

Table S1. Water control criteria for different irrigation modes

Irrigation and drainage mode	Water management metric	Regreen-ing stage	Earlier tillering stage	Later tillering stage	Jointing-booting stage	Heading-flowering stage	Milky ripening stage	Yellow ripening stage
FSI	Lower limit of irrigation	10 ¹	10	70 % θ_s ²	10	10	10	
	The upper limit of irrigation	30	60	0	70	60	40	Natural dry
	The upper limit of rain storage	40	90	0	90	90	60	
II	Lower limit of irrigation	10	80 % θ_s	70 % θ_s	80 % θ_s	80 % θ_s	80 % θ_s	
	The upper limit of irrigation	30	50	0	60	50	40	Natural dry
	The upper limit of rain storage	40	80	0	80	80	60	

¹ The number unit in the table is "mm" indicates the field water depth, and ² θ_s indicates the percentage of 20 cm soil saturated moisture. If the soil moisture content or the water depth reaches the lower limit of irrigation, fill the water to the upper limit of the irrigation, drain the water to the upper limit.