

## Supplementary material

# Effect of Compost Derived from Urban Waste on Chard (*Beta vulgaris* L., var. *cycla*) Yield and Soil GHG Fluxes in a Mediterranean Agricultural System

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Table S1. Average hourly flux of CO<sub>2</sub> measured in the 4 different treatments, with relative standard error, from 1 day prior fertilization.

| Date of gas sampling in 2013 | DAF | mg CO <sub>2</sub> m <sup>-2</sup> h <sup>-1</sup> |          |       |          |       |          |       |          |
|------------------------------|-----|--|----------|-------|----------|-------|----------|-------|----------|
|                              |     | Mean   | St Error | Mean  | St Error | Mean  | St Error | Mean  | St Error |
|                              |     | C  |          | CF    |          | MCA   |          | MIX   |          |
| 13 May                       | -1  | 228.1  | 25.3     | 13.6  | 11.1     | 130.9 | 15.0     | 130.9 | 15.0     |
| 14 May                       | 1   | 152.1  | 15.8     | 137.8 | 4.8      | 160.0 | 11.1     | 153.6 | 7.9      |
| 15 May                       | 2   | 134.6  | 6.3      | 109.3 | 7.9      | 128.3 | 6.3      | 131.5 | 6.3      |
| 20 May                       | 7   | 134.6  | 11.1     | 122.0 | 14.3     | 133.1 | 17.4     | 137.8 | 12.7     |
| 24 May                       | 11  | 144.9  | 27.7     | 129.6 | 15.5     | 156.3 | 30.7     | 190.9 | 33.8     |
| 5 June                       | 23  | 131.1  | 9.1      | 119.1 | 10.1     | 137.4 | 8.5      | 114.3 | 15.0     |
| 6 June                       | 24  | 133.5  | 17.7     | 108.6 | 8.6      | 127.2 | 19.4     | 132.3 | 11.9     |
| 10 June                      | 28  | 130.9  | 15.0     | 111.1 | 6.4      | 120.9 | 10.3     | 111.5 | 13.0     |
| 11 June                      | 29  | 147.0  | 19.8     | 101.2 | 10.5     | 137.5 | 24.4     | 118.0 | 21.6     |
| 18 June                      | 36  | 199.2  | 61.0     | 240.0 | 30.8     | 235.9 | 32.9     | 285.6 | 49.3     |
| 25 June                      | 43  | 130.9  | 15.0     | 121.3 | 6.4      | 128.7 | 8.9      | 132.3 | 13.4     |
| 5 July                       | 53  | 120.1  | 12.4     | 103.6 | 5.4      | 108.0 | 14.7     | 143.9 | 19.7     |
| 20 July                      | 70  | 200.6  | 30.6     | 245.5 | 53.4     | 191.3 | 20.1     | 215.7 | 29.1     |
| 25 July                      | 75  | 141.6  | 17.3     | 133.5 | 8.3      | 143.7 | 13.7     | 150.2 | 19.1     |

C: Control without fertilization; CF: Conventional fertilization; MCA: mixed composted amendment; MIX: mix fertilization CF:MCA. DAF: days after fertilization.

Table S2. Average hourly flux of N<sub>2</sub>O measured in the 4 different treatments, with relative standard error, from 1 day prior fertilization.

