

Table S1. Full ANOVA summary for all variables

Variable	Crop (p)	Treatment (F, p)	Interaction (p)
SoilWaterRetention	0.451	F = 9551.80, p < 2e-16	0.951
WaterRetentionCoeff	0.618	F = 2325.65, p < 2e-16	0.223
InfiltrationDepth	0.963	F = 9283.94, p < 2e-16	0.271
Height	<2e-16	<2e-16	<2e-16
Leaves	<2e-16	<2e-16	<2e-16
Yield	<2e-16	<2e-16	<2e-16
pH	0.371	<2e-16	0.408
OM	0.278	<2e-16	0.852
Salinity	0.255	<2e-16	0.377

Table S2. Tukey test – soil hydraulic variables

(combined effects of Treatment)

Comparison	SoilWaterRetention	InfiltrationDepth	WRC
PAH vs Control	+4.29***	+4.29***	+0.125***
SAKH vs Control	+1.92***	+1.77***	+0.073***
Drip vs Control	+2.81***	+2.84***	+0.083***
Mulching vs Control	ns	ns	ns

Table S3. Tukey test – plant growth

Treatment	Height	Leaves
PAH	+4.62***	+3.75***
SAKH	+1.23***	+2.42***
Drip	−1.77*** (rice)	ns
Mulching	ns	ns

Table S4. Yield ANOVA and Tukey comparisons

Effect	F	p
Crop	4458.73	<2e-16
Treatment	393.60	<2e-16
Interaction	38.45	<2e-16

Tukey:

PAH +10.25***

SAKH +5.23***

Drip +4.13***

Mulching +2.79***

Table S5. Regression model coefficients

Predictor	Estimate	p
Intercept	-42.1	<0.001
SoilWaterRetention	3.84	<0.001
InfiltrationDepth	1.12	<0.001

Model fit:

$R^2 = 0.92$

Adjusted $R^2 = 0.91$

$p < 0.001$