

Chapter 5 - Onion Production Planning to Control Production Fluctuations and Increase Producer's Revenue

5.1 PRODUCTION PLANNING METHODS

Two methods are thought about for the implementation of production planning;

1. Production planning with estimation of onion direct and indirect consumption for Maharashtra state.
2. Production planning through the forecast of state onion production and prices.

5.1.1 METHODOLOGY FOR ESTIMATION OF DIRECT AND INDIRECT ONION CONSUMPTION OF MAHARASHTRA STATE:

The central idea is to produce the quantity commensurate with the consumption of onion in the state, to avoid surplus or scarcity of the crop. Per capita consumption of onion in the state is ascertained by using the per capita consumption data available with NSSO (2004-05, vol. no. 1). Thus, total onion consumption as per the population of Maharashtra (population census 2011) is estimated. Then, indirect demand (as per MSAMB and NHRDF estimates) such as exports (40%), processing (2%), storage wastage (30%), handling and rotting wastage (3%) is calculated on the basis of average production of the state from 2005-06 to 2012-13. Similarly average area under onion cultivation and average yield is also calculated for the same period to forecast the required increase or decrease in area. The total onion consumption of the state is given by addition of direct and indirect consumption. After the estimation of required production level, the required area is calculated by dividing production by the average yield of the state. The price of the production so planned is predicted with the help of price forecast equation number 2 (prices explained by ONPI and arrivals). Production planning methodology provides an estimate of the price levels and production levels that may get established in near future. Accordingly, horticulture department or the policy makers can think of suitable changes (if required), either in area under onion or the output levels. Necessary guidelines and information on prices, expected production and the area to be brought under onion cultivation can be disseminated to farmers well in advance of the start of season by way of radios, agricultural magazines, mobile S.M.S. etc.

Illustration with data: Maharashtra state per capita onion direct consumption as per NSSO (2004-05, vol. no 1) data is 0.60 Kg. and 0.70 Kg. per month in rural and urban areas respectively. On the basis of NSSO data, the yearly total onion direct consumption of the state is estimated at 894489 MT. The indirect onion demand at the state level is estimated on the basis of average production of the state (table 5.1).

State Consumption	894489.10
Exports share (40% of average onion production of state)	1512800
Processing (2% of average production)	75640.02
Handling wastage (3% of average production)	113460.03
Wastage (30% of average production)	1134600.3
State Level Total Onion Consumption	3730989.85

Source: Author's own estimates based on NSSO, 2004-05, vol. no 1 onion consumption data and NHRDF online data, 2013.

Average Production (MT)	3782001
Average Area (Ha)	265000.4
Average Yield (prod./area)	14.27

Source: Author's estimates based on NHRDF online data, 2013

As can be observed from 5.1 and 5.2 the onion production of the state is just sufficient to meet the state's onion demand in normal harvesting years. But in any abnormal years of crop losses, acute shortage of onion occurs. Further, data regarding interstate exports is unavailable, availability of which will raise the accuracy in estimation of total

quantity required to be produced. It is very much necessary that onion production of the state should increase as per growth rate of population and exports.

The price level for the estimated quantity of onion consumption is predicted as per the price prediction equation number 2.

5.1. 2 FORECAST OF STATE ONION PRODUCTION AND PRICES

The linear regression equation of state production predicted by the lag of national onion price index is employed to forecast the current year state production. The probable area, which will be brought under onion cultivation for the predicted level of production, is estimated on the basis of yield levels of the state. The prices of expected production are predicted with the help of price forecast equation. Thus, by estimating prices their degree of being remunerative can be determined.

Predicted production of the state for year 2013-14 as per the production prediction equation number 3: state level expected onion production for 2013-14 = 5250.33 ('000MT) and the expected prices as per the equation no. 2 = Rs. 34087.74/MT.

For expected onion production, the percent increase in production and area is calculated (table 5.3 and 5.4) on the basis of average of production and area of the state for period 2005-06 to 2012-13 (table 5.2).

