Chapter – VI
SUMMARY & CONCLUSION
SUMMARY

The present investigation entitled “Varietal evaluation and nutritional requirements of strawberry (Fragaria x ananassa Duch.) under Orissa conditions” was conducted during the period from October, 2006 to August, 2009 with an objective to evaluate the performance of Strawberry varieties and the nutritional requirements on their growth and development and the fruit yield parameters. The varieties (runners) were transplanted in the experimental field at Krishi Vigyan Kendra, Bhanjanagar, Ganjam. The results obtained during the study of this investigation have been summarized below.

EXPERIMENT – I

1. The number of leaves, runners/plant have significantly influenced among different varieties tried. The maximum average number of leaves per plant was recorded in variety Chandler (72.15) followed by Selva (67.82) in the two years trial. The maximum average number of runners produced were in Selva (3.98) followed by Chandler (3.35).

2. Selva had the longest duration of fruiting which was more than two months (69.70 days) followed by Chandler (65.99 days).

3. Maximum average number of fruits per plant was marked in Chandler (18.68) followed by Selva (15.77), which was significantly superior to other treatments tried in the experiment.

4. Chandler had fruits with maximum average length (2.81 cm) followed by Catskill (2.74cm).

5. Howard had fruits with maximum average diameter (1.94cm) followed by Chandler (1.96 cm).

6. Maximum average berry weight was significantly superior with the variety Selva (8.57g).
7. The data on maximum average yield was marked in Chandler (12.54 q/ha) and followed by Selva (11.36 q/ha).

8. Maximum average TSS was marked in Chandler (10.05°Brix) followed by Selva (9.85°Brix) and Selva had lowest TA (1.03%) which was significantly superior than other varietals followed by Chandler (1.06%)

9. Maximum average TSS/TA was marked in Selva (9.17%) followed by Chandler (8.98%) which was significantly superior to other treatments tried in the experiment.

10. Maximum average ascorbic acid was marked in Catskill (46.36) followed by Dana (43.30), which was significantly superior to other treatments tried in the experiment and followed by Chandler (42.91).

**EXPERIMENT – II (A)**

The experiment was conducted with strawberry selected variety Chandler to study the effects of various doses of N, P and K combination on growth and fruiting propensities.

1. The maximum average number of leaves, spreads of the plant and runner produced in variety Chandler were recorded in N₃P₂K₃ (60.53), (36.53 cm²) and (5.50) which also remain at par with that of N₃P₂K₂ (60.32), (36.03cm²) and (5.47) respectively.

2. The maximum average petiole length in variety Chandler was recorded in N₃P₂K₂ (14.72cm) which also followed by N₃P₂K₃ (14.71cm).

3. The maximum average duration of harvest, berries per plant, berry length and berry diameter in variety Chandler were marked in N₃P₂K₃ (66.35), (20.60), (2.21 cm) and (2.71 cm) which also remain at par that with of N₃P₂K₂ (66.32), (20.45), (1.88) and (2.57cm) respectively.
4. The maximum average berry weight, berry yield, Total soluble solid and Titrable acidity in variety Chandler were marked in N₃P₂K₃ (8.84g), (19.60, 21.60q/ha), (9.25, 9.88⁰Brix) and (1.01, 1.01 %) which also remain at par that with of N₃P₂K₂ (8.27, 9.27g), (19.45,21.45q/ha), (9.19, 9.45⁰Brix) and (1.06, 1.03%) respectively.

5. The maximum TSS/TA in variety Chandler was marked in N₃P₂K₃ (9.12, 9.78%) which also remain at par that with of N₃P₂K₂ (8.67, 9.17%).

6. The maximum reducing sugar in variety Chandler was marked in N₃P₂K₂(5.17, 5.41%) which also remain at par that with N₃P₂K₃ (4.61, 5.46%).

7. The maximum non-reducing sugar in variety Chandler was recorded in N₃P₃K₂ (0.42, 0.45 %) which also remain at par with that of N₃P₃K₃ (0.42, 0.57 %)

8. The maximum total sugar in variety Chandler was recorded in N₃P₃K₂ (5.59, 5.86%) which also remains at par with that of N₃P₃K₃ (5.03, 6.03 %)

9. The maximum ascorbic acid was recorded in both N₃P₂K₃ and N₃P₂K₃ (0.44, 0.42 mg/100g berry weight).
EXPERIMENT – II (B)

The experiment was conducted with strawberry selected variety Selva to study the effects of various doses of N, P and K combination on growth and fruiting propensities.

