CHAPTER - 5

The Hectarage Response of Oilseed Crops in Rayalaseema
5.1. INTRODUCTION:

To study the hectarage response of oil seed crops, particularly Groundnut, Castor, Sesamum, Coconut and Linseed of Rayalaseema Region, Nerlove’s partial adjustment lag model was adopted. The final model was given in methodology. The calculated data on oil seed crops related to Rayalaseema region was fed with the equation (8) and (1). By adopting the OLS technique as method of estimation, the parameters of the variables were estimated. The results relating to equation 8 presented in Table 5.1. Both linear and log-linear models were estimated. The t-values, F-values and the multiple correlation coefficient along with the corresponded D-statistic also were given in the table. The crop wise analysis was given below

5.2. The Hectarage Response of Oil Seed Crops

RAYALASEEMA:

Groundnut Crop: The results (Linear and log-linear models) related to Rayalaseema region are shown in the table 5.1. The estimated regression co-efficient of the variables, lagged price and lagged area of groundnut crop are positive and significant at 5 percent probability level in case of linear model but the lagged price co-efficient is significant in log-linear model.

The co-efficient of $A_{t-1}$ is positive but not significant. It reveals that an increase in one unit of lagged area will increase in current area by 0.085 units. Similarly an increase in 1 unit of lagged area will increase the current area by 0.533 units in case of linear model. But this increment is significant at 5 percent probability level.

The value of multiple Correlation co-efficients ($R^2$) shows the total effect of two variables $P_{t-1}$ and $A_{t-1}$ on area ($A_t$) under the crop. These two variables show 61.02 percent and 29.78 percent of variation in groundnut area in linear and log-linear models respectively. From F- test statistic, it is observed that this variation is significant at 5
percent probability level. The value of intercept term shows the effect of variables, which are not included in the model.

In the above discussion, the coefficients of lagged price (Pt-1) and lagged Area (At-1) are positive and significant. It means that there is a positive price response in allocating the area under groundnut crop in Rayalaseema region. Hence, the present study reveals that in Rayalaseema region, groundnut crop is price responsive. Jhala found the negative price response in case of groundnut crop. It means the oil seed crops are not price responsive in his study. He came to the conclusion that the agro-climatic conditions influence the groundnut growers.

Table 5.1
ESTIMATED REGRESSION CO-EFFICIENTS OF EQUATION -8 RAYALASEEMA REGION

<table>
<thead>
<tr>
<th>Crop</th>
<th>Models</th>
<th>Constant</th>
<th>Pt-1</th>
<th>At-1</th>
<th>R²</th>
<th>F</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groundnut</td>
<td>Linear</td>
<td>364599.4400</td>
<td>222.7928</td>
<td>0.53382</td>
<td>0.6102*</td>
<td>21.1352</td>
<td>2.1433</td>
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<tr>
<td></td>
<td>Log-Linear</td>
<td>10.3380</td>
<td>0.3686</td>
<td>0.0847</td>
<td>0.2978*</td>
<td>5.7260</td>
<td>2.0115</td>
</tr>
<tr>
<td>Castor</td>
<td>Linear</td>
<td>5327.9111</td>
<td>0.9748</td>
<td>0.3090</td>
<td>0.1162</td>
<td>1.7754</td>
<td>2.0592</td>
</tr>
<tr>
<td></td>
<td>Log-Linear</td>
<td>2.9330</td>
<td>-0.0043</td>
<td>0.6754</td>
<td>0.4283*</td>
<td>10.1141</td>
<td>2.0527</td>
</tr>
<tr>
<td>Sesamum</td>
<td>Linear</td>
<td>5201.3130</td>
<td>-1.5665</td>
<td>0.5090</td>
<td>0.5893*</td>
<td>19.3683</td>
<td>2.0100</td>
</tr>
<tr>
<td></td>
<td>Log-Linear</td>
<td>7.7450</td>
<td>-0.3095</td>
<td>0.3575</td>
<td>0.7346*</td>
<td>37.3645</td>
<td>1.8561</td>
</tr>
<tr>
<td>Coconut</td>
<td>Linear</td>
<td>102.9929</td>
<td>0.2289</td>
<td>0.8125</td>
<td>0.9709*</td>
<td>449.8168</td>
<td>1.8727</td>
</tr>
<tr>
<td></td>
<td>Log-Linear</td>
<td>0.3470</td>
<td>0.1064</td>
<td>0.8577</td>
<td>0.9689*</td>
<td>421.0779</td>
<td>2.2422</td>
</tr>
<tr>
<td>Linseed</td>
<td>Linear</td>
<td>75.1651</td>
<td>-0.0205</td>
<td>0.1220</td>
<td>0.1178</td>
<td>1.8027</td>
<td>1.9950</td>
</tr>
<tr>
<td></td>
<td>Log-Linear</td>
<td>3.347</td>
<td>-0.0806</td>
<td>0.2835</td>
<td>0.0909</td>
<td>1.3493</td>
<td>1.8951</td>
</tr>
</tbody>
</table>

