Report No. 46 (Part-I)

# A Quick Study on Price Volatility and Major Issues in Demand and Supply Management of Onion in Bihar

*(First Part)*


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# Preface

India is the second largest onion growing country in the world. For its pungency and availability round the year Indian onions are famous. India is credited with having some of the significant varieties. It is fostering to note that certain verities of yellow onion are suitable for export to European countries. India's share in world's onion export was 9.44 per cent (2015-16). Requirement of onion is fulfilled during lean period (June to November) from stored onion, as well as, fresh kharif onion produce in the country. It has been observed that the prices of onion increases during this period in most parts of the country. Traders store rabi onion produce only during the months of April-May to meet out the requirement during lean period. Some critical issuers, like: price volatility, its market structure and market efficiency have been recently brought to forefront in regard to spurt in onion prices.

In the above context, at the instance of the Joint Secretary, Department of Agriculture, Co-operation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India had, in a meeting on 12/09/2017, assigned a quick study for providing advance policy prescriptions/alerts to address onion price and demand/supply problems in Rajasthan, Madhya Pradesh, Gujarat, Maharashtra and Bihar. Assessment of status of availability of onion storages and their capacity in the states were also required to be done within a month through concerned AERCs. ADRTC, ISEC, Bengaluru was assigned with the task of doing a quick study in participation with AERCs; Vallabh Vidyanagar, Jabalpur, Pune and Bhagalpur. This is state's final report. Its draft report was submitted much earlier (December, 2017) to the Co-ordinating Centre. It is a matter of exaltation, that 'Interim Report based on the inputs of the First Report' has already been submitted to the MoA & FW, GoI in March, 2018 by the Co-ordinating Centre. Findings of this Quick Study *(First Part)* will be helpful and precious for the policy makers, researchers, departmental line agencies of the State Government of Bihar and Central Government as well, in addressing the major issues of demand and supply management of onion in Bihar and in checking price volatilities.

Before pre-composing the Acknowledgement part, we would express our gratitude to the DES, DAC, MoA & FW, GoI particularly Dr. P Shakil Ahamed, Joint Secretary of the MoA & FW, GoI, who assigned this quick study for advance policy prescriptions.

We extend our gratefulness to the Co-ordinators of this First Phase Report i.e., Dr. A V Manjunatha, AERC, ISEC, Bengaluru and Prof. S S Kalamkar, Director, AERC, Vallabh Vidyanagar, Gujarat for suggesting full proof methodology to reach at concluding solutions and address the objectives of the study.

We are thankful to Sri PC Bodh, Adviser, MoA & FW, Ms Shwetha Rao B, Assistant Economic Adviser, MI Unit, Bengaluru, Sri B L Meena, Addl. Economic Adviser, P & M Division, MoA & FW, Dr. R P Gupta, Consultant, Marketing Division, MoA & FW, Sri B K Prusty, Deputy Agricultural Marketing Adviser, DMI, Faridabad, Sri Rakesh Kumar, Assistant Director, AER, MoA & FW and Sri Suraj Kumar, Assistant Director, DES, MoA & FW, who provided considerate guidelines of how to undertake the quick study in the first meeting that had taken place in Krishi Bhawan, while the study was

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We expediently owe to our Hon'ble Vice-Chancellor, Prof. Nalini Kant Jha for constantly gracing the Centre with all administrative and academic support.

We are equally indebted to all the sample onion growers, people involved in storage, marketing and government officers/employees, who selflessly spared their valuable time for the research team.

Last but not the least, we duly appreciate all Research Faculties and non-technical Staff Members of this Centre, who perspired for giving this study a decent final shape.

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## EXECUTIVE SUMMARY

**Introduction**

India is the world's second largest producer of vegetables next only to China. Number of vegetables grown in the country is quite large, but interestingly it occupied only 2.5 per cent of the total cultivated area. Onion is one of the most important vegetables-cum-condiment crops of liliaceous family grown in India. There is sufficient ground to enlighten that out of the 10 major onion producing states, on the parameter of yield, Bihar stood at third position (with 23,086 kg/ha) only after Gujarat and Madhya Pradesh (25,485 kg/ha and 24,095 kg/ha) respectively as per data available for the year 2015-16. In regard to area under onion, Bihar stood at 5$^{th}$ position (out of 10 major producing states), 5$^{th}$ in production. Bihar produced 1247.34 thousand tons of onion in 2015-16.

**Objectives**

First Part of this report encompasses the following objectives based on secondary data:

a. *To analyse trends in area, production and productivity of onion in the state (2012-13 to 2016-17).*
b. *To assess price volatility in major onion production and consumption market in the State.*
c. *To estimate the status and potential of onion infrastructure with specific focus on storage structures ; and*
d. *To suggest remedial measures from stakeholder's perspectives.*

**Methodology**

First part of the Quick Study Report is essentially based on secondary data. However, for quick short notes on onion crop condition and the then prevailing prices in major markets of Bihar, primary sources of information, i.e., traders/commission agents and retailers were also contacted. Simple tabular and percentage methods have been followed for analysis of data.

**Concluding Observations**

In quite a few districts/areas, sowing activity is undertaken during 8-10 November (advance). Transplanting of onion in these areas mostly takes place during December 25 to January 5$^{th}$. It clearly reveals that from the stage of sowing to transplanting, it takes about 45 days' time. Nalanda, Katihar, Muzaffarpur and Patna could be considered as major districts during 2012-13 from production point of view contributing 12.84 per cent, 6.49 per cent, 5.38 per cent and 4.89 per cent in total production respectively. It is interesting to note that major districts numbering 10 during this year having occupied 51.54 per cent of the total area under onion cultivation contributed 52.67 per cent of production and value of the of the crop as well. Average retail price of onion in the year 2012-13 was Rs. 16.51/- per kg. Major districts during the year 2013-14 comprised 13 districts with 74.04 per cent of the total production of Bihar. Out of the 13 major onion producing districts; Patna, Buxar, Bhojpur and Nalanda could be placed or treated as significantly major ones (11.51%, 7.47%, 7.37% and 7.02%) respectively. Value of output, i.e., onion in the major producing districts ranged from Rs. 50.56 crores in case of Patna to Rs. 13 crores in case of Bhabhua (Kaimur) during the year 2013-14**.** Total value of output of the crop, i.e., onion was calculated at approximately Rs. 325.20 crore for major districts and Rs. 439.36 crores in case of minor districts that comprised 25 districts.

It is, therefore, requisite for the Government and policy makers to devise possible measures for bringing more area under onion cultivation and emphasis may be given on enhancing its productivity. It is to be urgently noted here that average retail price of onion in the year 2013-14 was Rs. 31.85 per kg. During 2014-15, major 09 districts of Bihar contributed 68.79 per cent of state's total production having used 56.00 per cent area of the state under onion cultivation. In regard to value of output, major districts shared Rs. 259.30 crore 68.79 per cent. Average retail price of onion during the year was Rs. 24.96 per kg. It is to be chalked out here that in 2014-15, Nalanda, Patna, Madhubani, Siwan and East Champaran were the major districts with productions of (17.54%, 15.98% 8.80%, 5.77% and 5.39%) respectively. During the year 2015-16, major districts comprising 12 districts had the distinction of sharing 77.38 per cent of the total onion production of Bihar (i.e., 1,53,403 MTs), whereas the minor districts consisting 26 districts could contribute only 22.62 per cent of production. Average retail price during the year remained at Rs. 28.65 per kg. There is need to comprehend that during the year 2015-16, the contribution of major districts i. e, 12 in number, in value of output was Rs. 340 crore 77.36 per cent, whereas the same by the minor districts, i.e., 26 in number was Rs. 99.47 crore 22.64 per cent only of the total value of output. During the year 2016-17, 10 districts of Bihar, considered to be major ones in regard to production, contributed nearly 52.66 per cent of the total state production having used 49.77 per cent of the total area under onion. While the major

districts accounted for 52.66 per cent of the total value created, 28 minor districts contributed only 47.34 per cent of the value by using more than 50.00 per cent of the area. Average retail price during the year 2016-17 was Rs. 14.82 per kg. Based on the data of five years, i.e., from 2012 -13 to 2016-17 and having maintained all care, concludingly it may be mentioned that Patna and Nalanda are the two major districts in Bihar from production point of view. As far quantum of production of onion in Bihar is concerned, it was 1,04,700 tones in 2004-05, which went up to 10,82,027 tones in the year 2011-12 showing an encouraging increase of 933.45 per cent. As far trend in consumption of onion in India is concerned, data in tables elucidate a little less than double increase in per capita consumption in the rural areas, during the 22 years' long period of 1987-88 to 2009-10. It was 380 gms/30 days in 1987-88 that increased to 741 gms/30 days in 2009-10. In urban areas, the consumption in the year 2009-10 was estimated at 854 gms/30 days. It can be averred that there were an increases of 38.85 per cent and 26.75 per cent in per capita monthly consumption in Bihar in regard to rural and urban areas respectively. In the year 2009-10, MPCOC in rural areas of Bihar was the highest equalling only Maharashtra(0.797 kg) and second highest in case of urban areas (0.905 kg) only after Jharkhand (0.930 kg) taking into consideration states, namely: Assam, Bihar, Jharkhand, Maharashtra, Uttar Pradesh and West Bengal. it is vivid that out of 10 major states exporting onion, Bihar came at 9$^{th}$ place with total export value of US$ 1.16 i.e, Rs. 7,47,04,000 when calculated by considering 1 US$ = Rs. 64.40 as prevalent on 19$^{th}$ December, 2017 in average terms of the week.

**Policy Prescriptions**

i. No doubt, check on prices of onions and potato like essential commodities are desirable. Sometimes, in Bihar as a result of less than required arrivals from MP, Maharashtra, Rajasthan and Karnataka, and for quite sometimes, due to hoarding of the crop by big traders and stockists, its prices enhance very much. These contrary situations may be effectively checked and reversed by contriving to increase productivities and go up production in 24-26 minor districts, i.e, from production point of view.

ii. 25 MT ventilated onion storage facility being constructed through MIDH supports, is not fully viable in Bihar. About 25 per cent of such created infrastructure is effectively used. In remaining cases, it is used by the farmers for personal use. The provision of low cost onion storage facility being provided at 50.00 per cent subsidy against the total cost of Rs. 1.75 lakh per unit, the size of which is prescribed at 20 ft length x 10 ft breadth x 15 ft height is not much desirable and less practical.

In place of this, medium cost storage infrastructure may be considered. The storage capacity of such infrastructure may be minimum of 2000 MTs, and such facilities should be provided at block level at least. It will be prudent and desirable to consider onion storage infrastructure based on **Holland Technology** at different points in the state. One such onion storage is installed near Bochha in Muzaffarpur, named as **Kanti Prabha** Onion Store. It is of 800 MT capacity.

iii. Farmers may be encouraged and provided desired technical and other assistances for growing onion in kharif season. For this, special drive may be launched by developing new varieties.

iv. Such licence/permit may be issued to all traders of the state, which allows them to purchase the crop from any part/region of the nation.

v. Proportionate distribution of onion after having estimated district wise consumption demand, (at least a rough estimation) may be a good exercise.

vi. Production of Jirrat onion, which is mainly grown in Bhagalpur region, should be promoted by the concerned department, as it can be retained in useable form for about 03 months.

vii. Emphasis may be given on contriver initiatives for enhancing productivities of onion in minor districts of Bihar (from quantum of production points of view).

viii. Strategy for enhancing quantum of production of onion by bringing more areas under its cultivation may be designed by estimating and expatiating consumption demand (district wise, or region wise).

ix. Since the state stood third in terms of yield rate, so there is need for extensive farming of onion, which may be considered and targeted under District Horticulture Plan.

# CHAPTER - I

# INTRODUCTION

## 1.1 Background

India is the world's second largest producer of vegetables next only to China. Number of vegetables grown in the country is quite large, but interestingly it occupied only 2.5 per cent of the total cultivated area. Observed yield and area under vegetables reveal that India is faced with inadequate production of vegetables to meet the needs of all the consumers of India. In view of vegetable culture being of comparatively short duration, labour intensive and more number of crops can be possibly and should be preferably taken from unit area in a season, or year. It is more so desirable and suitable for increasing the incomes of marginal and small farmers, and ensure more effective use of land and labour (including family labour resources) for agricultural development.

Onion *(Allium Cap)* is no doubt, an important and indispensable item in every kitchen as condiment and vegetables in India. Being commercially cultivated in various countries of the world, it is an important crop in all continents. However, about 3/4$^{th}$ of global production is accounted for by only 24 countries of the world. Among these 24 nations, important are China, India, USA, Russia, Spain, Iran, Turkey, Brazil and Japan.

It is a widely acceptable fact that the demand for onion is worldwide and is not limited to any particular region, climate and nationality Highly industrialized nations, such as: United Kingdom and Germany and leading importers of onion. It is to be desirably mentioned here that China ranks first in India and second in regard to production of onion in the world.

