CHAPTER -- VII

MARKET SERVICES.
3.1 Introductory

In the Chapter IV, we have discussed the marketing system of onion in the Lasalgaon Market and the various functionaries participating in the marketing process. In this chapter, we examine some of the marketing services which are available in the marketing process in the light of the data collected by us through a survey of farmers as well as from the Market Committee. In the next chapter we shall analyse the costs of these services. As the system links the agricultural producer with the consumer through transportation, storage and grading as well as through trading, these services and the costs incurred in rendering them assume great importance.

SECTION- 'A'

TRADING AND TYPES OF TRADERS

7.2 In this section we present the information about quantities purchased by private and cooperative traders (NAFED & Federation) during 1977-78 to 1984-85. Alongwith
this, we also present data for 3 years, (1982-83 to 1984-85) collected from the farmers' survey.

In the Lasalgaon Market, traders, NAFED and Federation are main buyers of onion. We analyse the data about proportions of the quantities purchased and their total value as well as the average price paid by different buyers.

7.3 Quantities purchased:

The proportions of the quantities purchased by different buyers in Lasalgaon market and their values are shown along with the actual quantities and values for the second period, i.e. 1977-78 to 1984-85, in Table No. 7.1.

7.3.1 Traders:

It can be seen that private traders were the main buyers of onion accounting for more than 70 percent of the total arrivals in each year of the period of eight years, except in 1980-81. The proportion shows a continuous decrease from 82.02 percent in 1977-78 to 47.93 percent in 1980-81. However, it again picked up in the subsequent year, the figures being 69.44 percent, 73.48 percent and 74.73 percent in 1981-82, 1982-83 and 1984-85 respectively. Thus it can be
concluded that over the 8 years, the share of private traders has come down by about 8 to 10 percent.

It may be mentioned here that, though there is an open competition among traders in Lasalgaon market, actually some 3 or 4 traders control the onion business since they purchase more than 60 percent of the total arrivals. The domination by these traders in onion trade results in an oligopolistic situation in the determination of prices. In other words, onion prices are determined by these big traders and other have to follow their decisions. This situation deprives the farmers from availing benefits of competition.

7.3.2 Federation:

This is one of the two cooperative institutions purchasing onion. The Federation embarked on the purchase of onion after 'farmers' agitation for remunerative prices which started in Nashik district. It started its purchasing operations in 1980-81 and purchased 43.55 percent out of the total arrivals in that year. However, therefore its purchases dropped sharply and were 15.00 percent and 3.34 percent of the total arrivals in 1981-82 and 1982-83 respectively.
They rose to 12.8 percent in 1983-84 but again came down to 8.18 percent in 1984-85. The decline in purchasing operations was mainly because of the huge loss suffered in these transactions and the wavering policy of the Government of Maharashtra about continuation of the operations.

7.3.3 NAPED:

This is another cooperative institution to enter the market as a buyer of onion. It started buying onion in 1977-78 and had purchased 17.92 percent, 21.68 percent, 25.87 percent of the total arrivals in 1977-78, 1979-79 and 1979-80 respectively. However, its share contd....
Changes in quantity purchased by different buyers.

- % of Traders.
- % of NAFED.
- % of Federation.

Scale: 10 percent = 1 cm.
decreased to 9.4 percent in 1980-81. Thereafter, in the next two years the proportion showed a rise i.e., 15.55 percent in 1981-82 and 23.17 percent in 1982-83. But it again decreased to 15.79 percent in 1983-84, marginally increased to 17.07 percent in 1984-85.

Thus the combined share of the two cooperative institutions came down steadily from about 54 percent in 1980-81 to about 25 percent in 1984-85. On the other hand, the private traders improved their share from about 46 percent in 1980-81 to about 75 percent in 1984-85. It is a sad commentary on the working of the cooperative marketing institutions that they have not been able to protect the producers of onion from the clutches of private traders.

7.4 Total Value:

Table No. 7.1 also shows the total value of onion bought by the different categories of buyers. It reveals a trend similar to that observed in the case of quantities purchased by them.

7.6.1 Traders:

The percentage of total value accounted by traders was 84.62 percent in 1977-78. It decreased to 80.69 percent in 1979-80 and came down remarkably to
53.11 percent in 1980-81. It was mainly due to purchasing operations by the Federation in that year. Thereafter it went up substantially to 74.17 percent and in the following year to 75.24 percent in 1982-83. It then dropped to about 70 percent in 1983-84, but increased to 73.2 percent in 1984-85.

7.4.2. The percentage share of Federation shows a heavy decline from 39.72 in 1980-81 to just 3.32 percent in 1982-83. Though there was some increase in the last 2 years, it was much less than that in the first year of its operation. Thus it accounted for only 10.29 percent and 9.00 percent respectively in 1983-84 and in 1984-85.

7.4.3 Turning to the share of NAFED, it was found to be 15.38 percent in 1977-78. It increased to 19.3 percent in 1979-80, but noticeably decreased to 7.2 percent in 1980-81. It reached the maximum of 21.43 percent in 1982-83 but came down to 17.8 percent in 1984-85.

Thus the combined share of the Federation and NAFED was highest at about 47 percent in 1980-81. Thereafter, it came down substantially and accounted for between 25 and 30 percent of the total value.
Changes in Onion Value Paid by Different Buyers.

- % Traders.
- % NAFED.
- % Federation

Scale 10 percent = 1 cm.
7.5 **Average Prices**

From the Table No. 7.1 we can also observe that there were substantial differences in the prices paid by traders and the cooperative institutions. Thus in the first 2 years the price paid by the NAFED was lower by Rs. 9 and Rs. 12, than the prices paid by the traders (Rs. 55/- and Rs. 65/- respectively), while the two paid the same price (Rs. 48/-) in 1979-80. In 1980-81, the price of the traders (Rs. 73/-) was higher by Rs. 14/- than that of the Federation and by Rs. 22/- than that of the NAFED. In the following year, the difference at the traders price of Rs. 93/- increased to Rs. 34/- in the case of Federation but decreased to only Rs. 5/- in the case of NAFED. The traders paid the highest price of Rs. 100/- in 1982-83 which was higher by Rs. 3/- than that paid by the Federation, and by Rs. 10/- than that of the NAFED. The situation changed in 1983-84, the highest price of Rs. 91/- was paid by NAFED. It was higher by Rs. 18/- for traders and by as much as Rs. 32/- for the Federation. In 1984-85, however, it was the Federation which paid the highest price of Rs. 94/- which was higher by Rs. 4/- for NAFED and by Rs. 9/- for traders. This shows that there was not any coordination about the price
to be paid among the two cooperative institutions. Nor was there any definite understanding about the quantum of the arrivals to be bought by each one of the two institutions. As a result, their combined share sharply decreased in the last 3-4 years of the period.

7.6 Findings of the Survey:

Here we may also discuss the findings of the survey in respect of the above three variables, viz. quantity purchased by each of the buyers, the total value and the average price paid for onion by them for the years 1982-83 to 1984-85. It may be remembered that we had used purposive sampling in choosing farmers from the village and hence, the proportion vary from these discussed above.

7.7 Quantities Purchased:

Table No. 7.2 indicates the quantity purchased by the three categories of buyers for the above mentioned period. Thus traders accounted 42.97 percent of the total quantity marketed by the farmers in 1982-83. It decreased to 32.77 percent in 1983-84 but marginally increased to 34.36 percent in 1984-85.

Of the two cooperative institutions, the Federation purchased 33.56 percent in 1982-83 and 41.71 percent in 1983-84. But it curtailed its purchase substantially to 23.84 percent in 1984-85. The opposite seems to have happened in case of NAFED. Its purchases went on increasing, the proportions being 23.46 percent in 1982-83, 25.5 percent in 1983-84, and 42.78 percent in 1984-85.
Changes in onion purchased by different buyers (surveyed farmers)

% of Traders
% of NAFED
% of Federation

SCALE = 10 PERCENT = 1 CM
7.8 **Total Values**

The information regarding the share of each category of buyers in the total value and the average price paid by them is shown in Table No. 7.3. The value refers to the quantities bought by different buyers from surveyed farmers.

7.8.1 **Traders**

The share of traders to total value was 36.62 percent and per quintal price paid by them was Rs. 50.4 in 1982-83. The share decreased to 29.88 percent while the per quintal price increased to Rs. 56.22 in 1983-84. However, both the share and price increased in 1984-85, the former to 31.93 percent and the latter to Rs. 64.47.

7.8.2 **Federation**

The Federation's share in total value was 37.2 percent and per quintal price paid by it was Rs. 65.57 in 1982-83. The former increased to 42.65 percent but the price decreased to Rs. 63.03 in 1983-84. The opposite happened in 1984-85. Thus, while the share decreased to 24.54 percent, the per quintal price increased to Rs. 71.41 in 1984-85.
7.8.3. **NAFED**

Table No. 7.3 reveals a different picture as far as NAFED is concerned. It shows an increasing trend in percentage share and also in the per quintal price paid by NAFED. Thus the farmer were 26.18 percent, 27.46 percent and 43.52 percent in 1982-83, 1983-84 and 1984-85, respectively. Similarly, the per quintal prices were Rs. 66.02, Rs. 67.37 and Rs. 72.28 respectively for the above three years.

7.9 The above facts lead us to the following conclusions:

First, while there were fluctuations in the quantity purchased by traders, the per quintal price paid by them was increasing.

