**Supplementary Online Material**

**KCl extraction of inorganic nitrogen (initial substrate values)**

KCl analysis of green roof substrates proved to be problematic due to the heterogeneous nature of green roof substrate and high content of brick which is difficult to sub-sample representatively at the small weights required for standard KCl extraction. This may be a major cause of the high data variance. However some patterns emerged, with green waste substrates containing higher amounts of total oxidised nitrogen (TON – which will be mainly nitrate) compared to bark substrates (Table 5). This pattern is less clear for ammonium which showed very low levels for all substrates apart from those containing only large brick and no swell gel (Table 5).

Table 5- KCl extraction values of each substrate at the beginning of the trial before *Lolium* growth. TON and ammonium amounts are given as mg-1 g dry substrate. Abbreviations for each substrate component are as follows, SG= Presence of SwellGel, GW= green waste.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Substrate Type & Mix | Initial TON ±SE80mm | Initial TON ±SE120mm | Initial Ammonium ±SE80mm | Initial Ammonium ±SE120mm |
| 1-SG, Small Brick, Bark | 0.010 (0.0025) | 0.012 (0.0037) | 0.0026 (0.0012) | 0 |
| 2-SG, Small Brick, GW | 0.011 (0.0026) | 0.014 (0.0029) | 0.0014 (0.0007) | 0.0003 (0.0007) |
| 3-SG,Large Brick, Bark | 0.003 (0.0008) | 0.0036 (0.0009) | 0.00022 (0.0006) | 0.0006 (0.0008) |
| 4-SG,Large Brick, GW | 0.006 (0.0022) | 0.0066 (0.0017) | 0.0018 (0.0005) | 0 |
| 5-Small Brick, Bark | 0.006 (0.0013) | 0.0083 (0.0011) | 0.0017 (0.0005) | 0.0024 (0.0015) |
| 6-Small Brick, GW | 0.008 (0.0018) | 0.0076 (0.0015) | 0.0012 (0.0004) | 0 |
| 7-Large Brick, Bark | 0.003 (0.0005) | 0.0028 (0.0003) | 0.0069 (0.002) | 0.0095 (0.0023) |
| 8-Large Brick, GW | 0.005 (0.0010) | 0.0042 (0.0013) | 0.011 (0.0015) | 0.0063 (0.0032) |