period. Rainfall and lagged price variables are negatively influencing on area of sugarcane, i.e., price and rainfall are not sufficient to sugarcane growers to allocate more area for groundnut crop. Remaining variables were positively influencing on groundnut growers to increase more area in future.

**PRODUCTION RESPONSE:**

**Rayalaseema Region:**

In period I a significant variation in production (96 per cent) on groundnut area was observed by selected variables. Here water resource effect, i.e. rainfall in current year was positive and lagged rainfall, irrigated area variable were positive and significantly shows its effect on groundnut growers to grow more groundnut production. Lagged price effect was negative and significant. Prices of groundnut were not attracting the groundnut growers. The variable area under the crop is also influencing positively on groundnut production. During the post-green revolution period, area under the crop, rainfall and irrigated area were positively influencing the groundnut production, i.e. prices are not encouraging its growers. The variable, fertilizer consumption was positive on groundnut production, but HYV area was negatively influencing the production. There is a high per cent of variation i.e. 48 per cent was decreased in period II over period I. The new technology effect on groundnut production was negative when compared the two periods variation.

During period I, a significant variation (97 per cent) was recorded by selected variable on sugarcane production. Price effect was negative on cane output, lagged price reducing the production. Water source effect i.e. rainfall and irrigated area were also negatively influencing the sugarcane production. In period II, the price and rainfall variables where positively influencing the sugarcane production. The positive and significant irrigated area coefficient expresses that irrigated area is increasing the cane output. The variable fertilizer consumption reveals its negative effect on sugarcane output. Here,
also 72 per cent of cane production variation was recorded by selected variables on sugarcane production in period II.

**Coastal Andhra Region:**

During pre-green revolution period a significant variation (95 per cent) in groundnut production was recorded by the selected independent variables. The price and rainfall variables were negatively influencing the groundnut production in this region. Only irrigated area is positively and significantly influencing the groundnut growers to raise the production. Other variables are negatively affecting the groundnut production. During the post-green revolution period, rainfall’s effect was totally negative on groundnut production. Irrigated area was influencing on production of groundnut positively. Price effect was negative i.e. prices of groundnut were not influencing the groundnut to grow more production. Fertilizer consumption, area under High Yielding Varieties were expressing its positive effect on production of groundnut. But there was a slight decreasing variation (0.76 per cent) was recorded in period II than in period I.

In case of sugarcane production, rainfall and irrigation were noticed a negative effect in sugarcane production in period I. Price effect was almost absent on cane output. There is a significant variation (96 per cent) was recorded by selected variables. During post-green revolution period, only irrigated area variable was positive and significant, i.e. irrigation conditions were influencing the sugarcane production. The price and rainfall effect on production was negative. This means these variables were not encouraging sugarcane growers in good volume of production. The variable, fertilizer consumption effect was negative and HYV area effect was positive on sugarcane production. Here, a significant variation (77 per cent) was recorded by the selected variables during the Post-green revolution period.

**Telangana Region:**

During the pre-green revolution period, only one variable irrigated area showing its positive and significant effect on groundnut output, i.e. irrigated
conditions was encouraging groundnut growers to grow more production. The effect of price and rainfall were negatively influencing on the groundnut i.e. these two variables, rainfall and price were decreasing the production of groundnut. More than 83 per cent of production variation was noticed by the variables in the model. During post-green revolution period, irrigated conditions were positively and significantly influencing the groundnut production. But price and rainfall effects were positive. The variables, fertilizer consumption and HYV area were responsible factors for decrease in groundnut production. A significant variation in groundnut output (70 per cent) was recorded in period II.

In case of sugarcane production a significant variation (94 per cent) was noticed by selected variables in period I. Here, area under the crop and lagged rainfall variables were positively and significantly showing their effect on sugarcane production. But the rainfall and lagged price effect was negative on sugarcane production. During period II, a positively significant price effect on production was recorded, i.e. prices are encouraging growers directly. The other variables were also positively influencing the sugarcane production. Fertilizer consumption is negative and significant, i.e. sugarcane growers were not using sufficient fertilizer for better sugarcane production. It is inferred that the cane output may be raised by increasing the fertilizer consumption. HYV area was negatively affecting the sugarcane production.

**ANDHRA PRADESH:**

In case of groundnut crop during pre-green revolution period, the groundnut output was positively and significantly responded by its area under groundnut crop. Rainfall, lagged rainfall was positively influencing the groundnut growers for more production. The variable irrigated area was also positively influencing the groundnut production. But the price effect was negative, i.e. groundnut price was not encouraging its growers for more production. During period II, a significant variation in output (84 per cent) was recorded by the selected independent variables. Here, lagged price and lagged
rainfall were negatively influencing the groundnut production. The area under groundnut was influencing the production significantly. The effect of fertilizer consumption was negative and HYV area's effect was positive on groundnut production. A little increasing in production variation (4.39 per cent) was recorded during period II over the period I.

In period I, water source effect i.e. lagged rainfall and irrigated area and lagged price were positively encouraging sugarcane growers in its production. The area under the crop is also expressing a positive effect on output. Sugarcane output was influencing directly by these variables. Almost 72 per cent of variation in cane output was recorded by these variables, but this variation is not significant. During the post-green revolution period, a significant variation (78 per cent) was recorded by the selected variables. Here, irrigated area was influencing positively and significantly on sugarcane production. Except fertilizer consumption, all variables were positively influencing the production of sugarcane. Fertilizer consumption effect was recorded a negative and significant on cane output. Less use of fertilizer decreased the production of sugarcane crop.

