[O14] Legume Production in Asia

Chair: Kuniyuki Saito (Okayama University, Japan)
Chair: Tianfu Han (Chinese Academy of Agricultural Sciences, China)
Fri. Sep 10, 2021 9:45 AM - 11:45 AM Room 1 (Oral) (Field Crop Production)

10:55 AM - 11:10 AM

[O14-05]The Changes of Soil Properties and Crop Responses to Organic Amendments of Dryland Cambisol Soil by Different Cropping System

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Dryland farmers in Aceh has low income because their soil is poor. For example the average yield of sweet corn in the region is around 8-10 ton cob ha^{-1}. The opportunity exists to close the dryland yield gaps and consequently to increase farm income. A field evaluation of soil, maize and soybean responses to fertiliser and soil amendments was conducted in 2017 in the Pidie district, Aceh Province, Indonesia. The treatments applied were 10 t/ha each of rice husk biochar and cow manure with and without 400 kg/ha NPK fertilizer. Crops grown with 400 kg/ha NPK only was used as the control. Crops were grown as sweet-corn and soybean monoculture and mixed crop planting. Key soil parameters measured before and after one growing season include soil pH, soil organic C, N-total, soil available P and Exc. K. Except for soil available P at 45 days after planting, none of the soil properties responded to the application of either rice husk biochar or cow manure. Yield of sweet-corn under the control treatment was 23.2 ton cob ha^{-1} which demonstrated a large improvement the average region's yield. However, sweetcorn yield was not different between soil amendment and cropping system treatments at around 22-23 ton cob ha^{-1}. They yield of soybean range from 1.4-1.7 ton by the application of either rice husk biochar or cow manure, increased about 40-70% compare to control treatment. As expected, yield of monoculture soybean (1.9 ton ha^{-1}) was doubled that in the mixed system (0.99 ton ha^{-1}).