Gram is the most important pulse in Pakistan due to its cheap prices and high protein intake. Yield estimation is very necessary for these type of crops. This study was conducted to estimate gram yield. By using Multiple Linear Regression a statistical model is built by using all ground information, so that a reliable estimate can be achieved prior to the arrival of actual production. The analysis was applied to achieve the goals of the study through the combination of descriptive and inferential statistics. In descriptive statistics impact of all the variables on the quantity of yield of crop has been examined. As a result many hidden dimensions are revealed. Sow style, soil type, seed treatment, spray, DAP, irrigation mode, number of water, number of plough, seed quantity, last crop, sowing time and rainfalls are the variables which shows significance in the final selected model. Validity of the model also checked with existing data which support that developed model is working properly. This concept can also be used for any other crop.