1. **Growth and morphological parameters of wheat at stem-elongation**

|  |  |
| --- | --- |
| **Year** | Year of conducting experiment |
| **Location** | Location |
| **Crop** | Crop |
| **Cv** | Cultivar |
| **Sowing\_date** | Date of sowing seeds in the experimental unit (PVC column) |
| **Sampling\_date** | Date of sample collection |
| **DAS** | Days after sowing (difference between sampling and sowing date) |
| **CO2** | CO2-treatments |
| **WT** | Water treatments |
| **Top\_WT** | Water treatment in the top soil layer |
| **Bottom\_WT** | Water treatment in the bottom soil layer |
| **Rep** | Replications |
| **Number\_of\_plant** | Number of plants per column |
| **PH** | Plant height (cm) |
| **Tiller** | Tillers number (column-1) |
| **LA** | Leaf area (cm2 column-1)  |
| **AGB** | Aboveground biomass (g column-1) |
| **Top\_root** | Dry weight of roots found in the top soil layer (g column-1) |
| **Bottom\_root** | Dry weight of roots found in the bottom soil layer (g column-1) |
| **BGB** | Belowground biomass (g column-1); sum of top and bottom roots |
| **Total\_biomass** | Total biomass (g column-1); sum of above-and belowground biomass  |
| **RSR** | root:shoot ratio |

1. **Growth and morphological parameters of wheat at anthesis**

|  |  |
| --- | --- |
| **Year** | Year of conducting experiment |
| **Location** | Location |
| **Crop** | Crop |
| **Cv** | Cultivar |
| **Sowing\_date** | Date of sowing seeds in the experimental unit (PVC column) |
| **Sampling\_date** | Date of sample collection |
| **DAS** | Days after sowing (difference between sampling and sowing date) |
| **CO2** | CO2-treatments |
| **WT** | Water treatments |
| **Top\_WT** | Water treatment in the top soil layer |
| **Bottom\_WT** | Water treatment in the bottom soil layer |
| **Rep** | Replications |
| **Number\_of\_plant** | Number of plants per column |
| **PH** | Plant height (cm) |
| **Tiller** | Tillers number (column-1) |
| **Head** | Heads/Spikes number (column-1) |
| **LA** | Leaf area (cm2 column-1)  |
| **Spikelets** | Spikelets number (head-1) |
| **AGB** | Aboveground biomass (g column-1) |
| **Top\_root** | Dry weight of roots found in the top soil layer (g column-1) |
| **Bottom\_root** | Dry weight of roots found in the bottom soil layer (g column-1) |
| **BGB** | Belowground biomass (g column-1); sum of top and bottom roots |
| **Total\_biomass** | Total biomass (g column-1); sum of above-and belowground biomass |
| **RSR** | root:shoot ratio |

1. **Growth, yield and morphological parameters of wheat at maturity**

|  |  |
| --- | --- |
| **Year** | Year of conducting experiment |
| **Location** | Location |
| **Crop** | Crop |
| **Cv** | Cultivar |
| **Sowing\_date** | Date of sowing seeds in the experimental unit (PVC column) |
| **Sampling\_date** | Date of sample collection |
| **DAS** | Days after sowing (difference between sampling and sowing date) |
| **CO2** | CO2-treatments |
| **WT** | Water treatments |
| **Top\_WT** | Water treatment in the top soil layer |
| **Bottom\_WT** | Water treatment in the bottom soil layer |
| **Rep** | Replications |
| **Number\_of\_plant** | Number of plants per column |
| **PH** | Plant height (cm) |
| **Tiller** | Tillers number (column-1) |
| **Head** | Head/Spikes number (column-1) |
| **Spikelets** | Spikelets number (head-1) |
| **Yield** | Grain yield (g column-1) |
| **AGB** | Aboveground biomass (g column-1) |
| **Top\_root** | Dry weight of roots found in the top soil layer (g column-1) |
| **Bottom\_root** | Dry weight of roots found in the bottom soil layer (g column-1) |
| **BGB** | Belowground biomass (g column-1); sum of top and bottom roots |
| **Total\_biomass** | Total biomass (g column-1); sum of above-and belowground biomass |
| **RSR** | root:shoot ratio |
| **HI** | Harvest index  |

1. **Leaf gas exchange parameters of wheat**

|  |  |
| --- | --- |
| **Year** | Year of conducting experiment |
| **Location** | Location |
| **Crop** | Crop |
| **Cv** | Cultivar |
| **Sowing\_date** | Date of sowing seeds in the experimental unit (PVC column) |
| **Sampling\_date** | Date of sample collection |
| **DAS** | Days after sowing (difference between sampling and sowing date) |
| **CO2** | CO2-treatments |
| **WT** | Water treatments |
| **Top\_WT** | Water treatment in the top soil layer |
| **Bottom\_WT** | Water treatment in the bottom soil layer |
| **Rep** | Replications |
| **Anet** | Net photosynthetic assimilation rate (µmol m-2 s-1) |
| **gs** | Stomatal conductance (mol mol-1) |
| **iWUE** | Intrinsic water use efficiency (µmol mol-1) (calculated as Anet/gs) |

1. **Soil water content measured in top and bottom layers of the column used for growing wheat**

|  |  |
| --- | --- |
| **Year** | Year of conducting experiment |
| **Location** | Location |
| **Crop** | Crop |
| **Cv** | Cultivar |
| **Sowing\_date** | Date of sowing seeds in the experimental unit (PVC column) |
| **Sampling\_date** | Date of sample collection |
| **DAS** | Days after sowing (difference between sampling and sowing date) |
| **CO2** | CO2-treatments |
| **WT** | Water treatments |
| **Top\_WT** | Water treatment in the top soil layer |
| **Bottom\_WT** | Water treatment in the bottom soil layer |
| **ID** | Column ID |
| **Layer** | Either top or bottom soil layer within the column |
| **Rep** | Replications |
| **Water** | Soil water content (v/v%) |