CHAPTER - 1

INTRODUCTION.

- CHAPTER-1 -

-: INTRODUCTION :-

I

AGRICULTURAL PROCESSING AS AN AID TO AGRICULTURAL PRODUCTION

There is a limitted scope for expanding agricultural production in India by extension of conventional farming systems to new lands. In nineteen fifties and early sixties as much as 60 percent of the increase in agricultural output was raised through extension of area. The possibility of further increases in the cultivated area in the usual sense are now considerably less. An infusion of science and technology is needed to intensify production on existing land. Agro-industries also can work as an incentive to enhancement of agricultural production.

The processing industries are one of the constituents of agro-industries. They convert raw produce of the farm into an usable product. The speciallized agro-processing industries not only involve the activities of processing but also packaging and moving the products from industry to the consumers. These include dairy plants, food processing firms, drying and canning units, meat packaging plants, fats and oil manufacturing firms, lumber mills, dehydration firms, grain mills and so on. Nowadays, the agro-processing industries are expanding gradually. Moreover, new methods in the food processing involve packaging, preparing and serving foods to the consumers. It has increased at a rapid rate. Most of these movements are aimed at giving the household more convenient and less difficult product for

meals. The processing adaptation is, sometimes, delayed because of cultural and social factors.

There was limitted scope for agro-processing when the processing technique was not developed. The product was processed at home and the market demand was limitted. When production process shifted from house to the industry, there was simultaneous emphasis on the division of labour and specialization. With specialization evolved technologies associated with materials utilization and handling. One output was made substitutable for another in production activity. The amount of substitution depends on the relative prices of the necessary factors of production. In addition, improved methods of transportation were evolved. New road and railway links were provided, new handling techniques (including refrigeration) were introduced and improved methods of communication relayed the current market news. Division of labour, specialization and technological change increased the sensitivity concerning farms, firms and plants culminating into increased supply of agro-based products.

II

- CONCEPT OF AGRO-INDUSTRIES.

Agro-industries include the activities concerning the inputs in the agricultural equipments, output, allied activities and transportation activities too. "Modern agriculture also includes the farm supply industries, i.e.

feed, seed, machinery, pharmacenticals, etc; as well as raw food in the form consumers want and move it to them. Often, these are referred to as agriculturally related industries or agri-business."[1]

The definition corresponds with that given by the Planning Commission of India. According to it, agro-industries are those activities, -

(1) which encourage input use into agriculre,

(2) which lead to better processing and conversion of agricultural products or commodities,

(3) which insure high returns on processed goods and

(4) which increase agricultural production.[2]

It means, therefore, that the agro-industries are instrumental to increased agricultural production and improvement in processing. The National Development Council also has corroborated the view of the Planning Commission. It may thus be observed that the agro-industries cover the production of seed, feed, machinery, fertiliser, etc. In addition to above activities the industries look to transforming raw materials into finished products and transporting them to the needy markets. Therefore, agro-industries include dairy plants, food freezing firms, drying

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1. Snodgrass, M.M. and Wallace, L.T., Agriculture, Economics and Resource Management, Prentice Hall of India Pvt. Ltd., New Delhi, 1977, p. 16.

2. Maharashtra Economic Development Council, Agro-Industries in Maharashtra - Problems and Prospects, 1970, p. 4.

and canning units, fats and oil manufacturing plants, meat packaging plants, food-grain mills, etc. for making the product convenient for final consumption. Conceptually, the agro-industries are those which are dependent not only on output of agriculture and allied activities, but also on the output in the agricultural equipment. In India, there is yet sufficient scope for development of agro-industries and it is said that agro-industries are pivot of Indian economy.

III

IMPORTANCE OF AGRO-INDUSTRIES.

India has a vast area under agriculture and its different parts vary in climatic situation, rainfall, fertility of agriculture, topography and the production system. So, there is appreciable scope for increasing production of different crops and products. Further, there are various types of existing and new processing and manufacturing industries based on diffierent crops and their by-products like cotton textile (spinning and weaving), gram and tur processing, sugar and jaggery manufacturing, fruit preserving, etc. Also, are simple processing activities like husking of paddy, crushing of groundnut, etc. for making the products ready for final consumption. Hence, it is quite clear that those industries can do much for the benefit of the society.

(1) A crucial long term socio-economic problem causing concern to the country in the post-Independence period is the problem of unemployment the incidence of which is very high

in the rural area. So, the manpower resources can be put to the use for tackling the problem of unemployment by introducing agro-industries.