1. The maximum number of leaves and spreads of the plant in variety Selva were recorded in N$_3$ P$_2$ K$_3$ (60.19, 62.03), (31.61, 38.03 cm$^2$) which also remain at par with that of N$_3$ P$_2$ K$_2$ (60.08, 60.98), (31.36, 37.03 cm$^2$) respectively.

2. The maximum petiole length in variety Selva was recorded in N$_3$ P$_2$ K$_3$ (14.48, 14.95 cm) which also followed by N$_3$ P$_2$ K$_3$ (14.45, 13.24 cm)

3. The maximum runner produced in variety Selva was recorded in N$_3$ P$_2$ K$_2$ (5.51, 5.53) which was significantly superior than other NPK combinations and followed by N$_3$ P$_2$ K$_2$ (5.49, 5.47)

4. The maximum duration of harvest, berries per plant, berry length and berry diameter in variety Selva were recorded in N$_3$ P$_2$ K$_3$ (66.34, 66.38 days), (17.87, 21.60), (2.79, 2.76 cm) and (2.72, 2.74 cm) which also remain at par that with of N$_3$ P$_2$ K$_2$ (66.31, 66.35 days), (17.09, 21.45), (2.69, 2.71cm) and (2.67, 2.69 cm) respectively.

5. The maximum berry weight and berry yield in variety Selva were marked in N$_3$ P$_2$ K$_3$ (8.74, 9.34g) and (19.23, 19.56q/ha) which also remain at par that with of N$_3$ P$_2$ K$_2$ (8.52, 9.27g), (19.12, 19.29q/ha) respectively.

6. The maximum Total soluble solid and Titrable acidity in variety Selva were marked in N$_2$ P$_2$ K$_3$ (9.51, 9.69$^\circ$Brix) and (1.05, 1.01%) which also remain at par that with of N$_3$ P$_2$ K$_2$ (9.44, 9.52$^\circ$Brix), (1.05, 1.11%) respectively.
7. The maximum TSS/TA, reducing sugar, non-reducing sugar, total sugar and ascorbic acid in variety Selva was marked in N\textsubscript{3} P\textsubscript{2} K\textsubscript{3}(9.06, 9.59%), (5.20, 5.20%), (0.59, 0.51%), (5.81, 5.71%) and (0.42, 0.46%) which also remain at par that with N\textsubscript{3} P\textsubscript{2} K\textsubscript{2}(8.99, 8.59%), (5.13, 5.12%), (0.55, 0.43%), (5.68, 5.61%) and (0.42, 0.45%) respectively.

CONCLUSION

EXPERIMENT-I

Fourteen varieties of strawberry were evaluated under Bhanjanagar, Ganjam, Orissa conditions with respect to yield and yield attributing characters. The number of leaves, runners/plant have significantly influenced among different varieties tried. The maximum average number of leaves per plant was recorded in both the years variety Chandler (72.15) followed by Selva (67.82). The average maximum number of runners produced was in Selva (3.98) followed by Chandler (3.35). Selva had the longest duration of fruiting which was more than few months (69.70 days) followed by Chandler (65.99 days). The average maximum number of fruits per plant was marked in both the year variety Chandler (18.68) followed by Selva (15.77) in this experiment. Maximum berry weight was significantly superior with the variety Selva (8.57 g). The maximum average yield was recorded in both the years variety Chandler (12.53 q/ha and followed by Selva (11.35 q/ha). Maximum average Total soluble solid was marked in Chandler (10.05 °Brix) followed by Selva (9.84 °Brix) and Selva had lowest TA (1.03%) which was significantly superior than other varietals followed by Chandler (1.06 %). Maximum TSS/TA was marked in Selva (9.17 %) followed by Chandler (8.98 %) which was
significantly superior to other treatments tried in the experiment. Maximum ascorbic acid was marked in Catskill (46.36) followed by Dana (43.30), which was significantly superior to other treatments tried in the experiment and followed by Chandler (43.91).

