2.1.1 AGE

Seed producers were classified, based on their chronological age into three categories young farmers, middle age and old age farmers. The results of Table-24 and Fig. 7 says that majority of the seed producers (52.5%) belonged to middle age group, followed by old age category (32.5%) and young age farmers’ category represents only 15 per cent. Based on the above record it seems that young people are not involved in the agriculture.

2.1.2 EDUCATION

It is clear from Table-25 and Fig. 8 that majority (35%) of the seed producers were illiterate, 30 per cent of the farmers acquired only primary education and 10 per cent farmers had high school education. Degree and post graduate farmers were 7.5 per cent and 2.5 per cent respectively.

2.1.3 OCCUPATION

It is clear from Table-26 and Fig. 9 that seed producing farmers did not deviate from their profession of agriculture. Majority (82.5%) of the respondents depend only on farming. Only negligible (17.5) per cent had some additional earnings like poultry, sheep rearing, diary etc.

2.1.4 LAND HOLDING

The land available per head is dwindling year after year due to partition of land among the family members. The data of Table-27 and Fig. 10 revealed that majority (37.5%) of the onion seed producers were small farmers having less than 2 hectares of land, 25 per cent of the farmers were semi medium having less than 4 hectares. Medium sized farmers had less than 10 hectares
and only a small percentage (06%) was big farmers. 11 per cent farmers belonged to marginal farmers having less than 1 hectare of land.

2.1.5 ANNUAL INCOME

It could be observed from Table-28 and Fig. 11 that majority (42.5%) of the farmers’ family income from all sources was below 1 lakh. 7.5 per cent farmers’ annual income is less than Rs. 50,000.00. 29 per cent of the farmers belonged to high income category and their annual income was more than 2 lakh.

2.1.6 LIVE STOCK POSSESSION

Though our agriculture depends on animal power, 15 percent of the seed producers do not have any cattle population due to acute shortage of labours. The results of Table-29 and Fig. 12 revealed that 85 per cent of the farmers have cattle population. Among them majority depends on tractors for their day today work.

2.1.7 MANURE APPLICATION

It is evident from Table-29 that only 6 per cent of the seed producers used FYM for the seed production. Though 85 percent of the farm families have got live stock, but of these only 65 percent were able to apply FYM.

2.1.8 FERTILIZER APPLICATION
Majority (92.5%) of the respondents had been using different synthetic fertilizers like DAP, urea, 17:17:17 etc. for onion seed production. 7.5 per cent of the farmers were not using fertilizers, but they have been using only FYM.

2.1.9 WEEDICIDE APPLICATION

Due to acute shortage of labours, weedicides usage is becoming a common practice in our agriculture. In onion seed production very low percentage (15%) of farmers used weedicides. But majority (85%) of the respondents did not use weedicides at all.

2.1.10 MICRONUTRIENTS APPLICATION

Majority (87.5%) of the seed producers were not aware of the usage of micronutrients, but only 12.5 per cent of the respondents used micronutrients.

2.2 EXTENSION PARTICIPATION

It is seen from the Table-30 that seed producers were not interested in attending training programmes, demonstrations of the agriculture-horticulture departments. Among the respondents 40 per cent visited Krishi Mela and 27.5 per cent visited other Onion seed fields in the neighbouring villages or taluks.

2.3 MASS MEDIA UTILIZATION

It is evident from Table-31 and Fig. 13 that 57.5 per cent of the respondents had T.V. sets and were viewing very few agriculture related programmes. 12.5 per cent of the farmers had radios and a few of them could listen to the related programmes. Only 7.5 per cent of the onion seed producers were reading farm magazines.

2.4 CONSULTANCY CONTACT
It could be observed from Table-32 and Fig. 14 that 12.5 per cent of the respondents visited and consulted Horticultural office regarding the improved agricultural practices of seed production. Majority (52.5%) of the farmers were completely dependent on agro-shop keepers for the type and dosage of fertilizers and plant protection chemicals. Only 30 per cent of the farmers consulted Raitha Samparka Kendras.

2.5 INDIVIDUAL KNOWLEDGE OF ONION SEED PRODUCERS

Table-33 and Fig. 15 reveals the idea on the details of various levels of knowledge. The results are presented in the following paragraphs.

2.5.1 RECOMMENDED VARIETIES AND BULB TREATMENT

It is clear from the Table-33 that only 25 per cent of the respondents having the knowledge about recommended variety, 75 per cent of the farmers purchased the mother bulbs without knowing the variety. In case of bulb treatment before plantation no farmer was having knowledge, as per recommendations.

2.5.2 PLANTATION, SPACING AND IRRIGATION

It is evident from the Table-33 that 90 per cent of the respondents had the knowledge about the plantation time and method, 45.5 per cent of the farmers had an idea about spacing. Majority of the respondents had knowledge about irrigation time and number of irrigation cycles.

2.5.3 RECOMMENDED QUANTITY OF FARM YARD MANURE
(FYM) AND FERTILIZERS

As per the Table-33 only 32.5 per cent of the seed producers having the knowledge of the doses of manure and 67.5 per cent did not have any knowledge about the quantity of the manure to be applied. As far as chemical fertilizer is concerned majority (82.5%) of the respondents had no knowledge about the dosage of fertilizers at all.

2.5.4 WEEDICIDE USAGE AND PLANT PROTECTION MEASURES

It could be seen from Table-33 that majority (67.5%) of the farmers were having the knowledge of weedicides and 32.5 per cent were not aware of such facilities. In case of plant protection measure only 12.5 per cent of the seed producers had knowledge about the diseases and their control measures. Majority (87.5%) of the respondents were not aware of the diseases and their control measures.

2.6 OVER ALL KNOWLEDGE LEVEL OF ONION SEED PRODUCERS

It is clear from the Table-34 that majority (62.5%) of the seed producers had medium level of knowledge about the seed production practices of onion, 22.5 per cent of the respondents had low and 15 per cent had high level of knowledge.

2.7 PRODUCTION PROBLEMS EXPERIENCED BY ONION SEED PRODUCERS
Onion seed producers had been facing a number of constraints from the beginning. It is evident from the Table-35 that 75 per cent of the seed producers were not having knowledge about improved varieties. None of the farmers (100%) had any knowledge about the bulb treatment before plantation. As far as selection of mother bulbs is concerned 45 per cent of the respondents had no knowledge.

About the high cost of fertilizers 77.5 per cent of the farmers expressed concern and 25 per cent said required fertilizers are not available in time. Majority (80%) of the seed producers lack the knowledge about the dosage of fertilizers, type of fertilizers to be applied to the onion seed crop.

In case of irrigation water is concerned 60 per cent of the farmers were facing inadequate irrigation facilities and 82.5 per cent farmers were facing acute shortage of water in the months of February and March.

As far as weed management is concerned 62.5 per cent farmers did not have any knowledge of weedicides and their usage, 80 per cent of the seed producers opined that hand weeding is costly and labour consuming, 62.5 per cent of the farmers faced labour problems for weeding.

With regards to disease and pest management, 85 per cent of the respondents expressed inability in identifying the diseases and pests, 87.5 per cent farmers lack the knowledge about the control measures of diseases and pests.