Second, the quantity purchased by the Federation also shows large fluctuations which was the result of the Government's wavering policy in respect of the purchasing operations and the price to be paid for onion.

Third, NAFED accounted for an increasing share in the total quantity marketed by surveyed farmers.

Fourth, the average per quintal price of onion increased continuously during our study span.
Different Buyers [Surveyed Farmers]

Changes in on-farm value paid by

Scale: 10 percent = 1 cm
7.10 Reasons for Selling Onion in Lasalgaon Market:

We made efforts to find out from the farmers their reasons for selling their produce in Lasalgaon market. The surveyed farmers gave the following different reasons for selling onion in this market.

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Number of Cultivators</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Big &amp; Competitive market.</td>
<td>196 (59.39)</td>
</tr>
<tr>
<td>2. Purchase by Federation and NAFED.</td>
<td>99 (30.00)</td>
</tr>
<tr>
<td>3. Convenient for transportation.</td>
<td>149 (45.15)</td>
</tr>
<tr>
<td>4. Reasonable Price</td>
<td>135 (40.90)</td>
</tr>
<tr>
<td>5. Convenient to buy consuming goods.</td>
<td>62 (18.78)</td>
</tr>
</tbody>
</table>

In our study we found that, 196 (59.39%) farmers bought their produce because it was a big and competitive market than other nearby markets. 99 (30.00%) farmers chose to market their produce as the Federation and NAFED undertook purchasing operations throughout the year. 149 (45.15%) farmers considered the market convenient for transportation throughout the year. While 135 (40.90%) farmers were attracted by the prices of onion which they considered reasonable than those in other markets,
62 (18.78%) farmers preferred it as it was/convenient centre for purchase of their consumer requirements.

SECTION 'B'

TRANSPORTATION.

7.11 An efficient and adequate transportation system can go a long way in reducing the intraseasonal and spatial disparities in prices. Transport has its own significance in making a marketing system efficient and useful. "The economic implications of transportation arise from the fact that it creates the utilities of place and time. By making available the commodities where they are needed, it creates place utility and by minimising time for moving goods, it creates time utility. The importance of transportation will be revealed by the fact that the modern economic development, the secrets of which are specialization and the localization of production, is the result of the great strides (1).

The efficiency of marketing functions depends to/great extent on the availability and efficient means of transportation. As the FAO rightly points out:

"Deficient communication limit the range of marketing and thus prevent the growth of specialised marketing agencies and the development of more efficient procedure under the stimulus of competition". It also further points out that "agriculture is a business in which more than 80 percent of all the work performed rests on transportation."

The changes in agricultural prices do not depend on only demand conditions, but also to a great extent on other factors, like storage, transport facilities etc. Hence the role which transportation plays in eliminating the variations in the prices should be taken as a modest one. It is said that well organised and efficient transportation facilities facilitate competition and bring about increasing incomes to the farmers who, in the absence of these, may have to sell at unfavourable place and price. "A smooth and efficient system of transport from the village to the consumer's door goes a long way in not only helping the farmers to bring their produce to the market without much difficulty" but also in helping the consumers in securing their needs within a reasonable time and cost."

(2) FAO: Marketing Problems and Improvements Programmes: Food and Agricultural Organisation of the United Nations, 1958, page-16
(3) Ibid, page- 47
Lack of quick transportation makes it difficult for movement of agricultural produce from rural areas to urban consuming centres. As has been aptly pointed out by FAO. "The first step, therefore, in the improvement of agricultural marketing is to provide transport facilities where they do not reach at present."

The above mentioned statement of different authorities fully bring out the importance of transportation in agricultural marketing. Transportation and handling start just after harvesting of onion from the field. If the produce is not properly handled and speedily transported to the disposal and, the whole efforts put in production go waste. Therefore, timely and speedy transportation of onion with minimum damage and deterioration en route and lowest possible cost are very essential.

After proper curing onion is brought from the field to the market in bullockcarts, tractors or trucks depending on quantity and distance. As onion growers are always short of time and labour, the produce is handled roughly and in a very crude manner which causes fast deterioration in quality. This adversely affects the price fetched by the producers.

(5) FAO: Agricultural Marketing Problems and Improvement Programmes, page-48,
7.12 Modes of Transport:

In our study, we sought to find out the types and importance of different modes of transportation in the Lasalgaon market area for the years 1982-83 through 1984-85. It was observed that onion is transported by all three modes viz. bullockcarts, tractors, and trucks. We discuss the importance of each mode of transportation in the paragraphs that follow:

7.12.1 Bullock-Cart:

In so far as the means of transport are concerned, roads have played an important role in the marketing of agricultural produce in the past. They carry the largest proportion of the produce with the bullock-cart still occupying a prominent place in transporting the produce from rural areas to the market. The National Commission on Agriculture has to state the following in this connection: As per 1966 Livestock Census, the bullockcarts carry nearly 60 percent of farm produce to market and an equal amount of non-agricultural products from urban to rural areas. It is estimated that nearly 20 million people are directly or indirectly employed in bullock-cart transport. It may be mentioned here

that it is very necessary to improve the design of bullock-cart so as to increase its technical efficiency.

Share of Bullock-Carts:

However, in our study of the transportation system in the Lasalgaon market area we found that the bullock-carts do not occupy an important place as a mode of transport from farm to market. They account for only about 10 percent of the quantity of onion transported to Lasalgaon market. From Table No. 7.4 we find that the bullock-carts carried 12.67 percent of total arrivals in the Lasalgaon market in 1982-83. Their proportion decreased to 10.69 percent and 9.34 percent in 1983-84 and 1984-85 respectively. Thus, it is seen that the share of bullock-carts is not only small but it showed a decreasing tendency during the period of study. Among the factors responsible for this declining proportion some may be mentioned. Firstly, the bullock-cart has limited carrying capacity. Normally, it carries a load of 4 to 6 quintals only which is very small as compared to trucks and tractors. Secondly, it is a slow method in comparison with the mechanised methods. Thirdly, the transportation cost per quintal is not less as compared to other two modes of transport.

For the three years of study, we have also calculated per quintal transport cost of bullock-cart in Table No. 8.3
In 1982-83 per quintal it was Rs. 5.32 and went up to Rs. 7.07 per quintal in 1983-84, but decreased to Rs. 5.29 per quintal in 1984-85. The average transport cost of the period was Rs. 5.89 per quintal. It may be noted that this average transportation cost of bullock-cart was more than those of the other modes of transportation in the market area. It may be attributed to the disadvantages of small-scale sale in market.

7.12.2 Tractors:

The spread of irrigation facilities and commercialisation of agriculture in recent years has led to tractorisation of Wiphad taluka. Therefore, tractors are easily available for transporting onion in this area. It is our observation, which is also supported by our study, that more than 75 percent of total arrivals on the market are carried by tractors.

Share of Tractors:

Table No. 7.4 shows the percentage of arrivals carried by tractors. Tractors carried as much as 79.29 percent in 1982-83. This proportion increased marginally to 80.3 percent in 1983-84. But it noticeably decreased to 75.35 percent in 1984-85.
There is an increasing awareness among the farmers about economies of scale in marketing expenditure and to avail the benefits of large-scale mode of transport. Therefore, onion growers are preferring to carry their produce by tractors rather than by bullock-carts.

Table No. 8.3 reveals the per quintal transportation cost of onion by tractors. In 1982-83, it was Rs. 5.38 per quintal. There was a very marginal increase in the next 2 years in this cost, which was Rs. 5.42 and Rs. 5.44 per quintal in 1983-84 and 1984-85 respectively. The average cost of tractor transport came to Rs. 5.41 per quintal. Thus it was less by about 50 paisa than the average cost per quintal incurred on transport by bullock-cart.

7.12.3 Trucks:

In recent years, the importance of truck transportation in the marketing of onion is increasing. It is the quickest mode of transport and can carry larger loads of 80 to 100 quintals at a time. Yet, its cost per quintal is almost the same as for tractor and is definitely economical over long distances. However, in comparison with tractors it has certain limitations. First, it requires fair weather roads and can not, therefore,
be useful for farm situated away from such roads. Secondly, since the capacity is much larger, they cannot be used by small farmers. The percentage share carried by trucks can be seen from Table No. 7.4. Thus it was 8.02 percent of the total arrivals in 1982-83. It marginally increased to 8.99 percent in 1983-84 and jumped to 15.29 percent in 1984-85. Thus the share was increasing during the period of study.

No. 8.3

From the - Table transportation cost per quintal incurred on truck can also be observed. Thus, it was Rs. 5.59 per quintal in 1982-83. It decreased slightly to Rs. 5.39 per quintal in 1983-84. But in 1984-85, it increased to Rs. 5.44 per quintal. Over the 3 years period, the average transport cost came to Rs. 5.47 per quintal. In other words the cheapest mode was tractor transport while bullock-cart was the costliest.

7.13 Distance-wise Arrivals By different Modes of Transport:

Since distances from the market vary from farm to farm, farmers tend to use the mode which is cheapest and most convenient for them. Information about the quantity brought by the three modes of transport is presented in Table No. 7.5 for each of the 5 distance groups.
The proportion of each mode of transport is also worked out for each distance group during each of the 3 years.

