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Response of soybean accession having salt tolerance on reclaimed land in Korea
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Approximately 20% of the world's total land area is affected by salt. Salinity not only affects the plant health but also overall crop yield. Soybean [*Glycine max* (L.) Merr.] is considered as a salt-sensitive crop. Therefore the development of salt tolerance soybean is one of important breeding programs for land with a high amount of salinity. Due to the shortage of cultivation land or territory, Korea has a long history for land reclamation. From the land reclamation project, Korea has been expanded around 190,000 ha. Development of salt tolerant soybean cultivars has become one of important research projects to expand the utilization of reclaimed land in Korea. In one of the previous studies, we developed a recombinant inbred population from a cross between PI 483463 (*G. soja*, salt tolerant) and Hutcheson (*G. max*, salt susceptible). This population was phenotyped with 100mM NaCl in greenhouse conditions. To confirm the salt reaction from greenhouse test, we planted this population in a reclaimed field having ~0.3% salinity levels in the land. These results of the salt reaction in the reclaimed land were in accordance that observed in the greenhouse condition for each of the RILs tested. This suggested that screening the soybean plants for salt tolerance in the greenhouse conditions reasonably provides an early indication of the salt response and the method can be applied to screen larger population. Additionally, the agronomic performance of salt tolerance genotypes was also assessed on the reclaimed land and normal soil conditions. The salt tolerant genotypes showed 76% of plant height, 79% of a number of pods, 70% of seed sized, and 60% of seed yield, as compared to that in the normal soil conditions. Therefore, selected breeding lines or tolerance accessions will be used as a breeding material to develop the cultivars suitable for reclaimed land.