Onion is one of the most important vegetables-cum-condiment crops of liliaceous family grown in India. In terms of total annual production in the world, onion ranks second only to Tomato. Besides the traditional rabi crop (i.e., winter season), the kharif crop (i.e., after summer season) is also being grown now successfully in the

northern and eastern parts of the country has revolutionized onion production in India. Onion can be kept for a family long time and can safely withstand hazards of rough handling including long distance transport. The edible portion of onion is a modified stem bulb, i.e., 38.40 per cent and which is used throughout the year in the forms of salad, condiments and for cooking with other vegetables. It is also used in soups, sauces, curries, mutton, fish, chicken, pickles, etc for flavouring making these more tasty and seasoning foods. Onion bulbs are rich sources of calories, vitamins, proteins, carbohydrates, iron, minerals and ascorbic acid. Having been provided with medical properties, onion bulbs are recommended for the person suffering from high cholesterol, asthma, weakness, lethargy and lack of vitality. It is also effective incurring high fever, dropsy, catarrh diabetes and chronic bronchitis.

The centre's first advance estimates for horticulture production for 2016-17 crop year that ended in June, 2017 showed onion output to have fallen by 5.8 per cent during the year to 19.7 million tons, while potato and tomato were to rise marginally. Onion production in 2016-17 was expected to fall to 19.71 million tons as compared to 20.93 MT during the year 2015-16. The output was expected to be down due to decline in acreage to 1.18 MHs in 2016-17 from 1.32 million hectares in the year 2015-16. Overall, fruits and vegetables in 2016-17 were expected to be record 287.32 MT, as against 286.18 MT.

**Market Arrivals and Distribution: All-India Scenario**

Based on the data showing market wise annual arrivals in major onion markets of India for the years 2009 to 2011, total quantum of arrival of onion in top 50 markets of the country was 4,35,37,072 quintals in the year 2009. It was 94.3 per cent of the total arrivals of 107 major onion markets of India (i.e., estimated at 4,61,67,636 quintals in the same year 2009. In the year 2011, market arrivals of onion increased to 5,73,09,349 quintals (as a total in top 50 markets), which was 97.2 per cent of the total arrivals of 107 markets (estimated at 5,89,72,963 quintals).

**State wise Calendar of Onion Cultivation**

It is to be mentioned here that India produces three major varieties of onion red, yellow and white. Onion production cycle has three seasons across the country; kharif, late kharif and rabi. In some parts of the country, onions are grown in all the three seasons. North India has its major onion crops during the rabi season. However, onion is grown both in kharif and rabi seasons in quite a few states including Andhra Pradesh, Karnataka, Tamil Nadu, Gujarat and Maharashtra. Lately kharif onion is also being produced in the northern part of the country. It is laudable to note here that fresh onion, more or less, are available round the year.

## Calendar : Indian Scenario

**Table 1.1: State wise Tentative Sowing/Planting and Harvesting Timings of Onion in Major Production Belts in India**

| SN | | Seasons | Time of Sowing | Time of Transplanting | Time of Harvesting |
|---|---|---|---|---|---|
| **1.** | | **Maharashtra and some parts of Gujarat** | | | |
| | a. | Kharif | May-June | July-August | September-December |
| | b. | Early Rabi or late Kharif | August-September. | September-October | January-March |
| | c. | Rabi | October-November | December-January | April-May |
| **2.** | | **Tamil Nadu/Karnataka & Andhra Pradesh** | | | |
| | a. | Early Kharif | March-April | April-May | July-August |
| | b. | Kharif | May-June | July-August | October-November |
| | c. | Rabi | September-October | November-December | March-April |
| **3.** | | **Rajasthan/Haryana/Punjab /UP and Bihar** | | | |
| | a. | Kharif | May-June | July-August | November-December |
| | b. | Rabi | October-November | December-January | May-June |
| **4.** | | **West Bengal & Odisha** | | | |
| | a. | Kharif | June-July | August-September | November-December |
| | b. | Late Kharif | August-September | October-December | February-March |

In the production of onion, rainfall plays an important role. Differential seasonal patterns of sowing, transplanting and harvesting in different parts of the country are the main reasons for this. Onion production practices being followed by the Indian farmers vary depending on soil quality, humidity and moisture content of weather in different regions. Onions are grown from seeds of the previous year.

It will not be out of order to educe the existing knowledge in regard to types of onion. There are about 35 varieties of onion grown in India. These include 27 varieties of large onion, 2 of small onion and 6 of multiplier onion. The 27 large onion varieties include 17 red, 3 yellow and 7 white colour onion.

**Common Varieties of Onions Grown in India**

**Big Onions**

*Agrifound Dark Red:* Bulbs are dark red in colour, globular in shape with tight skin, moderately pungnent. Mature in 95 -110 days after transplanting. Recommended for growing in Kharif season all over the country.

*Agrifound Light Red:* Bulbs are globular in shape with tight skin and light red colour. Mature in 110-120 days after transplanting and keeping quality is good.. Recommended for growing in rabi season all over country.

*NHRDF-Red (LINE-28):* Bulbs are attractive dark red in colour. This variety is very popular among farmers in North India because of its attractive dark red colour and better storage performance. Mature 110-120 days after transplanting. Recommended for cultivation in Northern, Central and Western India in rabi season.

*Agrifound White:* Bulbs are globular in shape, with tight skin and silvery attractive white colour. Mature in 110-130 days after transplanting and keeping quality is good. Suitable for cultivation in late kharif and rabi seasons. Good variety for dehydration. Recommended for Maharashtra, Madhya Pradesh and Gujarat.

**Small Onions**

*Agrifound Rose:* Bulbs are flattish round in shape, deep scarlet red in colour. Mature in 95-110 days from sowing. This variety is suitable for growing in kharif in Andhra Pradesh and in all three seasons in Karnataka.

**Multiplier Onions**

*Agrifound Red:* Average size of cluster is 7.15 cm with weight of 65-67 g. Average number of bulb lets per cluster is 5-6. Colour of bulblets is light red. Mature in 65-67 days after planting. Recommended for cultivation in kharif and rabi seasons in Tamil Nadu, Karnataka and Kerala.

**Area, Production and Yield of Onion : Present Status**

There is sufficient ground to enlighten that out of the 10 major onion producing states, on the parameter of yield Bihar stood at third position (with 23,086 kg/ha)

only after Gujarat and Madhya Pradesh (25,485 kg/ha and 24,095 kg/ha) respectively as per data available for the year 2015-16. Though in regard to area under onion, Maharashtra occupied the largest one (4,33,460 ha) followed by Karnataka 2,07,150 ha, others taken together 1,65,270 ha and Madhya Pradesh 1,18,200 ha. Bihar came at 5th position in regard to area under onion i.e., 54,030 ha. Total production of onion in India (till 2015-16) was estimated at 2.10 crore tons. Bihar contributed 5.9 per cent only in the total production of India. Maharashtra contributed the highest percentage share of total production basket (31) followed by Karnataka, Madhya Pradesh, others, Gujarat, Bihar, Andhra Pradesh, Haryana, Rajasthan, West Bengal and Uttar Pradesh (16.8, 13.6, 11, 6.5, 5.9, 4.2, 3.4, 3, 2.6, and; 2) respectively. It is thus, crystal clear that in regard to area under onion, Bihar stood at 5th position (out of 10 major producing states), 5th in production and 3rd on the parameter of productivity (table 2). Bihar produced 1247.34 thousand tons of onion in 2015-16.

**Table 1.2: Area, Production and Yield in Major Producing States : Onion**

*Area – '000 Ha, Production – '000 Ton, Yield – Kg/ha, Year – 2015-16*

| SN | States | Area | % to All-India | Production | % to All-India | Yield |
|---|---|---|---|---|---|---|
| 1. | Maharashtra | 433.46 | 35.4 | 6510.86 | 31.0 | 15,021 |
| 2. | Karnataka | 207.15 | 16.9 | 3531.59 | 16.8 | 17,049 |
| 3. | Madhya Pradesh | 118.20 | 9.6 | 2848.00 | 13.6 | 24,095 |
| 4. | Gujarat | 53.20 | 4.3 | 1355.78 | 6.5 | 25,485 |
| **5.** | **Bihar** | **54.03** | **4.4** | **1247.34** | **5.9** | **23,086** |
| 6. | Andhra Pradesh | 44.03 | 3.6 | 874.50 | 4.2 | 19,862 |
| 7. | Haryana | 30.65 | 2.5 | 705.80 | 3.4 | 23,031 |
| 8. | Rajasthan | 60.25 | 4.9 | 635.10 | 3.0 | 10,541 |
| 9. | West Bengal | 33.98 | 2.8 | 544.55 | 2.6 | 16,028 |
| 10. | Uttar Pradesh | 24.96 | 2.0 | 422.75 | 2.0 | 16,938 |
| | Others | 165.27 | 13.5 | 2314.97 | 11.0 | 14,007 |
| | All-India | 1225.16 | 100.0 | 20991.23 | 100.0 | 17,133 |

*Source: Department of Agriculture, co-operation & Farmers Welfare, (Horticulture Statistics Division)*

*Note: States have been arranged in descending order of percentage share in production during 2015-16.*

## 1.2 Objectives and Scope :

First Part of this report encompasses the following objectives based on secondary data:

a. To analyse trends in area, production and productivity of onion in the state (2012-13 to 2016-17)
b. To assess price volatility in major onion production and consumption market in the State.
c. To estimate the status and potential of onion infrastructure with specific focus on storage structures ; and
d. To suggest remedial measures from stakeholder's perspectives.

### 1.3 Methodology

First part of the Quick Study Report is essentially based on secondary data. However, for quick short note on onion crop condition and the then prevailing prices in major markets of Bihar primary sources of information, i.e., traders/commission agents and retailers were also contacted. Secondary data has been used to find out recent trends of: onion production, area under its cultivation and yield in Bihar. Month wise and year wise wholesale prices have been obtained from MIU, Patna, various rounds of NSSO & CSO consumer data have been used for consumption related information. For district wise area, production and yield of onion and existing storage infrastructure related data, DES, Government of Bihar, Directorate of Horticulture, and Economic Survey, Finance Department, Government of Bihar like sources have been used. Simple tabular and percentage methods have been followed for analysis of data.

### 1.4 Seasonal Calendar of Onion : Bihar

This section of the study deals with brief discussion of: seasonal calendar of onion sowing, transplanting and harvesting in the state of Bihar. It is to be noted here that in Bihar, onion is grown during rabi season only. Sowing of the crop generally takes place after 15$^{th}$ November. After about 2 months of sowing, i.e., after mid January, transplanting takes place. As per the prevailing practice, generally after 3 months of transplantation, i.e., after 15$^{th}$ April, or so, onion is harvested (table 1.3).

In quite a few districts/areas, sowing activity is undertaken during 8-10 November (advance). Transplanting of onion in these areas mostly takes place during December 25 to January 5$^{th}$. It clearly reveals that from the stage of sowing to

transplanting, it takes about 45 days' time. As these are generally late variety crop (onion), hence harvesting starts taking place from 1st week of May -table 1.3 (A).

**Table 1.3: Seasonal Calendar of Onion Sowing, Transplanting and Harvesting in the State of Bihar**

| Activities | | June | July | August | September | October | November | December | January | February | March | April | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sowing** | Kharif | | | | | | | | | | | | |
| | Late Kharif /Early Rabi | | | | | | | | | | | | |
| | Rabi | | | | | | √ | | | | | | |
| **Transplanting** | Kharif | | | | | | **8-10 (advance)** | | | | | | |
| | Late Kharif /Early Rabi | | | | | | | **25 Dec. To 5th January** | | | | | |
| | Rabi | | | | | | | | √ | | | | |
| **Harvesting** | Kharif | | | | | | | | | | | | |
| | Late Kharif /Early Rabi | | | | | | | | | | | | √ |
| | Rabi | | | | | | | | | | | | 1st week |

*Note – Shed with black color or use tick mark*

**Table 1.3A: Seasonal Calendar (Normal Years) of Onion Sowing, Transplanting and Harvesting across major regions in the State of Bihar**

| Districts | Activities | | June | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb | March | April | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Sowing** | Kharif | | | | | | | | | | | | |
| | | Late Kharif /Early Rabi | | | | | | | | | | | | |
| | | Rabi | | | | | | √ | | | | | | |
| | **Transplanting** | Kharif | | | | | | | | | | | | |
| | | Late Kharif /Early Rabi | | | | | | | | | | | | |
| | | Rabi | | | | | | | | | | | | |
| | **Harvesting** | Kharif | | | | | | | | | | | | |
| | | Late Kharif /Early Rabi | | | | | | | | | | | | |
| | | Rabi | | | | | | | | | | | | |

*Note: Applicable if seasonal calendar of onion sowing, transplanting and harvesting differ across major regions of the state.*

## 1.5 APY of Onion and Value in Bihar 2012-13

This section of the chapter envisages district wise area, production, percentage of production to total production of the state, yield and value of output during the year 2012-13. Nalanda, Katihar, Muzaffarpur and Patna could be considered as major districts during 2012-13 from production point of view contributing 12.84 per cent, 6.49 per cent, 5.38 per cent and 4.89 per cent in total production respectively. It is interesting to note that major districts numbering 10 during this year having occupied 51.54 per cent of the total area under onion cultivation contributed 52.67 per cent of production and value of the of the crop as well. Table Nos. 1.4(A), 1.4(B) & 1.4(C) Minor districts, which were 28 in number, occupied 48.46 per cent of total area and contributed 47.32 per cent of total production. Productivity of the crop in major districts was a bit higher 20,931 kg/ha than that of minor districts 19,993 kg/ha and the state average as a whole 20,477 kg/ha. It can thus, be interpreted based on the data in the table that some incentivizing/promotional measures may be taken by the State Government of Bihar and the Union Government, as well to make the scenario of minor districts compatible for onion production. Average retail price of onion in the year 2012-13 was Rs. 16.51/- per kg.