7.13.1 Bullock-carts:

From Table No. 7.5 it is apparent that bullock-carts were not used up to a distance of 5 Kms in any of the three years. It may be mentioned here that out of 11 villages surveyed by us only one village fell within this category, and surprisingly none of the farmers of this village carried their onion in bullock-carts to the market in any of the 3 years. Other points which may be noted in respect of bullock-carts are: i) They were used mainly for distance covered by 2nd and 3rd groups and contributed about 20 percent and 33 percent respectively to the arrivals of these groups in each year. i1) Their share in 2nd group progressively declined over the 3 years, while that in 3rd group increased in the second year but decreased in the third year. i11) Bullock-carts were not used much for long distance and their shares were negligible in 4th and 5th distance groups (5 percent or less) in each year.

7.13.2 Tractors:

As already mentioned previously, this was the predominant mode of transport in the area, contributing
75 to 80 percent of the transport needs. Some of the important features of this mode are:

i) Tractors were used for carrying onion even on the smallest distance. Thus they carried all the arrivals in the 1st distance group in the first 2 years.

ii) Their shares in each distance group were highest in all the 3 years. They contributed 75 percent or more in 2nd, 4th and 5th distance groups and about 60 percent in the 3rd group in each year.

iii) Their proportions in the longer distance group appear to have gone down in 3rd year, presumably due to competition from truck transport.

7.13.3 Trucks:

This mode of transport appears to be more attractive to the farmers, especially for longer distance. This is clear from their growing shares over the years and they seem to be gaining at the expense of tractors. The following salient features may be mentioned:

i) Trucks were used to a very limited extent for short distances. Thus for the first group they were not used at all in the first two years. Surprisingly, however, all the arrivals in the 3rd year were by this mode of transport. In the 2nd group, their contribution was less than 5 percent in each year.
11) They are used mainly in the 4th and 5th distance groups, though their shares are much smaller than those of tractors. Thus they contributed around 10 to 15 percent in each of these groups in the first two years. But their share went up to more than 20 percent each in the 3rd year. Further there was a continuous increase in the share in the 5th group over the period.

111) The increase in the share for longer distance groups appears to have taken place at the expense of tractor transport. This is especially true for the 4th and 5th groups.

7.14 We may now state the salient points that emerge from the discussion about the 3 modes of onion transport.

1) Tractors were the predominant mode of transport contributing over 75 percent of the total arrivals in each year of our study. Its share remained more or less constant in the first two years but decreased in 1984-85.

2) It was observed that the share of bullock-carts was continuously decreasing from year to year although they continued to be used for smaller distances.

3) There appears an increasing trend in the share of trucks especially over longer distances. It may increase further in future due to large scale economies available for this type of transport.
4) We could not find distance-wise variations in costs of different modes of transportation. The variations occurred in peak period arrivals due to delay auction and weighing. In other words, transport cost due to waiting can be reduced by eliminating or minimising the waiting period through daily clearance of arrivals in the peak period.

5) It is said that lack of quick transportation makes it difficult for the purchasing operations under the price support policy to become effective. Spoilage in transit results in unavoidable losses and increase in cost. It is therefore highly important that 'onions specials' for transportation from the major marketing centres like Sasalgaon to the important consuming centres and exporting ports should be run by the railways during the busy season. These specials should have specially designed wagons ventilated suitably for keeping onion in proper condition so as to reduce the incidence of spoilage during transit. The Government could also help by taking immediate steps for construction of covered sheds at assembling points, provision of adequate facilities at ports and air cargo terminals as well as construction of railway sidings at important assembling and terminal markets.
SECTION 'C'

STORAGE OF ONION.

7.15 Peculiarities of Onions:

The storage function is primarily concerned with making goods available at the desired times. Onion being a bulbous vegetable contains about 90 percent of water when it is stored by farmers and traders. It is subject to attack by numerous diseases which ultimately causes great losses. About 30 to 40 percent loss in weight was observed during a survey conducted by the Associated Agricultural Development Foundation in the year 1982-83. It can not withstand weight and has a poor keeping quality. Being one of the cheapest vegetable in the market, its demand is everlasting. Since onion is normally produced twice a year, it has to be stored and preserved for a period of about six months under normal conditions. It is noticed that poor keeping quality onion bulbs have generally low dry matter, low refractive index, a high relative rate of water loss particularly in the period immediately after harvest which results in softening, shrivelling and loss in weight. Generally pungent onions have a better keeping quality
than the less pungent ones. The loss is about 40 percent during a period of 4 to 6 months. It is too great for a country like India, particularly because this commodity has become one of the essential constituents of the common man's food. Even at the grower's end, the loss is so huge that they get discouraged and switch over to the cultivation of other more profitable commodities. The export operations are also affected adversely when there are no proper storage facilities. Therefore, it has been felt that need-based storage facilities for post-harvest handling of onion should be created.

There are some varieties of onion which are good for storage. The Pusa Red variety has been adjudged a very good storer which can be kept under ordinary conditions upto six months. Patna Red, Pusa White Round and Pussa White Flat are also good for storage. Due to its delicate nature onion requires special storage conditions. On account of very high moisture content, its load bearing capacity is extremely poor. These are the main problems which have to be confronted with during handling, transportation and storage.

As mentioned earlier, three crops of onion are grown i.e. Kharif (Pol), late Kharif (Rangada) and Rabi, (Unhal) in Maharashtra. The first two crops are not storable. However, the produce of summer harvest crop is stored,
deficit period being spread over June to October, till the new crop of Kharif is available. It is estimated that about 70 percent of Rabi production is stored in Nashik district. This type of onion production is stored by traders, cooperative societies and big farmers.

Excessive use of fertilizers during the late stage of crop growth, excessive irrigation rotations, more humid weather during growing stage, incidence of diseases, harvesting immature crop, poor curing etc. contribute to reduction of storage life of onion. These factors could be controlled by using proper field operations, good variety seeds, proportionate use of fertilizers etc. Similarly pre-harvest spray with recommended doses of pesticides also helps in controlling microbial decay and sprouting.

7.16 Storage Method in Different States:

In Nashik district onions are stored in bulk in the 'chawl' suitably provided with good air circulation. Recently, farmers and traders have made various modifications in these chawls as per their convenience. In other states, like Karnataka, Andhra Pradesh, Punjab and Haryana, leaf cover and bunch hanging method was found optimal for onion for the
three seasons from the point of colour retention, pungency and reduction in wastage during storage. Apart from the chaws or conventional godowns, model godowns have been developed by NAFED and we discuss the same in detail below.

Storage behaviour of onion varies with the cultivation conditions in which it is grown and stored, post-harvest handling and kind of storage used. In Nashik area, N-2-4-1 and local variety (Nashik Red) are commonly found suitable for storage.

7.17 Model Godowns:

The NAFED constructed model godowns in recent years at Pimpalgaon (B). These are R.C.C. constructions designed to provide free and forced air circulation from all sides. Here the godown is divided into sub-compartments by using wooden frames, and onions are filled to the full capacity of each of sub-compartments. According to a study losses in model godowns were less than in conventional chaws. Stored onion gets protection from direct sun rays and rains which helps in maintaining the temperature comparatively low and/or moderate humidity to some extent. From the comparative studies on the periodical evaluation of storage losses of onion in...
Model godown versus conventional chawls, it is clear that by the end of 4 months storage there were 18 percent less losses in model godown than in the chawls. The losses due to soft rot were more than wet rot in conventional godowns and vice-versa in model godowns. Further, the low height of onion storage might be a contributing factor to reduction of losses in model godowns through reduction of pressure brushing.

7.18 Losses in Storage: Findings of NAFED:

Studies were conducted by NAFED during 1982-83 to identify the storage losses in onion stored at different locations in Nashik district. Their findings are presented in the table below:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Location</th>
<th>Sprouting (%)</th>
<th>Wet soft rot (%)</th>
<th>White Basal rot (%)</th>
<th>Total rot (%)</th>
<th>Total losses (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Dindori</td>
<td>2.8</td>
<td>13.25</td>
<td>3.4</td>
<td>-</td>
<td>0.65</td>
<td>20.1</td>
</tr>
<tr>
<td>2. Pimpalgaon</td>
<td>0.6</td>
<td>4.98</td>
<td>3.14</td>
<td>-</td>
<td>-</td>
<td>8.72</td>
</tr>
<tr>
<td>3. Ozer</td>
<td>1.34</td>
<td>4.18</td>
<td>1.55</td>
<td>-</td>
<td>-</td>
<td>7.07</td>
</tr>
<tr>
<td>4. Lasalgaon</td>
<td>-</td>
<td>4.42</td>
<td>3.49</td>
<td>-</td>
<td>-</td>
<td>7.91</td>
</tr>
<tr>
<td>5. Manmad</td>
<td>-</td>
<td>3.22</td>
<td>1.54</td>
<td>0.8</td>
<td>-</td>
<td>5.56</td>
</tr>
</tbody>
</table>

Source: Bhonde, Shrivastava, Quadri, Bhagchandi; "Studies on Onion storage, Structure and Reducing Losses in Onion Storage".

From this table it is clear that, during a storage period of 3 months, losses varied from 5 to 20 percent (exclusive of driage). However, losses between 5 to 9 percent were common. At Dindori, the losses were higher because the area received continuous rainfall during the period of storage under consideration. It was also noticed that, the losses due to wet rot were less at Ozar and Manmad than at Pimpalgaon and Lasalgaon because of the use of tiled roofs at the first two locations.