* Significant at 5 percent probability level
Figures in the Parenthesis are t-values

Castor Crop:

The estimated regression co-efficient of lagged price of Castor crop is positive and not significant in linear model. It reveals that an increase in one unit of lagged price will
increase the area 0.97 units. But in case of log-linear model the estimated regression co-
efficient is negative and not significant. The estimated regression co-efficient of lagged 
area of castor crop is positive. But it is significant at 5 percent probability level in case of 
log-linear model.

The combined effect of two lagged variables in the model is expressed by the 
value of multiple correlation co-efficients. That is 0.1162 and 0.4283. These two variables 
are shown 11.62 percent of variation in castor area and 42.83 percent of variation in 
castor area in linear and log-linear models respectively. From F- test statistic, it is 
observed that this variation is significant in log-linear model but not significant in linear 
model.

The study reveals that the castor cropped area is positively responded by lagged 
price and lagged area. It shows that Castor area allocation is influenced by marketing 
prices of Castor. The marketing prices are encouraging the castor crop growers in 
Rayalaseema region.

Sesamum Crop:

The results of sesamum crop are also shown in table 5.1. The results indicate that 
the estimated regression co-efficient of lagged price is negative and significant at 5 
percent probability level. While the estimated regression co-efficient of lagged area of 
sesamum crop is positive and significant, it is noticed that the sesamum area was 
positively and significantly responded by its lagged area. Similarly the current Sesamum 
area was negatively and significantly responded by its lagged price.

The combined effect of two exogenous variables in the model \( (P_{t-1}, A_{t-1}) \) on 
endogenous variable \( (A_t) \) is shown by the value of multiple correlation co-efficient \( (R^2) \). 
The value of \( R^2 \) in the two models is 0.5893 and 0.7346. These two variables show 58.93 
percent and 73.46 percent of variation in Sesamum area linear and log-linear models
respectively. From F-test statistic, it is observed that this variation is significant at 5 percent probability level. The logged price (Pt-1) co-efficient is negative and significant. It reveals the fact that the price is not encouraging the farmers. But here is some scope to raise the area under the Castor crop by giving some price incentives or by providing better marketing facilities.

**Coconut:**

From the table 5.1, the estimated regression co-efficients, i.e., the lagged price and lagged area of coconut are positive and significant. It reveals that an increase of one unit in lagged price will increase area by 0.229 units. Similarly an increase of one unit in lagged area will increase the current area by 0.813 units. In log linear model the co-efficients of lagged price and lagged area are positive and significant. Therefore it is noticed that the area under the coconut crop in Rayalaseema region was positively and significantly responded by these two selected variables. Hence, it is inferred that the coconut cropped area was responded by lagged price and lagged area.

The aggregate effect of two independent variables on dependent variable coconut area was shown by the multiple correlation co-efficient. The value of $R^2$ is 0.9709 and 0.9689 in the two models respectively. These two variables show 97.09 percent and 96.89 percent of variation in coconut area in linear and log linear models respectively. From F-test statistic, it is observed that this variation is significant at 5 percent probability level.

