**2017-18**

**Screening of soybean germplasm under saline irrigation water conditions**

The higher salinity significantly reduced Seed yield/plant and 100-Seed weight. Whereas, Na/K ratio in root and shoot was significantly increased with increasing salinity levels as compared to control (Table 1). The mean seed yield/plant over the salinity stress was 9.81g with C.D. (5%) 0.63g. Highest yield/plant over the environment was recorded in IC392551 (13.40g) followed by IC392618 (10.70g) and IC391431 (9.72g).

**Table 1. Effect of salinity on morpho-physiological traits of Soybean accessions**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Trait** | **Mean** | **Range** | **Mean over env.** | **CD (p=0.05)** |
| **Control** | **ECiw 5**  | **ECiw 8** | **Control** | **ECiw 5**  | **ECiw 8** |
| No. of primary branches | 3.00 | 3.00 | 3.00 | 1-14 | 1-12 | 1-12 | 3.00 | 1.63 |
| Pods/plant | 28.00 | 27.00 | 26.00 | 7-134 | 6-124 | 5-98 | 27.00 | 7.38 |
| Seed yield/plant (g) | 12.71 | 9.86 | 6.86 | 0.15-19.60 | 0.30-13.05 | 0.30-11.00 | 9.81 | 0.63 |
| 100-Seed weight (g) | 12.01 | 9.65 | 4.65 | 9.5-13.01 | 5.55-8.86 | 4.56-6.86 | 8.76 | 0.22 |
| Shoot Na/K at harvesting stage | 0.53 | 0.60 | 0.66 | 0.02-2.59 | 0.07-3.18 | 0.01-5.65 | 0.60 | 0.08 |
| Root Na/K at harvesting stage | 0.98 | 1.04 | 1.16 | 0.05-6.25 | 0.04-10.98 | 0.04-11.86 | 1.06 | 0.56 |
| Days to 50% flowering | 55.00 | 54.00 | 53.00 | 38-117 | 53-124 | 53-116 | 54.00 | 2.30 |
| Days to maturity | 72.00 | 68.00 | 67.00 | 71-135 | 73-133 | 69-132 | 69.00 | 3.54 |

**Screening of soybean germplasm under sodicity conditions**

Impact of sodicity was more pronounced on pods/plant and seed yied/plant which significantly reduced these traits. The mean seed yield/plant over the sodicity stress was 10.42g with C.D. (5%) 1.07g. Highest yield/plant over the sodicity was recorded in JS335 (61.54g) followed by JS9752 (46.39g) and IC393172 (40.04g). The Na/K ratio in root and shoot was significantly increased with increasing sodicity levels as compared to control (Table 2). The sodicity stress also induced early flowering and maturity as compared to control.

**Table 2. Effect of sodicity on morpho-physiological traits of Soybean accessions**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Trait** | **Mean** | **Range** | **Mean over Env.** | **CD (p=0.05)** |
| **Control** | **pH 9** | **pH 9.3** | **Control** | **pH 9** | **pH 9.3** |
| No. of Primary Branches | 4.00 | 4.00 | 3.00 |  1.5-10 |  1-10 | 1.5-8.5 | 4.00 | 2.00 |
| Pods per plant | 60.00 | 50.00 | 49.00 | 13-306 | 7-295 | 4-244 | 53.00 | 12.00 |
| Seed yield/ plant (g) | 11.43 | 9.85 | 9.96 | 0.96-83.15 | 1.0-70.34 | 0.99-69.87 | 10.42 | 1.07 |
| 100 Seed weight (g) | 0.63 | 0.65 | 0.64 | 11.23-18.28 | 8.05-13.05 | 4.05-7.85 | 6.40 | 0.40 |
| Shoot Na/K at harvesting stage | 0.20 | 0.22 | 0.25 | 0.01-1.80 | 0.01-2.10 | 0.01-3.21 | 0.22 | 0.05 |
| Root Na/K at harvesting stage | 1.32 | 1.85 | 3.13 | 0.01-7.45 | 0.04-9.34 | 0.02-12.90 | 2.10 | 0.84 |
| Days to 50% flowering | 58.00 | 57.00 | 48.00 | 61-104 | 60-101 | 59-98 | 54.00 | 7.00 |
| Days to maturity | 70.00 | 69.00 | 58.00 | 58-122 | 65-113 | 57-113 | 65 | 5.00 |