In the table below we present information about the periodical evaluation of total losses in onion stored in model and conventional godowns or chawls during a storage period:

<table>
<thead>
<tr>
<th>Particulars of Evaluation</th>
<th>Model Godown</th>
<th></th>
<th></th>
<th></th>
<th>Conventional Godown</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cummulative losses</td>
<td>1 month</td>
<td>2 months</td>
<td>3 months</td>
<td>4 months</td>
<td>1 month</td>
<td>2 months</td>
<td>3 months</td>
</tr>
<tr>
<td>% Microbial spoilage sprouted</td>
<td>2.69</td>
<td>5.68</td>
<td>9.36</td>
<td>14.15</td>
<td>3.4</td>
<td>9.17</td>
<td>15.36</td>
<td>26.51</td>
</tr>
<tr>
<td>% Driage</td>
<td>7.54</td>
<td>10.05</td>
<td>14.64</td>
<td>18.84</td>
<td>7.92</td>
<td>12.11</td>
<td>19.9</td>
<td>24.54</td>
</tr>
<tr>
<td>% Total losses</td>
<td>10.43</td>
<td>15.73</td>
<td>24.00</td>
<td>32.99</td>
<td>11.32</td>
<td>21.28</td>
<td>35.26</td>
<td>51.26</td>
</tr>
</tbody>
</table>

% Marketable Recovery
89.57 | 84.27 | 76.00 | 67.01 | 88.89 | 86.72 | 64.74 | 48.95

Source: Bhonde, Shrivastava, Quadri & Bhagchandani: 'Studies on Onion Storage, Structure and Reducing Losses in Onion Storage', National Work-shop on Onion, December, 1983, page- 41(B) (b)
It clearly demonstrates the superiority of model godowns over conventional method of chawls. Thus after 4 months, while the total losses were 32.09 percent in the model godowns, in conventional godowns, they were 52.05 percent.

The NAFED has also developed a scientific storage system for onions using an iron cage type horizontal structure with cooled air circulation. 'Compared to all these models', observed the 'ECOTECH' Team, "the storage losses in cold storage are at the most 8 to 10 percent of the onion stored". Thus a direct saving of more than 25 percent can be effected by using cold storage technique. Therefore, it is an essential requirement of onion storage.

7.19 For purpose of our study, we obtained information regarding the different storage methods in use, losses in storing and storage costs. We have computed data for quantity stored and storage losses in terms of quantity and its value.

7.20 Storage Methods Used:

Normally onion is stored by producers either in their own houses or in rented godowns in Nashik district. We, therefore, collected the above information in respect of these two types of storage methods.

Table No. 7.6 reveals that the surveyed farmers stored most of their produce in their own houses. As much as 92.68 percent of the produce was stored in their own houses in 1982-83 and 92.25 percent in 1983-84. In the year, 1984-85, there was a slight fall at 91.26 percent. Thus in the three years of our study, the proportions were more or less constant.

The second method of storage in this area is rented godowns. These are chawls built only for purpose of hire by big farmers and traders. They accounted for only 7.32 percent of the produce in 1982-83, 7.75 percent in 1983-84 and 8.74 percent in 1984-85. Thus, we observe in contrast only a marginal increase in the proportion stored in rented godowns.

It is clear that the rented godowns were not preferred by farmers for storage of onion. This was the result of various difficulties encountered by them viz. the necessity to carry the produce from farm to godowns,
location of godowns, supervision charges of hired godowns for the period of storage. It is natural that these factors led to rise in the costs incurred by the farmers on rented godowns as compared to those incurred on storing onion in their own houses.

7.21 Period of Storage:

It was found that all the quantity produced was not stored by the farmers. Further, the quantity stored and the period of storage varied in different years. The main reason for this is the variation in the price of onion in the market. Thus the storing tendency is related to the price of produce and their eagerness to market their produce at remunerative prices. Therefore, there is no rigidity in storing tendency.

We have classified the quantity stored according to the period of storage, i.e. number of days - . The minimum period being up to 30 days and the maximum being 91 to 120 days. This information is presented in Table No. 7.7. It can be seen from this table that out 17.4 percent of total stored quantity in 1982-83 was stored up to 30 days. It decreased to 11.45 percent during the year 1983-84 and further to 10.35 percent in 1984-85.
A larger proportion was stored for a period of 31 to 60 days than for the first period, though the proportions tend to decline over the 3 year period. Thus, while 23.30 percent was stored in 1982-83 out of total stored quantity, the proportion declined to 19.05 percent in 1983-84 and to 16.47 percent in 1984-85.

It is observed that the highest proportion was stored for a period of 61 to 90 days in each year. Thus 49.10 percent was stored out of total stored quantity in 1982-83. It increased to 54.40 percent in 1983-84 and further to 60.46 percent during 1984-85. It may be mentioned that this storage period is moderate according to recommendations of different authorities.

For the last group of 91 to 120 days, it was found that smaller proportions were stored. Thus 10.2 percent was stored during 1982-83. The proportion increased to 15.10 percent in 1983-84, but came down to 12.72 percent in 1984-85.

7.22 Costs of Storage:

Storage costs include the expenditure on transportation i.e. to bring the produce from farm to the place of storage, cost of sorting of quality, produce and cost
of filling up the compartments of chawls or house with the produce. We have also taken into account the rent of house or chawl used for storing purpose.

It was observed that out of the total storage costs 93.1 percent was accounted by house storage method in 1982-83, 91.81 percent in 1983-84 and 90.7 percent in 1984-85. Thus only a marginal decrease in percentage took place in three years.

Rented godowns accounted for a very small through increasing share. Thus they accounted for 6.9 percent in 1982-83, 8.18 percent in 1983-84 and 9.3 percent in 1984-85. This increasing trend in costs on hired godowns is attributed to an increase in the higher proportion stored in them.

7.23 **Quantity Stored and Storage Costs According to Size Groups of Cultivators**

We collected data regarding the quantity stored and storage costs incurred by different size of groups of cultivators. The total number of cultivators were grouped under three size-groups and information was collected from them for three years. For each year we present information about the number of cultivators falling in each size group, their total onion production, the quantity ....
stored by them and its proportion to their total production, the total cost of storage and the cost per quintal. As already seen above, the farmers in the Lasalgaon Market area stored their produce either in their own houses or chalws. The information is presented separately for each of these methods in Table No. 7.8(A) and 7.8 (B).

7.23.1 House Storage:

We first discuss the information given for house storage method in Table No. 7.8(A). In the 'small' size-group, there were 102 cultivators and they stored 22.02 percent of their total production in their own houses during 1982-83. A cost of Rs. 5.00 per quintal was incurred by them. The proportion stored shows continuous decrease to 20.69 in 1983-84 and to 19.47 percent in 1984-85. The cost of storage was constant at Rs. 5.00 in 1983-84 but decreased to Rs. 4.87 in 1984-85.

The 'medium' size group comprised of 176 cultivators who stored 41.99 percent of their total production in 1982-83 in their houses at a cost of Rs. 5.05 per quintal. The percentages for the subsequent two years were slightly lower at 40.29 and 40.18 respectively. The
storage costs were 4.99 and Rs. 5.00 per quintal respectively for these 2 years.

There were 52 cultivators in the 'large' size group and it was found that they stored more than half of their total production in their houses and further that the proportion increased to almost 60 percent in 1984-85. It was 54.01 percent in 1982-83 and 59.13 percent in 1983-84. The cost of storage was Rs. 5.35 per quintal in 1982-83, but declined to Rs. 5.00 and Rs. 5.00 per quintal in 1983-84 and 1984-85 respectively.

Taking all the 330 cultivators together, it can be seen that they stored 43.21 percent of their production in 1982-83, while the average cost of storage was Rs. 5.28 per quintal. In the subsequent years, the quantities stored remained almost constant at 43.63 and 43.45 percent respectively. However, the average cost of storage came down to Rs. 5.06 and Rs. 4.99 per quintal respectively.

7.23.2 Rented Godowns:

We now turn to a discussion of storage in rented godowns information for which is presented in Table No: 7.8(b). In the 'small' size group the cultivators
stored 2.89 percent of their total production in rented godowns in 1982-83 at a cost of Rs. 5.00 per quintal. The proportion of stored quantity shows a continuous increase to 7.1 percent in 1983-84 and to 8.58 percent in 1984-85. The cost of storage also increased to Rs. 5.53 and to Rs. 5.68 per quintal in 1983-84 and 1984-85 respectively.

The 'medium' size group of cultivators stored a meagre 1.89 percent of their total production in 1982-83 at a cost of Rs. 5.05 per quintals. It marginally decreased to 1.65 percent of their total production in 1983-84 with a storage cost of Rs. 5.85 per quintal. But it increased to 2.03 percent in 1984-85, while there was a slight increase in the storage cost to Rs. 5.16 per quintal.

The cultivators in the large size group stored 5.85 percent of their produce at a storage cost of Rs. 4.75 per quintal in 1982-83. In the subsequent two years, the quantities stored remained almost constant at 5.17 percent and 5.50 percent respectively. The cost of storage however, rose to Rs. 5.00 and Rs. 5.20 per quintal in 1983-84 and 1984-85 respectively.