With respect to the coconut crop in Rayalaseema, the current area under the crop is influenced by lagged price (P_{t-1}) and lagged area (A_{t-1}). Hence, these two variables have significant effect. From the results, it is observed that the coconut crop is responded by lagged price and lagged area under the study.
Linseed:

The estimated results of Linseed crop indicate that the estimated regression co-efficient of lagged price is negative and insignificant. While, the co-efficient of lagged area of linseed is positive and not significant, a positive relation was recorded between area and lagged area of linseed crop but a negative relation was established between area and lagged price. It is noticed that these two variables, independently, are not shown any significant effect on Linseed area in Rayalaseema region. Therefore the Linseed area was negatively responded by its lagged price. The value of $R^2$ is 0.1178 and 0.0909 in both the models, i.e. the total effect of two variables $Pt-1$, $At-1$ on area ($At$) under the crop. These two variables show 11.78 percent and 9.09 percent of variation in linseed area in linear and log-linear models respectively. From F-test statistic, it is observed that this variation is not significant.

The estimated results of Linseed crop in Rayalaseema region; a negative price relationship with the area under the Linseed crop was noticed. Since the logged price ($Pt-1$) co-efficient is negative and not significant. It reveals the fact that the prices are not encouraging the farmers.

The equation eleven is fed with the data of Rayalaseema region. The estimated regression co-efficients of five oilseed crops, namely, groundnut, castor, sesamum, coconut and linseed is shown in table 5.2. Both linear and log-linear models are estimated and the results are given separately in the table.
Table 5.2
ESTIMATED REGRESSION CO-EFFICIENTS OF EQUATION - 11
RAYALASEEMA REGION

