

Setup				
Sim.	Cropland area	Irrigation	GHG	CO ₂ veg.
REF	Prescribed based on present-day cropland	Non-sustainable	–	–
RF45	Dynamic; based on climatic conditions	No irrigation	RCP4.5	RCP4.5
RF45*	Same as RF45	Same as RF45	RCP4.5	380.0 ppmv
IR26	Dynamic; based on climatic conditions and the availability of water for irrigation	Sustainable	RCP2.6	RCP2.6
IR26*	Same as IR26	Same as IR26	RCP2.6	380.0 ppmv
IR45	Same as IR26	Same as IR26	RCP4.5	RCP4.5
IR45*	Same as IR45	Same as IR45	RCP4.5	380.0 ppmv
IR85	Same as IR26	Same as IR26	RCP8.5	RCP4.5
IR85*	Same as IR85	Same as IR85	RCP8.5	380.0 ppmv

Simulated crop area and supportable population size

Sim.	Cultivated area in 2100	K_{hum} in 2100
REF	$14^{\text{a}} \times 10^6 \text{ km}^2$	$6.5 \text{ bn}^{\text{a}}$
RF45	$39 (33^{\text{b}}) \times 10^6 \text{ km}^2$	19 bn (16 bn ^b)
RF45*	$36 (31^{\text{b}}) \times 10^6 \text{ km}^2$	15 bn (12 bn ^b)
IR26	$38 (33^{\text{b}}) \times 10^6 \text{ km}^2$	20 bn (16 bn ^b)
IR26*	$38 (33^{\text{b}}) \times 10^6 \text{ km}^2$	17 bn (14 bn ^b)
IR45	$40 (34^{\text{b}}) \times 10^6 \text{ km}^2$	22 bn (17 bn ^b)
IR45*	$38 (33^{\text{b}}) \times 10^6 \text{ km}^2$	17 bn (14 bn ^b)
IR85	$42 (36^{\text{b}}) \times 10^6 \text{ km}^2$	27 bn (22 bn ^b)
IR85*	$38 (33^{\text{b}}) \times 10^6 \text{ km}^2$	15 bn (12 bn ^b)