All the cultivators together stored only 3.42 percent of their total production in 1982-83, while the
average cost of storage was Rs. 4.86 per quintal. The stored quantities marginally increased to 3.66 percent and 4.25 percent of total production in 1983-84 and 1984-85 respectively. However, the average cost of storage increased to Rs. 5.23 in 1983-84 and Rs. 5.34 in 1984-85.

The points that emerge from our study may be summarised here.

First, a slight increase was noticed in the total quantity stored (in houses and rented godowns) over the 3 years. The proportion went up from 46.62 in 1982-83 to 47.60 in 1984-85. This gives an increase of almost 1 percentage point in three years and, though small needs to be welcomed as it shows an increasing awareness of the benefits of storage among cultivators.

Two, the major part (i.e. 0.74 percentage point) of this 1 percentage point increases was accounted for by rented godowns.

Three, increased use of rented godowns was seen among the small and medium size groups of cultivators while there was a decline in the case of large size-group over the three years. This fall in the case of large size-group could be attributed to their capacity to construct their own chawls which are comparable to rented godowns.
Indded, most of the rented godowns belong to the cultivators comprising this size group.

Four, for reasons already mentioned above, the cost of storage per quintal under house method was lower than that under rented godowns.

Five, the producers generally prefer to store the produce in their own houses rather than in rented godowns outside the village in order to avoid storage losses in handling. This implies that good storage facilities should be created in every village which produce onion if the cultivators are to take advantage of them.

Lastly, it was interesting to note that none of the farmers surveyed by us stored their produce in the cooperative godowns available in the market areas.

7.24 Storage Losses (Quantity and Value) According to Different Factors:

As already mentioned onion has to be stored for 3 to 4 months and during this period of storage losses occur due to different reasons. For calculating losses, we have considered an average period of 3 to 4 months and 3 different factors which are responsible for losses. However, it was noticed that the farmers could not classify the losses accurately according to each factor. Thus the losses have been computed in terms ...
of quantity and value under three different seasons viz. rains, putrefication and sprouting and less in weight.

The data is shown in Table No. 7.9. This table reveals that, out of the total loss of 4080 quintals in 1982-83, as much as 25.02 percent was lost due to rains and its monetary value was Rs. 61,933.86. The loss occurring as a result of putrefication and sprouting during storage in the rainy season was as much as 36.86 percent in terms of quantity while its value was Rs. 91,232.64. As mentioned in chapter No. 1 onion contains about 86 percent water. Therefore, it is but natural that there would be some loss in weight in the quantity of onion that is stored. The loss on this account was 38.12 percent valued at Rs. 94,326.30.

For the year 1983-84, out of the total loss of 4164 quintals, 25.96 percent was lost due to rains and its value was Rs. 66,881.47. Putrefication and sprouting accounted for 36.69 percent with a money value of Rs. 94,537.36. Natural loss in weight formed 37.35 percent and its monetary value was Rs. 96,207.85.

In 1984-85 the total quantity lost amounted to 7408 quintals. Out of this, 17.87 percent in terms of quantity was lost due to rains, its money value being Rs. 91,872.36. It may be mentioned here that, this
loss was less than that in the previous two years rain because in that year started late. Putrefication and sprouting accounted for as much as 40.86 percent in terms of quantity valued at Rs. 2,10,043.53. Loss in weight formed a substantial portion of the total loss at 41.27 percent its value being Rs. 2,12,125.23.

From the above analysis, following points may be mentioned:

One, During the 3 years the total loss almost doubled in both quantity and money terms.

Two, Losses due to putrefication and sprouting and loss in weight formed a major share of the losses. It is possible to reduce them to some extent by using pesticides at maturity stage of the crop and cold storage or model godowns.

7.25 Storage Losses According to Size Groups of Cultivators:

As in the case of quantities stored and the cost per quintal, we have calculated the quantities lost during storage and their money values for the 3 size groups of cultivators from the data collected by us. For each year we present the data regarding
the number of cultivators in each size group, the total quantity stored by them, the quantity lost during storage and its proportion to total quantity stored by them, the monetary value of the quantity lost and its percentage of the total income from onion received by the cultivators.

In table No. 7.10 we present this information. From it we observe that the 'small' size group incurred a loss of 18.12 percent to total quantity stored by them in 1982-83. The loss in money came to Rs. 19,896.48 forming 1.42 percent of their total income from onion. The total loss rose to 20.18 percent during 1983-84, its money value being (Rs. 27,346.54) or 1.8 percent of the total income from onion. It further increased to 27.21 percent and it meant a loss of 2.42 percent or Rs. 44,756.55 in income from onion in 1984-85.

For the 'medium' size group, the loss was 17.95 percent of the quantity stored by them and formed 8.57 percent (Rs. 1,19,803.5) of their total income in 1982-83. There was a slight decrease in it during 1983-84, when 16.1 percent of total quantity stored was lost. It meant 7.33 percent (Rs. 1,11,304.13) loss in total income. It noticeably increased to 29.71 percent in terms of
quantity stored and 13.78 percent (Rs. 2,54,036.79) in money terms in 1984-85.

For the ‘large’ size group the percentage loss in terms of both quantity and money was the same for the first 2 years. Thus, the quantities lost formed 17.37 percent and 17.20 percent respectively of the total quantities stored. Similarly, 7.71 percent (Rs. 1,07,792.82) and 7.83 percent (Rs. 1,18,976.01) of total income from onion was lost in 1982-83 and 1983-84 respectively. However, the percentage increased steeply in the year 1984-85. It was 26.13 percent in terms of quantity and 11.68 percent (Rs. 2,15,247.78) in terms of money.

On an average storage loss in terms of quantity came to 17.71 percent in 1982-83 and 16.96 percent in 1983-84. However, it increased sharply to 27.89 percent during 1984-85. This noticeable increase in loss was mainly due to untimely rains at the maturity stage of onion crop in market area in 1984-85. On the other hand, the average storage loss in terms of money slightly decreased from 17.71 percent in 1982-83 to 16.96 percent in 1983-84. But it notably went up to 27.88 percent in 1984-85.
7.26 From the above facts about storage losses, we may say that storage of perishable requires a specialised and costly system which is more difficult to achieve. The case of onion which could be termed as semiperishable is slightly different. Its life is not so short as that of many other fully perishable fruits and vegetables. Therefore, given appropriate type of storage facilities, it can be stored for 4 to 6 months without significant loss. Besides, in normal circumstances, disposal of its stocks during the lean season does not pose any serious problem. In this connection, improvements in cold storage capacity during the last decade have been encouraging. Yet, the progress in this regard is not commensurate with the increase in production. Keeping in view the need to move onion to consuming centres immediately after harvest, a more balanced location of the storage capacity may have to be planned between producing and consuming centres.

Special storage has to be provided at the important ports so as to enable the exporters to keep the stocks of suitable varieties directly at these ports. If a public sector agency is required to undertake purchases to render price support, to build up buffer stock or for
exports purposes, it should have adequate storage
capacity as its disposal so as to reduce its
dependence on hired godowns. Therefore, there is
an urgent need for expanding storage capacity suitable
for onion in the public sector.

It was observed by us that storage facilities of
traders are not sufficient for the growing business
at Lasalgaon. Therefore, it is necessary to increase
substantially storage facilities at market level by
the Central and State Governments. Provision of such
facilities at market level will also stimulate storing
tendency of farmers and thus secure better prices.
The Market Committee and Co-operative Societies have
been requesting the State Government to provide more
godowns facilities on Lasalgaon Market for some time.
Recently, the State Warehousing Corporation has
undertaken construction of godowns which will surely
be advantageous to the farmers.
SECTION -- 'D'

GRADING

7.27 Meaning:

Grading is defined as 'nothing but sorting out of produce according to grade specification and any form of quality and characteristics'. According to other definitions, 'Grading is the process of dividing a quantity of the same kind of goods into uniform groups according to certain standards of size, shape, colour, texture, degree of cleanliness of other significant characteristics'. Nature does not make produce alike, each individual plant differs in many respects


as the result of differences in heredity and environment, soil, weather, insect and disease attack. Hence an efficient system of marketing implies an emphasis on sorting and grading.

It is said that "with the transformation of agriculture from a 'way of life' to the 'market oriented agriculture' approach, the performance in the field of fruits and vegetables has also been by and large improving". (3)

The quality of agricultural produce is made up of many characteristics, some external and some internal. There are some physical characteristics which influence it and which are related to appearance, flavour and nutritive value of a product.

Fruits and vegetables are perishable crops with very short self life under normal conditions. Though some of them are mostly consumed locally. Within these constraints the farmers have to arrange for marketing of their produce at the proper consuming centre and at the proper time so as to obtain as good a price for their produce as possible. This aspect of creation of place and time utility is closely linked with a proper

system of sorting and grading.

7.26 Grading and Marketing Efficiency

An efficient marketing system is a very important factor in agricultural marketing. This is all the more important in the case of a vegetable which cannot be stored for long period on account of its perishable nature. In its case, the spread as well as efficiency of marketing operations are crucial in determining profits of the producer on the one hand, and the level of satisfaction of the consumer on the other hand. It is often complained that the growers—more so the vegetables growers—do not get remunerative prices for their produce while the consumers have to pay higher prices for the vegetable. Both can be achieved by improving marketing efficiency.

Marketing efficiency is the outcome of the following 2 types of efficiencies:

'Operational efficiency' is the efficiency of conducting the various physical activities during marketing process.