(2) Due to centralization of industries in certain pockets of Maharashtra State, viz. Bombay, Pune, Nasik, Nagpur, etc., and similarly in other states problems of overcrowding of population, housing, transportation, water supply, drainage, slum, sewage, etc. are increasingly becoming acute and have adversely affected the social, cultural and individual life in such populous areas. A relief from the monotony of the congested living in unhygienic condition is offered by the agro-industries.

(3) Agro-industries can work as boosters for improving agricultural productivity. They create assured market for agricultural produce through vertical integration so that the cultivators are encouraged to use better farming methods, change in cropping pattern and wherever possible adoption of double cropping system. The outcome is the transformation of traditional and subsistence farming into commercial and technologically improved system.

(4) India is facing a two-fold problem through its rapidly increasing population. Inspite of great efforts to take population out of the agricultural sector it has not been possible to do so; on the contrary, the burden has increased marginally. In addition, the rural population is migrating on a large scale to urban areas in search of either seasonal or permanment jobs. Such a migration has created socio-economic problems for both the urban as well as rural people. Agro-industries offer a solace out of this unhappy

situation by providing employment opportunities in the rural areas. Hence, migration of people can be well checked, if, a number of large sized agro-based manufacturing units comeup in the areas of concentrated production of specific agricultural commodities. These units will be able to absorb some of the unwanted labour force from agriculture.

(5) Agro-industries merit as growth centres if developed on a substantial scale. The sugar factories can be cited as an illustration in this context. Cotton spinning mills, oil extraction plants, rice mills, fruits processing units, etc. are some more examples. These units have brought up around their periphery townships with basic amenities of modern living. Complexes are developed around the agro-industrial units which served as the nucleus of regional development. The agro-industries have thus come forth as fountains of industrial activities in the countryside.

(6) An obvious result of this phenomenon is a stimulus to the dispersal of industrial activities to the countryside. This is badly needed if the fruits of developmental activitées are to be enjoyed by the masses. These industries would be instrumental in rural transformation. Better work opportunities, longer duration of employment, modern outlook to work and work in vicinity of the place of living would result into better living of the rural people along with reduced inequalities in incomes and wealth.

In sum, the agro-industries, if developed consciously

with backward linkage to agricultural production, would help in making a strong headway towards the solution of the most troublesome problems of the country, viz. poverty, unemployment and inequalities.

IV

PULSES AS AN IMPORTANT COMPONENT OF HUMAN DIET.

India has to deal with the problems semi-starved and semi-naked growing population. So, the planners, economists and others are constantly concerned with the need to supply wholesome meal to the inhabitants. Most of the Indian people are not getting adequate food. And due to non-availability of required calories, their efficiency and capacity of production has remained pretty low. It is very necessary to maintain a nutritional balance in a general diet of the people of the country. This can be done by increasing the quantities of daily consumption of pulses. Pulses are one of the cheapest sources of protein in the Indian diet. Even then there is a declining trend in per capita availability of pulses. The per capita daily consumption of pulses in India was 75 grams in 1959, it dropped to 50.3 grams in 1971 and further to 30 grams in 1980. As against this, consumption of cereals hiked from 334 grams in 1950-51 to 384 grams in 1979-80. The underlying causes of this substitution were stagnation in the production of pulses and thereby soaring prices on the one hand and booming production of the cereals

leading to relatively lower prices on the other hand. Consequentely, it has caused an imbalance in Indian diet.

It is suggested by the nutritional experts that a right combination of cereals and pulses can produce a mutually supplementary effect. This is because pulses are different in tryptophane and sulphur but have a sufficient ~~krx~~ of lysine in which cereals are deficient. A mixture of cereals and pulses gives a high Protein Efficiency Ratio Value which favourably compares with that obtained from animal products.[3] Scrimshaw also mentions that since pulses have a high lysine and threonine content of protein and possess good supplementary value of cereal protein, they are main sources of concerntrated protein and the efforts at developing the availability of protein is of great economic significance.[4]

Of course, the determination of exact protein requirement is a complex problem. However, experts have made few estimates from time to time regarding Indian diet. The F.A.O. Committee on Protein Requirements (1957) indicated a minimum of 40 grams per capita per day. The Nutritional Advisory Committee (1958) suggested a minimum of 59 grams and the Indian Council of Medical Research (1959) suggested 45 grams. Sukhatme calculated minimum, medium and long term pulses requirements per capita per day as 104, 95 and 90 grams

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3. Chopra, Kusum and Swamy, Gurushri - Pulses, Sterling Publication Pvt. Ltd., 1975, p.6.

