Supplementary Material

Supplementary Figures and Tables

1.1 Supplementary Figures

Supplementary Figure 1. Average monthly temperature, maximum and minimum temperatures, and rainfall precipitation during the experimental period in 2021 and in the previous ten years (2011-2021) at Cadriano, Bologna (Italy).
Supplementary Figure 2. Principal component analysis plots of log₂ normalized read counts in the three different treatment applications, at BBCH51, BBCH61, and BBCH65. Different colors refer to the treatment variable: blue and red are treated samples respectively with 1 and 2 l ha⁻¹. The untreated ones are yellow. Triangles and circles are used to distinguish sampling time, respectively samples collected 48 h and 24 h after the treatment.
Supplementary Figure 3. Relative expression values ($2^{\Delta\Delta Ct}$) from RT-qPCR of plants treated with 2 l ha$^{-1}$ dosage and log$_2$ FC from RNA-Seq for both doses of application of five genes in the three different times of treatment application (BBCH51, 61, and 65) after 24h.
1.2 Supplementary Tables

**Supplementary Table 1.** Physical and chemical properties of the substrate of cultivation.

| Soil characteristics | Values |
|----------------------|--------|
| **Composition**      |        |
| White sod peat 10-25 mm (% vol.) | 35%    |
| White peat 0-25 mm (% vol.) | 45%    |
| Peat fiber (% vol.) | 5%     |
| Perlite (% vol.) | 15%    |
| **Structure**        |        |
| Medium (0-30 mm)     |        |
| **Chemical data**    |        |
| H value (H$_2$O, v/v 1:2:5) | 6      |
| Fertilizer level (g l$^{-1}$) | 1      |
| Nitrogen (mg N l$^{-1}$) | 140    |
| Phosphorous (mg P$_2$O$_5$ l$^{-1}$) | 160    |
| Potassium (mg K$_2$O l$^{-1}$) | 180    |
| Magnesium (mg mg l$^{-1}$) | 100    |
| + all necessary trace elements |  |
| Iron added as EDTA chelates |  |
| **Physical data**    |        |
| Dry matter           | <10%   |
| Water capacity       | 65-70% |
| Air capacity         | 20-25% |

**Supplementary Table 2.** Selected genes used for validation of RNA-Seq data using real-time quantitative RT-PCR.

| Gene ID             | Gene name | Gene description          | Forward Primer 5',3' and Reverse Primer 3',5'          |
|---------------------|-----------|---------------------------|--------------------------------------------------------|
| Solyc03g114940.3.1  | *P450*    | Cytochrome P450 78A5-like | ACGCTGAAGTTGGAACCGAT GCTTGCCACAGAGAGTAAT                |
| Solyc02g086820.2.1  | *CA2*     | Carbonic anhydrase        | AGGTTGGATTTGAGCTGTGG GAAGGAATTTGAGGGGCCA               |
| Solyc03g096290.3.1  | *PIP1-7*  | PIP1-7 aquaporin          | TACAAAGACCGCCACCACCCGAG GCAGTACCGCTGACGTAAT             |
|                     |           |                           | GCCGCTTCTTTCGCGGAT                                      |
| Solyc02g063150.2.1 | **RBCS-1** | Ribulose bisphosphate carboxylase small chain 1 | CATGCATCTAACGCGTCCAC |
| Solyc09g007010.1.1 | **PR1b1** | Pathogenesis-related leaf protein | TGACATATGAATCAAGTCAAACTCC AATCAACTTAAAGCCCATTATGAACA |

**Supplementary Table 3.** Physical and chemical properties of the soil (0 - 30 cm depth).

| Soil characteristics   | UM    | Value |
|------------------------|-------|-------|
| Sand                   | % dm  | 24    |
| Silt                   | % dm  | 48    |
| Clay                   | % dm  | 28    |
| pH                     |       | 7.23  |
| Total CaCO₃            | %     | 1.02  |
| Active CaCO₃           | %     | 0.94  |
| Organic C              | g kg⁻¹ dm | 8.85 |
| Organic matter         | % dm  | 1.53  |
| Total N                | g kg⁻¹ | 1.16 |
| P₂O₅                   | mg kg⁻¹ | 72   |
| K₂O                    | mg kg⁻¹ | 170  |
| C/N                    |       | 7.63  |

**Supplementary table 4.** See Excel file.