<table>
<thead>
<tr>
<th>Crops</th>
<th>Constant</th>
<th>Pt-1</th>
<th>Yt-1</th>
<th>Rt</th>
<th>It</th>
<th>$\tilde{\alpha}_{Pt}$</th>
<th>$\tilde{\alpha}_{Yt}$</th>
<th>Tt</th>
<th>At-1</th>
<th>$R^2$</th>
<th>F</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groundnut</td>
<td>Linear</td>
<td>5831.273</td>
<td>201.217</td>
<td>275.779</td>
<td>137.853</td>
<td>3.310* (2.339)</td>
<td>1802.254* (2.040)</td>
<td>340.762</td>
<td>6177.871</td>
<td>0.218</td>
<td>0.7996*</td>
<td>10.4707</td>
</tr>
<tr>
<td></td>
<td>Log-linear</td>
<td>12.6182</td>
<td>0.034 (0.114)</td>
<td>0.287 (1.222)</td>
<td>-0.080 (0.224)</td>
<td>-0.122 (0.466)</td>
<td>0.415* (5.364)</td>
<td>-0.047 (0.500)</td>
<td>0.328 (1.065)</td>
<td>-0.143 (1.007)</td>
<td>0.7554*</td>
<td>3.2618</td>
</tr>
<tr>
<td>Castor</td>
<td>Linear</td>
<td>26.641</td>
<td>-10.836</td>
<td>-7.268</td>
<td>3.003 (0.409)</td>
<td>48.895* (2.893)</td>
<td>-11.741 (0.854)</td>
<td>2.053 (0.061)</td>
<td>516.369 (1.457)</td>
<td>0.553*</td>
<td>0.5541*</td>
<td>2.495</td>
</tr>
<tr>
<td></td>
<td>Log-linear</td>
<td>2.289</td>
<td>-0.219</td>
<td>-0.309</td>
<td>0.266 (0.525)</td>
<td>0.143 (1.220)</td>
<td>0.106 (0.910)</td>
<td>0.065 (0.332)</td>
<td>0.134 (0.498)</td>
<td>0.668*</td>
<td>0.5426*</td>
<td>3.1139</td>
</tr>
<tr>
<td>Sesamum</td>
<td>Linear</td>
<td>124.993</td>
<td>0.782 (0.325)</td>
<td>4.798 (0.813)</td>
<td>1.696 (0.741)</td>
<td>2.244* (5.557)</td>
<td>2.282 (0.460)</td>
<td>19.779 (1.620)</td>
<td>-305.166* (1.701)</td>
<td>-0.213 (1.282)</td>
<td>0.8685*</td>
<td>17.3244</td>
</tr>
<tr>
<td></td>
<td>Log-linear</td>
<td>0.787</td>
<td>-0.180 (1.979)</td>
<td>0.074 (0.815)</td>
<td>0.024 (0.236)</td>
<td>1.126* (9.425)</td>
<td>0.058 (1.794)</td>
<td>0.60 (1.746)</td>
<td>-0.187* (2.356)</td>
<td>-0.134 (1.405)</td>
<td>0.9674*</td>
<td>77.9033</td>
</tr>
<tr>
<td>Coconut</td>
<td>Linear</td>
<td>105.898</td>
<td>0.045 (0.282)</td>
<td>-0.018 (0.851)</td>
<td>-0.377 (1.039)</td>
<td>0.381 (2.044)</td>
<td>0.165 (0.594)</td>
<td>0.100* (2.073)</td>
<td>41.453 (1.095)</td>
<td>0.256 (0.971)</td>
<td>0.9814*</td>
<td>138.6051</td>
</tr>
<tr>
<td></td>
<td>Log-linear</td>
<td>3.401</td>
<td>0.048 (0.488)</td>
<td>-0.063 (1.181)</td>
<td>-0.022 (0.275)</td>
<td>0.630* (3.290)</td>
<td>0.005 (0.244)</td>
<td>0.002 (0.630)</td>
<td>0.135 (1.442)</td>
<td>0.113 (0.546)</td>
<td>0.9835*</td>
<td>156.3976</td>
</tr>
<tr>
<td>Linseed</td>
<td>Linear</td>
<td>2.471</td>
<td>-0.068 (0.819)</td>
<td>0.028 (0.161)</td>
<td>0.070 (0.979)</td>
<td>0.300 (1.574)</td>
<td>-0.079 (0.233)</td>
<td>2.087 (0.380)</td>
<td>-0.117 (0.485)</td>
<td>0.2406</td>
<td>0.9957</td>
<td>2.031</td>
</tr>
<tr>
<td></td>
<td>Log-linear</td>
<td>2.948</td>
<td>-0.038 (0.052)</td>
<td>0.214 (0.550)</td>
<td>0.809 (0.955)</td>
<td>0.464 (1.971)</td>
<td>-0.100 (0.475)</td>
<td>-0.265 (0.372)</td>
<td>0.009 (0.039)</td>
<td>0.2881</td>
<td>1.2719</td>
<td>2.0657</td>
</tr>
</tbody>
</table>

* Significant at 5 percent probability level
Figures in the Parenthesis are t-values
Groundnut Crop:

The table 5.2 indicates that the estimated regression co-efficient of lagged yield ($Y_{t-1}$), trend value ($T_t$) are positive and not significant. The estimated regression co-efficients of Rainfall ($R_t$) and yield risk ($Y_t$) are negative and not significant. These co-efficient values don’t influence the current area ($A_t$). The estimated regression co-efficients of lagged price ($P_{t-1}$) is negative in linear model, but in case of log-linear model, it is positive. In case of lagged area ($A_{t-1}$), it is positive in linear model, but in log-linear model it is negative. Therefore two variables haven’t shown any significant effect.

The value of co-efficient irrigated area ($I_t$) is positive and significant at 5 percent probability level in linear model. It indicates that an increase of one unit of irrigated area will increase 3.31 units of area under the groundnut crop in Rayalaseema region. But in log-linear model it is negative and not significant.

In case of Price risk ($P_t$) the co-efficient is positive and significant at 5 percent probability level. It indicates that an increase of one unit of price risk ($P_t$) will increase by 1802.254 units of area under the groundnut crop in Rayalaseema region. The same trend was observed in log-linear model also.