In case of harvesting of seeds, 35 per cent of the farmers express concern about labour problems for harvest and 20 per cent farmers lack the
knowledge about the drying of seeds. About the improved storage technologies of onion seeds, 70 per cent of the farmers had no knowledge, as seeds have low viability.

Erratic power shedding was the major concern faced by the farmer community, 87.5 per cent expressed concern about the power cuts, 62.5 per cent farmers said inadequate supply of farm yard manure (FYM) and 45 per cent expressed concern about high cost of farm yard manure (FYM), 52.5 per cent of the seed producers expressed their helplessness of the loss due to unseasonal rains which many times cause total loss.

2.8 MARKETING BEHAVIOUR OF SEED PRODUCERS

The data of the Table-36 reveals that 30 per cent of the seed producers sell the their produce immediately after the harvest if the prices are favourable and 17.5 per cent farmers store the onion seeds and wait for good price. Majority (52.5 %) farmers will sell goods whatever the price may be.

It is seen from the data that 30 per cent farmers sell onion seeds because of their low viability and 20 per cent seed producers dispose their goods as the quality is not good. Majority (50%) of the farmers will sell the seeds for pressing needs of money.

As far as the place of selling is concerned, majority of the seed producers (77.5%) sell the seeds in bulk to the agents who purchase the produce at spot i.e. in the fields at harvest site only. About ¼ of the seed producers (22.5%) sell the seeds to the neighbouring farmers in near by villages.
As far as the market information is concerned majority of the respondents will get price information from other farmers who visited markets, 15 per cent of the farmers get the information by visiting market, 10 per cent farmers will get the price information through television and only 7.5 per cent of the respondents get the price status from newspapers.

Most of the farmers (20%) suggested to fix the price before cropping pattern and 15 per cent producers forced to establish cold storages.
III. RESULTS (MARKETING ANALYSIS)

3.1 VARIATION IN ARRIVALS AND PRICES OF ONION IN THE SELECTED MARKETS

The data of the Table-37 and Fig. 16 shows the quantity of onion arrived and the selected markets (11 major markets) across the country during 2002-2012. Bangalore market received the highest quantity of onion (56,44,450 tons) with a share of 21.69% and stood I in the ordinal position of 11 markets followed by Delhi (37,24,500 tons) with share of 14.31% and Pune (35,71,595 tons) with a share of 13.72% and stood II and III in ordinal position. Bhubneshwar market is last in the list it received 3,08,549 tons with a share of 1.18%.

3.1.1 TRENDS IN ARRIVALS OF ONION IN THE SELECTED MARKETS

The linear trend was computed in order to ascertain to long run movement of market arrivals of onion in the selected markets and the results represented in Table-38 and Fig. 17 to 27. The data of the table shows that in long run there is an increase in the arrival of onion in all the selected markets over the years. In Bangalore market the arrivals of onion was highest and is increasing every year and found to be statistically significant at 1% level of probability and 72% of change in arrivals was contributed by independent variable time (as indicated by $R^2$ value 0.72)

In Kolkata, Ahmadabad and Delhi markets the annual increase in the arrivals of onion was observed to be 21,313.5, 14,407.7, 10,249.54 tons
respectively. Annual increase in arrivals in Kolkata, Ahmadabad and Delhi was found to be statistically significant at 1% level while the annual increase in market arrival was found to be low in Nasik and Pune market and it is 1,237.01 and 1,881.1 tons respectively. Further, it was found that 03 and 02 % change in arrival of onion in Lasalgaon and Pune market respectively and it was governed by independent variable namely time as indicated by 0.03 and 0.02 R$^2$ values in arrivals of onion in Lasalgaon and Pune.

3.1.2 TREND IN PRICES OF ONION IN THE SELECTED MARKETS

In order to ascertain the long run movement of onion price in the selected markets, the data relating to market model prices of onion were subjected to linear trend equation analysis, Table-39 reveals that there was increasing trend in the prices of onion in all the selected markets and were found highly significant at 1% level.

The annual increase in prices of onion was found to be highest in Chennai market Rs. 1140.9 /t where as lowest in Nasik market Rs. 336.3 /t and was observed statistically significant. In both market the contribution of time to change in process was the extent of 73 and 36% respectively.

The increasing trend in prices varied from one market another i.e., the annual increase in prices observed in the Nasik and Chennai market were Rs. 336.3 /t and Rs. 1,140.9 /t respectively were found to be highly significant. The contribution of independent variable time to changes in the prices was found in Nasik market (36%) and highest in Chennai market (73%).
3.2 SEASONAL INDICES OF MARKET ARRIVALS OF ONION IN THE SELECTED MARKETS

In order to ascertain the seasonal indices in the long run in case of arrivals of onion in the selected markets seasonal indices were calculated using 12 months moving averages. The seasonal indices of monthly arrivals of onion in selected markets are provided in Table-40.

The results of the Table-40 and Fig. 28 to 38 indicate that there is an existence of seasonal variation in the arrivals of onion. In all selected markets the quantity of market arrivals was found to be more in the month of November and December. In Hubli market the highest market arrival was seen during the month of November (345) followed by October month (233). In Bhubaneswar, Chennai, Kolkata, Lasalgaon, Nasik, Pimpalgaon and Pune markets the onion arrivals was medium during January month (111, 108, 102, 153, 109, 133, 123 respectively) whereas in Hubli market the arrivals were found to be low in the month of August (39) and in Nasik it was low during November (49).

Out of 11 markets, the onion arrivals were high in 10 markets during December month, but only in Pune market the arrivals was low (86). In October month only at 2 market places i.e., Bangalore and Hubli the arrivals were found to be high 223 and 233 respectively whereas in all other markets the arrivals were low in October month. In January and February months the arrivals were found to be high in 7 markets out of 11 markets and in 4 markets Ahmadabad, Bangalore, Delhi and Hubli markets the arrivals was low during
January and February months, 90 and 86 in Ahmadabad, 80 and 61 in Bangalore, 84 and 83 in Delhi and 63 and 43 in Hubli market respectively.

In September month only at 3 markets places Bangalore, Bhubaneswar and Chennai the arrivals were high 127, 109, and 101 respectively, whereas, in other 8 markets the arrivals were low in September month.

3.3 SEASONAL INDICES OF MARKET PRICES OF ONION IN THE SELECTED MARKETS

The seasonal indices of market prices of onion in selected markets are presented in Table-41 and Fig. 28 to 38. The data indicates that the existence of seasonal variation in prices of onion in selected markets. In all the markets the prices were found to be more from September to January which later decreased. In the Kolkata market the highest market price was seen during December and January months (221 and 140 respectively) followed by Ahmadabad (158 and 153 respectively) and Pune (157 and 150 respectively), Nasik (172 and 148 respectively) whereas the prices of onion in all selected markets were found to be low in the months from January to July. In Kolkata, Nasik and Pune markets highest prices were observed during the month of December and November 221 and 140, 172 and 148 and 157 and 150 respectively, lowest prices were found in May month 49, 57 and 58 respectively. In all the markets the prices were found to be high from August to January months whereas the prices were low from February to July. In Bangalore, Bhubaneshear and Chennai the prices were high from September to December months where the arrivals of onion were also high.
The prices of onion in all the selected markets were found to be low in February month where the arrivals were maximum. In all selected markets the arrivals of onion were low in October month except Bangalore and Hubli markets but the prices were high in all selected markets. In majority of selected markets there was no correlation between arrivals and prices of onion during November, December and January months. In these markets there was a negative correlation between arrivals and prices of onion i.e., high market prices and high arrivals.

