

Climate change vulnerability assessment through environment modification component of DSSAT model for wheat and urd in Uttrakhand

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ABSTRACT : The study aimed the impact assessment of climate change through DSSAT model for *Tarai* region of Uttrakhand. The results revealed that the DSSAT model logically simulated the temperature, solar radiation, day length and CO₂ concentration effects on yield of wheat and urd. Increase in maximum and minimum temperature by +1 to +3°C, solar radiation +1 to +3 MJ m⁻² day⁻¹, CO₂ concentrations +120 to +330 ppm from the base values 330 ppm, day length +1 to +3 hour/day for urd crop showed decline in yield by 23 to 71 per cent, while wheat crop performance under such conditions revealed increase in yield by 10 to 14 per cent. Similarly, urd crop performance under decrease in maximum and minimum temperature by -1 to -3°C, solar radiation -1 to -3 MJ m⁻² day⁻¹, CO₂ concentrations -120 to -330 ppm from the base values 330 ppm, day length -1 to -3 hour/day also exposed large decline in yield 22 to 98 per cent and wheat yield declined by 28 to 91 per cent. The analysis revealed that the DSSAT model may play great role in climate change impact assessment for different crops.

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