4. Ibid, p. 7.

respectively.[5]

Table 1.1 gives some estimates of the balanced requirement of different foods per person per day as calculated by the Indian Council of Medical Research.

Table - 1.1

Suggested balanced diet per person per day.

(grams)

Food items	For vegetarian	For Non-vegetarian	Overall average.
1. Cereals.	370	370	370
2. Pulses and nuts.	79	65	70
3. Leafy vegetables.	110	110	110
4. Other vegetables.	125	125	125
5. Fruits.	37	37	37
6. Milk and milk products.	241	154	180
7. Fat and oils .	35	39	38
8. Sugar and jaggery.	40	40	40
9. Fresh foods.	-	50	35

Note :- The table is based on a minimum caloric requirement of 2,357 and the protein requirement of 44.3 grams per person per day.

Source:-National Institution of Nutrition, Diet Atlas of India, Indian Council of Medical Research Hyderabad,1969,p.61.

5. Sukhatme, P.V., Feeding India's Growing Millions, Asia Publishing House, London, 1965, p.23.

These figures of requirements of pulses will be under estimates if people cannot afford to consume the minimum prescribed quantities of other high quality protein foods like milk, eggs, meat and fish. To that extent pulses are substituted for these other protein foods. If the recommendation of balanced diet of the Indian Council of Medical Research (ICMR), are accepted it is vivid from the accompanying graph & that the gap between the actual net availability and the required minimum is not only large but is growing over time. The other high protein foods like milks, meat, eggs, fish, etc. are in short supply and more expensive than pulses and, therefore, prohibitive for the low income class of consumers. So, the problem can be solved by considering the combination of cereals and pulses. And in this situation, it is very necessary to consider a judicious combination of the two that can produce and fulfil the protein requirement. For this purpose, Table 1.2 will be helpful to find out the availability of calories and protein in different foods.

(P.T.O. ...)

Table 1.2

Availability of calories and protein per Rupee Unit.

(at the wholesale prices of June 1968 to June 1969).

Food items	Price per 100 grams of edible portion. (Rs.)	Calories	Protein (grams.)
1.	2.	3.	4.
1. Rice (raw,milled).	0.107	3224.30	63.55
2. Wheat (Whole).	0.089	3887.64	132.58
3. Jowar.	0.065	5369.23	160.00
4. Bajra.	0.088	4883.64	156.93
5. Maize (dry).	0.062	5516.13	179.03
6. Ragi.	0.071	4619.72	102.81
7. Burley.	0.052	6461.54	221.15
8. Gram (Whole).	0.083	4337.35	206.02
9. Gram (Split).	0.110	3381.82	189.09
10. Tur (Split).	0.113	2578.92	171.54
11. Moong (Whole).	0.085	3929.41	282.35
12. Moong (Split).	0.140	2485.71	175.00
13. Urad (Split).	0.140	2478.57	171.45
14. Eggs (hen's).	0.500	346.00	26.60
15. Meat (beef).	0.170	505.88	114.12
16. Meat (Lamb).	0.460	256.52	46.52
17. Milk (Buffalo).	0.135	866.67	23.70

1	2	3	4
18. Fish (pompret).	0.440	197.73	38.64
19. Fish (prawn).	0.200	410.00	88.00

Source :- Chopra & Swamy, Pulses, Sterling Publishers Pvt. Ltd., New Delhi, 1975, p.10.

V

TRENDS IN THE CONSUMPTION OF PULSES IN INDIA.

The consumption of pulses is mostly dependent upon the prices of pulses and the production (i.e. supply of pulses). In recent years the position of pulses has become very acute on account of unsatisfactory production. Thereby the availability of per capita pulses has declined gradually over the planning period. Table 1.3 stands in testimony.

Table 1.3

Per capita per day availability of pulses in India.

years	Grams per day
1950-51	61
1955-56	70
1958-59	75
1960-61	60
1965-66	48
1968-69	47

1	2
1973-74	41
1974-75	40
1975-76	51
1976-77	44
1977-78	44
1978-79	45
1979-80	30

Source : 1) Government of India, Ministry of Food and Agriculture, Bulletin of Food Statistics, New Delhi, 1972, p. 149.

2) Commerce, Vol. 140, No. 3595, Bombay, May' 17, 1980, p. 832.