3.4 PRICE INDEX

The cultivation of onion is most suitable in country like India with preponderance of small land holding, varied climatic conditions and surplus family labour. India is second largest producer of onion next only to China. Increase in production of onion has increased the marketable surplus which is quite high as compared with other agricultural commodities. At the same time the perishability and seasonality of onion crop is high as compared to other crops. Due to these factors the produce has no control over prices, which leads to price uncertainty, the analysis of variation in arrivals and prices could be immensely useful to take decisions like “When to grow and when to sell”, on the part of farmers and “When, where, how to store and dispose of the produce” on the part of businessmen.

Instability of price of agricultural commodities has been one of the major factors affecting the income levels of farmers as well as the tempo of agricultural production. This instability in prices of agricultural commodities is influenced by a
number of factors such as annual variation in production, low prices, and elasticity of demand and seasonality of agricultural production. Onion is more prone to marketing problems compared other agricultural commodities because of their basic characteristics of perishability and bulkiness. The existence of large number of middle man accentuates the problems, all the more. Hence, in India, there is need to bring improvement in marketing efficiency.

The arrival and prices of onion are also unpredictable. There were low price when arrival was in medium quantity and high prices in the seasons. On the basis of prices study, farmers can make rational decision for allocation of the crop area by anticipating the future prices based on the prices prevailed in the past. It is therefore necessary to study the prices and arrivals which form an essential requirement for policy formulation.

3.5 PREDICTION OF ARRIVALS AND PRICES OF ONION IN THE SELECTED MARKETS

3.5.1 BANGALORE MARKET

The predicted values of the arrivals and prices were carried out up to 2020. The results are shown in the Table-42, which depicts a narrow variation in between actual and predicted values of arrivals and price of onion. The predicted values of the price showed an increasing trend in near future. The price data of onion of 2006 shows a steep decline in the price of onion when compared to 2005; it is almost Rs. 190.00 /q though there is no much variation in the onion arrivals. Even though there is a little difference in the arrivals in between 2006-2007, the price rose up more than two times in 2007. There is
about Rs. 200.00 /q difference in the observed and predicted price in 2012. Sudden hike in the prices cannot be explained because there was no much increase or decrease in the quantity of arrivals of onion. As there is market integration between different markets with respect to onion prices, arrivals to a particular market will not influence the price in that market; it is regulated by hoarders and export quantum (Table-52).

3.5.2 BHUBANESWAR MARKET

The data of Table-43 shows that the observed price was very less in 2003, it was Rs. 136.00 /q whereas the predicted price was very high almost three times i.e., Rs. 422.00 /q. Similar to other markets, the price decreased in 2008, it was almost Rs. 200.00 /q less when compared to the price of 2007. In 2003 the arrivals were very low i.e., 723 tons, but the price also came down from Rs. 489 to 136.00 /q which is abnormal when considering the market principles. The data of 2011 of arrivals shows there was a decline in the arrivals and so also the price of onion. In 2012 market received 800 quintals less onions but price also comes down from Rs. 1,504.00 /q to 634.00 /q it is almost Rs. 900.00 /q less. This is not justifiable. There is a much difference in the observed (Rs. 634.00 /q) and predicted price (Rs. 1329.00 /q) in 2012. The values of the predicted prices show there is an increasing trend in the succeeding years.

3.5.3 CHENNAI MARKET

The data of the Table-44 shows that the trend of actual arrivals was increasing from 2002 to 2012 with one or two exceptions. In 2004 the arrivals
of onion was almost double (9525 tons) when compared to 2003 (4738 tons), but the price also increased more than twice, it was Rs. 623.00 /q in 2004 and Rs. 302.00 /q in 2003. This shows a negative correlation between arrivals and prices.

In 2007 the market received 1500 tons less onion compared to 2006 which is not significant, but the price change was very significant; it was almost two times. Similar to other markets the price came down from 2010 onwards up to 2012; it was Rs.1605.00 /q in 2010 and Rs. 1104.00/ q in 2012. There is a lot of difference between actual and predicted price during 2012; it was Rs. 373.00 /q.

3.5.4 DELHI MARKET

The details of the arrivals and prices are shown in Table-45 which reveals that there was an increasing trend of observed prices from 2002 to 2010, then onwards (2011) price data shows decreasing trend. In 2006 around 8000 tons more onion arrived to the market compared to 2005 and the price of onion was reduced to Rs. 168.00 /q i.e., high arrivals and low price. This trend holds good to the principles of the market. In 2008 the market received 3000 tons less onion compared to previous year (2007) whereas the price was reduced to Rs. 300.00 /q instead of rise in the price. This shows the negative correlation between the arrivals and price. The same situation was also seen between 2008 and 2009.

3.5.5 HUBLI MARKET
The values of the arrivals and prices of Table-46 show that the trend of actual price is similar to that of Delhi market i.e., there is an increasing trend from 2002 to 2020. There is a sharp decline in the quantity of arrivals in 2006 i.e., 3200 tons less compared to 2005 and the same trend is seen during 2008 i.e., 5700 tons less when compared to 2007 arrivals.

The price of onion shows that there was very low price as quoted in 2006, which is Rs. 159.00 /q less compared to 2005. In this year 2006, there is a decline in arrivals and prices. This is again a negative correlation between arrival and prices. In 2008 also there is a decline in arrivals of 5700 tons, but the price also decreased to an extent of Rs. 283.00 /q when compared to previous years 2007. This shows that the market principle will not hold good for some markets and for some commodities like onion and tomato.

3.5.6 KOLKATA MARKET

The figures of the Table-47 show that the trend of observed prices is similar to that of other markets. But the observed price was recorded very low in 2003, 2006, 2008, and 2011, when compared to their previous years’ prices. It was Rs. 532.00 /q in 2002 and reduced to 371.00 /q in 2003 though there was no much hike in arrivals of onion in 2003. Similarly Rs. 731.00 /q was recorded in 2005 and was reduced to Rs. 576.00 /q in 2006 i.e., around Rs. 200.00 /q, compared to 2005. In 2006, the arrivals of onion was very high i.e., around 8000 tons. Probably high arrivals were the reason for falling in the onion price.

In 2009, the onion arrivals were higher (32,236 tons) and so also the prices (Rs. 1407.00 /q). In 2011 the arrivals were reduced to half when
compared to 2010. The prices were also reduced to Rs. 1,193.00 /q i.e., more than Rs. 200.00 /q less when compared to 2010 prices. In 2012, the predicted price was much higher i.e., Rs. 1,313 /q when compared to observed values Rs. 981.00 /q.

3.5.7 LASALGAON MARKET

The data of Table-48 reveals that the actual price was reduced in 2006 and 2008 compared to previous years. The price was Rs. 495.7 /q in 2005, but it was reduced to 335.00 /q in 2006. The price recorded in 2007 was very high (Rs. 858.00 /q), compared to its previous year (2006) it was 335.4 /q. It is more than two-folds.