The value of multiple correlation co-efficient is 0.7996 and 0.7455 in linear, log-linear models. The two independent variables collectively noticed that the variation in groundnut area is 79.96 percent and 74.55 percent in the two models respectively. The aggregate effect of these two variables was tested by F-test statistic. From F-test statistic, it is observed that this variation is significant at 5 percent probability level. The value of intercept is positive and it expresses the positive effect of variables which are not considered in the model.

In Rayalaseema the groundnut crop is neither price responsive nor Area responsive. It is responded by irrigated area and price risk.
Castor:

The estimated regression co-efficient of lagged area (At-1) is positive and significant at 5 percent probability level in both linear and log-linear models. It reveals that the increase in one unit of lagged area (At-1) will increase in 0.553 units and 0.668 units in both linear and log-linear models respectively in Rayalaseema region. The estimated regression co-efficient of Irrigated Area (It) is positive and significant at 5 percent probability level in linear model in Castor crop in Rayalaseema region. It indicates that the increase in one unit of irrigated area will increase 48.895 units of castor crop area in Rayalaseema, but it is not significant in log-linear model. The co-efficients of lagged price (Pt-1) and lagged yield (Yt-1) are negative and not significant. In case of the variables rainfall and yield risk the co-efficients are positive and not significant. The co-efficient of price risk is negative and not significant in linear model but in log-linear model, it is positive and not significant. The intercept is positive and it expresses the positive effect of other variables.

The multiple correlation co-efficient ($R^2$) shows the total effect of all independent variables on dependent variables. The value of $R^2$ is 0.5541 and 0.5426 in two models. These variables, aggregately, noticed 55.41 percent and 54.26 percent of variation in Castor area in Rayalaseema region of A.P. From F-test statistic, it is observed that this variation is significant at 5 percent probability level.

From the estimated results of Castor crop in Rayalaseema region, the area under the Castor crop is responded to lagged area. The price response is negative and not significant. The farmers in Rayalaseema region are not responded with prices of Castor. The irrigation factor shows positive effect in allocating area under the crop. It reveals that the Castor crop is responsive to irrigation facilities.
Sesamum:

The results of Sesamum crop in Rayalaseema region are given in table 5.2. The estimated regression co-efficient of lagged area (At-1) is negative and not significant. This lagged area (At-1) co-efficient shows negative effect.

The estimated regression co-efficient of irrigated area (It) is positive and significant at 5 percent probability level in both linear and log-linear models. It indicates that the increase in one unit of irrigated area will increase 2.24 units and 1.13 units in current area (At) under Sesamum crop in Rayalaseema region in both linear and log-linear models. The co-efficients of lagged yield (Yt-1), rainfall (Rt), yield risk (Yt), Price risk (Pt) are positive and not significant in Rayalaseema region. The lagged price (Pt-1) is positive and not significant in linear model but in log-linear model it is negative and not significant. The estimated regression co-efficients of Trend value (Tt) is negative and not significant in linear model. But in log-linear model it is negative and significant at 5 percent probability level. It shows negative effect on current area (At).

From the value of R², It is noticed that 86.84 percent and 96.74 percent of variation in total sesamum area by selected explanatory variables. From F-test statistic, it is observed that this variation is significant 5 percent probability level. The value of intercept is negative in linear model but positive in log-linear model.

The sesamum crop in Rayalaseema region is responded by irrigative area but not lagged area.

Coconut Crop:

The estimated regression co-efficient of Irrigated area (It) is positive and significant at 5 per cent probability level in both linear and log-linear models. It indicates that an increase of one unit of irrigated area (It) will increase in 0.381 units and 0.630 units of current area (At) under coconut crop in Rayalaseema in both linear and log-linear models respectively.
The estimated regression co-efficients of lagged price ($P_{t-1}$), lagged area ($A_{t-1}$), price risk ($P_t$), yield risk ($Y_t$) and trend value ($T_t$) are positive and not significant in both the models.

The co-efficients of lagged yield ($Y_{t-1}$) and Rainfall ($R_t$) are negative and not significant. Incase of yield risk ($Y_t$) the co-efficient is positive and significant at 5 percent probability level in linear model. It reveals that the increase in one unit of yieldrisk ($Y_t$) will increase 0.100 units of Current area ($A_t$), but in log-linear it is positive and not significant. The intercept value of coconut crop in Rayalaseema is positive and it expresses the positive effect of other variables on the dependent variables coconut area.

