**TYPES OF MODELS:** Depending upon the purpose for which it is designed the models are classified into different groups or types.

**1. Statistical models:** These models express the relationship between yield or yield components and weather parameters. In these models relationships are measured in a system using statistical techniques. Example: Step down regressions and correlation, etc (**Regression** is a measure of the relation between the mean value of one variable (e.g. output) and corresponding values of other variables (e.g. time and cost), and **stepwise regression** is a method of fitting [regression models](https://en.wikipedia.org/wiki/Regression_model) in which the choice of predictive variables is carried out by an automatic procedure In each step, a variable is considered for addition to or subtraction from the set of [explanatory variables](https://en.wikipedia.org/wiki/Explanatory_variable) based on some pre-specified criterion. Usually, this takes the form of a sequence of [*F*-tests](https://en.wikipedia.org/wiki/F-test) or [*t*-tests](https://en.wikipedia.org/wiki/T-test).

**2. Mechanistic models:** These models explain not only the relationship between weather parameters and yield, but also the mechanism of these models (explains the relationship of influencing dependent variables). These models are based on physical selection.

**3. Deterministic models:** These models estimate the exact value of the yield or dependent variable. These models also have defined coefficients.

 **4. Stochastic models:** A probability element is attached to each output. For each set of inputs different outputs are given along with probabilities. These models define yield or state of dependent variable at a given rate.

**5. Dynamic models:** Time is included as a variable. Both dependent and independent variables are having values which remain constant over a given period of time.

**6. Static:** Time is not included as a variable. Dependent and independent variables having values remain constant over a given period of time.

**7. Simulation models:** Computer models, in general, are a mathematical representation of a real world system. One of the main goals of crop simulation models is to estimate agricultural production as a function of weather and soil conditions as well as crop management. These models use one or more sets of differential equations, and calculate both rate and state variables over time, normally from planting until harvest maturity or final harvest.

**8. Descriptive model:** A descriptive model defines the behaviour of a system in a simple manner. The model reflects little or none of the mechanisms that are the causes of phenomena. But, consists of one or more mathematical equations. An example of such an equation is the one derived from successively measured weights of a crop. The equation is helpful to determine quickly the weight of the crop where no observation was made.

**9. Explanatory model:** This consists of quantitative description of the mechanisms and processes that cause the behavior of the system. To create this model, a system is analyzed and its processes and mechanisms are quantified separately. The model is built by integrating these descriptions for the entire system. It contains descriptions of distinct processes such as leaf area expansion, tiller production, etc. Crop growth is a consequence of these processes.