Table 5.3: Expected Percent Increase in Onion Production, Maharashtra, 2013-14		
Onion production (MT)	Net increase on average Production (MT)	Percent production Increase
5250329.4	1468328.4	38.82

Table 5.4: Expected Increase in Area under Onion, Maharashtra, 2013-14		
Area Required (Prod./Ave. Yield)	Area increase on average area (Ha)	Percent area increase
367884.50	102884.07	38.82

Source: Table 5.3 and 5.4 are author's estimates

Thus, it is observed that as the onion production quantity of the state increases, the prices are also increasing. This is because of ONPI impact on local prices, which is positive and large. The back testing of the model from 1994-95 till 2012-13 excepting the years of heavy production losses due to weather like 1996-97, 1997-98, 2004-05, 2009-10 reveal an error of (+/-) 19 percent. For recent years the model fits the best, from 2005-06 to 2012-13 the model error is just 5 percent.

5.2 STAGGERED PRODUCTION PLANNING OF ONION- CONCEPT

It is observed that the main Kharif yield dependency on rains disturbs the regular production and amounts to heavy losses of the produce as well as of farmer's incomes. In order to stabilize prices, reduction of production instability is necessary. To regularize the production quantity and to make the crop available throughout the main Kharif and late Kharif season, it is necessary to control the crop damages as well as to arrange the harvest of all the producing markets in such manner to avoid abundance or scarcity in one particular month of the season. Output stabilization, with the uncontrollable constraint of dependency on weather, then should form an integral part of the plan for onion price stabilization and establishment of sound marketing practices as well as development of superior processing techniques should be the secondary objective of the planning of onion production. Production planning necessarily implies, in the context of our relations, a planned approach towards production as well as consumption. Because only planning in production in an expanding market cannot be a sufficient condition for price stabilization. The ultimate factor of price stabilization is how and with what channels and amount of efficiency, the output of a given period is disposed off to enable it to reach the end consumers. Planning in marketing is therefore an important aspect of production planning.

Phased or staggered production planning and improvement in marketing and trading practices are examined in the present section. Onion output stabilization of the main Kharif season may include the phased cultivation and harvesting, of onion producing regions, as per weather tendencies of the region.

5.2 1 PRODUCTION IN A PHASED MANNER

The main objective of the production and distribution system should be in the order that onion harvest can be arranged in such a way that excess or lack of onion supply will not

occur. This will help in keeping the prices stable. One practical tool for this type of planning is the classification of areas as per the months of sowings. Sowings for the main Kharif and late Kharif season in the state starts in the month of June, August - September, which is harvested from September, November - last week till December 2nd week. As a result, the month December, is either flooded with arrivals if the weather has remained suitable for crop growth or there is acute scarcity if weather has damaged crops. If the state is classified as per the main onion producing regions as Pune region, Ahmednagar region, Nasik region, then each region should have different month of sowing right from July. This will naturally postpone the harvesting period of each area in different time periods. The sowing periods of each area can be decided according to the average behavior of rainfall in each region and as recommendations of State Agricultural Universities. The regions which receive rains on regular monsoon time i.e. in June, sowing can be undertaken by the end of May (e.g. Pune region), whereas the regions receiving late monsoon (e.g. Ahmednagar region) in July, sowing can be planned in June -July. Areas which receive heavy rains from June till to August (Nasik region), should follow traditional sowing and harvesting pattern (table 5.5). Change in the sowing and harvesting periods will change the timings of entry of produce in the market. Arrivals will enter the markets right from September onwards till to December, instead of being December centric.

Regions	Expected Months of Sowing	Expected Months of Harvesting
Ahmednagar	June-July	September- October
Pune	May-June	October-November
Nasik	August- September	November- December

Source: Author's expected plan based on onion sowing and harvesting schedule of the state.

This change in the sowing periods will have obvious benefits; all the markets will not be flooded with arrivals only in December. The harvesting will start from October onwards. October and November are the months marked for high price seasonality. Therefore, farmers will fetch good returns for their produce. Further, this will also reduce the crop damages. If incessant or unseasonal rains destroy crops in one area, but the same may not be the experience of other regions, which will reduce possibilities of large crop damages. An even and regular arrival entry of the main Kharif is expected to start from September. Low

stored crop supplies of September will be strengthened by the new arrivals. This will help in checking the artificial price hike of the traders. Thus, even for the main Kharif season, some produce planning from September till to December gets created. When the arrival entry is spread throughout the season, then the expectations of crop availability, throughout the season will help in avoiding the price crisis. Implementations of staggered sowing may need promotional measures and incentives to farmers, which could be provided through various schemes.