In 2008, there is an increase of 7,000 tons of onion arrival to the market when compared to 2007. The price was very much reduced in 2008 (Rs. 511.00 /q) when compared to 2007 (Rs. 858.00 /q) it was Rs. 340/q less. Probably this is due to the more arrival of onion to the market during 2008. Here market principle holds good i.e., there is a positive correlation between arrivals and prices. Similar to other markets, the price has come down from 2010 to 2012.

During 2010 the market received 5,000 tons less onion compared to 2009, but the increase in the price was very narrow (Rs. 117.00 /q).

The price was Rs. 1024.00 /q in 2010 and it was reduced to 562.00 /q in 2012, Rs. 462 less when compared to the price of 2010 but arrival of onion was more than 10,000 tons.

3.5.8 NASIK MARKET
The details of the arrivals and prices of onion are given in Table-49. The values of the prices and arrivals show that the trend was similar to that of Lasalgaon market. There was a sharp decline in the price in 2006 and it was Rs. 306.1/q when compared in 2007 it was Rs. 806.30/q. But the price increased to Rs. 806.00/q in 2007.

The arrivals of onion in 2006 were more than 800 tons when compared to 2005 and the price reduced up to Rs. 180.00/q in 2006. This shows a positive correlation between arrivals and prices.

The arrivals during 2010 were more compared to 2009; it was around 400 tons. The data of same period shows that there was an increase in the price of onion in 2010. It was more than Rs. 350.00/q. This is a negative correlation between arrivals and prices i.e., more arrivals and more prices. But 2011 and 2012 arrivals and prices show the positive correlation i.e., more arrivals (1,700 tons) during 2012 and low price (Rs. 240.00/q) compared to 2011.

**3.5.9 PIMPALGAON MARKET**

The data of the Table-50 shows that the arrivals of onion were on increasing trend from 2004-2009. It was very much reduced during 2010 and again increased from 2011.

Similar to other markets, in 2006, there was a decline in the price up to Rs. 170.00/q when compared to 2005. The price was increased more than two times in 2007 when compared to 2006; it was Rs. 332.00/q in 2006 and increased to Rs. 860.00/q in 2007. Highest price was recorded in 2010; hence,
there is a much difference between predicted and actual price in 2010. The values of the predicted prices show an increasing trend from 2002-2012.

In 2010, the market received 13,310 tons less onion when compared to 2009 and the price increased up to Rs. 134.00 /q when compared to 2009 and the market analysis shows a positive correlation between arrivals and prices in 2012.

In 2006 the market arrivals of onion was same (39,417 tons) as compared to 2005, but the price of onion went down up to Rs. 169.00 /q in 2006. The predicted price was Rs. 556.00 /q and actual was Rs. 332.00 /q. This is not reasonable.

3.5.10 PUNE MARKET

The data of the Table-51 reveals that the arrivals of onion to the market were increasing from 2003 to 2009, afterwards there was a decline. The price trend exhibits same as that of other markets. In 2009 the market received 6,000 tons more onion when compared to 2008, but the prices were also more at an extent of Rs. 400.00 /q in 2009. This is a negative correlation between arrivals and prices of onion. Farmers bring onion to the market when the prices are high and they do not bring if the prices are low in the markets.

In 2012 the arrivals of onion shows a little hike of 786 tons, but the price of onions has reduced very much; it was Rs. 290.00 /q. This is again not justifiable.

In all the selected markets, the price of onion suddenly jumped almost double in 2007, when compared to the price of 2006. Further, the price trend shows the decrease from 2010 onwards up to 2012 in all the selected markets
but, there was an increasing trend in the arrivals of onion in Lasalgaon, Nasik, Delhi, Pimpalgaon, Bangalore and Chennai markets.

The arrivals of onion in majority of the selected markets like Kolkata, Nasik, Pune and Delhi were reduced in 2007.

3.6 CORRELATION BETWEEN THE PRICES OF ONION IN THE SELECTED MARKETS

All selected markets are integrated or correlated with other markets except Nasik and all show significant at 1% level. Nasik market has no correlation with Ahmedabad and Kolkata. Only Ahmedabad and Kolkata markets show correlation, significant at 5% level. Lasalgaon and Pimplgaon markets have very highest level (9) of correlation with other selected markets (Table-52).

DISCUSSION

The results of the study are discussed under the following heads:
1. Profile of the onion growers and seed producers

2. Extension participation

3. Mass media utilization

4. Consultancy contact

5. Knowledge level of individual on cultivation practices.

6. Production problems experienced by onion growers and seed producers

7. Marketing behaviour of onion growers and seed producers

8. Marketing problems experienced by onion growers

9. Suggestions offered by onion growers

10. Variation in arrivals and prices of onion in the selected markets

11. Forecasting the prices of onion in the selected markets

PROFILE OF THE ONION GROWERS AND SEED PRODUCERS

AGE

The data of Table-8 revealed that 58 per cent of onion growers belonged to middle age group followed by 26 per cent in old age group and 16 per cent in young age group category.

The results of Table-24 shows that 52.5 per cent of the onion seed producers belonged to middle age group, followed by 32.5 per cent in old age group and remaining 15 per cent belonged to young age group.

The probable reasons for majority of the respondents to be in the middle age group category might be that usually farmers of middle age group were active, enough experience in farming and have got more work efficiency than
young and old age farmers. Further, middle aged farmers possess more physical stamina and more family responsibilities than young ones. The results are also hold good with the findings of Karpagam (2000) and Sunilkumar (2004).

**EDUCATION**

It is evident from Table-9 that majority of the respondents (39%) were illiterate, followed by 28, 12, 11, 08 and 02 per cent belonged to primary education, secondary education, PUC level, Degree and Post-Graduate level respectively. It is seen from Table-25 that a large number of the seed producers (35%) were illiterate, followed by 30, 10, 15, 7.5 and 2.5 per cent belonged to primary education, secondary education, PUC level, Degree and PG level education respectively.

Though Gulbarga district belongs to backward, the literary rate among the respondents was 61 per cent. This is due to the increased importance of literary and facilities. The facilities might have created favourable situation for education. The findings tally with the study Moulasab (2004).

**OCCUPATION**

It is evident from the Table-10 that about two-third (78%) portion of the onion growers were engaged in farming only, very less percent (22%) of the respondents were undertaken subsidiary business like poultry, sheep rearing, hotel, dairy, etc.
The data of Table-10 of onion producers are near to the results of Table-26 of the onion seed producers.

These results are in conformity with the findings of Karpagam (2000).

**LAND HOLDING**

It could be clear from Table-11 that a large per cent of the onion growers (35%) belonged to small farmers category followed by 31, 17, 11 per cent semi, medium, medium and marginal farmers respectively. Only 6 per cent of the respondents belonged to big farmer’s category having more than 10 hectares of land.

It is evident from the Table-27 that the results of seed producers are in the same line with onion growers.

This could be attributed to the inheritance of land from their ancestors. The continuous fragmentation of the family might be reason for the division of land holdings. The similar situation of small holdings distribution was also noticed in the findings of Shashidhar (2003).

