

## Supplemental Information

### Assessing climate change impacts on plant production and irrigation water demand at country level: analysis for Iran

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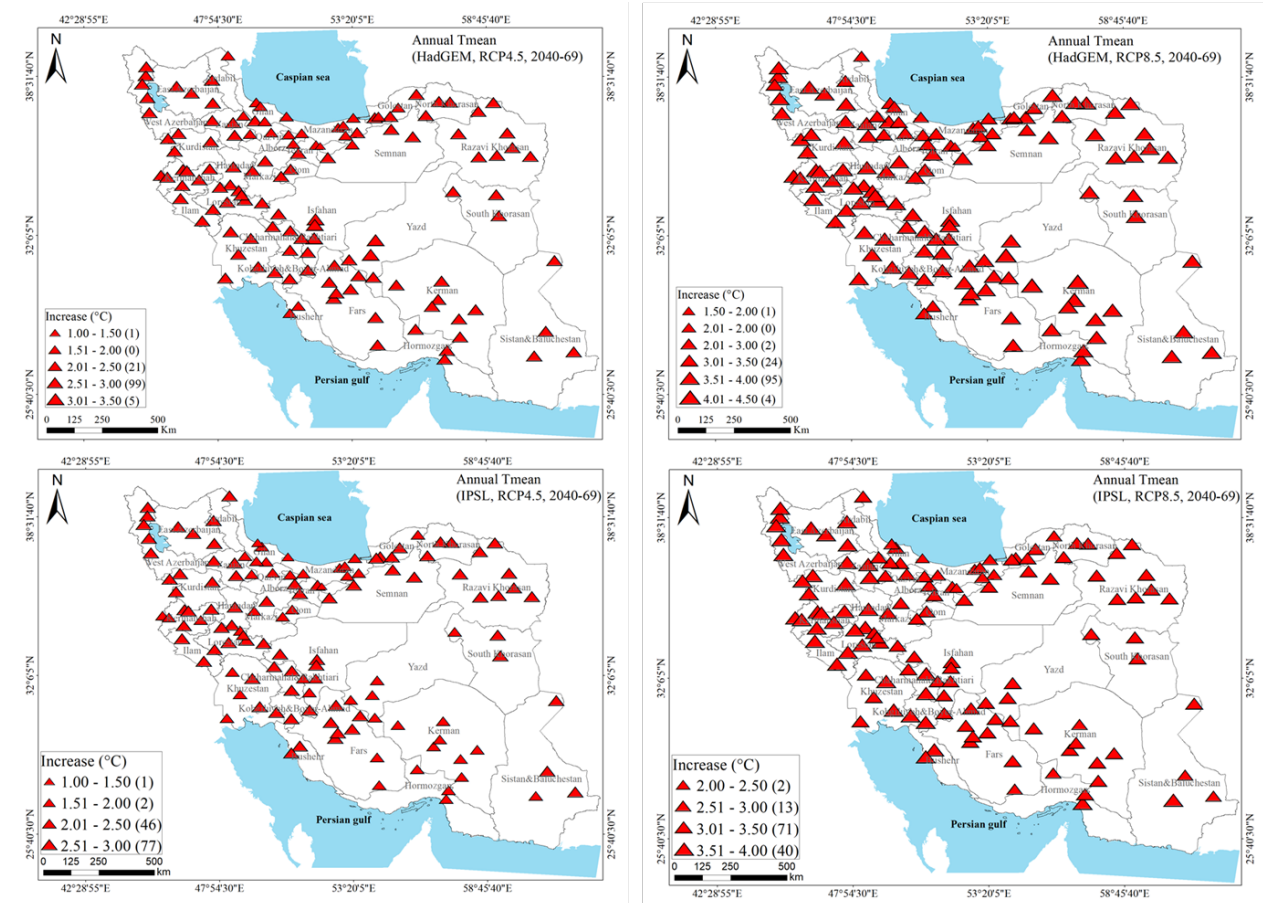


Fig. S1 Annual mean temperature changes predicted by HadGEM and IPSL model under RCP4.5 and RCP 8.5 across 2040 to 2069 (2050s) in Iran.

