 10000 | 4296.25 | 8098.75 |
| Noorderpark | 3 | 2200 | 2000 | 2200 | 200 | 4200 | 1200 | 3200 |
| Oosterpark | 1 | 800 | - | 800 | 800 | 800 | 800 | 800 |
| Park de Kuil | 3 | 2066.67 | 2203.03 | 1000 | 600 | 4600 | 800 | 2800 |
| Rembrandtpark | 2 | 9700 | 11172.29 | 9700 | 1800 | 17600 | 5750 | 13650 |
| Sloterpark | 4 | 6400 | 11012.72 | 1400 | 0 | 22800 | 0 | 7800 |
| Surinameplein | 1 | 2800 | - | 2800 | 2800 | 2800 | 2800 | 2800 |
| Vondelpark | 2 | 6400 | 1414.21 | 6400 | 5400 | 7400 | 5900 | 6900 |
| Wertheimpark | 1 | 1796 | - | 1796 | 1796 | 1796 | 1796 | 1796 |
| Westerpark | 3 | 6933.33 | 3579.57 | 9000 | 2800 | 9000 | 5900 | 9000 |

Semivariograms before and after fitting of microplastic concentration, organic carbon content, moisture content and pH in Amsterdam, the Netherlands
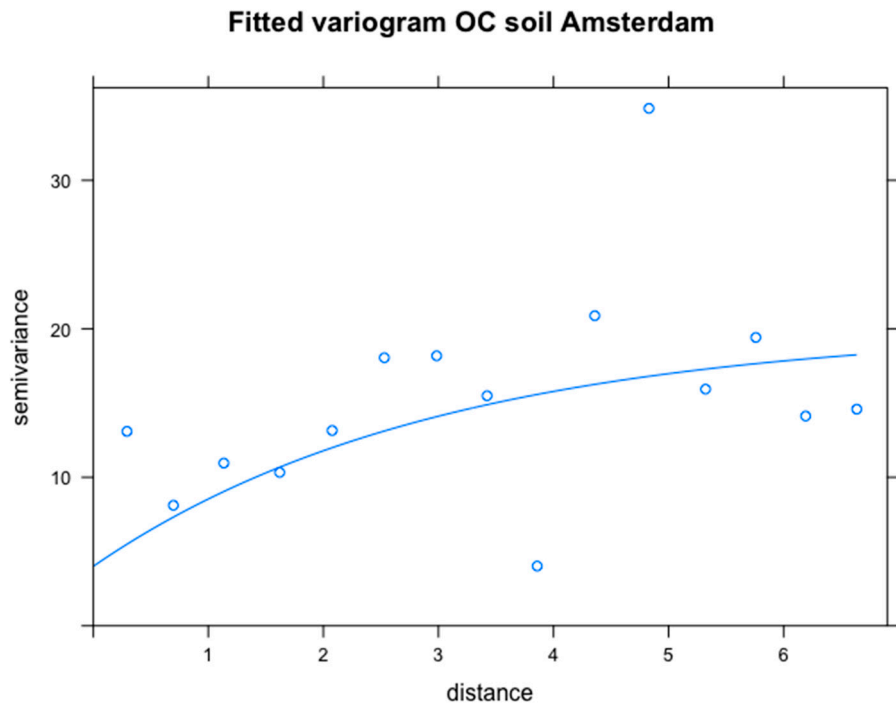


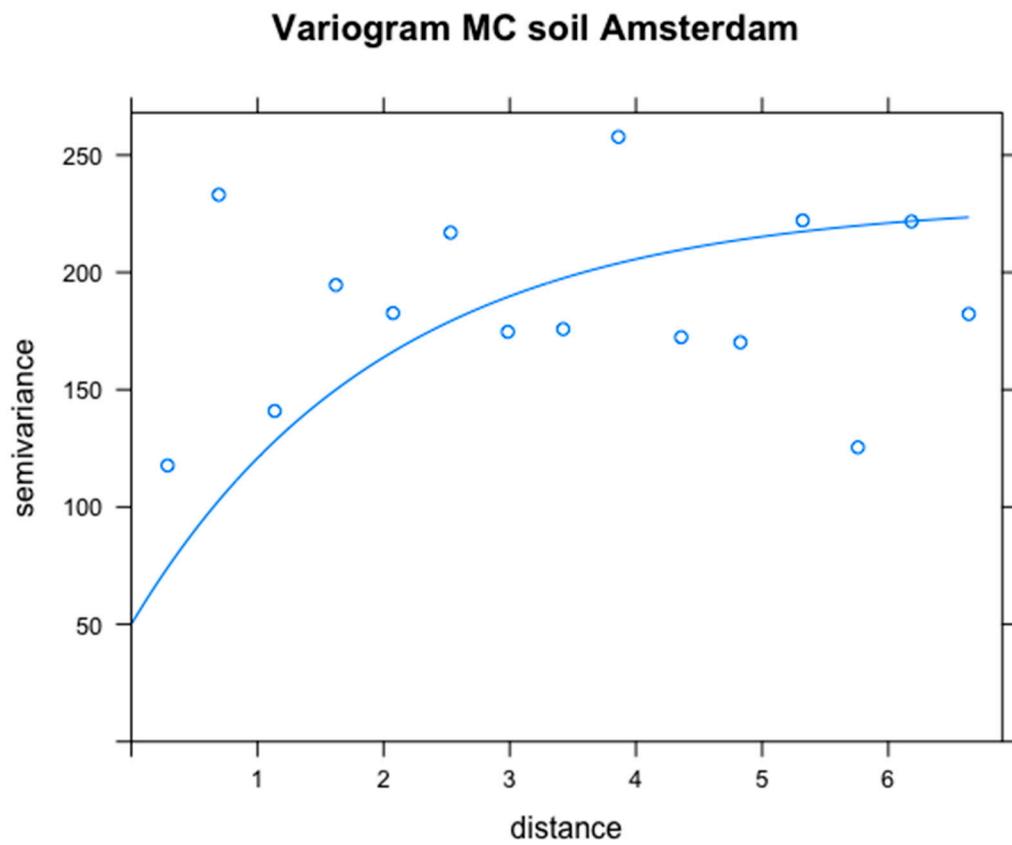**Figure S2.** Variogram of MPP/Kg in Amsterdam, the Netherlands (not fitted).