The value of $R^2$ is 0.9814 and 0.9835 respectively. Therefore the collective effect of all exogenous variables in the model on endogenous variables is 98.14 percent and 98.35 percent. These percentages reveal the variation in coconut area in Rayalaseema region. From F-test statistic, it is observed that this variation is significant at 5 percent probability level in both linear and log-linear models.

From the analysis of estimated regression co-efficients of coconut crop, the coconut crop in Rayalaseema is Irrigative responsive crop as well as positive price responsive.

**Linseed:**

The estimated regression co-efficients of lagged price ($P_{t-1}$), yield risk ($Y_t$) are negative and not significant in both linear and log-linear models. These co-efficients haven’t shown any effect on current area ($A_t$). The estimated regression co-efficients of lagged yield ($Y_{t-1}$), Rainfall ($R_t$), Price risk ($P_t$) are positive and not significant in both linear and log-linear models.

The estimated regression co-efficients of lagged area ($A_{t-1}$) is negative and not significant in linear model. But in log-linear, it is positive and not significant as per the trend value ($T_t$) concerned a reverse trend was recorded.
The intercept is positive and it expresses the positive effect of other variables. From the value of multiple co-efficient correlation, it is observed that 24.06 percent and 28.81 percent of variation in Linseed area in both the models. From F-test statistic, it is observed that this variation is not significant in both linear and log-linear models.

It is noticed that the linseed area is negatively responded by lagged price and yield risk variable. One unit increase in each of these variables will decrease the linseed area by 6.8 percent and 7.9 percent respectively. It is inferred that the linseed area is not responded by lagged price. It may also conclude that the linseed crop is not influenced by any selected independent variable in Rayalaseema region.

5.3. Short-run and Long-run Elasticities of Rayalaseema Region:

Nerlovian partial adjustment model is used in the present study. It is not only help in analyzing the influences of various factors on supply response but also enables us in computing the short-run and long-run price elasticities and co-efficient of adjustment. The adjustment co-efficient should be in between zero and one. If the value of co-efficient of adjustment exceeds one, it can be said that there is a over adjustment. It is implying the supply response of crop is more than anticipated. If the co-efficient of adjustment is less than zero, it can be said that the response is negative. Using the equation 9, short-run and long-run elasticities of supply are computed and they are given in the table 5.3.
Table 5.3
SHORT-RUN AND LONG-RUN ELASTICITIES OF OILSEED CROPS IN RAYALASEEMA REGION

<table>
<thead>
<tr>
<th>Crop</th>
<th>Models</th>
<th>Elasticity of Supply</th>
<th>Co-efficient of Adjustment (B)</th>
<th>Years Require for 95% effect price (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SRE</td>
<td>LRE</td>
<td></td>
</tr>
<tr>
<td>Groundnut</td>
<td>Linear</td>
<td>218.5989</td>
<td>489.9343</td>
<td>0.4463</td>
</tr>
<tr>
<td></td>
<td>Log-Linear</td>
<td>0.0004</td>
<td>0.0004</td>
<td>0.9153</td>
</tr>
<tr>
<td>Castor</td>
<td>Linear</td>
<td>0.9443</td>
<td>1.3634</td>
<td>0.6909</td>
</tr>
<tr>
<td></td>
<td>Log-Linear</td>
<td>-0.0042</td>
<td>-0.0132</td>
<td>0.3246</td>
</tr>
<tr>
<td>Sesamum</td>
<td>Linear</td>
<td>-1.6110</td>
<td>-0.0907</td>
<td>0.4910</td>
</tr>
<tr>
<td></td>
<td>Log-Linear</td>
<td>-0.3105</td>
<td>-0.4834</td>
<td>0.6425</td>
</tr>
<tr>
<td>Coconut</td>
<td>Linear</td>
<td>0.2203</td>
<td>1.1754</td>
<td>0.1875</td>
</tr>
<tr>
<td></td>
<td>Log-Linear</td>
<td>0.1059</td>
<td>0.7435</td>
<td>0.1423</td>
</tr>
<tr>
<td>Linseed</td>
<td>Linear</td>
<td>-0.2074</td>
<td>-0.0236</td>
<td>0.8780</td>
</tr>
<tr>
<td></td>
<td>Log-Linear</td>
<td>-0.0585</td>
<td>-0.0818</td>
<td>0.7165</td>
</tr>
</tbody>
</table>