Along with production planning, some important measures need to be introduced for improving the marketing and trading practices of the crop to provide stable income to farmers. The present marketing and trading practices do not allow for higher share in retail prices to the farmers. Commission agents, traders are becoming all powerful to gain control over the auctions. Their trade practices are responsible for the sudden price hikes that are observed in recent years and hence without corrective measures being undertaken, production planning may not fetch desired results.

A close watch of the present trading practices bring out the fact that even in extreme price hikes of 2010, 2013, farmers did not earn high income.

5.3 PRESENT MARKETING AND TRADING PRACTICES

ALL POWERFUL TRADERS:

The C.A's and traders have become all powerful, have monopoly and dominate the market prices by restricting the entry of new traders in the markets. In Pimpalgaon¹ only 5 and in Lasalgaon² 12 traders or groups control the market activities of auction, buying and selling of the crop. The Model APMC Act allows anyone to participate in the auction and no license is needed, but the APMC Act implementation has been shady in the state, and the APMCs do not allow new entries without license. Many big traders have multiple licenses within their families and they do not allow anyone from outside participate in the business.

TRADER'S INFLUENCE ON PRICES:

Only select traders bid for the auctions, they form a ring and decide prices ahead of the bidding. No one else is allowed to participate in the process, not even the farmers. While starting the auctions the cost of production of the farmers is not considered and just by looking at the truck loads standing in the market, prices are settled. If huge quantities

arrive, prices are brought down and vice versa. The farmers are forced to sell their crop at the prices decided by the traders. If they refuse, they are beaten up or they are deprived of credit facilities. Issue of cartelization of trade and the traders grip over the credit system are highlighted in the Competition Commission report on 2010 onion price crisis.

THE MODUS OPERANDI OF THE TRADERS:

All farmers harvest the crop at the same time and hence huge quantities of onion queue up at the APMCs for auction. At the peak of the season, traders, by looking at heavy arrivals, keep the prices low. During the last few days of the harvesting season when the arrivals starts dropping and the prices are raised. Traders themselves secure crop at low prices and later as the season ends, prices are raised to gain benefits for the secured stocks. The situation is more manipulated when crop destruction due to rains, is heavy in main Kharif season. For the Rabbi Season produce, traders have huge storage structures, where more than 80 percent of the total produce is stored at low rates well in advance of the season². When traders are certain about the end of stocks with farmers, artificial scarcity is created in the market, prices are raised, the stocks with traders are eventually brought out in the market. The price hike in July is more sharp, as by this time the 20 percent of the produce lying with farmers gets over and fresh produce is not harvested till to November 2nd week. So traders are certain that market have no other alternative than to depend on their stocks. This situation is manipulated for profits of crores of rupees. Unavailability of stored crop or scarcity of crop is not the main issue but unavailability of storages with farmers (to ensure regular and smooth supply of the crop for non harvesting season) is the crux.

TRADERS' GAIN:

The Times of India, a leading Indian newspaper daily ran an article titled "The Great Indian Onion Robbery"³ The starting paragraph of the article stated that speculative traders are making super-profits by fixing prices in the onion trade while the government is playing around with ad hoc fixes. In just one day alone, wholesale traders in Delhi bought onion at about Rs.34 per kg while it was sold in retail at Rs. 80 per kg, the margin was Rs. 46 per kg or 135 per cent. The same article then went on investigating the amount fleeced from consumers by intermediaries and stated that the amount fleeced every day would be over Rs 4 crore in Delhi, Rs 81.4 lakh in Mumbai, Rs 10.5 crore in Bangalore, Rs 1.3 crore in Kolkata and so on. 'The Week' published an article whereby it is reported that traders in

Lasalgaon APMC alone earned more than Rs. 150 crore in just four days (August 12-15) of year (2013)⁴.

Thus, it is observed that trade practices of the commission agents and traders are not fair towards farmers. They dominate auctions, quote prices considering their stock positions, mutual cartels are formed among themselves for auctions, weighing of the produce is not uniform and standard approximately 2 Kgs. from every bag of 50 Kgs. are wasted as samples.

5.4 SUGGESTIONS FOR MARKETING REFORMS

The present trading practices indicate that along with the production planning, market structure reforms are equally required to gain price stability as well ensure stable incomes to farmers.