**ANNUAL INCOME**

It could be seen from the Table-12 that about two-fifth (39%) per cent of the onion growers belonged to low income category, whose annual income was up to 1 lakh, followed by 10 and 15 per cent with up to 1.50 lakhs and 2 lakhs respectively. 27 per cent of the respondents had high annual income category more than 2 lakh from all sources. While only negligible per cent
(7%) of the farmers belonged to very low income category less than Rs. 50,000.00

The data of the Table-28 shows that the annual income of the seed producers is in line with the onion bulb growers. Family income up to 1.5 lakhs category farmers’ measure one fifty in seed producers and one-tenth in onion bulb growers.

The probable reason could be attributed for varies income levels of the respondents might be due to their land holding sizes and subsidiary occupation undertaken by the farmers.

The results are in conformity with the findings of Chandran (1997) except high income group. The percent of farmers with high income category is less when compared with the results of Chandran.

**LIVESTOCK POSSESSION**

It could be seen from the Table-13 that majority (84%) of the onion growers had cattle population. Among them only half of the farmers had oxen and rest of the respondents had only cow and buffaloes. Only negligible percent (16%) of the farmers were without any cattle population due to acute shortage of labours.

The results of the Table-29 onion seed producers are in line with the Table-13. Rearing cattle was the tradition systems of farmers of our country and cattle population supporting our agriculture. All agricultural families in
olden days had handful of cattle, but today in many farm families cattle population disappeared due to labour shortage and costly labours.

It is evident from the Table-13 that about two-third (65%) of the onion growers applied farm yard manure (FYM) and one third (35%) did not apply the manure.

The data of Table-29 of onion bulb growers holds good with the Table-13 of onion seed producers.

Due to the awareness programmes and farmers participated in the organic farming, more number of farmers used farm yard manure (FYM) to the crop.

**APPLICATION OF FERTILIZERS**

The data of the Table-13 shows that majority (91%) of the onion growers applied synthetic fertilizers like DAP, urea, 17:17:17 MOP and other complex fertilizers. Only a negligible percent (9%) did not use fertilizers for onion bulb crop.

The facts of the Table-29 are in line with the results of the Table-13 of onion growers.

After green revolution in India, the usage of systematic fertilizers has increased many folds. Our farmers are indiscriminately using systematic fertilizers without knowing the dose, type of fertilizer and time of application.

**APPLICATION OF WEEDICIDES**
It could be revealed from the Table-13 that more than half of the onion growers used weedicides and remaining 45 per cent had no idea of weedicides. The data of the Table-29 revealed that majority (85%) of the seed producers were not used the weedicides for seed crop and only 15 per cent of the respondents applied weedicides.

Weedicides user percentage is increasing year after year in onion bulb production. This might be due to acute shortage of the labour and weedicide application would reduce the production cost. This shows that farmers are adopting new techniques in agriculture.

APPLICATION OF MICRONUTRIENTS

It is seen from the Table-13 that only one-fifth of the respondents of onion growers used micronutrients and majority (80%) were not aware of the micronutrients usage.

The data of Table-29 reveals that still lesser percent (12.5%) of the seed producers applied micronutrients. The results of Table-13 and 29 indicate that farmers of Gulbarga district are not aware of the importance of these chemicals in the growth, development and yield of the crop. This might be due to non involvement of the farmers in the training programs, demonstrations, etc. It seems farmers are not exposing themselves to the new techniques and research in farming.

EXTENSION PARTICIPATION
The data presented in Table-14 that majority of the farmers never attended training programmes, field demonstrations about onion cultivation and seed production. One-third percent of the respondents attended Krishi Mela and only a small percent (12%) could visit other fields.

The details of the Table-30 about the seed production practices are in line with the Table-14.

It is observed from the findings that there is a variety of responses from the farmers which may be due to lack of awareness of extension activities conducting in the area and they felt that, attending other agriculture work is more important than attending extension activities and they said that we cannot adopt the suggestions of the concern officers and experts. The results are in accordance with the findings of Angadi (1999).

**MASS MEDIA UTILIZATION**

The results presented in Table-15 that about half (46%) of the onion growers had television sets and could see the programmes. 11 per cent of the respondents had radios, newspaper readers and farm magazine reader percentages were 13 and 08 per cent respectively.

In TV viewers only a small fraction were able to view agricultural programmes due to power cut at the program time and power supply during programming time made the farmers away from the home, for irrigating the crop in the field.
Table-31 revealed that, more than half of the seed producers have got TV sets and only one-tenth percent had radios, two-fifth percent have reading newspapers and only negligible (7.5%) per cent could subscribe the farm magazine.

Though the literacy rate is 61 per cent among the farmers, only 20 per cent of the respondents could read the news papers. This might be due to no reading habit in farming community.

The above findings are in accordance with the findings of Shashidhar (2003).

**CONSULTANCY CONTACT**

It is seen from the Table-16 that about half of the onion growers contact and consult with agro-shop keepers and about one-fourth of the respondents visited Raita Samparka Kendras, 14 per cent of the farmers visited other onion field and discussed with farmers and only a negligible (7%) farmers visited horticulture office and Krishi Vijnane Kendras.

The data of the Table-32 revealed that more than half (52.5%) of the seed producers consulted agro-shop keepers, followed by 30, 15 and 12.5% to Raita Samparka Kendras, Krishi Vijnane Kendras (KVK) and horticulture offices respectively.

It is evident from the findings of the present study that agro shop keepers and neighbouring farmers served as important sources of information. The reason might be that, these sources available to farmers at local level and it
was the tendency of the farmers to share their farm problems with other farmers and agro-shop keepers rather than any other government sources. Other farmers and agro-shop keepers are easy accessible. Moreover, farmers do not listen the suggestions of the experts in the respective field. The results are in accordance with the findings of Kumar (1998).

**KNOWLEDGE LEVEL OF INDIVIDUAL ON ONION CULTIVATION PRACTICES**

In general the knowledge level of the cultivation practices depend upon various factors such as awareness about the new inventions, extent of change agency efforts, complexity of the practices, timely availability, characteristics of farmers, etc. However, it is true that all the recommended practices will not be available at the same degree to all the members in a given social systems.

In the present study, it was observed that, 80 per cent of the farmers had no idea about the recommended variety of onion seeds for cultivation. Only one-fifth of the farmers had the knowledge of variety. The possible reason for this might be the lack of knowledge about high yielding varieties released by private companies. No farmer was having knowledge about the seed treatment before showing the seeds. About the seed rate and transplanting method, majority (85%) had the knowledge. About half of the respondents (56%) had no idea about the spacing between the plants during transplantation. About two-third of the onion growers did not have knowledge about the recommended doses of farm yard manure.
Almost (92%) of the respondents had no idea about the recommended quantity and type of synthetic fertilizers to be applied to the onion crop.

More than half of the respondents (55%) had the knowledge about the weedicide usage and 45 per cent of the farmers had no knowledge.

The probable reason for this is shortage and costly labours for weeding the onion fields.

Majority (88%) of the respondents had no knowledge about the onion diseases and their protection measures. Only a meagre portion (12%) of the farmers had the knowledge of the type of pesticides and fungicides to be used to control the onion diseases.

The reason for this might be onion is suffering from a number of diseases and it is very difficult to identify the disease, even by an expert in that field.

