

Environmental Factors

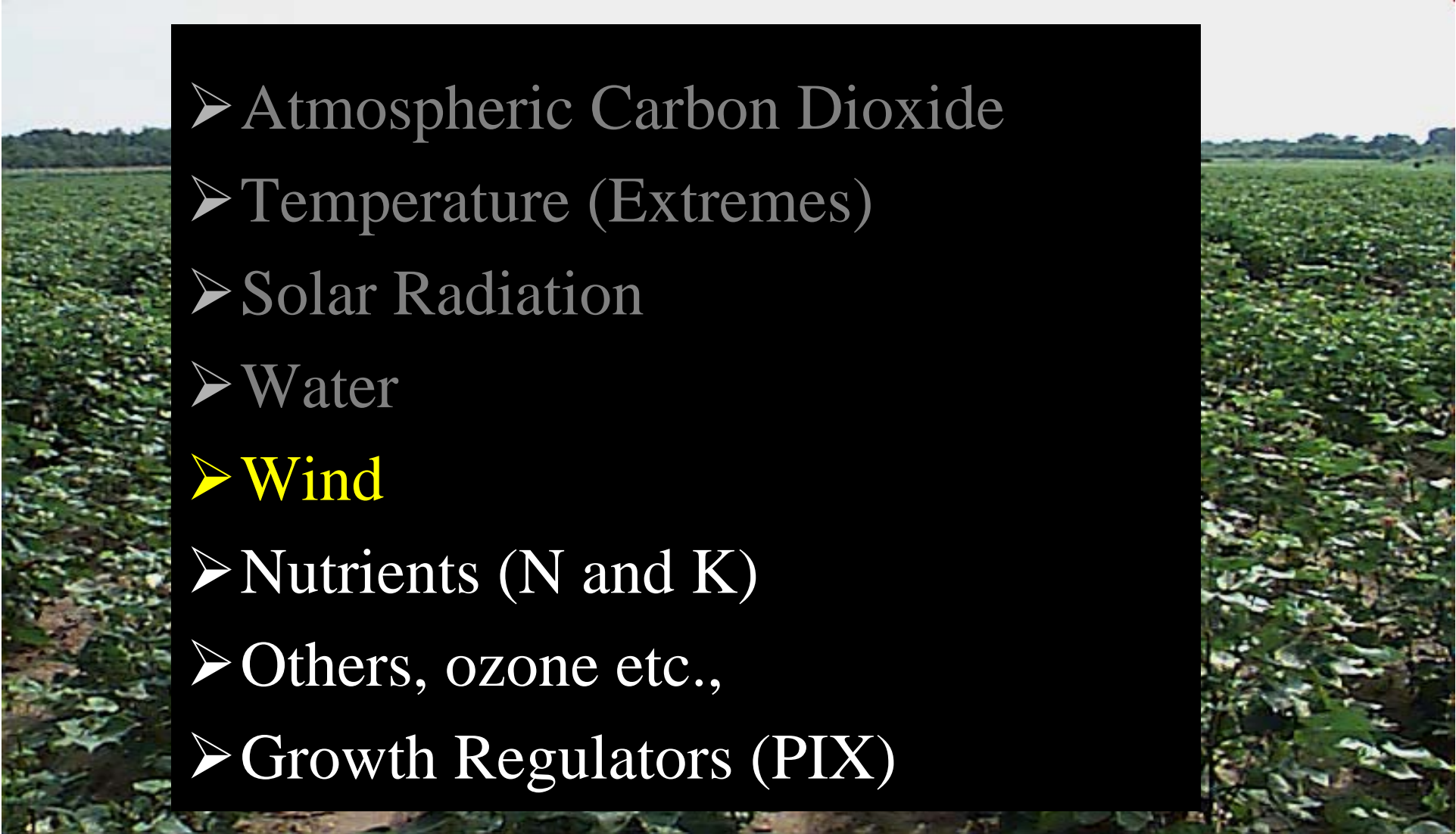
Wind



K. Raja Reddy
Kreddy@ra.msstate.edu

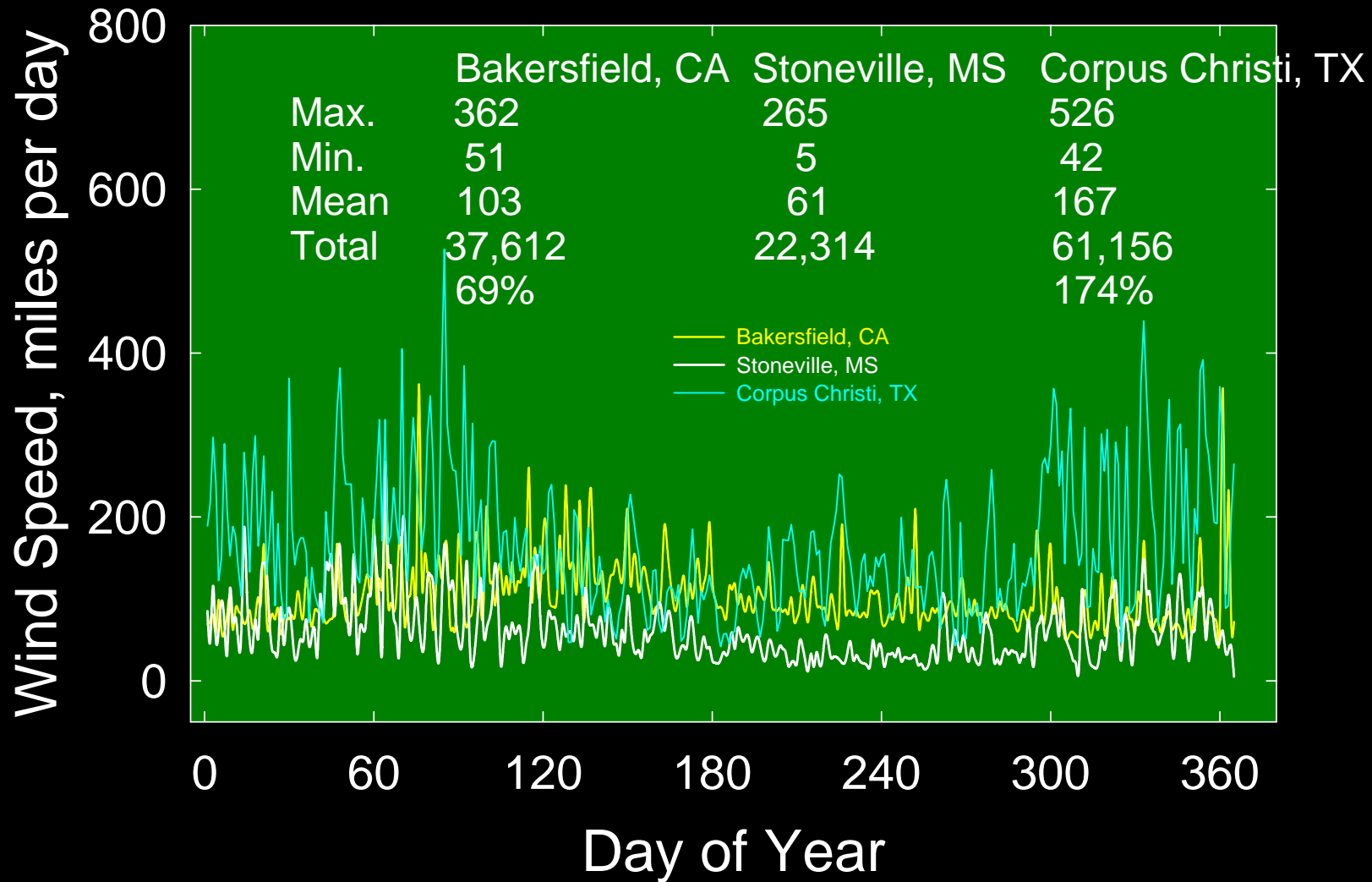


Environmental and Cultural Factors Limiting Potential Yields