'Pricing efficiency' is judged on the basis of how freely and how effectively prices are determined during the marketing process and make themselves known to various interests in the marketing and distribution chain.

Grading helps in securing the benefits from operational and pricing efficiency which are briefly enumerated below:

1. Grading helps to eliminate much of the time and expense in the bargaining process in arguing about the level of quality of the produce. It provides more precise definition of a commodity and quick settlement of the basic pricing issues which relates to supply and demand.

2. Grading can reduce the expenses of competitive brand advertising and high pressure of salesmanship. It provides a widely known and highly acceptable brand.

3. Helps to enlarge market area for both buyers and sellers and thus stimulates competition. It provides more efficient management and minimises transportation cost.

4. Grading enables the market place to more systematically allocate the available supply of each kind and
quality of produce.

5. Lastly, it helps in achieving a measure of standardisation and quality control in the marketing process.

We may sum up these benefits in the words of Shephard: "All these factors tend to increase the efficiency of the marketing process and exert a downward pressure on marketing costs. Grading provides the most effective available means to get as much quality control as is possible".\(^{(5)}\)

Trading on the basis of accepted quality standards makes pricing more precise and equitable thereby making price reporting mechanism more meaningful. Grading of fruits and vegetables should provide for a package programme involving advice on proper picking, procedure for sorting, packaging and marketing.

In the words of National Commission on Agriculture, "Grading of commodities has three main purposes\(^{(6)}\). These are mentioned below:


1. Proper grading of any commodity protects the consumers and producers through establishment of standards of quality.

2. It serves as a means of describing the quality of commodities to be purchased or sold by buyers and sellers all over the country.

3. It provides a basis for the payment of premium on the quality of commodities.

7.29 **Grading in India**

Grading activity in India is presently conducted at three stages of marketing viz. a) At the producer's level at the time of first sale, b) At the consumer's level preceding ultimate sale to consumers, and c) At the exporter's level preceding shipment to foreign countries.

Grading at the second and third stages are regulated under the provisions of the Agricultural Produce (Grading and marketing) Act, 1937. Again, between these two, the farmer is voluntary while the latter is compulsory. As regards producer level grading, the grade standards and other elements of grading package of practices are derived and dovetailed from the other stages of grading activities and designed
in such a way as to suit the local conditions.

Generally the following two types of grading have been resorted to in India:

7.29.1 Commercial Grading:

Commercial grading places emphasis on visual aspects related to the produce. After taking into consideration all factors i.e. percentage of maturity of produce, size and other elements grading specifications are determined and the produce is graded as per the grade specifications.

7.29.2 AGMARK Grading:

Grading for agricultural produce was introduced in India with the passing the Agricultural Produce (Grading and Marketing) Act in 1937. According to this act, actual analysis of the commodity is done in the laboratories established for the purpose. After analysis of the produce AGMARK certificate stating the grading is issued, which certificate has to be fixed on the package by the producer.

7.30 Grading of Fruits and Vegetables:

Fruits and vegetables require special attention of marketing facilities as a necessary adjunct to effective
grading. Under the Regulation of Market Acts, the regulated markets provide the required infrastructure for grading and package facilities. However, there are generally no separate regulated markets for Fruits and vegetables in India which provide such infrastructure. It is necessary that regulated markets should be established separately for fruits and vegetables on the pattern of terminal markets like Delhi and Nagpur (for oranges) for promoting producer's level grading.

Grading of fruits and vegetables is being increasingly adopted at producer's level in India in recent years. It has been adopted for internal marketing since 1949 and for export since 1965, (only for vegetables). It is estimated that between 1970-71 to 1977-78, "the value of fruits and vegetables graded under different stages has increased by about 200 percent". However, the grading activity has not spread to the entire country and to all fruits and vegetables. At present it is confined to 11 states and 13 fruits and vegetables only.

We have till now taken a brief review of the purposes and benefits of grading and the system of grading prevalent in India. We will now turn to the grading system of onion.

7.31 Onion Grading:

In Maharashtra, onion is graded at two levels viz. producer's level and export level, since it is not only consumed in the domestic market but also exported. Therefore, there has to be a link between grading by producers and exporters. Such a link can safeguard the interests of producers.

Generally onions are sorted into 4 different classes based on size and are called Extra big, Big, Medium and Small. (above 60 mm, 45 mm, 35mm and 20 mm respectively). Sorting is also based on cloth cover, colour, blemishes, damages and other negative characters like bolted, doubles, thick necked and so on.

Graded produce fetches both good demand and price. Keeping this in mind the Government of Maharashtra and the Lasalgaon Market Committee jointly established a grading unit in 1964 in the Lasalgaon Market and appointed one grader from April, 1964. To carry out the grading function the State Government has given types of planks to Lasalgaon Market Committee. The Government grader and the Committee grader allot usual grades to onion arriving in the market.
The Market Committee has also prepared planks of various sizes which are used in the main market yard to demonstrate grading system to the farmers. Similarly, it has also distributed grading planks to various villages cooperative societies free of charges to educate the onion producers. The Market Committee also advertises through various media, in addition to daily announcements over microphone in the market yard, asking the producers to bring graded produce for sale at the proper time. The market committee is also persuading the Government to produce a documentary film on onion marketing and grading on Lasalgaon Market.

7.32 Sampling

As mentioned already a grading unit started working from 1964 on Lasalgaon Market and both graders jointly give grades to produce. For onion, it is possible to give only visual grade because there is no sufficient time to analyse the produce in the laboratory. Both the graders jointly take samples of produce from all sides of a vehicle arriving on the market. A sample has to be of the order of 2 k.g. to 5 k.g. free of charge. However, if farmers demand the price of samples, the committee pays them according to the price ruling on the day. Inspite of visual grading the producer-sellers are satisfied about
grading system.

In Table No. 7.11, we present data relating to changes in grading samples on Lasalgaon market from 1973-74 to 1984-85. The number of grading samples taken, the respective quantities and values along with their percentages are shown yearwise for this period. It is clear from the table that, the number of samples has fluctuated from year to year. In years of heavy arrivals in market, more samples should have been taken for scientific analysis. However, this does not seem to have happened. Thus, in 1973-74, 1262 samples were taken for scientific analysis with a total graded weights of 6.06 lakh quintals. This formed 98.85 percent of the total arrivals and it represented 90.20 percent of the total value. The highest number of 1568 samples were recorded in 1975-76, when the total weight of graded onions was 6.42 lakh quintals. It represented only 74.33 percent of the total arrivals and its value formed just 41.73 percent of the total value. However, in 1980-81, although the graded weight of onions had risen to 9.46 lakhs quintals forming 92.47 percent of arrivals and 89.79 percent of the value. Only 356 samples were taken. By 1984-85, the graded weight of onions had more than doubled to 13.65 lakh quintals as compared to that in
1973-74. However, only 615 samples were taken for laboratory analysis and they formed 96.53 percent and 93.72 percent of the total arrivals and value respectively in that year.

It appears that the manpower supplied by State Government and Market Committee is not sufficient for coping with the increasing arrivals. It is necessary to provide additional technical staff for undertaking scientific analysis of samples.

In Maharashtra grading is compulsory for onion and farmers are encouraged to undertaken grading of their crop through propaganda. The objective is to create an awareness among the farmers and encourage them to bring their produce as per demand for particular grades of onion.

If the Market Committee and Government succeed in convincing the farmers to bring their produce of particular grades at particular time, it will reduce the period of heavy arrivals and unnecessary waiting in market for the producers. However, this does not happen due to a number of reasons.
Firstly, since the average producer's production is large, it is difficult for most of them to sort their production before sale.

Secondly, it is well-known that most of the farmers are badly in need of money and have to sell the entire produce soon after harvest.

Thirdly, it is observed that the onion buyers too do not make their purchases as per particular grades and at particular time. Further most of the farmers find no direct relationship between graded produce and the price received for it.

If the market committee and the Government are unable to achieve the objective of bringing about a direct relationship between the price of onion and the graded produce, the grading system will be meaningless. Therefore, for effective and meaningful grading system greater efforts for establishing such a direct relationship are necessary.

7.33 Farmer's Views on Gradings

In our survey, we obtained opinions of the producers about partiality in the grades given by the graders and
whether the price received by them was as per grades
given to their produce. In Table No. 7.12 we present
the information on these two points. Out of 330 farmers
212 (64.24%) informed that there was no partiality in
grading, while 117 (35.45%) thought otherwise. This
means that more than 1/3 of the farmers were not
satisfied about the grades given to their produce by
the graders. As regards relationship between grading
and price of onions, 124 (37.57%) farmers were of the
view that the price obtained by them was based on the
grading of their produce, while 205 (62.12%) farmers
were not satisfied with the price received by them.
In other words, almost 2/3 of the farmers thought that
although their produce deserved to be priced higher on
the basis of grades given, actually they received a
lower price.

7.34 Suggestions:

In the light of the above, we may make the
following suggestions regarding grading system on
Lasalgaon Market.

1) The Government should introduce make AGMARK
   compulsory for quality control on saleable produce for
   internal markets.
2) As in the case of cotton, prices should be fixed for different grades of onion by the Government.

3) Arrangements should be made by NAFED and Federation to buy all quantity of onion brought on the market.