**1.4 (A) Major Districts of Onion Production in Bihar, Year 2012-13**

| Sl.No. | Districts | Area (Ha) | Production (Metric Tonne) | Major Districts % of total State production | Yeild (Kg/Ha) | Value of Output (Rs. In Crore) x @ Rs.16.51/- Per kg. |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| A .1 | Nalanda | 6090 | 138810 | 12.84 | 22793 | 229.18 |
| 2 | Katihar | 3900 | 70210 | 6.49 | 18003 | 115.92 |
| 3 | Muzaffarpur | 2650 | 58170 | 5.38 | 21951 | 94.04 |
| 4 | Patna | 2580 | 52870 | 4.89 | 20492 | 87.29 |
| 5 | W. Champaran | 2340 | 51900 | 4.80 | 22179 | 89.69 |
| 6 | E.Champaran | 2390 | 50110 | 4.63 | 20966 | 82.73 |
| 7 | Begusarai | 2010 | 40480 | 3.78 | 20318 | 67.43 |
| 8 | Vaishali | 1810 | 36680 | 3.39 | 20265 | 60.57 |
| 9 | Purnea | 1800 | 35880 | 3.32 | 19933 | 59.24 |
| 10 | Bhagalpur | 1640 | 34070 | 3.15 | 20774 | 56.25 |
| | ***Sub. Total (10 major districts)*** | ***27210 (51.53%)*** | ***569540 (52.68%)*** | ***52.67*** | ***20931*** | ***940.31*** |

**Table 1.4 (B) Minor Districts of Onion Production in Bihar, Year 2012-13**

| | | | | | | |
|---|---|---|---|---|---|---|
| B.11 | Bhojpur | 1210 | 25390 | 2.35 | 20983 | 41.92 |
| 12 | Buxar | 930 | 19120 | 1.77 | 20559 | 31.57 |
| 13 | Rohtas | 1210 | 22930 | 2.12 | 18950 | 37.86 |
| 14 | Bhabhua(Kaimur) | 380 | 17500 | 1.62 | 46052 | 28.89 |
| 15 | Gaya | 1440 | 28980 | 2.68 | 20125 | 47.85 |
| 16 | Jehanabad | 460 | 11700 | 1.08 | 25434 | 19.32 |
| 17 | Arwal | 440 | 9100 | 0.84 | 20681 | 15.02 |
| 18 | Nawada | 1000 | 18440 | 1.71 | 18440 | 30.44 |
| 19 | Aurangabad | 1130 | 21440 | 1.98 | 18973 | 35.40 |
| 20 | Saran | 950 | 18030 | 1.67 | 18979 | 29.77 |
| 21 | Siwan | 910 | 17640 | 1.63 | 19385 | 29.12 |
| 22 | Gopalganj | 130 | 1410 | 0.13 | 10846 | 2.33 |
| 23 | Sitamarhi | 980 | 14540 | 1.34 | 14837 | 24.01 |
| 24 | Sheohar | 720 | 14610 | 1.35 | 20292 | 24.12 |
| 25 | Darbhanga | 1110 | 28940 | 2.68 | 26072 | 47.78 |
| 26 | Madhubani | 1210 | 21300 | 1.97 | 17603 | 35.17 |
| 27 | Samastipur | 1400 | 25700 | 2.38 | 18357 | 42.43 |
| 28 | Munger | 1020 | 20620 | 1.91 | 20216 | 34.04 |
| 29 | Sheikhpura | 1310 | 24850 | 2.30 | 18969 | 41.03 |
| 30 | Lakhisarai | 450 | 8540 | 0.79 | 18978 | 14.10 |
| 31 | Jamui | 780 | 18890 | 1.75 | 24218 | 31.19 |
| 32 | Khagaria | 770 | 14550 | 1.35 | 18896 | 24.02 |
| 33 | Banka | 750 | 13880 | 1.28 | 18507 | 22.92 |
| 34 | Saharsa | 650 | 12660 | 1.17 | 19477 | 20.90 |
| 35 | Supaul | 380 | 7140 | 0.66 | 18789 | 11.79 |
| 36 | Madhepura | 980 | 19050 | 1.76 | 19439 | 31.45 |
| 37 | Kishanganj | 1390 | 26490 | 2.45 | 19058 | 43.73 |
| 38 | Araria | 1500 | 28180 | 2.61 | 18787 | 46.53 |
| | Sub. Total (28 minor districts) | ***25590 (48.77%)*** | ***511620 (47.32%)*** | ***47.33*** | ***19993*** | ***844.68*** |
| (A+B) | Grand Total | ***52800 (100%)*** | ***1081160 (100%)*** | ***100%*** | ***20477*** | ***1784.99*** |

**Table 1.4 (C) Major & Minor Districts of Onion Production in Bihar, Year 2012 – 13**

| Sl. No. | Districts (Major & Minor 38 Districts) | Area (In Ha) | Production (In MT) | Major & Minor Districts (% of Total State (% Production) | Yield (Kg/Ha) | Value of output (Rs. In Crore) x @ Rs. 16.51/- per Kg. |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| A.1 | Major 10 Districts | 27210 (51.53) | 569540 (52.68) | 52.67 | 20931 | 940.31 (52.68) |
| B.2 | Minor 28 Districts | 25590 (48.77) | 511620 (47.32) | 47.33 | 19993 | 844.68 (47.32) |
| A+B | Grand Total | 52800 (100) | 1081160 (100) | 100 | 20477 | 1784.99 (100) |

*Source: Economic Survey, 2014-15, Finance Department, Government of Bihar.*

### 1.5.1 Analysis of Trends in Area, Production and Productivity 2013-14

In this section of the chapter, attempt has been made to analyse and area, production, in major districts determined on the basis of percentage of onion production to total production of the state, and the value of output. This section contains the discussion for the year 2013-14. It is to be noted here that the percentages of production of onion across the districts as a whole during the year, ranged between 11.51 per cent to 0.02 per cent. So, the districts have been classified in two groups, viz., major districts and minor districts. Major districts during the year 2013-14 comprised 13 districts with 74.04 per cent of the total production of Bihar. Major districts encircle Patna, Buxar, Bhojpur (Ara), Nalanda, Madhubani,

Champaran (E), Supaul, Sheikhpura, Siwan, Samastipur, Gaya, Rohtas and Bhabuwa (Kaimur). Out of the 13 major onion producting districts Patna, Buxar, Bhojpur and Nalanda could be placed or treated as significantly major ones (11.51%, 7.47%, 7.37% and 7.02%) respectively. These district wise percentages of production have been calculated from out of the total production of the state. Yield levels of these top four districts were 12,670 kg/ha, 11,670 kg/ha, 9,410 kg/ha and 8,270 kg/ha respectively. Value of output, i.e., onion in the major producing districts ranged from Rs. 50.56 crores in case of Patna to Rs. 13 crores in case of Bhabhua (Kaimur) during the year 2013-14 (table 1.5.1 A).

It is to be noted that the 25 districts of the state have been or can be classified as minor districts in regard to production. These 25 districts contributed nearly 26 per cent of the total production of Bihar in the year 2013-14. Total value of output of the crop, i.e., onion was calculated at approximately Rs. 325.20 crore for major districts and Rs. 439.36 crores in case of minor districts that comprised 25 districts (table 1.5.1 B). One of the needful observations in regard to area, production and value of output, in the year 2013-14 is that in 68.95 per cent of the total area under onion 74.03 per cent of the total production of state is achieved. And the contribution of the major 13 districts in total value of output was estimated at Rs. 325.20 crore 74.02 per cent, whereas the same by the 25 minor districts was 25.98 per cent only of the total value of output in the state (table 1.5.1 C). So, there is all ground to suggest the fact that major producing districts did significantly contribute in the total value of output of the state, whereas minor 25 districts share was quite low. It is, therefore, requisite for the Government and policy makers to devise possible measures for bringing more area under onion cultivation and emphasis may be given on enhancing its productivity. It is to be urgently noted here that average retail price of onion in the year 2013-14 was Rs. 31.85

**Table 1.5.1(A): Major 13 Districts of Onion Production in Bihar of the Production of Total State Production Year 2013-14**

| SN | Districts | Area (In ha) | Production (MT) | Major Districts | Yield (kg/ha) | Value of Output (Rs. in Crore) X @ 31.85/kg |
|---|---|---|---|---|---|---|
| 1. | Patna | 1253 | 15876 | 11.51 | 12670 | 50.56 |
| 2. | Buxar | 884 | 10316 | 7.47 | 11670 | 32.85 |
| 3. | Bhojpur (Ara) | 1081 | 10172 | 7.37 | 9410 | 32.39 |
| 4. | Nalanda | 1171 | 9684 | 7.02 | 8270 | 30.84 |
| 5. | Madhubani | 983 | 8847 | 6.41 | 9000 | 28.17 |
| 6. | Champaran (E) | 785 | 8070 | 5.85 | 10280 | 25.70 |
| 7. | Supaul | 793 | 7137 | 5.17 | 9000 | 22.73 |
| 8. | Sheikhpura | 843 | 6744 | 4.89 | 9000 | 21.47 |
| 9. | Siwan | 704 | 6625 | 4.80 | 9410 | 21.10 |
| 10. | Samastipur | 624 | 5616 | 4.07 | 9000 | 17.88 |
| 11. | Gaya | 657 | 4737 | 3.43 | 7210 | 15.08 |
| 12. | Rohtas | 402 | 4217 | 3.05 | 10490 | 13.43 |
| 13. | Bhabhua (Kaimur) | 389 | 4081 | 3.00 | 9662 | 325.20 |
| | Sub-total | 10569 (68.95%) | 102122 (74.03%) | 74.04 | 9662 | 325.26 |

**Table 1.5.1(B) Minor 25 Districts of Onion Production in Bihar**

| | | | | | | |
|---|---|---|---|---|---|---|
| 14. | Aurangabad | 208 | 1500 | 1.08 | 7210 | 4.78 |
| 15. | Nawada | 61 | 440 | 0.32 | 7210 | 1.40 |
| 16. | Jehanabad | 153 | 1103 | 0.80 | 7210 | 3.51 |
| 17 | Arwal | 250 | 1803 | 1.31 | 7210 | 5.74 |
| 18. | Muzaffarpur | 184 | 1308 | 0.95 | 7110 | 4.17 |
| 19. | Sitamarhi | 136 | 917 | 0.66 | 6740 | 2.92 |
| 20. | Sheohar | 56 | 398 | 0.29 | 7110 | 1.27 |
| 21. | Saran | 233 | 2193 | 1.59 | 9410 | 6.98 |
| 22. | Gopalganj | 15 | 141 | 0.10 | 9410 | 0.45 |
| 23. | Darbhanga | 65 | 585 | 0.42 | 9000 | 1.86 |
| 24. | Bhagalpur | 227 | 2043 | 1.48 | 9000 | 6.51 |
| 25. | Banka | 182 | 1638 | 1.19 | 9000 | 5.22 |
| 26. | Munger | 3 | 24 | 0.02 | 8000 | 0.08 |
| 27. | Jamui | 116 | 928 | 0.67 | 8000 | 3.00 |
| 28. | Khagaria | 240 | 1920 | 1.40 | 8000 | 6.12 |
| 29. | Begusarai | 34 | 272 | 0.20 | 8000 | 0.87 |
| 30. | Lakhisarai | 00 | 00 | 00 | 8000 | 00 |
| 31. | Saharsa | 315 | 2835 | 2.05 | 9000 | 9.03 |
| 32. | Madhepura | 143 | 1287 | 0.93 | 9000 | 4.10 |
| 33. | Purnea | 134 | 1206 | 0.87 | 9000 | 3.84 |
| 34. | Kishanganj | 291 | 2619 | 1.90 | 9000 | 8.34 |
| 35. | Araria | 346 | 3114 | 2.26 | 9000 | 9.92 |
| 36. | Katihar | 144 | 1296 | 0.94 | 9000 | 4.13 |
| 37. | Champaran West | 711 | 3448 | 2.50 | 4850 | 10.98 |
| 38. | Vaishali | 512 | 2806 | 2.03 | 5480 | 8.94 |
| | **Sub-total (25 district of subtotal)** | **4759 (31.05%)** | **35824 (25.97%)** | **25.96** | **7528** | **114.16** |
| | **Grand Total** | **15328 (100.00%)** | **137946 (100.00%)** | **100.00%** | **9000** | **439.36** |

**Table 1.5.1(C): Major and Minor Districts of Onion Production in Bihar, Year 2013-14**

| SN | Districts | Area (In Ha) & (In %) | Production (In MT) & (In %) | Value of Output (Rs. In Crore) @Rs. 31.85/kg & (In %) |
|---|---|---|---|---|
| 1. | 13 districts of Major Sub-total | 10569 (68.95) | 102122 (74.03) | 325.20 (74.12) |
| 2 | 25 districts of Minor Sub-total | 4759 (31.05) | 35824 (25.97) | 114.16 (25.98) |
| 3. | Grand Total | 15328 (100.00) | 137946 (100.00) | 439.36 (100.00) |

*Source: DES, Govt. of Bihar & Directorate Horticulture, Govt. of Bihar*

## 1.5.2 APY Across Major Districts, 2014-15, Bihar

This section of the Chapter enfolds analytical discussions related to area, production, yield and value of output (onion) and their share in total production of the state during the year 2014-15. During 2014-15, major 09 districts of Bihar contributed 68.79 per cent of state's total production having used 56.00 per cent area of the state under onion cultivation. In regard to value of output, major districts shared Rs. 259.30 crore 68.79 per cent. Remaining 29 districts of Bihar were found to have produced 47,126 MTs of onion 31.21 per cent of the total production by using 6,198 hectare of land 43.91 per cent. The share /contribution of these 29 minor districts from quantum of production point of view was calculated at Rs. 117.62 crore 31.21 per cent only (table 1.5.2(A), (B) & (C)).