As compared with the peak level of 75 grams per capita per day in 1958-59,the per capita availability after 20 years, in 1979-80 was 40 percent lower. Between 1950-51 and 1979-80 while the per capita availability of cereals increased at an average annual rate of 0.9 percent, that of pulses declined at the rate of 1.1 percent per annum.

Another point. The demand for pulses in the country is more than their supply. The gap between demand and supply has been increasing gradually. Table 1.4 indicates the position of demand and supply of pulses for human consumption in the year 1980-81.

Table 1.4

Demand and Supply of pulses for human consumption in India.

(1980-81)

		Thousand metric tonnes
DEMAND :		
A) Total Demand.		
i)	Effective demand.	14,259.3
ii)	Required consumption. (on the basis of nutritional minima).	17,789.3
B)	Per capita per day demand.	56.2(grams)
SUPPLY :		
A) Total Supply :		
i)	On the basis of 1963-72 yield.	9,198.2
ii)	On the basis of growth rates of yield (as between 1963-66 and 1969-72).	11,552.3
B) Net availability per capita per day.		
i)	Assumption A (I)	36.3(grams)
ii)	Assumption A(II)	45.5(grams)

Note :1) V.K.R.V.Rao estimates that since pulses are used to a large extent for feed purposes, 22.5 percent of total production does not become available for human consumption.

2)The production is estimated on two different assumptions regarding yield. The first is that yield remains of the level of 1969-72. The second is that yield also increases at the same compound rate of growth as

between 1962-66 and 1969-72.

Source :- Kusum Chopra and Gurushri Swamy, Pulses : An analysis of demand and supply in India, sterling Publishers Pvt. Ltd., New Delhi, September'3, 1975, p. 71.

It is clear from this data that if India is to reach and maintain the standard prescribed by IMCR, it has to raise the per capita supply of pulses by almost 50 percent. And if the target of Sukhatame is taken the supply of pulses will have to be increased by a much larger proportion.