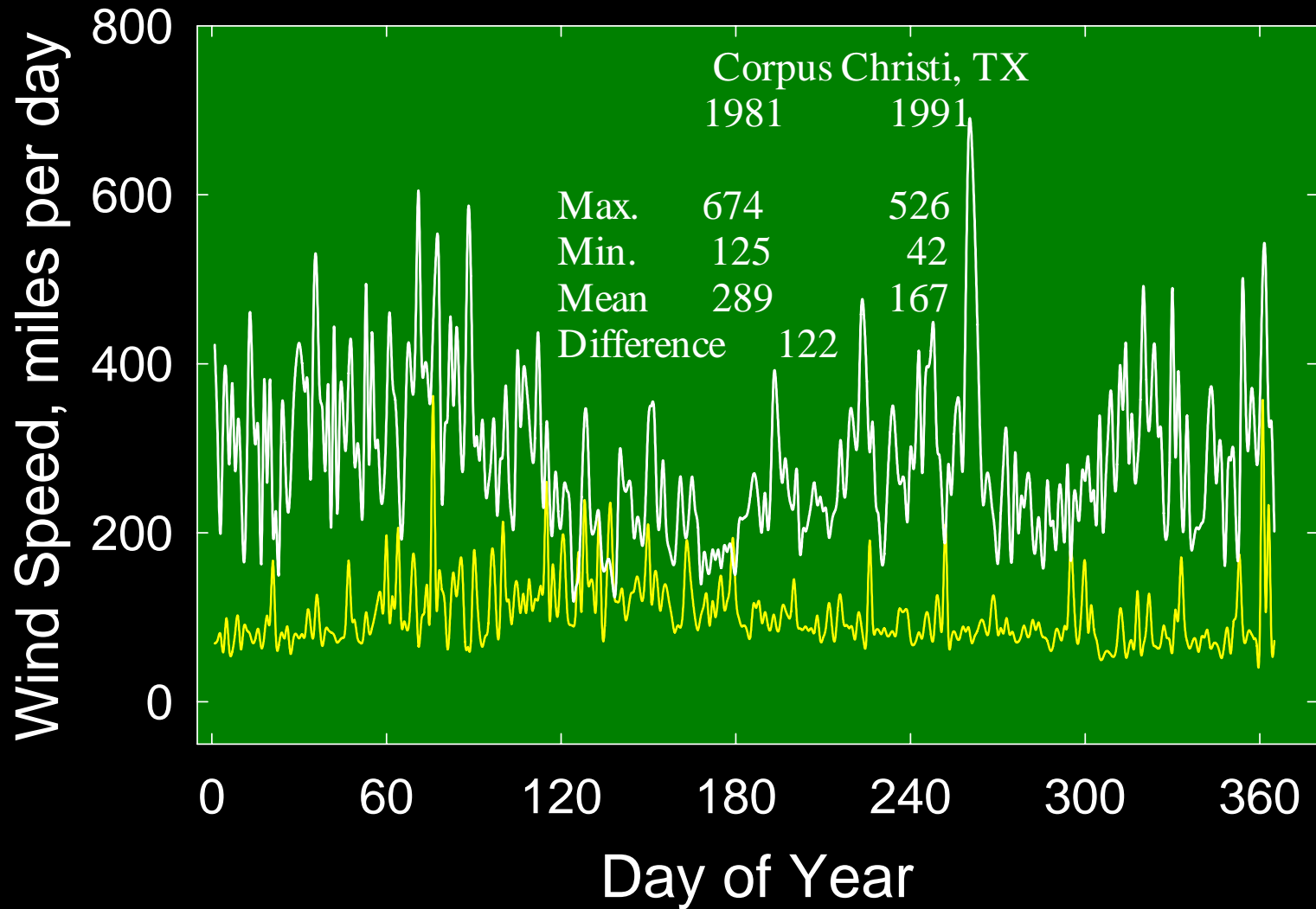
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- Atmospheric Carbon Dioxide
 - Temperature (Extremes)
 - Solar Radiation
 - Water
 - **Wind**
 - Nutrients (N and K)
 - Others, ozone etc.,
 - Growth Regulators (PIX)

Wind Speed - Seasonal Trends

Bakersfield, CA, Stoneville, MS and Corpus Christi, TX - 1991



Wind Speed Trends - Season to Season Variation Corpus Christi, TX - 1981 and 1991