It is to be chalked out here that in 2014-15, Nalanda, Patna, Madhubani, Siwan and East Champaran were the major districts with productions of (17.54%, 15.98% 8.80%, 5.77% and 5.39%) respectively. So, here also there is need to take notice on the minor districts of onion production. Emphasis ought to be given on bringing more area under onion cultivation. Average retail price of onion during the year was Rs. 24.96 per kg.

**Table 1.5.2 (A): Major 09 Districts of Onion in Bihar of the Production Year 2014-15**

| SN | Districts | Area (In ha) | Production (MT) | Major Districts Of total State Production | Yield (kg/ha) | Value of Output (Rs. in Crore) X @24.96/kg |
|---|---|---|---|---|---|---|
| 1. | Nalanda | 1364 | 26489 | 17.54 | 19420 | 66.11 |
| 2. | Patna | 1354 | 24142 | 15.98 | 17830 | 60.25 |
| 3. | Madhubani | 678 | 13296 | 8.80 | 19610 | 33.18 |
| 4. | Siwan | 662 | 8712 | 5.77 | 13160 | 21.74 |
| 5. | Champaran (E) | 619 | 8140 | 5.39 | 13150 | 20.31 |
| 6. | Bhojpur (Ara) | 1095 | 6439 | 4.26 | 5880 | 16.07 |
| 7. | Gaya | 662 | 6342 | 4.20 | 9580 | 15.82 |
| 8. | Supaul | 716 | 5356 | 3.55 | 7480 | 13.36 |
| 9. | Sheikhpura | 768 | 4992 | 3.30 | 6500 | 12.46 |
| | Sub-total of Major 09 districts | 7918 (56.09%) | 103908 (68.80%) | 68.79 | 13123 | 259.30 |

**Table 1.5.2 (B) Minor 29 Districts of Onion in Bihar of the Production Year – 2014-15**

| | | | | | | |
|---|---|---|---|---|---|---|
| 10. | Jehanabad | 19 | 182 | 0.12 | 9580 | 0.45 |
| 11. | Champaran (W) | 676 | 3414 | 2.26 | 5050 | 8.52 |
| 12. | Sitamadhi | 132 | 1006 | 0.67 | 7620 | 2.51 |
| 13. | Sheohar | 48 | 366 | 0.24 | 7620 | 0.91 |
| 14. | Vaishali | 714 | 3763 | 2.49 | 5270 | 9.39 |
| 15. | Saran | 143 | 1882 | 1.25 | 13160 | 4.69 |
| 16. | Arwal | 254 | 2433 | 1.61 | 9580 | 6.07 |
| 17. | Gopalganj | 06 | 79 | 0.05 | 13166 | 0.19 |
| 18. | Darbhanga | 65 | 1132 | 0.75 | 17410 | 2.82 |
| 19. | Muzaffarpur | 53 | 404 | 0.27 | 7620 | 1.00 |
| 20. | Samastipur | 306 | 3831 | 2.54 | 12520 | 9.56 |
| 21. | Bhagalpur | 243 | 2600 | 1.72 | 10700 | 6.48 |
| 22. | Banka | 114 | 1220 | 0.82 | 10700 | 3.04 |
| 23. | Munger | 04 | 26 | 0.02 | 6,500 | 0.06 |
| 24. | Jamui | 247 | 1606 | 1.06 | 6500 | 4.00 |
| 25. | Khagaria | 240 | 1560 | 1.03 | 6500 | 3.89 |
| 26. | Begusarai | 37 | 241 | 0.16 | 6500 | 0.60 |
| 27. | Lakhisarai | 00 | 00 | 0.00 | 00 | 0.00 |
| 28. | Aurangabad | 200 | 1960 | 1.27 | 9580 | 4.78 |
| 29 | Saharsa | 331 | 2476 | 1.64 | 7480 | 6.18 |
| 30. | Madhepura | 188 | 1406 | 0.93 | 7480 | 3.50 |
| 31. | Bhabhua (Kaimur) | 289 | 3826 | 2.53 | 13240 | 9.54 |
| 32. | Purnea | 151 | 862 | 0.57 | 5710 | 2.15 |
| 33. | Kishanganj | 309 | 1774 | 1.17 | 5740 | 4.42 |
| 34. | Araria | 269 | 1528 | 1.01 | 5680 | 3.81 |
| 35. | Katihar | 156 | 891 | 0.59 | 5710 | 2.22 |
| 36. | Nawada | 00 | 00 | 0.00 | 00 | 0.00 |
| 37. | Rohtas | 234 | 3098 | 2.05 | 13240 | 7.73 |
| 38. | Buxar | 770 | 3604 | 2.39 | 4680 | 8.99 |
| | Sub-total of 29 Minor district | 6198 (43.91%) | 47126 (31.20%) | 31.21 | 7603 | 117.62 |
| | Grand Total | 14116 (100.00%) | 151034 (100.00%) | (100.00%) | 10700 | 376.98 |

**Table 1.5.2(C): Major and Minor Districts of Onion Production in Bihar, Year 2014-15**

| SN | Districts | Area (In Ha) & (In %) | Production (In MT) & (In %) | Value of Output X @ 24.96/kg (Rs. In Crore) & (In %) |
|---|---|---|---|---|
| 1. | 13 districts of Major Sub-total | 7918 (56.09) | 103908 (68.80) | 259.30 (68.79) |
| 2 | 25 districts of Minor Sub-total | 6198 (43.91) | 47126 (31.20) | 117.62 (31.21) |
| 3. | Grand Total | 14116 (100.00) | 151034 (100.00) | 376.92 (100.00) |

*Source: DSE, Govt. of Bihar & Directorate Horticulture, Govt. of Bihar*

### 1.5.3 Area, Production, Productivity and Value 2015-16

A glance on table 1.5.3 A) helps us to comprehend that during the year 2015-16, major districts comprising 12 districts had the distinction of sharing 77.38 per cent of the total onion production of Bihar (i.e., 1,53,403 MTs), whereas the minor districts consisting 26 districts could contribute only 22.62 per cent of production. Nalanda, Patna, Vaishali and Sheikhpura, the first 04 top districts in regard to production could be seen to have produced 21.56 per cent, 13.50 per cent, 5.78 per cent and 5.77 per cent respectively. Average yield of onion in the major districts taken together were calculated at 11,945 kg/ha, whereas the same in minor producing districts were

5401 kg/ha which was much lower than the major districts (table 1.5.3 B). There is need to comprehend that during the year 2015-16, the contribution of major districts i.e, 12 in number, in value of output was Rs. 340 crore 77.36 per cent, whereas the same by the minor districts, i.e., 26 in number was Rs. 99.47 crore 22.64 per cent only of the total value of output (table 1.5.3 C). So, what is revealed is that by using 60.72 per cent of the total area under onion cultivation in Bihar major districts produced 77.32 per cent of the total production and contributed in value almost equally. The point of concern is that minor districts in regard to production consisting 26 districts, produced only 22.62 per cent of the total production having used 39.28 per cent of the total area under onion cultivation. Average retail price during the year remained at Rs. 28.65 per kg.

**Table 1.5.3 (A): Major 12 Districts of Onion Production in Bihar Year 2015-16**

| SN | Districts | Area (In ha) | Production (MT) | Major Districts % of Total State Production | Yield (kg/ha) | Value of Output (Rs. in Crore) X @ Rs. 28.65/kg |
|---|---|---|---|---|---|---|
| 1. | Nalanda | 1438 | 33074 | 21.56 | 23000 | 94.76 |
| 2. | Patna | 1493 | 20708 | 13.50 | 13870 | 59.35 |
| 3. | Vaishali | 819 | 8870 | 5.78 | 10830 | 25.41 |
| 4. | Sheikhpura | 847 | 8851 | 5.77 | 10450 | 25.36 |
| 5. | Buxar | 794 | 8758 | 5.71 | 11030 | 25.09 |
| 6. | Bhojpur (Ara) | 1007 | 7089 | 4.62 | 7040 | 20.31 |
| 7. | Supaul | 714 | 6433 | 4.19 | 9010 | 18.43 |
| 8. | Gaya | 822 | 5943 | 3.87 | 7230 | 17.03 |
| 9. | Siwan | 661 | 5843 | 3.82 | 8840 | 16.74 |
| 10. | Jamui | 493 | 5152 | 3.36 | 10450 | 14.76 |
| 11. | Nawada | 573 | 4143 | 2.71 | 7230 | 11.87 |
| 12. | Rohtas | 275 | 3820 | 2.49 | 1389 | 10.94 |
| | Sub-total (12 districts) | 9936 (60.72%) | 118684 (77.37%) | 77.38 | 11945 | 340.00 |

**Table 1.5.3 (B) Minor 26 Districts of Onion Production in Bihar**

| | | | | | | |
|---|---|---|---|---|---|---|
| 13. | Bhabhaua (Kaimur) | 472 | 2672 | 1.74 | 5661 | 7.65 |
| 14. | Aurangabad | 248 | 1793 | 1.17 | 7230 | 5.14 |
| 15. | Jehanabad | 158 | 1142 | 0.74 | 7230 | 3.27 |
| 16. | Arwal | 257 | 1858 | 1.21 | 7230 | 5.32 |
| 17. | Muzaffarpur | 98 | 505 | 0.33 | 5150 | 1.45 |
| 18. | East Champaran | 678 | 1349 | 0.88 | 1990 | 3.86 |
| 19. | West Champaran | 1059 | 2955 | 1.93 | 2790 | 8.47 |
| 20. | Sitamarhi | 132 | 680 | 0.44 | 5150 | 1.95 |
| 21. | Sheohar | 30 | 155 | 0.11 | 5150 | 0.04 |
| 22. | Saran (Chapra) | 171 | 1512 | 0.98 | 8840 | 4.33 |
| 23. | Gopalganj | 06 | 53 | 0.03 | 8840 | 0.02 |
| 24. | Darbhanga | 82 | 462 | 0.30 | 5630 | 0.15 |
| 25. | Madhubani | 668 | 3059 | 1.99 | 4580 | 8.76 |
| 26. | Samastipur | 431 | 3133 | 2.04 | 7270 | 8.98 |
| 27. | Bhagalpur | 247 | 2314 | 1.51 | 9370 | 6.63 |
| 28. | Banka | 86 | 806 | 0.52 | 9370 | 2.31 |
| 29. | Munger | 15 | 157 | 0.10 | 10450 | 0.45 |
| 30. | Khagaria | 219 | 2289 | 1.49 | 10450 | 6.56 |
| 31. | Begusarai | 39 | 408 | 0.27 | 10450 | 1.17 |
| 32. | Lakhisarai | 00 | 00 | 0.00 | 10450 | 0.00 |
| 33. | Saharsa | 318 | 2865 | 1.87 | 9010 | 8.21 |
| 34. | Madhepura | 122 | 1099 | 0.72 | 9010 | 3.15 |
| 35. | Purnea | 148 | 573 | 0.37 | 3870 | 1.64 |
| 36. | Kishanganj | 319 | 1235 | 0.80 | 3870 | 3.54 |
| 37. | Araria | 265 | 1026 | 0.68 | 3870 | 2.90 |
| 38. | Katihar | 160 | 619 | 0.40 | 3870 | 1.77 |
| | Sub-total of 26 Minor District | 6428 ((39.28%) | 34719 (22.63%) | 22.62 | 5401 | 99.47 |
| | Grand Total | 16364 (100.00%) | 153403 (100.00%) | 100.00% | 9374 | 439.50 |

**Table 1.5.3 (C): Major and Minor Districts of Onion Production in Bihar, Year 2015-16**

| SN | Districts | Area (In Ha) & (In %) | Production (In MT) & (In %) | Major & Minor District % of total State production | Yield (kg/Ha) | Value of Output X @ 24.96/kg (Rs. In Crore) & (In %) |
|---|---|---|---|---|---|---|
| 1. | Sub-total of 12 Major District | 9936 (60.72) | 118684 (77.37%) | 77.38 | 11945 | 340.00 (77.36) |
| 2 | Sub-total of 26 Minor District | 6428 (39.28) | 34719 (22.63) | 22.62 | 5401 | 99.47 (22.64) |
| 3. | Grand Total | 16364 (100.00) | 153403 (100.00) | 100.00 | 9374 | 439.50 (100.00) |

*Source: DSE, Govt. of Bihar & Directorate Horticulture, Govt. of Bihar*

### 1.5.4 APY of Onion and Value 2016-17: Bihar

During the year 2016-17, 10 districts of Bihar, considered to be major ones in regard to production, contributed nearly 52.66 per cent of the total state production having used 49.77 per cent of the total area under onion. While the major districts accounted for 52.66 per cent of the total value created, 28 minor districts contributed only 47.34 per cent of the value by using more than 50.00 per cent of the area.