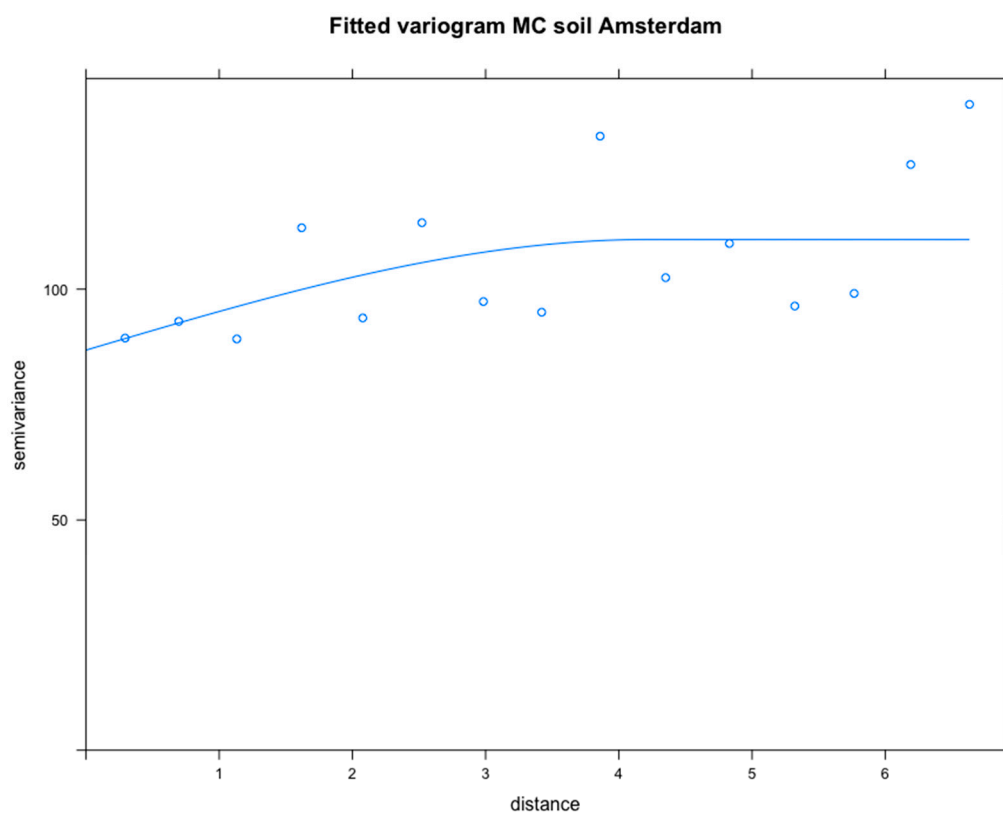**Figure S3.** Fitted variogram of MPP/Kg in Amsterdam, the Netherlands.