Water Loss, Stomatal Aperture Size and Boundary Layer Resistance

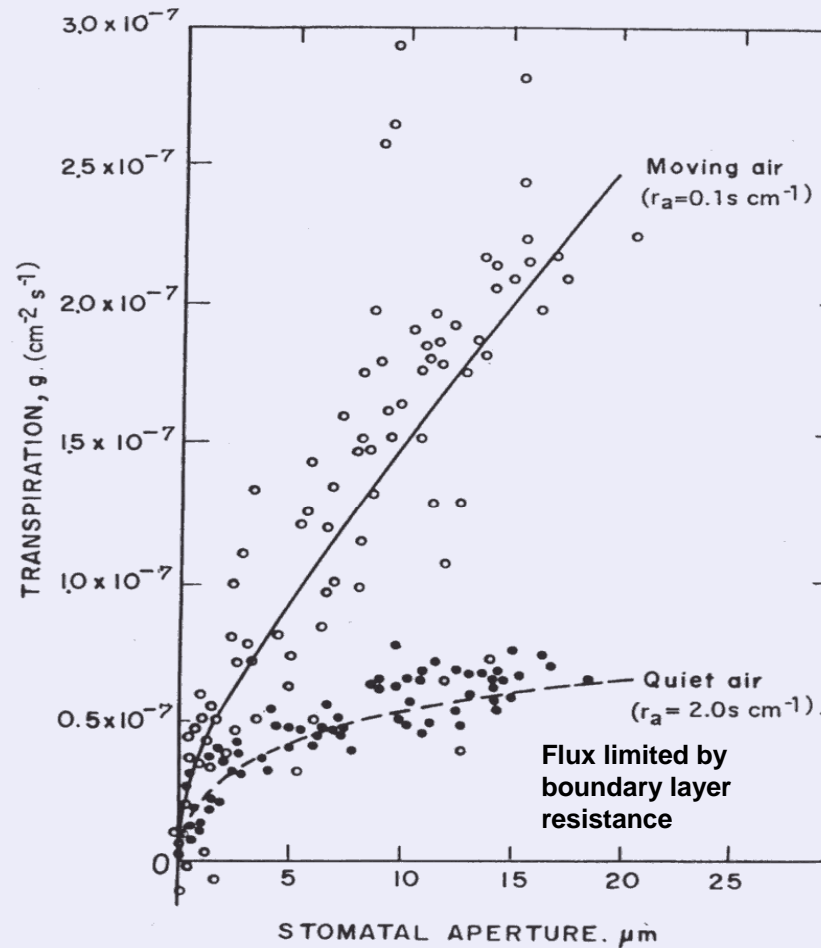
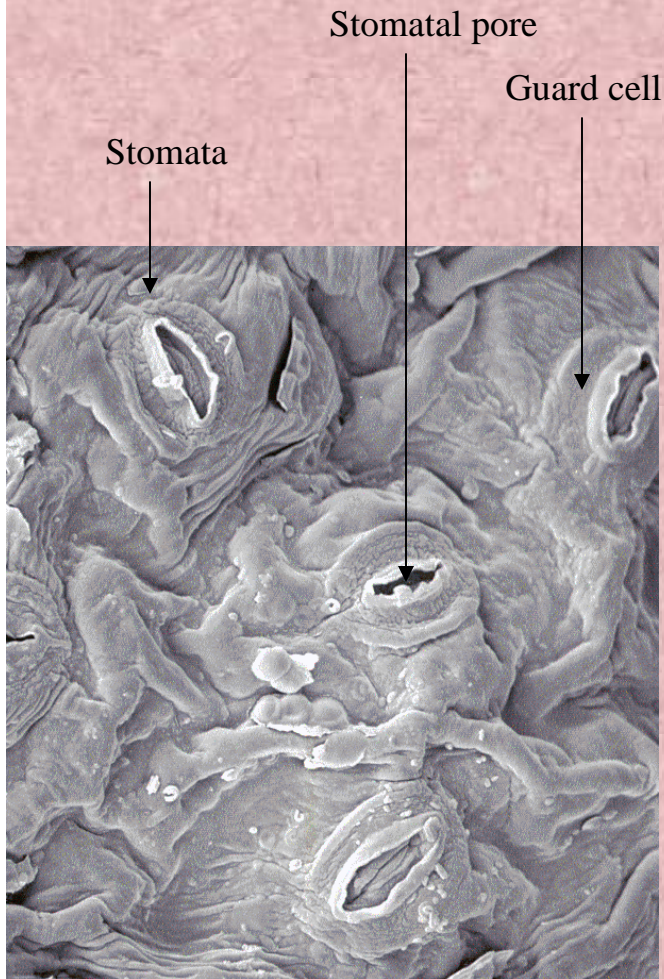
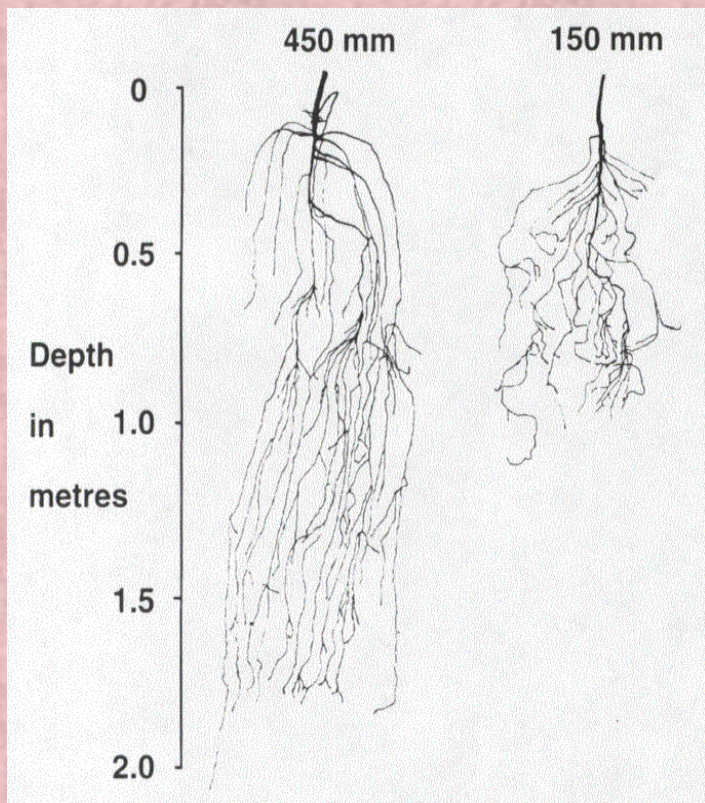