Data in the table conduces to reach at the fact that Nalanda, Katihar, Muzaffarpur and Patna were at the top of major districts in regard to total production (11.74%, 6.67%, 5.55%, and 5.24%) respectively (table 1.5.4 A). Average productivities of

onion in major districts was found much higher 24,444kg/ha than that of minor ones i.e., 21,777 kg/ha (table 1.5.4 A) and 1.5.4 B). Data in the table also helps to feature that major districts (consisting 10 districts) had 26,905 hectare of land under onion cultivation, produced 6,57,667 MT and earned Rs. 974.66 crore as total value of output. In regard to minor districts, under which 28 districts have been kept, total area under onion cultivation was 27,152 ha, production was estimated at 5,91,293 MTs and contributed in earning as total value of output calculated at Rs. 876.30 crore (table 1.5.4 A, 1.5.4 B & 1.5.4 C). Average retail price during the year 2016-17 was Rs. 14.82 per kg. Based on the data of five years, i.e., from 2012 -13 to 2016-17 and having maintained all care, concludingly it may be mentioned that Patna and Nalanda are the two major districts in Bihar from production point of view.

**Table 1.5.4 (A): Major 10 Districts of Onion Production in Bihar, Year 2016-17**

| SN | Districts | Area (In ha) | Production (MT) | Major Districts | Yield (kg/ha) | Value of Output (Rs. in Crore) X @ Rs. 14.82/kg |
|---|---|---|---|---|---|---|
| 1. | Nalanda | 5500 | 146667 | 11.74 | 26667 | 217.36 |
| 2. | Katihar | 3907 | 83249 | 6.67 | 21308 | 123.38 |
| 3. | Muzaffarpur | 2690 | 69319 | 5.55 | 25769 | 102.73 |
| 4. | Patna | 2700 | 65423 | 5.24 | 24231 | 96.96 |
| 5. | West Champaran | 2400 | 61923 | 4.96 | 25801 | 91.77 |
| 6. | East Champaran | 2500 | 61771 | 4.95 | 24708 | 91.54 |
| 7. | Vaishali | 1802 | 44049 | 3.53 | 24445 | 65.28 |
| 8. | Purnea | 1801 | 42500 | 3.40 | 23598 | 62.99 |
| 9. | Begusarai | 2000 | 42400 | 3.39 | 21200 | 62.84 |
| 10. | Bhagalpur | 1605 | 40366 | 3.23 | 25150 | 59.82 |
| | Sub-total | 26905 (49.77%) | 657667 (52.66%) | 52.66 | 24444 | 974.66 |

**Table 1.5.4 (B) Minor 28 Districts of Onion Production in Bihar 2016-17**

| | | | | | | |
|---|---|---|---|---|---|---|
| 11. | Araria | 1503 | 32315 | 2.59 | 21500 | 47.89 |
| 12. | Arwal | 400 | 9900 | 0.79 | 24750 | 14.67 |
| 13. | Aurangabad | 1120 | 25487 | 2.04 | 22756 | 37.77 |
| 14. | Banka | 710 | 15721 | 1.26 | 22142 | 23.30 |
| 15. | Bhojpur (Ara) | 1200 | 26000 | 2.08 | 21667 | 38.53 |
| 16. | Buxar | 1000 | 25111 | 2.01 | 25111 | 37.21 |
| 17. | Darbhanga | 1000 | 25000 | 2.00 | 25000 | 37.05 |
| 18. | Gaya | 1405 | 1405 | 0.11 | 1000 | 2.08 |
| 19. | Gopalganj | 900 | 18600 | 1.49 | 20667 | 27.57 |
| 20. | Jamui | 809 | 22394 | 1.79 | 27681 | 33.19 |
| 21. | Jehanabad | 516 | 13519 | 1.08 | 26200 | 20.04 |
| 22. | Bhabhua (Kaimur) | 1012 | 20948 | 1.68 | 20700 | 31.04 |
| 23. | Khagaria | 804 | 17387 | 1.39 | 21626 | 25.77 |
| 24. | Kishanganj | 1411 | 31647 | 2.53 | 22429 | 46.90 |
| 25. | Lakhisarai | 407 | 10277 | 0.82 | 25251 | 15.23 |
| 26. | Madhepura | 1000 | 22600 | 1.81 | 22600 | 33.49 |
| 27. | Madhubani | 1000 | 23000 | 1.84 | 23000 | 34.09 |
| 28. | Munger | 1100 | 26950 | 2.16 | 24500 | 39.94 |
| 29. | Nawada | 999 | 21778 | 1.74 | 21800 | 32.27 |
| 30. | Rohtas | 1209 | 27505 | 2.20 | 22750 | 40.76 |
| 31. | Saharsa | 612 | 15300 | 1.23 | 25000 | 22.67 |
| 32. | Samastipur | 1403 | 30465 | 2.44 | 21714 | 45.15 |
| 33. | Saran | 1012 | 18216 | 1.46 | 18000 | 27.00 |
| 34. | Sheikhpura | 1312 | 30277 | 2.42 | 23077 | 44.87 |
| 35. | Sheohar | 702 | 17349 | 1.39 | 24714 | 25.71 |
| 36. | Sitamarhi | 1303 | 32575 | 2.61 | 25000 | 48.28 |
| 37. | Siwan | 902 | 21047 | 1.70 | 23334 | 31.19 |
| 38. | Supaul | 401 | 8520 | 0.68 | 21247 | 31.19 |
| | Sub-total | 27152 (52.23%) | 591293 (47.34%) | 47.34 | 21777 | 876.30 |
| | Grand Total | 54057 (100.00%) | 1248960 (100.00%) | 100.00 | 23105 | 1850.96 |

**Table 1.5.4(C): Major and Minor Districts of Onion Production in Bihar, Year 2016-17**

| SN | Districts | Area (In Ha) & (In %) | Production (In MT) & (In %) | Major & Minor District (%) of total production | Yield (kg/Ha) | Value of Output X @ 24.96/kg (Rs. In Crore) & (In %) |
|---|---|---|---|---|---|---|
| 1. | Sub-total of 10 Major District | 26905 (49.77) | 657667 (52.66) | 52.66 | 24444 | 974.66 (52.66) |
| 2 | Sub-total of 28 Minor District | 27152 (50.23) | 591293 (47.34) | 47.34 | 21777 | 876.30 (47.34) |
| 3. | Grand Total | 54057 (100.00) | 1248960 (100.00) | 100.00 | 23105 | 1850.96 |

*Source: DSE, Govt. of Bihar & Directorate Horticulture, Govt. of Bihar*

## 1.6 Limitations of the Study

Despite all efforts to address the objectives of this first part quick report, the interpretation of the scenario is hold back to some extent for want of month wise and year wise major markets' arrival related data. In absence of month wise and year wise retail prices of onion for the desired six years' period of 2012-13 to 2017-18 (meant for the major markets of the state), the effort to obtain a determinable conclusion, has its own limitation.

## 1.7 Organization of the Report

Chapter – I, Introduction encompasses, Background, market arrivals and distribution: All-India scenario, common varieties of onions grown in India, APY of onion: present status, Objectives, Methodology, seasonal calendar of onion: Bihar, APY of onion and value in Bihar (2012-13), Analysis of trends in area, production and productivity (2013-14), APY across major districts (2014-15) Bihar, APY and value (2015-16), APY of onion and value (2016-17): Bihar and limitations of the study.

Chapter – II, includes description of : production and consumption of onion in Bihar, external trade scenario, modal prices (wholesale) of onion in major markets, monthly retail price in major market (2012-13 to 2017-18) and onion storage structures (2012-13 to 2016-17). Chapter – III, entitled Conclusion and Policy Recommendations embraces brief introduction, objectives and methodology, concluding observations and policy prescriptions.

Status of onion in Bihar, quick short notes on onion crop conditions and prevailing prices' status in Bihar, weekly ground status of onion prices in Bihar, onion problems: stimulating areas/regions and ground status of onion- have been pondered and briefly discussed in 'Appendix – I to V.'

## CHAPTER – II

## PRICE VOLATILITY, CONSUMPTION, EXTERNAL TRADE & STORAGE INFRASTRUCTURE: BIHAR

### 2.1 Production and Consumption of Onion in Bihar

In this section of the study, attempt has been made to delineate annual production of onion in the state during the years 2004-05, 2009-10 and 2011-12. Further, monthly per capita consumption of onion in rural and urban areas both have also been captured during different years viz., 1987-88, 1993-94, 1999-2000, 2004-05 and 2009-10.

As far quantum of production of onion in Bihar is concerned, it was 1,04,700 tones in 2004-05, which went up to 10,82,027 tones in the year 2011-12 showing an encouraging increase of 933.45 per cent.

In the year 2009-10, the production level was 10,16,069 tones, i.e., the increase in production was 870.46 per cent more than the base year quantity of production 1,04,700 tones (table 2.1).

**Production and Consumption in the State**

**Table 2.1: Trends in Production and Consumption (per annum)in the State**

| SN | Components | Units | 1983 | 1993-94 | 2004-05 | 2009-10 | 2011-12 |
|---|---|---|---|---|---|---|---|
| I | Total Production (In tonnes) | tones | --- | --- | 104700 | 1016069 | 1082027 |
| 2 | Total Consumption | --- | --- | --- | --- | --- | --- |
| 3 | Total Surplus/Deficit | --- | --- | --- | --- | --- | --- |
| 4 | Per Capita Production | --- | --- | --- | --- | --- | --- |
| 5 | Per Capita Consumption | --- | --- | --- | --- | --- | --- |

*Source: Economic Survey of Bihar 2008-09 &2011-12*

As far trend in consumption of onion in India is concerned, data in tables elucidate a little less than double increase in per capita consumption in the rural areas, during the 22 years' long period of 1987-88 to 2009-10. It was 380 gms/30 days in 1987-88 that increased to 741 gms/30 days in 2009-10. In urban areas, the consumption in the year 2009-10 was estimated at 854 gms/30 days. Though the increase in quantity

of onion consumption in the year 2009-10 in urban areas in comparison to 1987-88 level i.e., 500 gms/30 days was 1.71 times, however during all the years, these were higher than rural areas' consumption levels (table 2.2).

**Table 2.2: Per Capita Onion Consumption (gram/30 days) in India**

| SN | Year | Rural | Urban |
|---|---|---|---|
| 1. | 1987-88 | 380 | 500 |
| 2. | 1993-94 | 460 | 560 |
| 3. | 1999-00 | 580 | 720 |
| 4. | 2004-05 | 561 | 720 |
| 5. | 2009-10 | 741 | 854 |

*Source: Various Rounds of NSSO Consumer*

On having a glance on table containing some state wise data of **monthly per capita onion consumption (MPCOC)** during the years 2004-05 and 2009-10, it can be averred that there were an increases of 38.85 per cent and 26.75 per cent in per capita monthly consumption in Bihar in regard to rural and urban areas respectively.

In the year 2004-05, MPCOC in rural and urban areas of the state were 0.574 kg and 0.714 kg respectively. These increased to 0.797 kg and 0.905 kg meant for the rural and urban areas of Bihar respectively in the year 2009-10 (table 2.3). It is here interesting to note that in the year 2009-10, MPCOC in rural areas of Bihar was the highest equalling only Maharashtra(0.797 kg) and second highest in case of urban areas (0.905 kg) only after Jharkhand (0.930 kg) taking into consideration states, namely: Assam, Bihar, Jharkhand, Maharashtra, Uttar Pradesh and West Bengal.

There are all points to fix the data based fact that in regard to MPCOC in the rural areas meant for the year 2009-10 in context with the six states referred here, Assam was at the lowest (0.362 kg) followed by WB, UP, Jharkhand, Bihar and Maharashtra (0.651 kg, 0.674kg, 0.753, 0.797 and 0.797) respectively (table 2.3).