Among the varietal trial this two variety Chandler and Selva had proven best treatment in respect of growth, runner production, yield and quality of strawberry fruits under Bhanjanagar, Ganjam conditions.

**EXPERIMENT – II (A)**

Different doses of NPK were tried in strawberry crop for two years (2008 & 09) on two selected varieties i.e., Chandler and Selva. The average maximum number of leaves, spreads of the plant and runner produced in variety Chandler were recorded in N₃ P₂ K₃ (60.53), (36.53 cm²) and (5.50) which also remain at par with that of N₃ P₂ K₂ (60.32), (36.53 cm²) and (5.46) respectively in both the years. The average maximum petiole length in variety Chandler was recorded in N₃ P₂ K₂ (14.72 cm) which also followed by N₃ P₂ K₃ (14.71 cm). The maximum duration of harvest, berries per plant, berry length and berry diameter in variety Chandler were marked in N₃ P₂ K₃ (66.35 days), (20.60), (2.21cm) and (2.71 cm). The maximum berry weight, berry yield, Total soluble solid and Titrable acidity in variety Chandler were marked in N₃ P₂ K₃ (8.84 g), (20.60q/ha), (9.55⁰Brix) and (1.05 %) which also remain at par that with of N₃ P₂ K₂ (8.77g), (20.45q/ha), (9.32⁰Brix) and 1.05%) respectively. The maximum TSS/TA in variety Chandler was marked in N₃ P₂ K₃ (9.45%) which also remain at par that with of N₃ P₂ K₂ (8.92 %). The maximum reducing sugar in variety Chandler was marked in N₃ P₂ K₂(5.29 %) which also remain at par that with N₃ P₂ K₃ (5.04 %). The average maximum
total sugar in variety Chandler was recorded in N₃ P₃ K₂ (5.73%) which also remains at par with that of N₃P₃K₃ (5.53%).

**EXPERIMENT – II (B)**

The experiment was conducted with strawberry selected variety Selva to study the effects of various doses of N, P and K combination on growth and fruiting propensities. The average maximum number of leaves and spreads of the plant in variety Selva were recorded in N₃ P₂ K₃ (61.11), (34.82 cm²) which also remain at par with that of N₃ P₂ K₂ (60.53), (34.20 cm²) respectively. The maximum petiole length in variety Selva was recorded in N₃ P₂ K₃ (14.71 cm) which also followed by N₃ P₂ K₂ (13.85 cm). The average maximum runner produced in variety Selva was recorded in N₃ P₂ K₃ (5.52) which was significantly superior than other NPK combinations and followed by N₃ P₂ K₂ (5.48). Average duration of harvest, berries per plant, berry length and berry diameter in variety Selva were recorded in N₃ P₂ K₃ (66.36 days), (19.74), (2.78 cm) and (2.73 cm) which also remain at par that with of N₃ P₂ K₂ (66.33 days), (19.27), (2.70cm) and (2.68 cm) respectively. The average maximum berry weight and berry yield in variety Selva were marked in N₃ P₂ K₃ (9.04g) and (19.40q/ha) which also remain at par that with of N₃ P₂ K₂ (8.90g), (19.21 q/ha) respectively. Total soluble solid and Titrable acidity in variety Selva were marked in N₂ P₂ K₃ (9.60 ⁰Brix) and (1.03%) which also remain at par that with of N₃ P₂ K₂ (9.49 ⁰Brix), (1.08 %) respectively. The average maximum TSS/TA, reducing sugar, non-reducing sugar, total sugar and ascorbic acid in variety Selva was marked in N₃ P₂ K₃(9.33%), (5.21 % ), (0.55 %), (5.76 %) and (0.44 %) which also remain at par that with N₃ P₂ K₂ (8.79 %), (5.13 %), (0.49 %), (5.65 %) and (0.43 %) respectively.
Hence, it was clear that, maximum emphasis may be given for cultivation of Chandler variety as well as Selva as the agro climatic condition of the zone is very much suitable by applying 120: 80: 90 kg of NPK/ha for the production of highest growth, yield and quality of strawberry.