



A REVIEW :

Effect of heat stress on pulse production

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India is largest producer of pulses in the world with 25 per cent share in global production. Majority of the pulse-growing regions are vulnerable to climate change as maximum threshold temperature for tolerance of pulses has already been reached beyond 35°C. Chickpea, pigeonpea, mungbean, uradbean, lentil and fieldpea are important pulses crop contributing 39 per cent, 21 per cent, 11 per cent, 10 per cent, 7 per cent and 5 per cent to the total production of pulses in the country. The total production was estimated 14.56 million tonnes and an area of 23.63 million hectares with average productivity 625 kg/ha. Climate change will surely have an adverse impact on productivity on account of reduction of total crop cycle duration. Most of the pulses like mungbean and uradbean short duration crop.

The impact of heat stress on pulse production:

Heat stress often is defined as where temperatures are hot enough for sufficient time that they cause irreversible damage to plant function or development. In addition, high temperatures can increase the rate of

reproductive development, which shortens the time for photosynthesis to contribute to fruit or seed production. I also will consider this as a heat-stress effect even though it may not cause permanent (irreversible) damage to development because the acceleration does substantially reduce total fruit or grain yield.

Among the pulses, pigeonpea is very sensitive to abrupt fluctuations of temperatures either lower or higher extremes leading to massive flower drop.

The negative impact of temperature extremities is largely compensated by regular fresh flush of flower that keep on appearing during the developmental stages as and when the temperature is favourable. However, at extreme high temperature the serious adverse impact was observed on pod setting.

For cool season pulse crops daily maximum temperature above 25°C is considered as threshold level for heat stress, as it affects seed yield by reducing flowering, fertilization and seed formation.

Cool season pulses such as chickpea, lentil lathyrus have reasonably high tolerance to wheat which enables them to set pod but filling of pods is seriously jeopardized at high

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