Number of Years required for 95% effect of the price changes to materialistic derivation with the help of the following formula $(1-B)^n = 0.05$

Where $B = \text{Co-efficient of adjustment} \quad ; \quad n = \text{Number of years}$

**Groundnut Crop:**

The table 5.3 indicates that the short-run and long-run price elasticities of groundnut crop are positive in Rayalaseema Region. It means there is price response on area allocation for the groundnut crop in Rayalaseema region. The positive elasticities of supply price reveal that the farmers are more responsive to price changes in case of groundnut crop under the study. The co-efficient of adjustment, value (B) is 0.4462 and 0.9153 in both linear and log-linear models. It means 1 to 5 years time is required to adjust area under the groundnut crop for the Rayalaseema farmers.

**Castor Crop:**

It is observed that the short-run and long-run price elasticities of Castor crop are positive in linear model in Rayalaseema region. The value indicates that, there is price response in area allocation for the Castor crop. The positive elasticity of supply prices reveals that the farmers are more responsive to price changes in the case of Castor crop in study area. The Co-efficient of adjustment value is 0.69096. So the Castor crop farmers in Rayalaseema...
have taken 2.5 years to adjust area under the Castor crop. But in log-linear model the short-run and long-run price elasticities of Castor crop are negative. It means there is no price response on area allocation for the Castor in Rayalaseema region.

**Sesamum Crop:**

The table 5.3 indicates that the short-run and long-run price elasticities of Sesamum crop in Rayalaseema region are negative in both linear and log-linear models. It means there is no price response on area allocation for the sesameum crop in Rayalaseema region. The negative elasticities of supply price reveals that the farmers are not responsive to price changes in case of sesameum crop under the study. The co-efficient of adjustment value is 0.4910 and 0.6425 in both linear and log-linear models respectively. The sesameum crop growers have taken 3 to 5 years to adjust area under the sesameum crop to price fluctuations.

**Coconut Crop:**

The price elasticities of coconut crop is positive in Rayalaseema region. It denotes that there is price response in area allocation for the coconut crop in Rayalaseema region. The positive elasticity of supply price reveals that the farmers are more responsive to price changes in the case of coconut crop in study area. The long-run price elasticity value in linear model is more than one i.e. 1.754, in log-linear model it is 0.7436. The co-efficient of adjustment value is 0.1875 and 0.1423 in both linear and log-linear models respectively. The coconut growers have taken 15 to 20 years to adjust area under the coconut crop with the price variation in Rayalaseema region.

**Linseed Crop:**

Table 5.3 indicates that the short-run and long-run price elasticities of Linseed crop are negative. It means there is no price response on area allocation for the Linseed crop in Rayalaseema region. The negative elasticities of supply price reveals that the farmers are not
responsive to price changes in case of Linseed crop under the study. The coefficient of adjustment is 0.8780 and 0.7165 in both linear and log-linear models.

Short-run and long-run price elasticities of the five oilseed crops namely groundnut, castor, sesame, coconut and Linseed crops of Rayalaseema region are shown in table 5.3. Short-run and long-run price elasticities of the groundnut and coconut crops are positive. It means the groundnut and coconut crops are price responsive. The farmers are more responsive to price changes in the case of groundnut and coconut crops under study area.

The short-run and long-run price elasticities of Sesamum and Linseed crops of Rayalaseema region are negative. It means the Sesamum and Linseed crops in Rayalaseema region are not price responsive crops. Incase of Castor crop, It is price responsive in linear model. The coconut crop farmers have taken a long time to adjust area under the coconut crop in Rayalaseema region.