**Table 2.3: Monthly per Capita Consumption of Onion (kg) across states**

| SN | State | 2009-10 | 2004-05 | % Increase |
|---|---|---|---|---|

| | | Rural | Urban | Rural | Urban | Rural | Urban |
|---|---|---|---|---|---|---|---|
| 1. | Assam | 0.362 | 0.483 | 0.357 | 0.472 | 1.40 | 2.33 |
| 2. | Bihar | 0.797 | 0.905 | 0.574 | 0.714 | 38.85 | 26.75 |
| 3. | Jharkhand | 0.753 | 0.930 | 0.622 | 0.840 | 21.06 | 10.71 |
| 4. | Maharashtra | 0.797 | 0.903 | 0.608 | 0.709 | 31.09 | 27.36 |
| 5. | Uttar Pradesh | 0.674 | 0.688 | 0.516 | 0.587 | 30.62 | 17.21 |
| 6. | West Bengal | 0.651 | 0.728 | 0.485 | 1.180 | 34.23 | 38.31 |
| | India | 0.741 | 0.854 | 0.561 | 0.720 | 32.09 | 18.61 |

*Source: Household consumption of various goods and services in India: NSSO 66th Round and 61st Round. CSO, http://mospi.nic.in*

## 2.2 External Trade Scenario

In this section, attempt has been made to cast about values of exported quantities of onion across different major states of India. In the light of the availability of data the values of exports based on Jan.-Sept, 2017 Report have only been presented in the table and discussed. Having viewed the table 3.4, it is vivid that out of 10 major states exporting onion, Bihar came at 9th place with total export value of US$ 1.16 i.e, Rs. 7,47,04,000 when calculated by considering 1 US$ = Rs. 64.40 as prevalent on 19th December, 2017 in average terms of the week. Maharashtra ranked at top in regard to value of exports, i.e., US $ 191.09, whereas Jammu & Kashmir could be placed at the 10th place with US$ 0.76. Maharashtra had been followed by Gujarat, Tamil Nadu, Karnataka, West Bengal, Andhra Pradesh, Kerala and Delhi with export values of US $s 56.41, 33.09, 10.10, 5.86, 4.62, 1.94 and 1.33 respectively (table 2.4). So, to remove the dole scenario in regard to export of onion from Bihar, emphasis may be given on enhancing production in the state.

**Table 2.4: Exports of Onion from Major States (2017)**

| SN | State | Value (US$) Million |
|---|---|---|
| 1. | Maharashtra | 191.09 |
| 2. | Gujarat | 56.41 |
| 3. | Tamil Nadu | 33.09 |
| 4. | Karnataka | 10.10 |
| 5. | West Bengal | 5.86 |
| 6. | Andhra Pradesh | 4.62 |
| 7. | Kerala | 1.94 |
| 8. | Delhi | 1.33 |
| 9. | Bihar | 1.16 |
| 10. | Jammu & Kashmir` | 0.76 |

*Source: www.exportgenius.in*

*(Above states are based on Jan.-Sept. 2017 report).*

## 2.3 Modal Prices (Wholesale) of Onion in Major Markets

In this section of the study, attempt has been made to account month wise wholesale prices of onion in major market of Bihar, i.e., Patna from 2012-13 to October, 2017-18. It is to be noted here that Patna, the capital of Bihar, is the main market from arrival and consumption demand points of view. Though there is no authentic data showing quantum of arrivals in different major and small markets of the state.

Data in the table confirm highest average wholesale price of onion during 2013-14 calculated at Rs. 2423.19/qtl during the five years' period of 2012-13 to 2016-17. It can be interestingly docketed that lowest wholesale price was viewed in the last year, i.e., 2016-17 (Rs. 1094.27/qtl.).

As we had wholesale price data for five months only in the current year 2017-18 (i.e., June to October), and hence, the average wholesale price for this year has been estimated at Rs. 1916.24/- per qtl (table 2.5). A glance on data in the table further evinces that generally the wholesale prices of onion increased after the months of October and November in comparison to June-July prices. However, any definite trend of price volatility couldn't be established. During the current June to October period of 2018, the increase in wholesale price could be viewed to have increased by 1.94 times (i.e., from Rs. 1274 to Rs. 2466.70/- per qtl).

**Table 2.5: Month-wise Major Markets Arrivals and Modal Prices (Wholesale) of Onion in the State of Bihar**

| Indicator | Markets* | Year | June | July | August | September | October | November | December | January | February | March | April | May | Avg of Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Arrivals (quantities)** | Market – A **PATNA** | 2012-13 | ---- | --- | --- | --- | --- | --- | --- | ---- | --- | --- | --- | --- | --- |
| | | 2013-14 | ---- | --- | --- | --- | --- | --- | --- | ---- | --- | --- | --- | --- | --- |
| | | 2014-15 | ---- | --- | --- | --- | --- | --- | --- | ---- | --- | --- | --- | --- | --- |
| | | 2015-16 | ---- | --- | --- | --- | --- | --- | --- | ---- | --- | --- | --- | --- | --- |
| | | 2016-17 | ---- | --- | --- | --- | --- | --- | --- | ---- | --- | --- | --- | --- | --- |
| | | 2017-18 | ---- | --- | --- | --- | --- | --- | --- | ---- | --- | --- | --- | --- | --- |
| | State Total | 2012-13 | ---- | --- | --- | --- | --- | --- | --- | ---- | --- | --- | --- | --- | --- |
| | | 2013-14 | ---- | --- | --- | --- | --- | --- | --- | ---- | --- | --- | --- | --- | --- |
| | | 2014-15 | ---- | --- | --- | --- | --- | --- | --- | ---- | --- | --- | --- | --- | --- |
| | | 2015-16 | ---- | --- | --- | --- | --- | --- | --- | ---- | --- | --- | --- | --- | --- |
| | | 2016-17 | ---- | --- | --- | --- | --- | --- | --- | ---- | --- | --- | --- | --- | --- |
| | | 2017-18 | ---- | --- | --- | --- | --- | --- | --- | ---- | --- | --- | --- | --- | --- |
| **Modal Price (Rs/qtls)** | Market – A **Centre - Patna** | 2012-13 | | 696.25 | 789.00 | 747.50 | 716.25 | 871.00 | 1315.00 | 1557.50 | 2072.50 | 1546.00 | 1345.00 | 1240.00 | 1128.25 |
| | | 2013-14 | 1294.00 | 1710.00 | 3553.00 | 4805.00 | 5330 | 4080 | 1857.50 | 1406.00 | 1208.75 | 1237.50 | 1237.50 | 1359.00 | 2423.19 |
| | | 2014-15 | 1481.25 | 1918.75 | 2026.00 | 1991.25 | 1917.00 | 1932.50 | 1898.75 | 1913.00 | 1818.75 | 1888.75 | 1643.75 | 1619.00 | 1837.23 |
| | | 2015-16 | 1801.25 | 2134.00 | 3593.75 | 4612.50 | 3710.00 | 2100.00 | 1520.00 | 1355.00 | 1240.00 | 1212.50 | 1180.00 | 1305.00 | 2147.00 |
| | | 2016-17 | 1230.00 | 1130.00 | 831.25 | 820.00 | 775.00 | 850.00 | 1120.00 | 1212.50 | 1275.00 | 1310.00 | 1250.00 | 1327.50 | 1094.27 |
| | | 2017-18 | 1274.00 | 1345.00 | 2537.50 | 1958.00 | 2466.70 | ---- | --- | --- | --- | --- | --- | --- | 1916.24 |
| | State Average | 2012-13 | ---- | --- | --- | --- | --- | --- | --- | ---- | --- | --- | --- | --- | --- |
| | | 2013-14 | ---- | --- | --- | --- | --- | --- | --- | ---- | --- | --- | --- | --- | --- |
| | | 2014-15 | ---- | --- | --- | --- | --- | --- | --- | ---- | --- | --- | --- | --- | --- |
| | | 2015-16 | ---- | --- | --- | --- | --- | --- | --- | ---- | --- | --- | --- | --- | --- |
| | | 2016-17 | ---- | --- | --- | --- | --- | --- | --- | ---- | --- | --- | --- | --- | --- |
| | | 2017-18 | ---- | --- | --- | --- | --- | --- | --- | ---- | --- | --- | --- | --- | --- |

NB: After the Bihar, Agriculture Produce Market (Repealing) Act, 2006 i.e., Bihar Act 23 of 2006, published in the Bihar Gazette (Extraordinary), dated 01/09/2006 there was no such agency to maintain records of month wise market arrivals of onion in the state of Bihar. Only Modal Price meant for Patna market was available provided by MIU, Patna.

*Source: MIU, Patna, November, 2, 2017*

## 2.4 Monthly Retail Price in Major Market (2012-13 to 2017-18)

In this section of the study, attempt has been made to analyse and discuss month wise retail prices of onion in major city of Bihar, i.e., Patna during the period 2012-13 to 2017-18 (up to October, 2018). A glance on data in the table helps us to imprint that highest average retail price in major city of Bihar was Rs. 3,160/- per qtl in 2013-14 and the lowest was recorded in 2016-17, i.e., Rs. 1,459.58 per qtl.

Retail monthly prices of onion (as annual average) during the years 2012-13 to 2017-18 i.e., meant only for five months from June-October, 2018 in one of the major cities of Bihar, i.e., Patna, were calculated at Rs. 1597.08/qtl., Rs. 3160/qtl., Rs. 2456.67/qtl., Rs. 2956.67/qtl., Rs. 1459.58/qtl and Rs. 2613.60/qtl respectively (table 2.6). Having a close look on data in the table, it could be established that the average difference between wholesale price and retail price of onion in major city of the state during the six years' period remained at about Rs. 600/- per qtl.

**Table 2.6: Month-wise Retail Prices (Rs/qtl) across Major Cities in the State of Bihar**

| Major Cities* | Year | June | July | August | September | October | November | December | January | February | March | April | May | Avg. of Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A. PATNA (Rs/qtl)** | 2012-13 | 1000 | 1100 | 1375 | 1300 | 1200 | 1420 | 1850 | 2050 | 2600 | 2040 | 1650 | 1580 | 1597.08 |
| | 2013-14 | 1650 | 2300 | 4480 | 5875 | 6725 | 5300 | 2650 | 1980 | 1675 | 1800 | 1725 | 1760 | 3160.00 |
| | 2014-15 | 1950 | 2825 | 2800 | 2550 | 2660 | 2725 | 2500 | 2380 | 2350 | 2460 | 2100 | 2180 | 2456.67 |
| | 2015-16 | 2425 | 2840 | 4675 | 6050 | 5120 | 3500 | 2300 | 2040 | 1775 | 1700 | 1480 | 1575 | 2956.67 |
| | 2016-17 | 1325 | 1400 | 1400 | 1400 | 1250 | 1500 | 1560 | 1500 | 1650 | 1680 | 1350 | 1500 | 1459.58 |
| | 2017-18 | 1600 | 1950 | 3225 | 2760 | 3533 | --- | --- | --- | --- | --- | --- | --- | 2348.12 |
| **B. Bhagalpur (Rs./qtl)** | 2012-13 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2013-14 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2014-15 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2015-16 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2016-17 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2017-18 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2012-13 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2013-14 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2014-15 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2015-16 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2016-17 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2017-18 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| State Average | 2012-13 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2013-14 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2014-15 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2015-16 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2016-17 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2017-18 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

NB: After the Bihar, Agriculture Produce Market (Repealing) Act, 2006 i.e., Bihar Act 23 of 2006, published in the Bihar Gazette (Extraordinary), dated 01/09/2006 there was no such agency to maintain records of month wise market arrivals of onion in the state of Bihar. Only Modal Price meant for Patna market was available provided by MIU, Patna.

*Source: MIU, Patna, November, 2, 2017.*

## 2.5 Onion Storage Structures (2012-13 to 2016-17): Bihar

In this section of the chapter, attempt has been made to comprehend the types of onion storage structures, utilization and capacity in Bihar during the period 2012-13 to 2016-17. It is to be noted here that all the storage infrastructures for onion have been created at individual growers' level, i.e., at farmers' level and not at the governmental level. The onion storage infrastructures have been developed under two schemes, viz., Chief Minister's Horticulture Mission (CMHM) and National Horticulture Mission (NHM).

The size of onion storage structure is of 20 feet log x 10 ft breadth and 15 ft high. The constructions of such storage are supported under MIDH with 25 MT capacity ventilated onion shed. The unit cost of such storage structure is Rs. 1.75 lakh with 50.00 per cent subsidy.

Total numbers of union storage structures created under CMHM during the period 2012-13 to 2016-17 were 444 and created under NHM were 585. Thus, total storage capacity generated at farmers' level in Bihar during these five years is (1029 x 25 = 25725 MT (table 2.7).

**Table 2.7: Onion Infrastructure: Existing Number of Storage Year wise: Bihar**

| SN | Year | CMHM | NHM |
|---|---|---|---|
| 1. | 2012-13 | 63 | 120 |
| 2. | 2013-14 | 104 | 100 |
| 3. | 2014-15 | 176 | 87 |
| 4. | 2015-16 | 66 | 103 |
| 5. | 2016-17 | 35 | 175 |
| | Total | **444** | **585** |

*1029 x 25 MT = 25725 MT*
*Source: Directorate of Horticulture, Government of Bihar, Patna.*
*NB: Low cost Onion storage --- 25 MT*

# CHAPTER – III

# CONCLUSIONS AND POLICY RECOMMENDATIONS

## 3.1 Introduction

India is the world's second largest producer of vegetables next only to China. Number of vegetables grown in the country is quite large, but interestingly it occupied only 2.5 per cent of the total cultivated area.

Onion is one of the most important vegetables-cum-condiment crops of liliaceous family grown in India.

There is sufficient ground to enlighten that out of the 10 major onion producing states, on the parameter of yield Bihar stood at third position (with 23,086 kg/ha) only after Gujarat and Madhya Pradesh (25,485 kg/ha and 24,095 kg/ha) respectively as per data available for the year 2015-16.

In regard to area under onion, Bihar stood at 5$^{th}$ position (out of 10 major producing states), 5$^{th}$ in production and 3$^{rd}$ on the parameter of productivity. Bihar produced 1247.34 thousand tons of onion in 2015-16.