4) The Centre and State Government should step up their propaganda activity so as to encourage all the farmers to bring their produce graded for sale. In this connection the National Commission on Agriculture has quoted with approval the example of the "Agricultural Produce Market Committee, Talad, in Gujrat which has introduced a scheme of giving special prizes to farmers for the sale of graded produce on the Market Yard". The Market Committee of Lasalgaon should introduce a similar scheme to encourage the onion producers to get their produce graded by themselves prior to for sale.

---

### Table 7.1

**Quantities Purchased, their Total Values and Average Prices paid by Different Buyers in the Second Period**

<table>
<thead>
<tr>
<th>Years</th>
<th>Total Arrivals</th>
<th>Total Value</th>
<th>Traders</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Quantity</td>
<td>Total Value</td>
<td>Average Price</td>
<td>Quantity</td>
<td>Total Value</td>
<td>Average Price</td>
<td>Quantity</td>
<td>Total Value</td>
<td>Average Price</td>
<td>Quantity</td>
<td>Total Value</td>
<td>Average Price</td>
</tr>
<tr>
<td>1977-78</td>
<td>8,50,105</td>
<td>4,56,16,004</td>
<td>6,97,692</td>
<td>3,86,03,298</td>
<td>55.00</td>
<td>(82.07)</td>
<td>(84.62)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1978-79</td>
<td>8,62,733</td>
<td>5,46,54,412</td>
<td>6,75,646</td>
<td>4,45,76,076</td>
<td>65.00</td>
<td>(78.31)</td>
<td>(81.55)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1979-80</td>
<td>9,11,849</td>
<td>7,07,79,002</td>
<td>6,75,947</td>
<td>5,71,12,687</td>
<td>48.00</td>
<td>(74.12)</td>
<td>(80.69)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1980-81</td>
<td>10,23,303</td>
<td>6,65,74,050</td>
<td>4,81,351</td>
<td>3,53,59,034</td>
<td>73.00</td>
<td>(47.03)</td>
<td>(53.11)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1981-82</td>
<td>9,45,094</td>
<td>8,31,61,338</td>
<td>6,86,306</td>
<td>6,16,81,990</td>
<td>93.00</td>
<td>(69.44)</td>
<td>(74.17)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1982-83</td>
<td>9,57,929</td>
<td>9,41,06,747</td>
<td>7,03,929</td>
<td>7,08,10,747</td>
<td>300.00</td>
<td>(73.48)</td>
<td>(75.24)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1983-84</td>
<td>12,02,623</td>
<td>9,93,20,700</td>
<td>8,53,622</td>
<td>6,27,74,700</td>
<td>73.00</td>
<td>(71.39)</td>
<td>(70.30)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984-85</td>
<td>14,05,047</td>
<td>10,85,38,261</td>
<td>10,57,597</td>
<td>7,94,35,619</td>
<td>75.00</td>
<td>(74.78)</td>
<td>(73.18)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

|         |                |              |                      |                      |                    |                      |                      |                    |                      |                      |                    |                      |                      |                      |
|         |                |              |                      |                      |                    |                      |                      |                    |                      |                      |                    |                      |                      |                      |

**Quantity in quintals**

**Value in Lakh Rs.**

|         |                |              |                      |                      |                    |                      |                    |                      |                      |                    |                      |                      |                      |
|         |                |              |                      |                      |                    |                      |                    |                      |                      |                    |                      |                      |                      |

**Years**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1977-78</td>
<td>1,52,413</td>
<td>70,12,706</td>
<td>46.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1978-79</td>
<td>1,87,087</td>
<td>1,00,79,336</td>
<td>53.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1979-80</td>
<td>2,35,902</td>
<td>1,36,66,315</td>
<td>48.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1980-81</td>
<td>96,229</td>
<td>47,67,909</td>
<td>51.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1981-82</td>
<td>1,47,000</td>
<td>1,30,01,000</td>
<td>88.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1982-83</td>
<td>2,22,000</td>
<td>2,01,71,000</td>
<td>90.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1983-84</td>
<td>1,90,000</td>
<td>1,73,06,000</td>
<td>91.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984-85</td>
<td>2,41,645</td>
<td>1,93,50,125</td>
<td>80.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figures in brackets show percentage to total.

1. **Federation**: Maharashtra State Co-operative Marketing Federation
2. **NAFED**: National Agricultural Co-operative Marketing Federation.

**Sources**: A.F.M.C. Lasalgaon.
TABLE 7.2

Quantity of Onion Markets Classified According to Category of Buyers. (1982-83 to 1984-85)

(Quantity in quintals)

<table>
<thead>
<tr>
<th>Buyers</th>
<th>1982-83</th>
<th></th>
<th>1983-84</th>
<th></th>
<th>1984-85</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quantity</td>
<td>% to total</td>
<td>Quantity</td>
<td>% to total</td>
<td>Quantity</td>
<td>% to total</td>
</tr>
<tr>
<td>-----------</td>
<td>---------</td>
<td>------------</td>
<td>---------</td>
<td>------------</td>
<td>---------</td>
<td>------------</td>
</tr>
<tr>
<td>Traders</td>
<td>44,175</td>
<td>42.98</td>
<td>34,131</td>
<td>32.8</td>
<td>37,755</td>
<td>34.36</td>
</tr>
<tr>
<td>Federation</td>
<td>34,504</td>
<td>33.56</td>
<td>48,441</td>
<td>41.7</td>
<td>26,202</td>
<td>23.84</td>
</tr>
<tr>
<td>NAFED</td>
<td>24,125</td>
<td>23.46</td>
<td>26,563</td>
<td>25.5</td>
<td>45,906</td>
<td>41.8</td>
</tr>
<tr>
<td>Total</td>
<td>1,02,804</td>
<td>100.00</td>
<td>1,04,135</td>
<td>100.00</td>
<td>1,09,863</td>
<td>100.00</td>
</tr>
</tbody>
</table>
### Table 7.3


<table>
<thead>
<tr>
<th>Buyers</th>
<th>1982-83</th>
<th>1983-84</th>
<th>1984-85</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>% to Total Value</td>
<td>Per Quintal Price</td>
</tr>
<tr>
<td></td>
<td>Value</td>
<td>Value</td>
<td>Value</td>
</tr>
<tr>
<td>-----------</td>
<td>---------</td>
<td>----------</td>
<td>---------</td>
</tr>
<tr>
<td>Traders</td>
<td>22,26,715</td>
<td>36.61</td>
<td>50.4</td>
</tr>
<tr>
<td>Federation</td>
<td>22,62,645</td>
<td>37.2</td>
<td>65.57</td>
</tr>
<tr>
<td>NAFED</td>
<td>15,92,770</td>
<td>26.18</td>
<td>66.02</td>
</tr>
<tr>
<td>Total</td>
<td>60,82,130</td>
<td>100.00</td>
<td>60.66</td>
</tr>
<tr>
<td>Modes</td>
<td>1982-83</td>
<td></td>
<td>1984-85</td>
</tr>
<tr>
<td>------------</td>
<td>---------</td>
<td>-----</td>
<td>---------</td>
</tr>
<tr>
<td></td>
<td>Quantity</td>
<td>% to total</td>
<td>Quantity</td>
</tr>
<tr>
<td>1. Bullock-Cart</td>
<td>13036</td>
<td>12.7</td>
<td>11144</td>
</tr>
<tr>
<td>2. Tractor</td>
<td>81536</td>
<td>79.3</td>
<td>83649</td>
</tr>
<tr>
<td>3. Truck</td>
<td>8250</td>
<td>8.00</td>
<td>9370</td>
</tr>
<tr>
<td>Total</td>
<td>1,02,824</td>
<td>100.00</td>
<td>1,04,163</td>
</tr>
</tbody>
</table>
### Table 7.5

**Distance-wise Arrivals by Different Modes of Transport**

(1982-83 to 1984-85)

<table>
<thead>
<tr>
<th>Mode of Transport</th>
<th>1982-83 Distance (in Kms)</th>
<th>1983-84 Distance (in Kms)</th>
<th>1984-85 Distance (in Kms)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0-5</td>
<td>6-10</td>
<td>11-15</td>
</tr>
<tr>
<td>1. Bullock-Cart.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>7080</td>
<td>3563</td>
</tr>
<tr>
<td></td>
<td>22.1</td>
<td>34.78</td>
<td>5.72</td>
</tr>
<tr>
<td>2. Tractor</td>
<td>162</td>
<td>23899</td>
<td>6561</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>74.61</td>
<td>64.04</td>
</tr>
<tr>
<td>3. Truck</td>
<td></td>
<td>1050</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.27</td>
<td>1.17</td>
</tr>
<tr>
<td>Total</td>
<td>162</td>
<td>32029</td>
<td>10244</td>
</tr>
<tr>
<td>Types of Storage</td>
<td>1982-83</td>
<td></td>
<td>1983-84</td>
</tr>
<tr>
<td>------------------</td>
<td>---------</td>
<td>---</td>
<td>---------</td>
</tr>
<tr>
<td></td>
<td>Quantity stored</td>
<td>% to total quantity</td>
<td>Quantity stored</td>
</tr>
<tr>
<td>1. House</td>
<td>21,350</td>
<td>92.68</td>
<td>22,641</td>
</tr>
<tr>
<td>2. Rented Godown</td>
<td>1,685</td>
<td>7.32</td>
<td>1,900</td>
</tr>
<tr>
<td>Total</td>
<td>23,035</td>
<td>100.00</td>
<td>1,24,300</td>
</tr>
</tbody>
</table>
**TABLE 7.7**