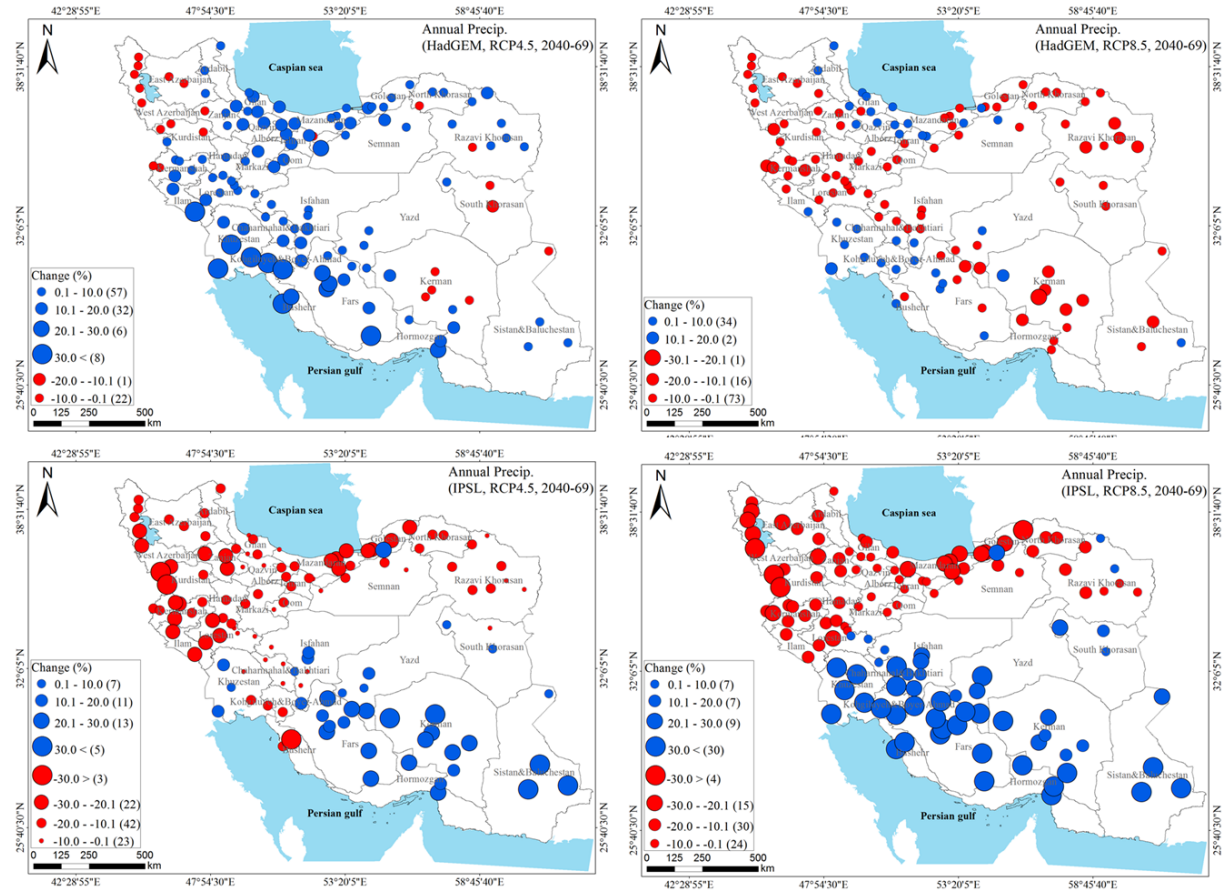


Fig. S2 Annual precipitation changes predicted by HadGEM and IPSL model under RCP4.5 and RCP 8.5 across 2040 to 2069 (the 2050s) in Iran.

Table S1. Impact of climate change on country potential yield ( $Y_p$ ), water-limited potential yield ( $Y_w$ ), and net applied irrigation water (IWV) of important plant species in Iran. The numbers are the average percentage change relative to the current climate.

Plant/ Plant group	Irrigated		Rainfed
	$Y_p$	IWV	$Y_w$
Wheat	$-6 \pm 0.86$	$-32 \pm 6.30$	$34 \pm 5.02$
Rice	$-8 \pm 1.12$	$5 \pm 1.79$	-
Cool-season pulses	$-2 \pm 1.27$	$-10 \pm 4.95$	$1 \pm 8.24$
Warm-season pulses	$1 \pm 1.28$	$10 \pm 4.01$	$-11 \pm 1.10$
Potato	$-10 \pm 4.70$	$-10 \pm 3.57$	-
Cool-season oil-crops	$-6 \pm 1.68$	$-32 \pm 6.34$	$19 \pm 6.73$
Warm-season oil-crops	$-12 \pm 2.54$	$-7 \pm 1.92$	$-11 \pm 3.47$
Sugar beet	$-9 \pm 1.29$	$-7 \pm 2.56$	-
Sugar cane	$-9 \pm 5.06$	$-20 \pm 8.40$	-
Cool-season fruit trees	$1 \pm 1.97$	$5 \pm 2.52$	$-3 \pm 10.92$
Warm-season fruit trees	$-9 \pm 1.54$	$-10 \pm 2.15$	$0 \pm 1.66$
Vegetables*	$-11 \pm 2.96$	$-10 \pm 2.54$	$-3 \pm 11.73$
Barley	$-5 \pm 0.80$	$-36 \pm 5.71$	$6 \pm 4.73$
Grain maize	$-8 \pm 2.27$	$-2 \pm 0.61$	-
Silage maize	$-11 \pm 1.53$	$2 \pm 1.34$	$-19 \pm 4.21$
Alfalfa and clover	$2 \pm 2.43$	$2 \pm 1.75$	$-1 \pm 2.81$

Color guide:	Decrease by 8-12%	Decrease by 32-36%	Increase by 20-30%
	Decrease by around 5%	Decrease by 7-20%	Decrease by 10-20%
	No significant effect	Increase by 5-10%	No significant effect
		No significant effect	

\*Mainly (90%) are summer-sown

## Distribution map of main agricultural plant species of Iran

IRR = irrigated conditions, RFD = Rainfed conditions