## 3.2 Objectives

First Part of this report encompasses the following objectives based on secondary data:

a. To analyse trends in area, production and productivity of onion in the state (2012-13 to 2016-17)
b. To assess price volatility in major onion production and consumption market in the State.
c. To estimate the status and potential of onion infrastructure with specific focus on storage structures ; and
d. To suggest remedial measures from stakeholder's perspectives.

### 3.3 Methodology

First part of the Quick Study Report is essentially based on secondary data. However, for quick short note on onion crop condition and the then prevailing prices in major markets of Bihar primary sources of information, i.e., traders/commission agents and retailers were also contacted. Simple tabular and percentage methods have been followed for analysis of data.

### 3.4 Concluding Observations

In quite a few districts/areas, sowing activity is undertaken during 8-10 November (advance). Transplanting of onion in these areas mostly takes place during December 25 to January 5th. It clearly reveals that from the stage of sowing to transplanting, it takes about 45 days' time. Nalanda, Katihar, Muzaffarpur and Patna could be considered as major districts during 2012-13 from production point of view contributing 12.84 per cent, 6.49 per cent, 5.38 per cent and 4.89 per cent in total production respectively. It is interesting to note that major districts numbering 10 during this year having occupied 51.54 per cent of the total area under onion cultivation contributed 52.67 per cent of production and value of the of the crop as well. Average retail price of onion in the year 2012-13 was Rs. 16.51/- per kg. Major districts during the year 2013-14 comprised 13 districts with 74.04 per cent of the total production of Bihar. Out of the 13 major onion producing districts; Patna, Buxar, Bhojpur and Nalanda could be placed or treated as significantly major ones (11.51%, 7.47%, 7.37% and 7.02%) respectively. Value of output, i.e., onion in the major producing districts ranged from Rs. 50.56 crores in case of Patna to Rs. 13 crores in case of Bhabhua (Kaimur) during the year 2013-14. Total value of output of the crop, i.e., onion was calculated at approximately Rs. 325.20 crore for major districts and Rs. 439.36 crores in case of minor districts that comprised 25 districts

It is, therefore, requisite for the Government and policy makers to devise possible measures for bringing more area under onion cultivation and emphasis may be given on enhancing its productivity. It is to be urgently noted here that average retail price of onion in the year 2013-14 was Rs. 31.85 per kg. During 2014-15, major 09 districts of Bihar contributed 68.79 per cent of state's total production having used 56.00 per cent area of the state under onion cultivation. In regard to value of output,

major districts shared Rs. 259.30 crore 68.79 per cent. Average retail price of onion during the year was Rs. 24.96 per kg. It is to be chalked out here that in 2014-15, Nalanda, Patna, Madhubani, Siwan and East Champaran were the major districts with productions of (17.54%, 15.98% 8.80%, 5.77% and 5.39%) respectively.

During the year 2015-16, major districts comprising 12 districts had the distinction of sharing 77.38 per cent of the total onion production of Bihar (i.e., 1,53,403 MTs), whereas the minor districts consisting 26 districts could contribute only 22.62 per cent of production. Average retail price during the year remained at Rs. 28.65 per kg. There is need to comprehend that during the year 2015-16, the contribution of major districts i.e, 12 in number, in value of output was Rs. 340 crore 77.36 per cent, whereas the same by the minor districts, i.e., 26 in number was Rs. 99.47 crore 22.64 per cent only of the total value of output. During the year 2016-17, 10 districts of Bihar, considered to be major ones in regard to production, contributed nearly 52.66 per cent of the total state production having used 49.77 per cent of the total area under onion. While the major districts accounted for 52.66 per cent of the total value created, 28 minor districts contributed only 47.34 per cent of the value by using more than 50.00 per cent of the area.

Average retail price during the year 2016-17 was Rs. 14.82 per kg. Based on the data of five years, i.e., from 2012 -13 to 2016-17 and having maintained all care, concludingly it may be mentioned that Patna and Nalanda are the two major districts in Bihar from production point of view.

As far quantum of production of onion in Bihar is concerned, it was 1,04,700 tones in 2004-05, which went up to 10,82,027 tones in the year 2011-12 showing an encouraging increase of 933.45 per cent. As far trend in consumption of onion in India is concerned, data in tables elucidate a little less than double increase in per capita consumption in the rural areas, during the 22 years' long period of 1987-88 to 2009-10. It was 380 gms/30 days in 1987-88 that increased to 741 gms/30 days in 2009-10. In urban areas, the consumption in the year 2009-10 was estimated at 854 gms/30 days. It can be averred that there were an increases of 38.85 per cent and

26.75 per cent in per capita monthly consumption in Bihar in regard to rural and urban areas respectively. In the year 2009-10, MPCOC in rural areas of Bihar was the highest equalling only Maharashtra(0.797 kg) and second highest in case of urban areas (0.905 kg) only after Jharkhand (0.930 kg) taking into consideration states, namely: Assam, Bihar, Jharkhand, Maharashtra, Uttar Pradesh and West Bengal. it is vivid that out of 10 major states exporting onion, Bihar came at 9th place with total export value of US$ 1.16 i.e, Rs. 7,47,04,000 when calculated by considering 1 US$ = Rs. 64.40 as prevalent on 19th December, 2017 in average terms of the week.

### 3.5 Policy Prescriptions

i. No doubt, check on prices of onions and potato like essential commodities are desirable. Sometimes, in Bihar as a result of less than required arrivals from MP, Maharashtra, Rajasthan and Karnataka, and for quite sometimes, due to hoarding of the crop by big traders and stockists, its prices enhance very much. These contrary situations may be effectively checked and reversed by contriving to increase productivities and go up production in 24-26 minor districts, i.e, from production point of view.

ii. 25 MT ventilated onion storage facility being constructed through MIDH supports, is not fully viable in Bihar. About 25 per cent of such created infrastructure is effectively used. In remaining cases, it is used by the farmers for personal use. The provision of low cost onion storage facility being provided at 50.00 per cent subsidy against the total cost of Rs. 1.75 lakh per unit, the size of which is prescribed at 20 ft length x 10 ft breadth x 15 ft height is not much desirable and less practical.

In place of this, medium cost storage infrastructure may be considered. The storage capacity of such infrastructure may be minimum of 2000 MTs, and such facilities should be provided at block level at least. It will be prudent and desirable to consider onion storage infrastructure based on **Holland Technology** at different points in the state. One such onion storage is installed near Bochha in Muzaffarpur, named as **Kanti Prabha** Onion Store. It is of 800 MT capacity.

iii. Farmers may be encouraged and provided desired technical and other assistances for growing onion in kharif season. For this, special drive may be launched by developing new varieties.

iv. Such licence/permit may be issued to all traders of the state, which allows them to purchase the crop from any part/region of the nation.

v. Proportionate distribution of onion after having estimated district wise consumption demand, (at least a rough estimation) may be a good exercise.

vi. Production of Jirrat onion, which is mainly grown in Bhagalpur region, should be promoted by the concerned department, as it can be retained in useable form for about 03 months.

vii. Emphasis may be given on contriver initiatives for enhancing productivities of onion in minor districts of Bihar (from quantum of production points of view).

viii. Strategy for enhancing quantum of production of onion by bringing more areas under its cultivation may be designed by estimating and expatiating consumption demand (district wise, or region wise).

ix. Since the state stood third in terms of yield rate, so there is need for extensive farming of onion, which may be considered and targeted under District Horticulture Plan.

## Appendix -I

## STATUS OF ONION IN BIHAR (Part – I)

### A. Onion in Bihar: Bihar Vis-a-Vis All India

- As per available data for the year 2014-15 in regard to area under Onion, Bihar ranks 5th after Maharashtra, Karnataka, Madhya Pradesh and Rajasthan with 4.7 % of all-India area under the crop.
- In terms of production, state ranks fourth (6.7%) after Maharashtra, Karnataka and Madhya Pradesh.
  *(Compiled on the basis of data available in Agricultural Statistics at a Glance – 2015, DES, DAC & FW, MoA & FW, GoI).*

### B. Onion in Bihar: Area & Production

- The agro-climatic conditions in the state are most suitable for variety of vegetables. The Gangetic-alluvial soil of the state is very fertile and helps farmers to produce vegetables at a low cost. Though Bihar ranks third after West Bengal and Uttar Pradesh among all the states in India in regard to area and production both, as per the available data of 2014-15. It is observed that there has been modest increase in production of major vegetables like potato and onion. The CAGR for both the vegetables is calculated equally at 1.61 for the five years period of 2011-12 to 2015-16. The CAGR of all other vegetables and total vegetables showed negative (-1.55) during the period.
- Out of the NSA *(5253 thousand ha),* vegetables are grown only in 16.00 per cent *(849.13 thousand ha).* Onion is grown in 6.36 per cent *(54.03 thousand ha)* of the total vegetables area *(849.13 thousand ha.).*
- Though onion is grown in all the 38 districts of the state, however 51.36 per cent of the total onion acreage is concentrated in 11 districts, viz., Nalanda, Katihar, Patna, Muzaffarpur, West-Champaran, East Champaran, Vaishali, Purnea, Araria, Samastipur and Kishanganj.
- In regard to onion production in the state, the above noted 11 districts do contribute 54.00 per cent of its total production. Out of the total vegetable production (14284.42 thousand MT), 1247.34 thousand MT (8.73%) is onion's production.
  *(Compiled from Economic Survey of Bihar : 2016-17, Govt. of Bihar)*

### C. Price Situation

Due to procurement of 2 lakh MT of bulb by Madhya Pradesh Government and excessive rainfall in Gujarat affecting supplies of onion in the state, which caused price rise of the produce during last a few weeks. The wholesale price of the onion was Rs. 900-1000 per qtl during the week ended on 31st July, 2017 *(Reported in Dainik Bhaskar, dated 07.07.2017, p. 3, by Sudhir Tiwary.* At present it is being sold @ Rs. 1800-2000 per quintal in wholesale market. However, the

retail price presently stands at Rs. 24-25/kg, which was Rs. 12-14/kg a week before.

**D. Marketing and Storage**

Before 2006, BPAPMC Act was prevalent with 95 Bazar Samittees and 53 marketing yards. It had been repealed since 2006. These marketing yards had large storage facilities taken together all over the state. But after the repealment of the referred Act, no such storage facilities are available for any agricultural commodities in the state. The State Government is developing 3 Bazar Samittees viz., Gulabbagh, (Purnea), Muzaffarpur and Darbhanga and linking them with e-NAM for displaying prices of agricultural commodities on daily basis *(as reported in Dainik Bhaskar, dated 02/08/2017, p. 09 by Mr. Sudhir Kumar, Principal Secretary, Department of Agriculture, Government of Bihar).* At present, all the existing cold storages are inadequate in number and capacity and mostly remain under private sector. The details of Cold Storage in Bihar (As on 19.02.2013) have been depicted below:

**Status of Onion Storage : Bihar**

| SN | Particulars | No. (%) | Capacity (MT) |
|---|---|---|---|
| 1. | Total No. of Functioning Cold Storage | 212 (59.72) | 1030397.85 (67.46%) |
| 2. | Total No. of under Construction Cold Storage | 23 (6.48) | 80934.00 (5.30%) |
| 3. | Total No. of Non-functioning Cold Storage | 120 (33.80) | 416175.41 (27.24%) |
| **4.** | **Total No. of Cold Storage in Bihar** | **355 (100.00)** | **1527507.26 (100%)** |

*Source: Directorate of Horticulture, Government of Bihar*

## Appendix -II

## STATUS OF ONION IN BIHAR (Part – II)

**A. Availability and Requirement of Onion**

Against the consumption need for onion in the state, nearly 50.00 per cent are imported from two major onion growing states viz; Maharashtra (Nasik) and Madhya Pradesh (Indore). It is to be noted that if onion grown in Patna, Nalanda and Lakhisarai regions would not have been exported to Assam & other North-Eastern Region and Bangladesh & Kolkata respectively *(50 % to 75 % of the total quantum grown),* then the state would have been self-sufficient in regard to meeting its onion requirement. It is further interesting to note here that quality of the onion of the referred region is largely liked by the people of north-eastern region of the country.

*(Compiled on the basis of a discussion with leading onion trader in Bhagalpur, Bihar namely; Mr. Dheeraj Kumar, Mob: 9835453509).*

**B. Storage**

The prevalent practice for storing onion at the farm level is by way of **'chala'** *(in several tiers) made of bamboo erected above floor (6" – 12").* In this practice, the produce is retained/stored up to six months by turning the produce weekly or fortnightly (as the case may be) from bottom layer of the produce to upper layer and vice-versa. While turning the produce, wastage (if any) is removed.

As far as the storage of onion is concerned at the market intermediaries' level, generally it is kept in their privately owned/rented small spaces/places.

However, out of 53 marketing yards, the storage facilities are available in 47 marketing yards comprising 125 godowns, with existing capacity of 13.40 lakh MT against the required capacity of 28.14 lakh MT, which means that **there is a deficit of around 15 lakh MT (53.30%).**

**C. Crop Season**

In Bihar, onion is cultivated once in an agricultural year. It is sown during December-January and harvesting starts at the end of March and continues till April across the districts.