**Figure S4.** Variogram organic carbon content in Amsterdam, the Netherlands (before fitting).
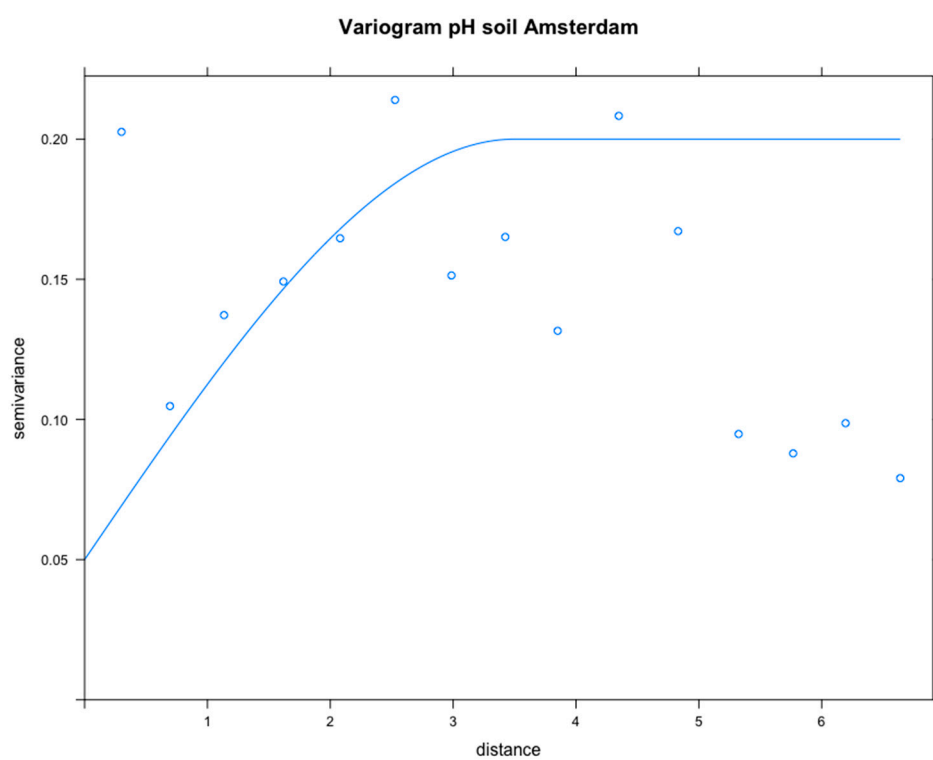
**Fitted variogram OC soil Amsterdam**



**Figure S5.** Fitted variogram organic carbon content in Amsterdam, the Netherlands.
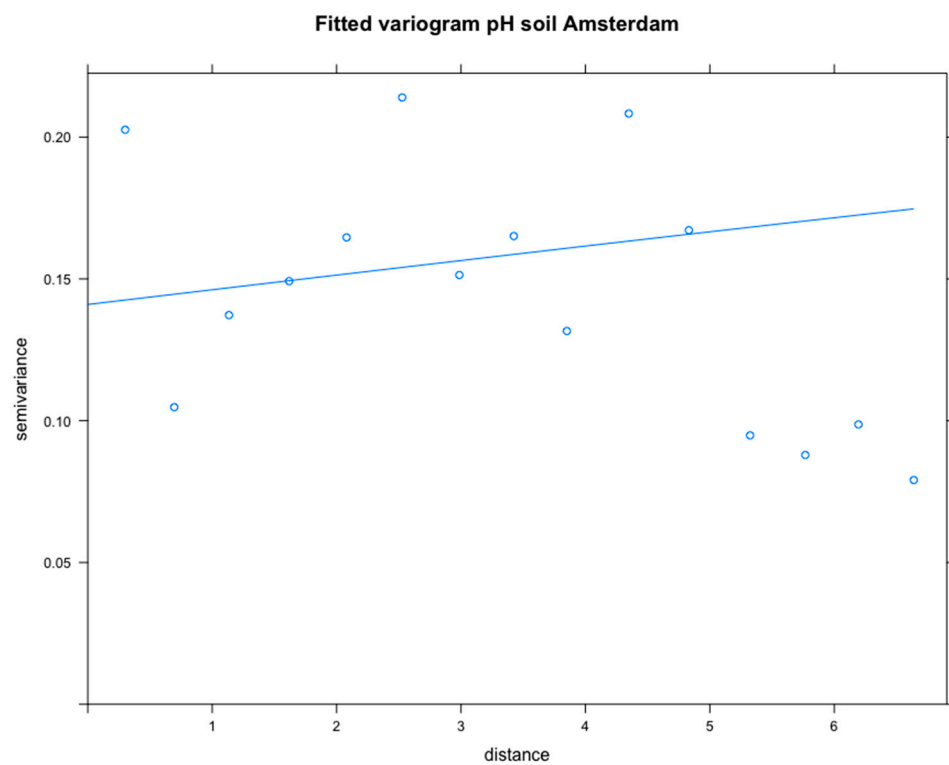
**Variogram MC soil Amsterdam**



**Figure S6.** Variogram moisture content in Amsterdam, the Netherlands (before fitting).

**Figure S7.** Fitted variogram of moisture content in Amsterdam, the Netherlands.



**Figure S8.** Variogram of pH in Amsterdam, the Netherlands (before fitting).

**Figure S9.** Fitted variogram of pH in Amsterdam, the Netherlands.