Quantities Stored Classified According to Period of Storage. (1982-83 to 1984-85)

<table>
<thead>
<tr>
<th>Period of Storage</th>
<th>1982-83</th>
<th>1983-84</th>
<th>1984-85</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quantity stored</td>
<td>% to total</td>
<td>Quantity stored</td>
</tr>
<tr>
<td>1. 0 -30 days</td>
<td>4010</td>
<td>17.40</td>
<td>2810</td>
</tr>
<tr>
<td>2. 31 -60 days</td>
<td>5365</td>
<td>23.30</td>
<td>4676</td>
</tr>
<tr>
<td>3. 61 -90 days</td>
<td>11310</td>
<td>49.10</td>
<td>13350</td>
</tr>
<tr>
<td>4. 91-120 days</td>
<td>2350</td>
<td>10.20</td>
<td>3705</td>
</tr>
<tr>
<td>Total</td>
<td>23035</td>
<td>100.00</td>
<td>24541</td>
</tr>
</tbody>
</table>
### TABLE 7.8 (A)

**Quantity stored and storage costs of different size groups of cultivators (1982-83 to 1984-85)**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Size (Hect)</th>
<th>No. of Groups</th>
<th>Total Cultivators</th>
<th>Quantity stored</th>
<th>% to total production</th>
<th>Costs</th>
<th>Per quintal cost</th>
<th>Total production stored</th>
<th>% to total production</th>
<th>Costs</th>
<th>Per quintal cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1982-83</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>0.0 – 2.00</td>
<td>102</td>
<td>7266</td>
<td>1600</td>
<td>22.02</td>
<td>8,000</td>
<td>5.00</td>
<td>7878</td>
<td>1630</td>
<td>20.60</td>
<td>8150</td>
</tr>
<tr>
<td>2.</td>
<td>2.01-5.00</td>
<td>176</td>
<td>25063</td>
<td>10,525</td>
<td>41.09</td>
<td>53,205</td>
<td>5.05</td>
<td>26,634</td>
<td>10,731</td>
<td>40.20</td>
<td>53,653</td>
</tr>
<tr>
<td>3.</td>
<td>5.01 and above</td>
<td>52</td>
<td>17080</td>
<td>9225</td>
<td>54.01</td>
<td>49,415</td>
<td>5.35</td>
<td>17,385</td>
<td>10,280</td>
<td>59.13</td>
<td>52,340</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>330</td>
<td>49409</td>
<td>21,350</td>
<td>43.21</td>
<td>1,10,620</td>
<td>5.18</td>
<td>51,897</td>
<td>22,641</td>
<td>43.62</td>
<td>1,14,125</td>
</tr>
</tbody>
</table>

### TABLE 7.8 (B)

**B. RENTED GODOWN METHOD**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Size (Hect)</th>
<th>No. of Groups</th>
<th>Total Cultivators</th>
<th>Quantity stored</th>
<th>% to total production</th>
<th>Costs</th>
<th>Per quintal cost</th>
<th>Total production stored</th>
<th>% to total production</th>
<th>Costs</th>
<th>Per quintal cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>0.0 – 2.00</td>
<td>102</td>
<td>7266</td>
<td>210</td>
<td>2.09</td>
<td>1050</td>
<td>5.00</td>
<td>7878</td>
<td>560</td>
<td>7.1</td>
<td>3100</td>
</tr>
<tr>
<td>2.</td>
<td>2.00-5.00</td>
<td>176</td>
<td>25063</td>
<td>475</td>
<td>1.89</td>
<td>2400</td>
<td>5.05</td>
<td>26,634</td>
<td>440</td>
<td>1.65</td>
<td>2575</td>
</tr>
<tr>
<td>3.</td>
<td>5.01 and above</td>
<td>52</td>
<td>17080</td>
<td>1000</td>
<td>5.85</td>
<td>4750</td>
<td>4.75</td>
<td>17,385</td>
<td>900</td>
<td>5.17</td>
<td>4500</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>330</td>
<td>49409</td>
<td>1685</td>
<td>3.41</td>
<td>8200</td>
<td>4.86</td>
<td>51,897</td>
<td>1900</td>
<td>3.66</td>
<td>10175</td>
</tr>
</tbody>
</table>

Total production means total production of Rabi onion.
### TABLE 7.9

Storage Losses (Quantity and Value) According to Different Factors (1982-83 to 1984-85)

<table>
<thead>
<tr>
<th>Reasons</th>
<th>1982-83</th>
<th>1983-84</th>
<th>1984-85</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Quantity</td>
<td>% to Quantity</td>
<td>Loss in Rupees</td>
</tr>
<tr>
<td>1. Rains</td>
<td>1021</td>
<td>25.2</td>
<td>61933.86</td>
</tr>
<tr>
<td>2. Putrefication and Sprouting</td>
<td>1504</td>
<td>36.86</td>
<td>91238.64</td>
</tr>
<tr>
<td>3. Natural Loss in weight</td>
<td>1555</td>
<td>38.12</td>
<td>94326.3</td>
</tr>
<tr>
<td>Total</td>
<td>4080</td>
<td>100.00</td>
<td>2,47,493</td>
</tr>
</tbody>
</table>

Less in Rupees is calculated by average price of respective year.
<table>
<thead>
<tr>
<th>Size Groups</th>
<th>No. of Cultivators (Hect)</th>
<th>1982-83</th>
<th>1983-84</th>
<th>1984-85</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quan. Quantity lost to</td>
<td>% as % of</td>
<td>Total</td>
<td>Quan. Quantity lost to</td>
</tr>
<tr>
<td></td>
<td>ste</td>
<td>Rupees</td>
<td></td>
<td>ste</td>
</tr>
<tr>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
<td>5.</td>
</tr>
<tr>
<td>00 - 2.00</td>
<td>102</td>
<td>1810</td>
<td>328</td>
<td>18.12</td>
</tr>
<tr>
<td>2.01-5.00</td>
<td>176</td>
<td>11000</td>
<td>1975</td>
<td>17.95</td>
</tr>
<tr>
<td>3.00 and</td>
<td>52</td>
<td>10225</td>
<td>1777</td>
<td>17.37</td>
</tr>
<tr>
<td>above.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>330</td>
<td>23035</td>
<td>4080</td>
<td>17.71</td>
</tr>
</tbody>
</table>

Less in rupees computed by average price of respective year.
### TABLE 7.11

**Changes in Grading Samples of Onion**
*(1973-74 to 1984-85)*

<table>
<thead>
<tr>
<th>Grading</th>
<th>Grading Samples (Nos)</th>
<th>Graded weight</th>
<th>Total Value of Graded Arrivals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
</tr>
<tr>
<td>1973-74</td>
<td>1262</td>
<td>6.06 (98.85)</td>
<td>266.53 (90.20)</td>
</tr>
<tr>
<td>1974-75</td>
<td>1040</td>
<td>5.81 (93.55)</td>
<td>227.94 (89.76)</td>
</tr>
<tr>
<td>1975-76</td>
<td>1568</td>
<td>6.43 (74.33)</td>
<td>177.92 (41.73)</td>
</tr>
<tr>
<td>1976-77</td>
<td>952</td>
<td>5.86 (78.55)</td>
<td>277.76 (65.42)</td>
</tr>
<tr>
<td>1977-78</td>
<td>1035</td>
<td>7.60 (89.41)</td>
<td>341.04 (76.77)</td>
</tr>
<tr>
<td>1978-79</td>
<td>1265</td>
<td>7.65 (88.64)</td>
<td>431.74 (78.99)</td>
</tr>
<tr>
<td>1979-80</td>
<td>641</td>
<td>8.58 (94.07)</td>
<td>580.49 (95.90)</td>
</tr>
<tr>
<td>1980-81</td>
<td>356</td>
<td>9.46 (92.47)</td>
<td>599.63 (89.79)</td>
</tr>
<tr>
<td>1981-82</td>
<td>520</td>
<td>8.94 (94.60)</td>
<td>722.50 (86.87)</td>
</tr>
<tr>
<td>1982-83</td>
<td>706</td>
<td>8.39 (87.57)</td>
<td>726.98 (77.25)</td>
</tr>
<tr>
<td>1983-84</td>
<td>618</td>
<td>11.03 (91.68)</td>
<td>800.38 (89.60)</td>
</tr>
<tr>
<td>1984-85</td>
<td>615</td>
<td>13.66 (96.53)</td>
<td>1017.22 (93.72)</td>
</tr>
</tbody>
</table>

*Source: APMC Lasalgaon*

Figures in brackets show percentage to total arrivals and total value of onion.
**TABLE 7.12**

Distribution of Cultivators According to Their Opinions About Grading.

<table>
<thead>
<tr>
<th>Opinions</th>
<th>Nos. of Cultivators</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Partiality in Grading/Dissatisfied</td>
<td>117 (35.45)</td>
</tr>
<tr>
<td>2. No. partiality in Grading/satisfied</td>
<td>212 (64.24)</td>
</tr>
<tr>
<td>3. Price as per Grades</td>
<td>124 (37.57)</td>
</tr>
<tr>
<td>4. No price as per grades</td>
<td>205 (62.12)</td>
</tr>
</tbody>
</table>