**Collection of environmental conditions data**

Collect data of environmental conditions comprising maximum and minimum temperatures, relative humidity, average rainfall and wind speed by Meteorological Station and calculate weekly averages.

**Development of disease predictive model**

**Establishment of experiment and data recording**

In order to develop disease predictive model, data of disease incidence will record on weekly basis in five susceptible varieties/lines.

**Analysis of data**

The data were analyzed using statistical analysis software SAS 9.3 (SAS institute, 1990). Analysis of variance (ANOVA) and comparison between disease incidence and environmental conditions were determined by least significance difference test (LSD at *P*<0.05). Effects of environmental variables (maximum and minimum temperatures, relative humidity, rainfall and wind speed) on disease incidence were determined by correlation analysis (Steel *et al*., 1997). Environmental factors having significant correlation with disease incidence was subjected to regression analysis. Predictive model based on environmental variables was developed using stepwise regression analysis (Myers, 1990). Environmental conditions exhibiting significant correlation with disease incidence were graphically plotted and their critical ranges conducive for disease incidence were determined. The accuracy of developed models was studied by the influence of environmental conditions on disease incidence by comparing the observed disease incidence with those values predicted by multiple regression models.

**Evaluation of model**

After the development of the model through stepwise regression, the model was evaluated according to the procedures described by Snee (1977); Chattefuee and Hadi (2006).

1) Comparison of dependent variable and regression coefficients with physical theory

2) Comparison of observed vs. predicted data

3) Collection of new data to check predictions

Assessment of predictions was done by computing statistic indices like; root mean square error (RMSE) and % error (Wallach and Goffinet, 1989). The formulas used for RMSE and % error were:

RMSE = ∑in= 1 = [(Oi - Pi)2÷n]0.5

Observed value – Predicted value

% Error = x 100

Observed value

Where Pi and Oi are the predicted and observed data points for studied parameters, respectively, and n is the number of observations. Model performance is considered good if the values of RMSE and % error are below or equal to ± 20 (Willmott, 1982).