The data of Table-33 revealed that the results of seed production are in line with the results of Table-17 of bulb growers. One third of the seed producers had the knowledge of about the quantity of sowing material required per acre. But in onion growers only 15 per cent respondents had the idea of the quantum of seeds required for sowing per acre. Majority of the respondents had no knowledge of the seed require per acre in bulb onion cultivation.
The probable reasons might be farmers cannot judge the germination percentage and cannot say the probable percentage of death of the seedlings due to disease attack.

It was clear from the Table-18 about the overall knowledge level of recommended cultivation practices of onion growers, 59 per cent of the respondents had fallen in medium knowledge level category while 22 and 19 per cent of the onion growers had fall, low and high knowledge category respectively.

This provides the scope for the improvement of knowledge among the respondents with respect to onion cultivation and seed production practices.

The findings were in conformity with the results of Chandrashekar (2006).

**PRODUCTION PROBLEMS EXPERIENCED BY ONION GROWERS AND SEED PRODUCERS**

An evaluation of Table-19 indicated that majority of the respondents (80%) expressed concern about high cost of fertilizers, pesticides and fungicides and about half of the respondents about high cost of farm yard manure (FYM).

It might be due to the fact that, hike in the prices of inputs year after year. Therefore, suitable policy is needed to frame taking care of this problem. Lack of knowledge was found to be the problem of majority of onion growers (74%) regarding improved variety, seed treatment (100%), recommended
fertilizer doses (92%), control measures for different types of pest and diseases, improved method of onion harvest (77%), curing and drying (22%) and improved storage structure (84%).

It might be due to the fact that, farmers are not actively taking part in the training program, demonstrations, field visits and could not able to expose themselves to the new inventions in related field. Very effective and extensive training and demonstrations are needed to overcome these lacunae in the onion growing areas.

Inadequate irrigation facilities for water management (73%), water shortage for rabi and summer crop (81%), labour problems for weeding (65%), costly and time consuming, hand weeding (80%), labour problem for harvesting (86%), electricity problems (88%), lack of money for investment for development of structure (84%), high disease incidence during fog (27%) are the important production problems of onion growers.

Water and electricity problems may be solved by the sincere efforts of government and concerned departments, but the loss due to high incidence of disease during foggy days can be minimized by educating the farmers about the control measures of the disease. Shortage of labour and high wage rate was the problem associated with weed management and harvesting operations of the crop. It might be due to the fact that majority of the farmers having small land holding in the state. Mass migration of agriculture labours to the urban areas
was responsible for shortage of labours, so there is a need to develop suitable labours saving technique.

The production problems expressed by onion seed producers computed in Table-35 are in the line of onion bulb growers, shown in Table-19.

**MARKETING BEHAVIOUR OF ONION GROWERS**

The contents presented in Table-20 indicated that two-third of the onion growers (64%) sold the onion immediately after the harvest and about half of the growers sold at a particular period because of urgency of cash whatever the price may be.

About one-third of the farmers sold immediately after the harvest if the prices are favourable. 19 per cent of the respondents sold the produce at a particular period because of its perishable nature and a negligible percent (8%) sold due to lack of storage facility.

Majority of the respondents (63%) sold their produce at distant big markets like Hyderabad and Bangalore because of better price, immediate cash payment whatever quantity of produce arrived to market, that would be sold and less interruption of middlemen.

About 20% of the farmers sold the onion to wholesale commission agents at district place, because the market is nearby, convenient, easy transportation and less time consuming. About 7 per cent of the farmers sold at nearby villages or taluk place especially on market days, directly to the consumers. Probably it was due to fact that, majority of the farm families are
nuclear family and family members had no time to engage themselves in selling directly to the consumers.

The probable reasons might be due to no interruption and middlemen and expectations of better price.

Negligible number (2%) of the respondents sold at spot (fields) to the bulk purchasers, who visited the fields and bought entire crop.

About three-fourth of the farmers got the information of about market price through other farmers who visited the markets. Only 11 per cent of the respondents got the price information by personally visiting the market places and 8 per cent of each of the onion growers received the price information through TV and newspapers sources.

The probable reasons for this is, it is not possible to visit the market places by each farmer to get price information due to heavy and continues work in the fields.

The present findings are in accordance with the results of Agarwal and Sharma (1994).

The data of the Table-36 shows that the results of seed production are tallying with the results of Table-20 of onion bulb growers, but reasons for selling seeds at a particular period was concerned, one-third of the respondents sold due to low viability of onion seeds and 40 per cent respondents due to pressing needs of cash. Three-fourth of the seed producers sold to the bulk
purchasers at spot who visited the onion seed fields and purchased the entire produce and about one-fourth sold to neighbouring farmers.

**MARKETING PROBLEMS EXPERIENCED BY ONION FARMERS**

The most important marketing problems faced by the onion growers are location at far away places, high cost of transportation, fluctuation in market price, high commission charges, more hamali charges, faulty system of weighing machines in local markets, absence of storage facilities, inadequate physical facilities in market places and lack of market information.

Regarding the market problems, shown in the Table-21 majority (82%) of the respondents expressed lack of remunerative price for onion bulbs, followed by fluctuation in market price (80%); commission agents put heavy commission charges (66%), high charges of transportation (48%) to distant markets, inadequate transportation facilities (24%) and non-availability of market information (26%).

It might be due to the fact that, majority of growers was selling their produce through middlemen; this was because of the domination of middlemen in the market yard.

The prices of onion are not dependent on the quantity of arrival to the markets, but it is regulated by other by markets like Nasik. The government is also lagging behind in providing information regarding market conditions, where to sell, when to sell and under what price to sell, so the intermediations are taking advantage of the situation.
A suitable marketing method need to be evolved and price of the produce should depend on the production cost.

**SUGGESTIONS OFFERED BY ONION PRODUCERS IN PRODUCTION AND MARKETING OF ONION**

It is evident from the Table-22 that majority (88%) of the respondents had suggested, fix the price based on production cost, followed by regular involvement horticulture department (80%) for demonstration about improved variety and on recent advances in production technology, subsidy on store houses and inputs like fertilizers, pesticides and fungicides (68%), extend crop insurance scheme to onion (24%) and establish onion processing industry (44%) these were the suggestions given by onion producers to overcome production and marketing problems.

**VARIATION IN ARRIVALS AND PRICES OF ONION IN THE SELECTED MARKETS**

**TRENDS IN ARRIVALS OF ONION IN THE SELECTED MARKETS**

The analysis of trend in arrivals of onion indicated of positive trend in selected markets under the study. The arrivals had increases in all the selected markets, but the quantum of increase in arrivals varied from market to market. Sangeeta (2004) observed that Casalgaon and Pune markets the arrivals had increased during the months of January to March.

The data of Table-38 reveals that Bangalore market registered the highest increasing trend (48,514.42) in the market arrivals and lowest trend in Nasik (1,237.61) when compared to other markets. On the whole, in the
selected markets arrivals of onion showed an increasing trend. The increase in arrivals may be attributed to the increase in area under onion in these regions. Increased productivity due to technical advancement might be another reason attributable to the increase market arrivals in the respective regions. Another reason could be due to increase demand for onion; more farmers started growing in surrounding hinter lands and brought their produce for sale to Bangalore market only as Bangalore is known for onion marketing since many years.

