[O22] Crop Production System

Chair: Koki Homma (Tohoku University, Japan)
Chair: Roel Suralta (Philippine Rice Research Institute, Phillipines)
2021年9月9日(木) 14:30 ～ 16:30 Room 2 (Oral) (Farming System)

16:10 ～ 16:25

[O22-07]Trials of Mix Cropping of Indeterminate and Determinate Soybean Lines for 5 years in Tohoku, Japan

○Rongling Ye[1], Koki Homma[1], Daiki Saito[1], Kazuki Ohishi[1], Ryosuke Tajima[1], Toru Uno[1], Shin Kato[2], Akio Kikuchi[2], Takayuki Nakajima[1] (1.Graduate School of Agricultural Science, Tohoku University, Japan, 2.Tohoku Agricultural Research Center, National Agriculture and Food Research Organization, Japan)

Mix cropping of different cultivars of the same crop is attracting attention due to its higher productivity. Although the several mechanisms are proposed to increase productivity, this study focused on its effects on canopy structure. For the purpose, several combinations of indeterminate (IND) and determinate (DET) lines of Soybean (Glycine max (L.) Merr.) were prepared; IND/DET is majorly controlled by one gene and has quite strong effect on plant statues.
5 NIL populations (from backcrossing of Kariko739,Kariko740,Tohoku 164, Tohoku 162, Tohoku 160to Y1312-2) and 1 RIL population (from crossing of Osuzu and Athow) were used. Each population contained 5 IND lines and 5 DET lines. Besides these populations, NIL derived from Kariko 1222 (RHL from crossing of Osuzu and Athow) was also used. Several 1 IND: 1 DET (alternative arrangement) combinations were selected from the populations and mainly tested. Mix seeding of 5 IND lines and 5 DET lines in each population was also tested. These mix croppings were compared with the mono cropping.
1 IND: 1 DET combination had positive effects on leaf area, though its effects on yield were not stable: sometime the combination showed higher yield but sometime did not. Mix seeding showed relatively better performance than 1 IND: 1 DET combinations. However, the increase of yield by mix cropping was 5% in average, suggesting that the enhancement of seed productivity is required. The IND lines tested in this study did not show superior growth and production compared to DET lines, being one of the restriction factors of low positive effects on yield. Further study on finding out suitable IND and DET lines and combinations is needed.