

## 2(d). Crop weather interactions and definition (Dr. T.N. Balasubramanian)



# Crop – Weather Interaction- what is that?

- Climate influences the distribution of crops over different regions of the world, while weather influences crop production and productivity
  - Crop yields are the integrated result of environmental and physiological processes that occur during crop growing period
  - The environment is the climate which regulates and determines the growth and development and final output of crops
- The weather induced variability in crop yield is as high as 50 per cent(WMO)

# Crop – Weather Interaction- what is that?

- Crop weather interaction can be called in the other way as bio- physical interaction
- The action is given by physical matter like weather and the plant as bio-organism respond to the action in a positive way if the action is favorable or on the other side negatively if the action is unfavorable.

# Types of interaction

- Positive- direct
- Positive indirect
- Negative-direct
- Negative-indirect

# Examples for four interactions

Name of the crop-weather interaction	Example
Positive direct	Plant growth, Crops yield increase
Positive indirect	Enzyme action,, less pest and disease
Negative direct	Crops yield decline
Negative indirect	Pest and disease epidemic

# Response of crops to weather elements

Weather elements	Response of crops
Radiation	Dry matter production through photo synthesis
Light	Short day plant, long day plant, day neutrals, phototropism
Rainfall	Soil moisture, transport of nutrients, plant turgidity
Temperature	Enzyme and hormone activity in plants, cell division and multiplication, all bio chemical relations, respiration, translocation of synthates
Relative Humidity	Out break of disease and pest epidemics. Under enough soil moisture high RH triggers higher growth and more flowering
Dew	Recovery of loss of turgor of leaves , reduced transpiration with soil moisture saving
Wind	Providing fresh $\text{CO}_2$ by horizontal movement for photosynthesis