

“Paddy Field Dam” that reduces flood damage downstream while maintaining agricultural production

Production

Implementation

Item: Paddy rice

Climate disaster mitigation

Outline

We developed a simple device (a weir plate “Damkeeper”) for controlling the water level of paddy fields to easily suppress paddy water runoff without negative impacts on rice growth and yield. “Paddy Field Dam” is expected to alleviate flood damage in the downstream area by temporarily storing stormwater during heavy rainfall.

Background/effect/note

“Paddy Field Dam” that temporarily impounds stormwater in paddy fields has received attention as a countermeasure against flood damage, which has increased in recent years. As the “Paddy Field Dam” uses farmers’ land to store water, the anxiety of farmers must be addressed and their understanding of the device is essential. We found out the characteristics of inundation damage to paddy rice (Fig. 1), which proved you can use “Paddy Field Dam” to reduce flood damage even during the rice growing period. We also developed a weir plate-type device that can be easily placed for controlling the water level of the paddy fields as one of the variations of “Paddy Field Dam” devices (Fig. 2). A local demonstration in paddy fields revealed that this device enhances the water storage capacity of the paddy fields during heavy rain (Fig. 3). The “Paddy Field Dam” is expected to have larger effects with larger application areas.

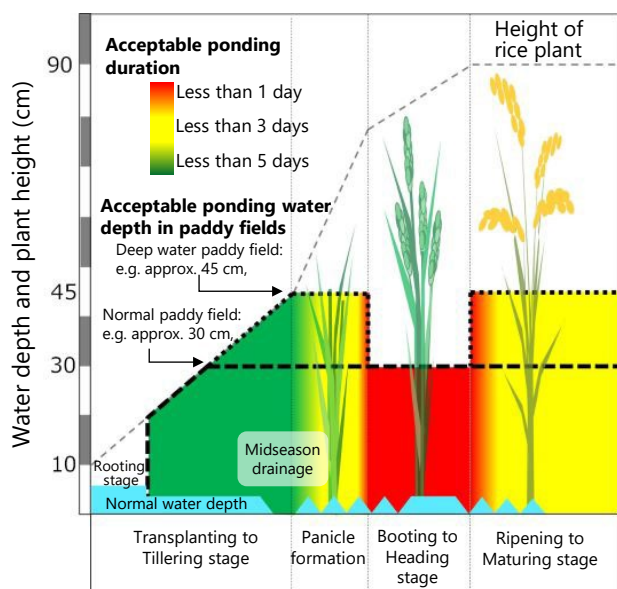


Fig. 1. Growth stages of rice and threshold of ponding water depth that rice plants tolerate

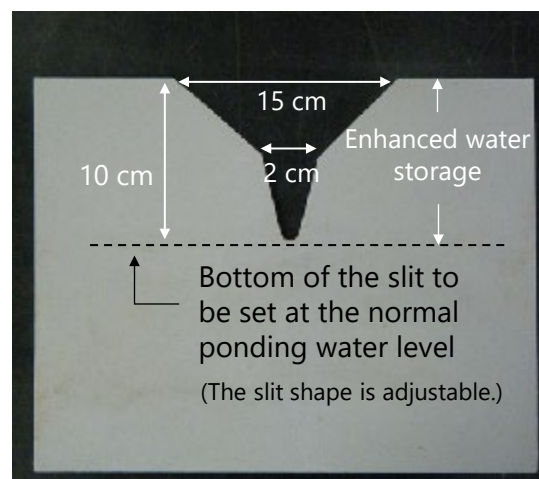


Fig. 2. Structure of the weir plate “Damkeeper” (water level control device)

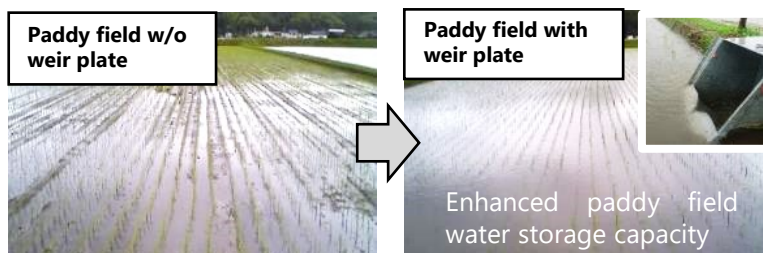


Fig. 3. Demonstration of “Paddy Field Dam” (immediately after heavy rain)



Technical Details:
<https://www.naro.go.jp/english/to-pics/laboratory/nkk/136445.html>

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