**YIELD RESPONSE:**

**Rayalaseema Region:**

In case of groundnut, during pre-green revolution period, the water source variables i.e. rainfall, lagged rainfall and irrigated area were all positively responding to the groundnut yield. This means, irrigation is the main cause to raise the yield of groundnut. But price effect is negative i.e. prices of groundnut were not influencing growers to raise the yield. Nearly 41 per cent of variation in yield was recorded by the variables in the model. But this variation is not significant. During the post-green revolution period a significant variation (57 per cent) was recorded by the selected variables. Here, rainfall and irrigated area variables effect is positive and significant on yield of groundnut. But the variables lagged price, fertilizer consumption, HYV area
were negatively influencing the yield of groundnut. But there is an increase in variation (16.26) during period II over period I.

In case of sugarcane crop, only lagged rainfall was positively affecting the yield during pre-green revolution period. The variables rainfall, irrigated area and price effect were not influencing the yield of sugarcane. The irrigated conditions and prices were not influencing the sugarcane growers. Only 47 per cent of variation in cane yield was recorded by these variables. During post-green revolution period, water source variables i.e. lagged rainfall, rainfall and irrigated area were positively influencing the yield of sugarcane. Consumption of fertilizer influencing the yield of sugar cane negatively, i.e. an increase in the use of fertilizer on sugarcane crop will decrease the yield of sugarcane. HYV area was positively affecting sugarcane yield.

Coastal Andhra Region:

During pre-green revolution period, the price effect was negative and insignificant. The two rainfall variables effect was also negative, this means insufficient or excess rainfall may cause the decrease in the yield of groundnut. But irrigated conditions of groundnut were positively influencing the yield. Almost 64 per cent of variation in groundnut yield was recorded. A significant variation (59 per cent) was recorded by selected variables in period II. The rainfall, lagged rainfall and lagged prices were negatively influencing the yield of groundnut. The variables irrigated area, fertilizers consumption and area under High Yielding Varieties positive response on yield of groundnut was recorded. This leads the growers of groundnut to grow more yields.

With respect to cane yield, during pre-green revolution period, cane yield was negatively responded by three variables, rainfall, lagged rainfall and irrigated area. The yield may be decreased by raising these variables in Coastal Andhra region. Sugarcane yield was positively responded by lagged rainfall only. The variation in cane yield was not significant by selected variables. During post green revolution period, rainfall, lagged rainfall and irrigated were negatively influencing the yield of sugarcane i.e. excess rainfall led to decrease
in yield of sugar cane. But the price effect is positively responding on yield of sugarcane. HYV area also influenced positively the yield of sugarcane. But fertilizer consumption was negative and significant, i.e. insufficient use of fertilizer was causing a low productivity of sugarcane. Some increase in variation (9.4 per cent) was recorded during period II over the period I.

Telangana Region:

During pre-green revolution period, lagged rainfall and irrigated area were positively influencing the groundnut yield. This means water sources effect on yield of groundnut was noticed. But price effect is negative, i.e. low prices were causing for low productivity of groundnut. Current year rainfall may absent the yield negatively. Only 33 per cent of variation was recorded by these variables. A significant variation (64 per cent) was recorded by selected variables, during post-green period. Here, water source variables i.e. rainfall and price were positively and significantly influencing the yield of groundnut. Except fertilizer consumption, all variable response was positive on ground nut yield. Consumption of fertilizer may also leads to decrease in groundnut yield. There increase in variation (30.32 per cent) was recorded during the period II than in period I.

In the case of sugarcane crop, during pre-green period, lagged variables i.e. lagged rainfall and lagged price were not positively responding to yield of sugarcane. But rainfall and irrigated area were positively influencing the yield of sugarcane. A low degree of variation was recorded by these variables. During period II, all variables, except fertilizer consumption and HYV area, were positively responding to yield of sugarcane, i.e. price and water sources were encouraging the growers of sugarcane to grow more yield. Fertilizer consumption and HYV area, were not influencing sugarcane growers for grow better yield. The increase variation in cane yield (9.65 per cent) was recorded during period II over period I.
ANDHRA PRADESH:

During the pre-green revolution period in case of groundnut crop, lagged rainfall and irrigated area were the responsible factors for better yield of groundnut. But price effect is negative i.e. prices of groundnut were not encouraging. Only 58 per cent of variation in groundnut yield was recorded by these variables. In period II irrigated area was positively and significantly influencing the yield of groundnut. Rainfall variable was also responding positively. Price effect is negative on yield of groundnut crop. The variable lagged rainfall, fertilizer consumption; area under High Yielding verities was negatively influencing the yield of groundnut crop. The decrease in variation in groundnut yield (19.80 per cent) was observed during period II over period I.

In case of sugarcane crop, lagged rainfall and irrigated area’s effect is positive on yield of sugarcane. But, rainfall and lagged price effect was negative on yield of sugarcane, i.e. prices and rainfall were the cause for low productivity. There is no significant variation in yield. During the post-green revolution period, all variables except fertilizer consumption were positively encouraging sugarcane growers for better yield. This means water source, price effect and HYV area were causing high productivity in Andhra Pradesh state. Fertilizer consumption was negative and significant, i.e. insufficient use of fertilizer was causing low productivity of sugarcane. By raising the fertilizer consumption it is possible to raise the cane yield. A decreasing variation in cane yield (20.16 per cent) was observed during period II than in period I.