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Category	: International Rice Research Conference
Select Theme	: Sustainable and equitable farming systems
Endorsement email	:
Keyword 1	: Mechanization
Keyword 2	: Precision Agriculture
Keyword 3	: Soil and soil health
Title of Entry	: AN ASSESSMENT ON THE EFFECTS OF LASER-ASSISTED LAND LEVELING TO RICE FIELD AND YIELD IN SOUTH SUMATERA
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Abstract : Because of its potential in improving crop productivity and cropping index, tidal swamp is one of sub-optimal lands force to increasing food crops production. Frequent issue of this area is the land is poorly leveled that cause difficulties in crop establishment also crop and water management, however this can be enhanced by practicing precision technology such as laser-assisted land leveling (LLL). The investigation of the effects of LLL on rice field, evenness level as well as crop yield was conducted in 2017 in Muliarsi village, Tanjung Lago sub-district, District of Banyuasin, South Sumatera, where the area is dominated by tidal swamp land with hydro-topography C/D. The experiments was organized in a-2-ha field leveled with LLL and another 2 ha field leveled manually using 4W tractor during second tillage completed with hoe as control. Land surface area and altitude evenness of the field were measured. Rice variety Inpari 22 were then sown using self-propelled drum seeder. Furthermore, physical and biological soil properties were examined. The results indicated that the evenness of field leveled by LLL was more uniform than control. In addition, LLL resulted in lower soil moisture content (39-54%), particle density (8%), bulk density (52-61%) and soil pore space increased by 38-54%. Post LLL, microbial biomass decreased because microorganism is sensitive to such extensive soil disturbance during land leveling. Improvement on leveled land contribute to the greater of rice yield and quality. Rice yield was 24.1% higher, filled grains percentage was 11.2% higher, and lower unfilled grains by 65.8%. In conclusion, the study showed that LLL improved tidal swamp rice field and rice productivity, hence the technology is suitable to be practiced in the area.

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