TRENDS IN PRICE OF ONION IN THE SELECTED MARKETS

Linear trend analysis of prices of onion revealed a positive trend in the selected markets. The prices of onion had increased in the selected market but the extent of increase in prices varied from market to market.

Table-39 and Fig. 17 to 27 showed that, the trend of prices in all selected markets shows an increasing trend. Chennai market registered the highest increasing trend in prices of onion over the years, the increment in prices was at the rate of Rs. 1,140.98 /t and the lowest annual increment was observed in Nasik Rs. 336.31 /t as compared to other market during the study. Bangalore is considered as one of the big onion markets, where major transaction takes places. Since rate of arrival of high, obviously the prices were at lower increment level Rs. 625.2 /t.

Similar results were also observed by Manasa (2009) in her study. By and large it was observed that as price increase in selected markets, the arrival also increase, this might due to fact that, the farmers eagerly observing
for the prices before bringing their produce to the markets. Since, the farmers expect normally to get remunerative prices for their produce. Hence, farmers preferred to sell their produce in market were the prices was high.

SEASONAL INDICES OF MARKET ARRIVALS OF ONION IN THE SELECTED MARKETS

To analyze the arrival pattern of onion during different months of the year seasonal indices were computed adopting 12 months moving averages. Seasonal variations were observed in arrivals of onion in selected markets. Table-40 depicts the seasonal indices of arrival of onion in the selected markets. The seasonal indices exhibited; there was a vast variation in the seasonal pattern in different markets. In almost all markets, the quantity of arrivals was found to be high during November to February. Pawar et al. (2004) found that arrivals of Pomegranate in Solapur, market arrivals were maximum during May to September and December. Later arrivals were found to be tapering off during July and October. The pattern of variation in market arrivals could be attributed to the seasonality nature of onion production.

Onion is a short duration crop, usually sown in early Kharif season and comes to harvest during October to December every year. Hence, these months registered heavy arrivals. An inadequate storage facility in many parts of growing areas is another serious bottle neck, which hinders the farmers to phase that market arrivals. Hence, farmers need to plan the production, store the
produce during Peak season and sell it during the off season and get remunerative prices for their goods.

**SEASONAL INDICES OF PRICES OF ONION IN THE SELECTED MARKETS**

To ascertain the pattern of prices variation in onion during different months of the year seasonal indices were computed by adapting 12 months moving averages. The results of seasonal indices of prices of onion are presented in Table-41.

Table-41 and Fig. 28 to 38 reveals the seasonal indices of prices of onion in selected markets, which throws light on seasonal variation in prices of onion in all selected markets. There was much fluctuation observed in prices of onion which may be due to the nature of arrivals to the markets. The higher of seasonal indices of price was observed during August to January.

The arrivals for found to be higher during November to February and the prices were found to be low during March to June months. This variation in prices may be due to the nature of production of onion and also due to the storage facilities available to the farmers. During the study it was seen that, there were highest prices during December in Kolkata, Nasik, Ahmadabad, Pune and Chennai, it was in the month of November in Bhubaneswar and Hubli, it was in the month of October in Delhi, Lasalgaon and Pimpalgaon markets. In October month only at two market places Hubli and Bangalore the arrivals were found to be very high 233 and 223 respectively, but the prices of
onion in all the selected markets were high. In December month, arrivals of onion were high in all selected markets except Pune but the prices were also high in December in all selected markets. This trend shows a negative correlation between the markets arrivals and prices of onion in the selected markets in November, December and January months. In March, April, June and July months the market arrivals were found to be average and the prices of onion were low in these months. The study shows that, whatever, the arrivals of onion to market, the prices of onion was low in February to July months in all selected markets.

By and large it was observed that as prices increase in the selected markets the arrivals also increase, this might be due fact that the farmers looking for the prices before bringing their produce to the market. Since, the farmers are expected to get a good remunerative price.

**PREDICTION OF ONION PRICE IN THE SELECTED MARKETS**

There is a narrow variation in between the actual and predicted values of arrival and price from 2002-2012 in the selected markets (Table-42 to 51). The predicted values of the price showed an increasing trend in the price of onion in future years. In Bangalore market the actual price is increased from 2002-2005 but decreased in 2006 at an extent of Rs. 190.00 /q. Because of reduction in the actual price there is difference Rs. 237.00 /q in between observed and predicted prices. In 2012 again the same difference is observed. Bhubaneswar market also experienced the same decline in the actual price during 2003 and 2012 hence there is a lot of difference in between actual and predicted prices of
onion. The difference in the observed and predicted price during 2012 is almost Rs. 700.00 /q. In 2003 the arrivals is half (723 tons) compared to 2002 (1461 tons). Hence, a lot of difference is seen in between the values of actual and predicted arrivals. The above differences both in the price and arrivals repeated during 2012.

In Chennai market during 2003 the observed price went down upto 67% (Rs. 150 /q). So there is a lot of difference in actual and predicted price. The situation is repeated again in 2012. Delhi market also experienced the same situation during 2012 as by Chennai market. The difference is almost Rs. 300.00 /q.

In Hubli market there is a narrow difference between observed and predicted price. In 2011 there is a difference of Rs. 100.00 /q i.e., predicted price is Rs. 100.00 /q less compared to observed price but in 2012 expected price is more (Rs. 187 /q) compared to actual price.

During 2006 the data of Kolkata market shows expected price is more (Rs. 224.00 /q) compared to actual price. But in 2007 observed price is more (Rs. 172.00 /q) compared to predicted price, this is due to sudden hike in the price of onion during 2007 it is almost Rs. 500.00 /q more compared to 2006.

Lasalgaon market data shows there is a lot of difference in predicted price during 2012 it is Rs. 320.00 /q more compared to actual price. The predicted values show there is a gradual increase in the price in coming years. Nasik market (Table-49) data shows there is a steep hike in the actual
price of onion at an extant of 222 per cent in 2997 when compared with 2006. Hence, there is a drop of Rs. 144.00 /q in the predicted price compared to actual price.

In Pimpalgaon market the actual price of onion shows a steep hike from 2008 to 2010. Because of steep hike in the actual price, the values of expected price are less compared to actual price. In 2012 the values are similar to other markets. Pune market also has the same situation in 2010 and 2012 as in Pimpalgaon and other markets.

**SUMMARY**

Onion (*Allium cepa* L.) is one of the important vegetable crops grown all over the world. It is not only grown for domestic consumption but, also for export. Onion is a widely consumed condiment in India. Everybody likes onion almost daily because of its taste, pungent odour, high nutritive value and medicinal properties.
India occupies second position in production and it is grown in the states of Karnataka, Maharashtra, Gujarat, Andhra Pradesh, Orissa, Tamil Nadu, Madhya Pradesh, Uttar Pradesh, Bihar and Rajasthan. Among all these Maharashtra is the leading onion producer followed by Karnataka State in the country.

The Productivity of onion is the highest in Korea (61.90 t/ha) followed by China (61.76 t/ha), Australia (44.51 t/ha) and USA (42.96 t/ha) in that order, while in India it was 12 t/ha. The main reasons for low productivity of onion are traditional cultivation methods and use of local varieties. Fluctuation of market prices and non getting remunerative prices to onion make its cultivation unprofitable. Sometimes the market rate is as low as less than one rupee per kilogram.