- The commission charges at the Mandies should be reduced. At present the commission charges are 6 to 10 percent of the total billing amount. Or alternatively farmers must get a price, which will cover the commission charges, transport charges, and other market charges along with cost of production. Producers should have some involvement in auctions, they should be able to quote their minimum reserve price, below which it may not be profitable to sell their produce. The auctions at the Mandies should be either higher than this minimum selling price or should be stopped at this minimum selling price to avoid sliding of prices below the minimum level, as it happens in Dutch auctions. In a Dutch auction, the item being sold is initially offered at a very high price, well in excess of the amount the seller expects to receive. Bids are not sealed, as they are in some types of auctions. The price is lowered in decrements until a bidder accepts the current price. That bidder wins the auction and pays that price for the item. There is predetermined reserve price (the sellers' minimum acceptable price). This type of auction is convenient when it is important to auction goods quickly, since a sale never requires more than one bid. Theoretically, the bidding strategy and results of this auction are equivalent to those in a sealed first-price auction. This is also known as a clock auction or open outcry descending-price auction. In this auction the seller is able to express his

minimum acceptable price. So there is certainty that he may either get more or equal to his acceptable price. The concept of reserve price should be developed not only for onion but for other crops also.

- The number of players in the market should be increased. Stringent rules to break the trader's monopoly, and their control over market price should be undertaken. Free play of market prices as per demand and supply conditions should be promoted. Prices should be auctioned as per the quality, shelf life of the produce. This will encourage farmers to increase the yield and quality of the produce. Private markets should be allowed to be established to reduce the monopoly of the commission agents (Private market for tomato and grapes already exists in Pimpalgaon).
- Direct marketing by farmers or group of farmers or cooperative marketing may be promoted along with the traditional marketing chain. This will serve two purposes. 1. Consumers get competitive prices, 2. Farmer's share in retail price increases. Direct marketing is at present being adopted in Pune for vegetables, which is proving to be beneficial to both, the consumers as they are getting vegetables at lower rates than markets rates and to farmers as it is giving them a greater share in retail price.
- Promotion of e-mandies, also known as e-auction platform to bring transparency in the system and at the same time to create a level playing field for all the participants in the market. The NCDEX Spot Exchange (NSPOT) has launched an e-auctioning facility in Gulbarga (Karnataka). The project has become successful as more and more auctions are taking place through this platform. The largest beneficiary, in this process has been farmers. Farmers derive additional facilities such as assistance with transportation, grading, assaying and facilitating pledge loans. The system could also win the confidence of 270 commission agents and 700 traders who adopted this platform. This success has led to its adoption in 20 more marketplaces in Karnataka and slated to cover 50 mandies in the state. This is popularly come to be known as "Gulbarga model"⁵ Maharashtra should also promote e-auction platforms for several crops.

5.4.1 SUGGESTIONS FOR INSTITUTIONAL REFORMS

- Farmers can form associations and develop the storage capacity with the help of associations. Increased storages by farmers themselves will transfer the storage gains to farmers directly.
- Export promotion efforts may help producers to get remunerative returns for good quality produce and will generate a tendency to grow high quality produce and maintain the yield levels, which is essential to regularize the supplies in the domestic markets and to avoid price fluctuations. In the international market, India can become a reliable exporter of onion, provided a definite export policy with flexible minimum export price policy is followed.
- Promotions for direct and cooperative marketing by farmers are required. APMC Act is amended for direct marketing. Direct marketing or cooperative marketing by farmers to consumers as well as to private processing firms, big companies will ensure increasing share of producers in consumer's price.

5.5 CONCLUSION:

Production planning in terms of controlled and continuous increase in output (as per onion consumption, population and exports growth rates) and at the same time measures to control the yield losses will reduce the production instability. Production stability will lead to price stability which will lead to the end goal of income stability.

NOTES

1. See NCAER Onion Report, 2012.
2. See 'The Week', 13rd October, 2013, 'The Case of Exploding Onions'.
3. See 'The Time of India', 23rd December, 'The Great Indian Onion Robbery'.
4. See 'The Week', 13rd October, 2013, 'The Case of Exploding Onions'.
5. See The Economic Times, 20th March, 2013, 'e-mandies, Markets of the Future'.