| Date of gas<br>sampling in 2013 | DAF | $\mu\text{g N}_2\text{O m}^{-2} \text{ h}^{-1}$ |          |      |          |      |          |      |          |
|---------------------------------|-----|---|----------|------|----------|------|----------|------|----------|
|                                 |     | Mean  | St Error | Mean | St Error | Mean | St Error | Mean | St Error |
|                                 |     | C   |          | CF   |          | MCA  |          | MIX  |          |
| 13 May                          | -1  | 10.8  | 2.5      | 14.0 | 1.6      | 14.2 | 2.7      | 14.2 | 2.7      |
| 14 May                          | 1   | 10.9  | 2.4      | 14.2 | 2.7      | 34.3 | 8.7      | 75.1 | 37.4     |
| 15 May                          | 2   | 20.2  | 6.6      | 18.9 | 2.6      | 19.8 | 4.3      | 34.4 | 9.4      |
| 20 May                          | 7   | 13.3  | 1.5      | 22.4 | 3.0      | 19.1 | 3.9      | 20.7 | 1.9      |
| 24 May                          | 11  | 18.9  | 4.3      | 22.6 | 2.7      | 23.7 | 3.9      | 28.8 | 10.3     |
| 5 June                          | 23  | 12.9  | 5.9      | 21.6 | 8.4      | 20.8 | 8.3      | 12.3 | 5.0      |
| 6 June                          | 24  | 13.8  | 4.2      | 17.4 | 5.4      | 26.5 | 6.5      | 14.2 | 4.5      |
| 10 June                         | 28  | 2.5   | 4.6      | 14.7 | 2.2      | 6.0  | 2.1      | 15.2 | 2.4      |
| 11 June                         | 29  | 8.6   | 4.1      | 18.8 | 2.5      | 16.8 | 4.8      | 12.6 | 4.3      |
| 18 June                         | 36  | 6.8   | 3.0      | 12.5 | 2.2      | 4.2  | 2.1      | 7.7  | 1.5      |
| 25 June                         | 43  | 7.7   | 2.3      | 4.8  | 1.6      | 1.5  | 1.6      | 1.4  | 1.8      |
| 5 July                          | 53  | 33.2  | 14.6     | 34.9 | 8.0      | 18.2 | 6.4      | 21.5 | 3.2      |
| 20 July                         | 70  | 13.3  | 7.5      | 13.2 | 8.7      | 9.7  | 6.6      | 6.5  | 6.0      |
| 25 July                         | 75  | 7.0   | 3.7      | 6.2  | 4.7      | 5.9  | 3.0      | 8.0  | 3.8      |

C: Control without fertilization; CF: Conventional fertilization; MCA: mixed composted amendment; MIX: mix fertilization CF:MCA. DAF: days after fertilization.

Table S3. Average hourly flux of CH<sub>4</sub> measured in the 4 different treatments, with relative standard error, from 1 day prior fertilization.

| Date of gas<br>sampling in 2013 | DAF | $\mu\text{g CH}_4 \text{ m}^{-2} \text{ h}^{-1}$ |          |       |          |       |          |       |          |
|---------------------------------|-----|--|----------|-------|----------|-------|----------|-------|----------|
|                                 |     | Mean   | St Error | Mean  | St Error | Mean  | St Error | Mean  | St Error |
|                                 |     | C  |          | CF    |          | MCA   |          | MIX   |          |
| 13 May                          | -1  | -12.6  | 0.9      | -12.6 | 0.9      | -13.7 | 1.8      | -12.5 | 2.6      |
| 14 May                          | 1   | -13.0  | 2.1      | -10.3 | 1.1      | -11.6 | 2.7      | -15.1 | 3.1      |
| 15 May                          | 2   | -15.6  | 2.3      | -18.8 | 8.8      | -21.2 | 5.7      | -16.3 | 1.3      |
| 20 May                          | 7   | -13.8  | 1.8      | -14.7 | 2.2      | -13.1 | 1.5      | -12.6 | 1.3      |
| 24 May                          | 11  | -12.1  | 4.2      | -9.7  | 2.6      | -5.0  | 2.5      | -4.5  | 3.6      |
| 5 June                          | 23  | -16.6  | 3.8      | -18.5 | 2.1      | 8.9   | 16.2     | -15.5 | 1.4      |
| 6 June                          | 24  | -12.3  | 5.3      | -11.4 | 5.2      | -9.1  | 9.2      | -2.0  | 5.6      |
| 10 June                         | 28  | -12.9  | 2.7      | -14.9 | 5.7      | -10.2 | 3.4      | -16.5 | 2.7      |
| 11 June                         | 29  | -1.6   | 4.4      | -26.0 | 12.7     | -9.7  | 7.2      | 1.2   | 8.3      |
| 18 June                         | 36  | -17.1  | 2.7      | -14.1 | 8.4      | -11.7 | 6.7      | -13.7 | 3.2      |
| 25 June                         | 43  | -19.0  | 6.3      | -21.3 | 3.4      | -18.5 | 6.5      | -7.8  | 4.2      |
| 5 July                          | 53  | -20.4  | 14.1     | -9.6  | 7.5      | -5.9  | 7.8      | -5.4  | 12.6     |
| 20 July                         | 70  | -5.1   | 2.8      | -13.8 | 4.6      | -13.6 | 4.4      | -11.0 | 3.7      |
| 25 July                         | 75  | -15.0  | 3.5      | -15.8 | 1.4      | -20.7 | 3.8      | -19.9 | 3.7      |

C: Control without fertilization; CF: Conventional fertilization; MCA: mixed composted amendment; MIX: mix fertilization CF:MCA. DAF: days after fertilization.