MAJOR FINDINGS OF THE STUDY

1. Majority of the onion growers and seed producers (58% and 52.5% respectively) belonged to middle age group

2. 28 per cent of the onion farmers and 30 per cent of seed producers had primary education, 11 per cent onion growers and 15 per cent seed producers had PUC level education and 39 per cent of the onion growers
and 35 per cent of seed producers are illiterate and only 8 per cent had bachelor degree.

3. Majority of the onion growers and seed producers (35% and 37.5% respectively) are small farmers.

4. 39 per cent of the onion growers and 42.5 seed producers had annual income ranging from Rs. 50,000.00 to Rs. 1 lakh.

5. 84 per cent of the respondents of both onion growers and seed producers had live stock.

6. In case of knowledge level, 59 per cent of the onion growers and 62.5 per cent of seed producers belonged to medium category, 22 and 22.5 per cent of low and 19 and 15 per cent of onion growers and seed producers respectively belonging to high category.

7. With regards to the seed and bulb treatment, 100 per cent of the onion growers and seed producers lacked knowledge.

8. With respect to fertilizer application, 92 and 85 per cent of onion growers and seed producers respectively lacked knowledge about the doses.

9. In case of irrigation facilities, 73 and 60 per cent of onion growers and seed producers said water availability is inadequate and its acute shortage for rabi and summer crop.

10. With respect to weed management, 45 per cent of the onion growers and 62.5% per cent of the seed producers lacked knowledge about
weedicides and 80 per cent said that hand weeding is labour consuming and expensive.

11. In case of diseases and pests, 90 per cent of the onion growers and 85 per cent of the seed producers said about the difficulty in identifying the diseases and pests and 89 and 80 per cent of onion growers and seed producers respectively lacked the knowledge about control measures.

12. With respect to harvesting, 86 per cent of onion growers and 35 per cent of the seed producers faced labour problem.

13. In case of storage of onion, only 20 per cent are capable to store and 22 per cent lacked knowledge of curing and drying. In case of seed producers 70 per cent lacked the knowledge of improved storage techniques.

14. 88% of the respondents faced load shedding problems.

15. In case of farm yard manure (FYM), 49 per cent of the onion growers and 62.5 per cent of seed producers said about inadequate availability of farm yard manure (FYM).

16. 27 and 30 per cent of onion growers and seed producers respectively expressed helplessness in coping with the increased incidence of diseases and pests after rain fall and fog.

17. About 28 and 30 per cent of the onion growers and seed producers respectively sell their produce immediately after the harvest, if the prices are favourable and 64 and 52.5 per cent of the onion growers and seed producers will sell immediately whatever the prices may be.
18. 52 and 50 per cent of the onion growers and seed producers sell their produce immediately because of pressing needs of cash.

19. 20 per cent of the onion growers sell their produce to wholesale merchants whereas, 77.5 per cent of the seed producers sell their seeds to the agents (bulk purchasers) who purchase the produce at spot and 63 per cent of the onion growers sell their produce in the distant markets like Hyderabad and Bangalore.

20. With respect to the information about the market price, 73 and 67.5 per cent of the onion growers and seed producers get the information from others who visit the market.

21. With regards to the commission rates, 40 per cent of the onion growers were forced to reduce the commission rates and 10 per cent onion growers and 20 per cent of seed producers demanded to fix the price before the cropping system.

22. Problems expressed by the onion growers and seed producers were; high cost of fertilizers (80%) and (77.5%), hand weeding is labour-consuming and expensive (80%), labour problem during harvesting (86%) and (35%), lack of knowledge about doses of fertilizers (92%) and (80%), high cost of plant protection chemicals (81%) and (62.5%), lack of knowledge of improved varieties (74%) and (75%) of onion growers and seed producers respectively.

23. Problems in marketing of onion are lack of remunerative price (82%), fluctuation in price (80%), high charges of transportation (48%),
inadequate transportation facilities (24%), non availability of market information (26%) and heavy commission by agents (66%).

24. Suggestions offered by the respondents to overcome the said problems were; fixing of rate or support price based on production cost (88%), the regular purchase of the onion by the Government (92%), demonstrations about the improved technologies by horticulture department (80%), subsidy on fertilizers and pesticides (68%) and establishment of onion processing industries (44%).

25. The pattern of trend in arrival and price of onion was similar in all markets. The results revealed that in the long run all the markets showed an increasing trend in both arrivals and price over the years. In Bangalore market the arrival was found to be the highest where as the lowest arrivals were recorded in Nasik market. The annual increase in the price was found to be the highest in Chennai market and the lowest in Nasik market. The extent of increasing trend in arrivals and price of onion varied from one market to another market.

26. In onion arrivals the presence of seasonality was observed within a year in the selected markets. The seasonal indices of arrivals of onion in all the selected markets revealed that arrivals were at their peak during November to February. In Hubli, the highest market arrivals were seen during the month of November whereas the arrivals were found to be low during April, July and August months. In Bangalore market, highest
arrivals were observed during October month whereas the lowest arrivals were observed in July and February months.

27. In all the selected markets the prices were found to be high in the months from August to January, which decreased in the later months. In Kolkata, Ahmadabad and Pune, the highest market prices were seen during December, whereas the prices were found to be low during April and May months. In Lasalgaon and Pimpalgoan markets, the prices were the highest during October month and the lowest price was observed in April month in both the markets.

CONCLUSIONS

It could be concluded from the findings that respondents of middle age group had primary education. Majority of the small farmers were growing in fewer acres. High cost of inputs, lack of knowledge, costly and shortage of labours, decreasing cattle population due to labour problem, costly and non availability of farm yard manure (FYM), costly chemical fertilizers, lack of knowledge of doses of fertilizers, difficulty in identification of diseases and pests, economic backwardness, lack of remunerative price and fluctuation in market price, farmers’ consultation with the commission agents for market information, were the main production and marketing constraints. Due to market integration many a times there is no positive correlation between major onion markets i.e., more arrivals and more prices. Farmers normally bring their produce when the prices are high and do not bring when prices are low. Hence, minimum arrivals and minimum price the onion price not only depends on the
quantity of arrivals to the market, but also depends on the export magnitude and the interference of hoarders. In some other markets positive correlation exists and the price decided by the quantity of produce arrived to the market. The farmers are advised to bring their onion when seasonal indices of price should be above 90. There is a narrow difference in the actual and predicted prices. Up to 2010 price trend was increasing but, afterwards in 2011 and 2012 the price has come down. To fix the support price based on production cost was the main suggestion to overcome these problems. In case of onion it is very difficult to forecast the prices.

POLICY IMPLICATIONS

Producers can suitably adjust their crop pattern as well as the sale of the crop for the third quarter of the year by planning effectively and producers need to have a constant watch to know the extreme variations occurring in arrivals and prices and plan the sale at the right time to avoid price crash. For this, regulated market need to publish the market information in daily local news papers, radio, T.V. etc.

Inadequacy of storage facilities act as a serious bottle neck in planning the sale of crop since onion is a bulky and perishable crop, particularly during rainy seasons. Hence, Government may think of creating storage facilities at village level or circle places.