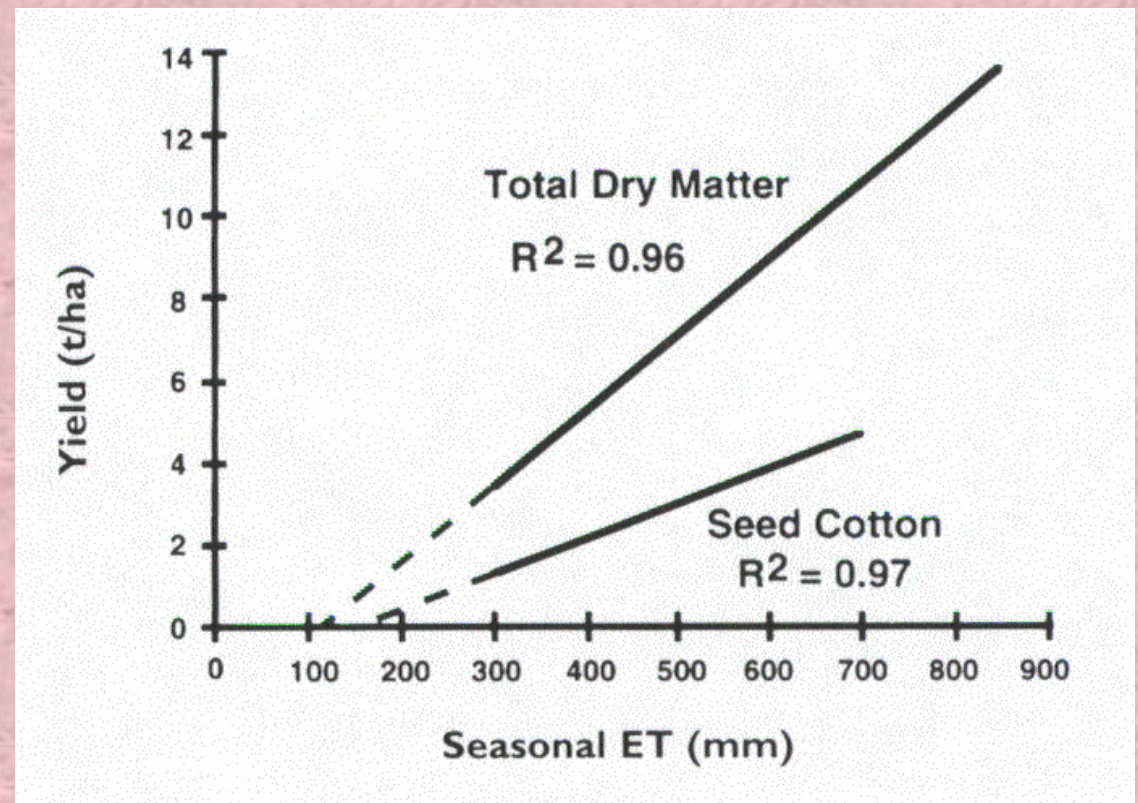
Figure 2 Interaction of physical (boundary layer resistance, r_a) and biological (stomatal aperture) components of transpiration. (From Ref. 6.)

Root Growth and Yield as Functions of Stored Water and Seasonal Evapotranspiration

a. Stored water on rooting depth



b. Yields as a function of seasonal ET



Summary and Conclusions

- Wind speed varies spatially and temporally within a year and over years.
- Wind speed, under normal conditions, affects plants indirectly by affecting evapotranspiration and thus water balance and finally yield.
- Extreme winds will have a drastic effects on plants.