**D. Arguments for Abolition of APMC Act**

i. Sale and purchase could take place only in the market yard and this was considered to be curtailment of choices for the farmers.
ii. Private market yards were desired by a section of people.
iii. There were demands for provisions of contract farming.

iv. Existing market structures did not permit the entry of new players who wanted to set-up cold chains and invest in other infrastructure.
v. The clamour to do away with the APMC Act is primarily to pave the way for selling up terminal markets for the big agri-business companies as well as for multi brand retail.
vi. The APMC was a relic of the past that forced the farmers to sell their produce only to middlemen approved by the Government in authorised Mandis (markets). This increased prices for the end buyer and unnecessarily added redtapism.
vii. There was need to reduce the power of cartels and middlemen who were controlling agricultural through the APMC Act.

**E. Repealment of APMC Act in Bihar and its Aftermath**

It is interesting to note that Bihar was and still is the only state to have abolished the APMC Act in September, 2006 instead of amending it in the light of the Model APMC Act, 2003, which provided a road map for the states to amend their APMC Acts in order to provide choice of channels to farmers for sale of produce in the form of direct purchase and contract farming, besides private wholesale (non-APMC) markets.

In course of field visits, it is revealed that private markets of a different kind have come up where there are no wholesale produce markets under the APMC Act anymore--- APMC or non-APMC. There are new private wholesale markets in all major fruits and vegetables pockets of the state which generally function in the morning hours (from 7 to 11 am) from roadsides with no infrastructure in place. Participants include farmers from nearly villages, wholesale buyers and sellers, including local fruit and vegetables vendors who come on bicycles, rickshaws, auto-rickshaws, motor-bikes ad pick-up vans. These markets are set-up by individuals who charge both farmers (2%) and buyers (per lot size) a fee for transactions. There is hardly any facility for buyers or sellers other than roadside space for transaction of the produce. The mandi operator monitors the functioning from a few make-shift sheds.

Enquires revealed that farmers seem happy that the markets have come closer to their growing areas, and therefore, they can directly access these markets even for selling small lots on a daily basis, unlike earlier where every farmer could not afford to take his produce to faraway markets. There is no competitive price in these unregulated markets as there is no auction of the produce in such local mandis. *(Source: Sukhpal Singh, IIMA, published in The Tribune, dated August 09, 2017; Reforming Markets, lessons from Bihar).*

## F. Recent Initiatives

However, the state government has designed a comprehensive plan for agricultural marketing system in the state which includes setting up modern terminal markets in PPP mode, agri-business centres, renovation of rural *haats* on farm processing centres (OFPCs) with an estimated cost of Rs. 1,272 crores. (*Source: Vijay Intodia, Research Report (2011-12) NIAM, Jaipur "Investment in Agricultural Marketing and Market Infrastructure --- A Case Study of Bihar")*

## G. Overview

i. The market yards are in existence, but the Board controlling the yards has been abolished.

ii. The state government is trying to make some headway in organised agricultural marketing including establishment of Terminal Markets and Collection Centres but nothing moved.
*(Source: RKP Singh, Former Adviser, SFC, Bihar FDI in Multi-brand Retail and Bihar. www.bihartimes.in)*

## Appendix –III

**Quick Short Note on Onion Crop Condition and Prevailing Prices' Status in Bihar**

1. Out of 38 the districts in Bihar, there are seven main onion markets viz., Gulabbagh (Purnia), Muzaffarpur, Hazipur, Darbhanga, Patna, Bhagalpur and Lakhisarai.

2. In Bihar, nearly 75.00 per cent of its total demand for onion comes from Madhya Pradesh (Indore) and Maharashtra (Nasik). Such supply from outside States takes place during the whole year.

3. About 25.00 to 30.00 per cent of the consumption demand of onion is met from its own production.

4. About 75.00 per cent of the total quantum of onion grown in Patna and adjoining areas is sent/marketed to Assam, about 50.00 per cent of the onion grown in Lakhisarai region exported to Bangladesh and about 50.00 per cent of the onion grown in Bhagalpur area is sent to Assam.

5. The significant quantities being marketed/exported to Assam and Bangladesh is because of the fact that these 'yellow patti' and 'fully red coloured onions' are highly liked in these states and Bangladesh, and as a result, higher prices are offered there.

6. Right from the day of Dhanterash, i.e., 17th October, 2017, to the morning Arghya of Chhath puja, i.e., till 27th October 2017, the consumption demand of onion in states like Bihar & Jharkhand will remain almost suspended. It is because Dhanterash to Chhath (11 days') period is considered to be the most sacred duration in these states from religious point of view.

7. Presently, wholesale prices of Lakhisarai onion and Indore onion in local market are Rs. 2,800/- per quintal and Rs. 3,000/- per quintal respectively. Retail price across the markets is about Rs. 40/- per kg.

8. On 15th October 2017, wholesale price in Patna market was Rs. 2,900/- per qtl., whereas retail price prevailed @ Rs. 42/- per kg.

9. Till 27th October 2017, the retail or wholesale price is not likely to increase due to Chhath and other festivals.

10. After 27th October 2017, prices of onion may shift upward due to spurt in demand, it is expected to touch the level of Rs. 50/- per kg, or so, as told by mandi people.

11. One of the significantly visible reasons behind the current trend of rising prices of onion in Bihar--- is recent devastating floods in Karnataka and heavy rain falls in Maharashtra. This has resulted into no supply of the crop from these states, hence, creating shortage. Due to flood and rainfall in Karnataka and Maharashtra respectively, the onion crop has been largely damaged.

12. Due to this temporary obstruction in supply of onion to Bihar, it has to presently remain dependent on its own old stock retained mostly at the farmers' level. This old stock is hardly enough to meet the consumption demand of the state for one week to 10 days only.

13. In Bihar, the largest railway rack point is Fatuha Railway station near Patna. Here 4-5 racks of onion are down loaded at an average every week. 1 rack contains nearly 120 truckloads, each truck carries about 15-20 tonnes of onion. In this way, at an average, approximately 9,450 tonnes of onion per week is unloaded at Fatuha rail rack point only. This quantum meets larger proportion of the state's demand.

14. In Bihar, onion is sown during December-January and harvested in March to April depending upon their sowing. Means Bihar mainly grows rabi onion only.

15. So, the serious problem of rapid price rise may worsen for the general consumers. The situation may start improving only when the supply from other prominent states resumes.

**Actions Suggested**

i. The Government of India should advise the Government of Bihar to effectively and strictly stop the supply/marketing of onion from Bihar to Bangladesh, Nepal, Assam and other North-Eastern states.

ii. Steps should be taken for importing onion from other countries and ensure supply to Bihar till it is resumed from other states of India.

iii. Hoarding by leading traders may be checked. In this regard, the pro-active role of Market Intelligence Unit is desired in collaboration with state functionaries.

*(Inputs based on discussions with* **Sri Dheeraj Kumar, Contact No. 9835453509***. Leading onion wholesaler, Mundichak Mandi, Bhagalpur).*

# Appendix -IV

**Weekly Ground Status of Onion Prices in Bihar** (as on the 15th December, 2017 meant for the current week is being submitted for your kind perusal:

| SN. | Markets | Wholesale Price (Rs./qtls) | Avg. Retail Price (In Rs /kg) |
|---|---|---|---|
| 1. | Patna | 3,940/- | 50/- |
| 2. | Bhagalpur | 4,000/- | 52/- |
| 3. | Gulabbagh (Purnea) | 4,000/- | 50/- |
| 4. | Hazipur (Vaishali) | 3,900-4000 | 50/- |

*Inputs based on discussions with Mr. Sanjay Singh, (Hazipur), (Vaishali), Krishna Kant Bhagat, Gulabbagh, (Purnea).*

*NB: On 15th December, 2017 there was no arrival in Vaishali and nearby markets. Actually on Sunday and Monday markets in Nasik (Maharashtra), from where significant quantities are sent to Bihar, remain tight. So, on Tuesday also, wholesale supply position from Nasik region may remain heavily pressed. It is, thus, expected that from next Wednesday, i.e., from the 20th December, 2017 arrival position in Bihar will start easing.*

**Weekly Price of Onion in Patna, Biharsharif & Jamui from November to 15/12/2017**

| Wholesale Price (Rs. Per qtl) | | | | |
|---|---|---|---|---|
| | **Biharsharif** | **Patna** | **Jamui** | |
| **November** | | | | **Retail Rs. Per kg** |
| 03/11/2017 | 3200/- | 3250/- | 3250/- | 42/- |
| 10/11/2017 | 3200/- | 3200/- | 3200/- | 42/- |
| 17/11/2017 | 3250/- | 3350/- | 3250/- | 44/- |
| 24/11/2017 | 3420/- | 3600/- | 3400/- | 48/- |
| **December** | | | | |
| 01/12/2017 | 3650/- | 3650/- | 3570/- | 50/- |
| 08/12/2017 | 3700/- | 3750/- | 3600/- | 45/- |
| 15/12/2017 | 3800/- | 3940/- | 3870/- | 48/- |

*Source: Officials of MIU (Kumar Indrajeet , SSO, M.I. Unit, Patna).*

## Appendix -V

### Onion-Problems: Stimulating Areas/Regions

Jalla area of Patna is known for its best quality 'Patna Red Onion'-The main areas stretch through bye-pass of Patna to Fatuha Didarganj (i) Nalanda, (ii) Patna, (iii) Vaishali, (iv) Sheikhpura, (v) Buxar,

(vi) Bhojpur, (Ara), (vii) Supaul, (viii) Gaya, (ix) Siwan, (x) Jamui, (xi) Nawada, and; (xii) Rohtas are the major districts from quantities of production points of view. It is to be noted here that in Bihar, mainly rabi onion is grown.

All in total 25,725 Metric Tonnes' storage capacity has been developed in Bihar by the Year 2016-17.

It included 444 Metric Tonnes capacity created under 'CMHM' (Chief Minister Horticulture Mission) and 585 Metric tonnes under 'National Horticulture Mission' (NHM).

### Problems/Constraints

(i) 10-15% of the total production of the state is wasted / destroyed for want of proper storage facility.

(ii) About 40% of the total production is consumed in the state.

(iii) Thus, nearly 50% of the total quantum of onion produced in the state and grown in mainly: Patna, Sheikhpura, Nawada, Biharsharif and Gaya areas are marketed/ exported to Bangladesh, Upper Assam and other north-eastern regions of the country.

(iv) In Bihar, there is no such mechanism to confirm / ascertain the arrivals and abject quantities of onion.

(v) Volatility in Price of Onion is strongly related with weather.

(vi) Stocks of Onion are not generally maintained in Bihar.

(vii) The new and early Kharif Onion arrival from other States to Bihar cannot be retained for longer period (i.e., more than a week or so). So sometimes, it is not so profitable for the big traders, whole sellers and suppliers.

### Onion Infrastructure and State Interventions

No Intervention by the government of Bihar. There is no such mechanism to determine Onion prices in the state. The State Government doesn't purchase / Procure onion. So, the State has no storage facility for onion, it is actually retained at individual farmers'/ growers' level.

**Ground Status of Onion**

1. Quite a significant quantum of onion grown in Bihar is marketed/ exported to Bangladesh.
2. Procurement Prices of horticultural crops are not determined by the Government.
3. During the months of October – November, whole quantum of onion to meet the demand of Bihar is met out of supply from the states like, Maharashtra (nearly 50%), Rajasthan (25%), Madhya Pradesh (20%) and Gujarat (5%).

4. Area under onion, which was 51,010 ha in 2012-13, it expanded and became 54,057 ha in the year 2016-17. Means there is an increase of 5.97% in area under onion during 05(five) years period of 2012-13 to 2016-17.

**Prices**

Based on the quick survey of Onion Market at Hazipur (Vaishali), Mussalahpur, Yarpur and Mithapur (Patna) , Banka, (during 17th - 24th November, 2017) and Purnea, Samastipur, Bhagalpur and Patna (during 2nd - 9th December, 2017).

| Sl.No | Markets | Whole sale price (Average Rs. per Quintal) | Retail price ( Average Rs. Per Kg) |
|---|---|---|---|
| 1 | Hazipur | Rs.3,350/- | Rs. 42.50/- |
| N.B- By November 2017 end, its whole sale price was expected to go down by Rs. 700/- to Rs. 800/- per quintal. Further, the big traders expressed the hope of a decline up to Rs. 1250/- per quintal in wholesale price of onion by the end of the year 2017. | | | |
| 2 | Patna | Rs.3,550/- | Rs.44/- |
| 3 | Banka | Rs.3,550/- | Rs.45/- |
| N.B- In Banka district, supplies were made from Godda (In Jharkhand @ Rs. 3,600/- per quintal) and from Tarapur (in Munger district @ Rs.3,500/- per quintal). | | | |
| 4 | Samastipur | Rs.3,550/- | Rs.45/- |
| 5 | Bhagalpur | Rs.4100/- | Rs.45/- |
| 6 | Patna | Rs.3,750/- | Rs.50/- |
| N.B- Till one week back (in the beginning of the first week of December , 2017 ) it was @ Rs. 3,650/- | | | |
| 7 | Gulabbagh (Purnea) | Rs.4,000/- | Rs50/- to Rs.55/- |

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