**2. Study of root growth under control and stress conditions (root structure and field study) (2011-12):**

Two genotypes, one with good root growth (RG111) and one with poor root growth (RG1520) were studied in root structure for root and shoot growth by imposing stress from 30-90DAS during late *rabi* (2011-12). Root length reduction was not much due to stress. But root volume, dry weight and shoot growth reduced with stress, but the % reduction was less in poor root genotype (RG1520) compared to good root genotype (RG111) (Table 2).

Table 2: Root and shoot growth of poor and good root genotypes in control and stress treatments

|  |  |  |  |
| --- | --- | --- | --- |
| Growth character | **RG 111** | **RG1520** | **% reduction** |
| **Control** | **Stress** | **Control** | **Stress** | **RG111** | **RG1520** |
| Root length (cm) | 154 | 158 | 155 | 149 | -4.0 | 3.9 |
| Root vol.(ml) | 88 | 33 | 75 | 34 | 63 | 54 |
| Root dry wt.(g/pl.) | 12.2 | 5.6 | 10.1 | 7.2 | 54 | 28 |
| Stem girth(cm) | 6.1 | 4.6 | 5.3 | 4.6 | 24 | 14 |
| LAI | 2.05 | 0.81 | 1.84 | 0.74 | 61 | 60 |
| TDM (g/pl.) | 128 | 46 | 125 | 56 | 64 | 55 |
| RWC (%) | 93.4 | 90.6 | 94.4 | 91.9 | 2.7 | 2.5 |
|  Proline (µ mole/g FW) | 590 | 595 | 680 | 354 | -0.85 | 48 |
| Bloom content (μg/cm2)  | 65 | 85 | 56 | 80 | -30.8 | -43 |
| Total seed yield (g/pl.) | 188 | 105 | 121 | 85 | 56 | 70 |
| DSI | 1.14 | 1.43 |  |  |

With drought stress in field, the seed yield reduction was more in poor root genotype (RG 1520) and also recorded high drought susceptibility index (DSI).