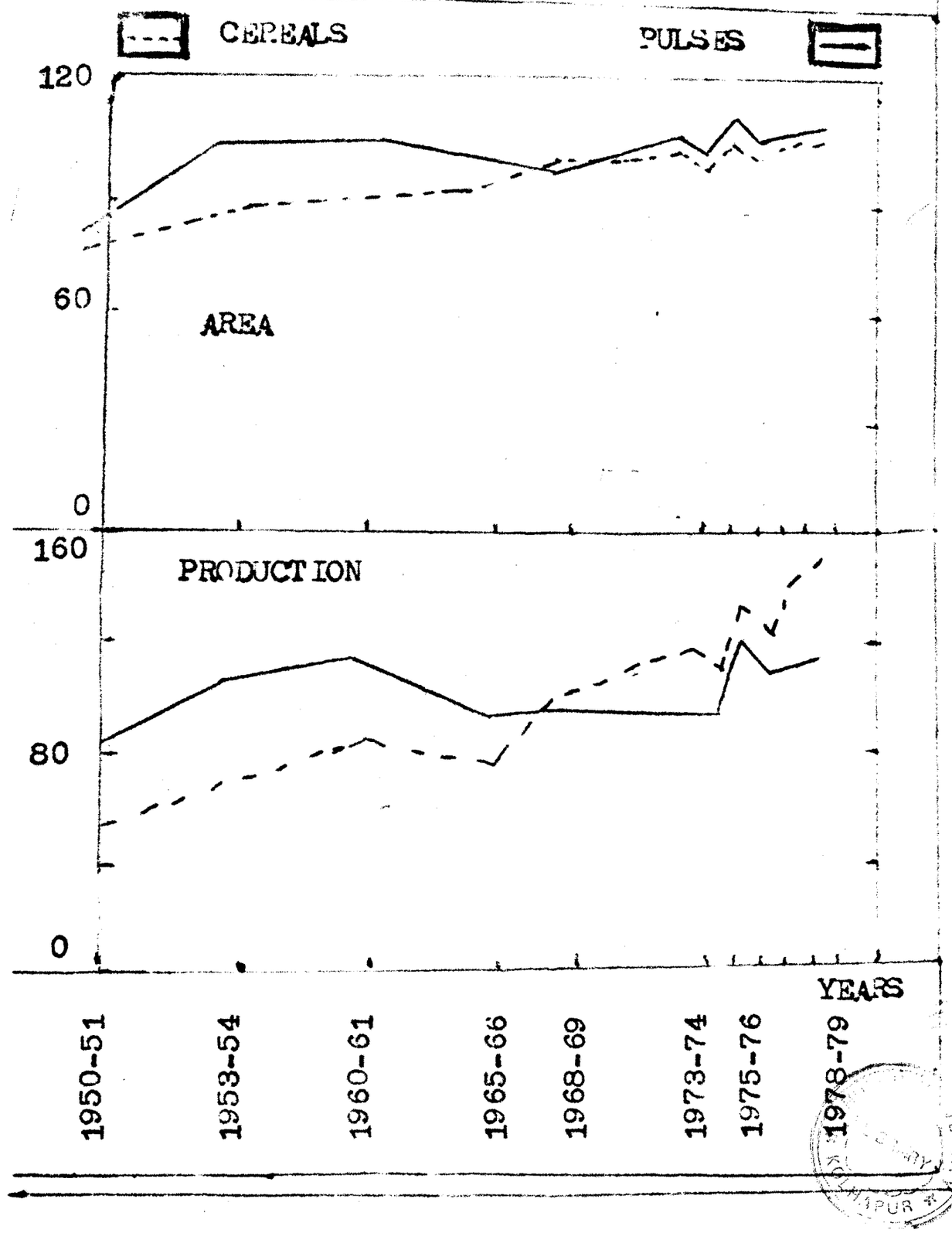
VI

TRENDS IN THE PRODUCTION AND PRICE OF PULSES IN INDIA.

A steadily declining supply of pulses is an important phenomenon in agricultural economy of India. As a result of it, the prices of pulses are increasing gradually. Therefore, their consumption is restricted. Cereals tend to get substituted for pulses whenever related prices favour such substitution. This has caused an imbalance in the diet of the people.

As a result of planned economic development irrigation facilities in several states have been increased. The new high-yielding varieties of wheat, rice, cotton, sugarcane,etc. have been introduced successfully. Consequently, there has been a shift in the production pattern. Pulses suffered in

TRENDS IN AREA AND PRODUCTION OF PULSES IN INDIA



the process. Rabi crop declined and most of the pulses are grown during the kharif season. The principal States producing pulses are Rajasthan, Uttar Pradesh , Madhya Pradesh and Maharashtra together accounting for 62 percent of total pulses production and 64 percent of total area under pulses in the country. Andra Pradesh, Bihar, Karnatak, Haryana and Orissa also contribute subtantially to the production of pulses. As regards productivity, it has been substantially above all-India average in Punjab, U.P. and Haryana. Table 1.5 presents statewise area, production and yield of pulses in India.

Table 1.5

Statewise area, production and yield of pulses in India.

States	Percentage share (Average for 1974-75 to 1978-79)		Yield in kg.per hectare (Average for 1974-75 to 1978-79).
	Area	Production	
1	2	3	4
Andra Pradesh	3.3	6.0	276
Assam	0.3	0.4	398
Bihar	6.4	6.4	506
Gujarat	1.4	1.9	380
Haryana	7.3	4.7	786
Himachal Pradesh	0.3	0.1	500
Jammu and Kashmir	0.2	-	551
Karnatak	4.6	5.6	408
Kerala	0.1	0.2	409

1	2	3	4
Madhya Pradesh	18.6	20.0	466
Maharashtra	8.9	12.1	372
Manipur	N.A.	0.1	408
Meghalaya	N.A.	N.A.	662
Nagaland	N.A.	0.1	447
Orissa	4.8	5.2	462
Punjab	2.8	1.7	828
Rajasthan	15.3	17.1	447
Tamil Nadu	1.4	2.4	299
Tripura	N.A.	N.A.	415
Uttar Pradesh	21.1	13.2	802
West Bengal	3.0	2.7	550
Andman and Nicobar	0.1	N.A.	425
Dadar and Nagar Haveli	0.1	NA.	501
Delhi	N.A.	0.1	679
Mizoram	N.A.	N.A.	450
Pondicherry	N.A.	N.A.	529
All-India	100.00	100.00	502.19

N.A. : Not Available.

Source : Commerce, Vol. 140, 17'May, 1980, p. 822.

The production of pulses-gram, tur, moong, udid, masoor, etc. in India has been broadly stagnant at 11.12 million tonnes for the two decades covering nineteen sixties and seventies. Between 1958-59 and 1978-79, the pulses production declined at the rate of 0.4 percent per annum (Table 1.6).

Table 1.6

Production of pulses in India : (1949-50 to 1979-80).

('000 tonnes)

Years	Gram	Tur	Other pulses.	Total Pulses	
				Toones	Percentage variation.
1	2	3	4	5	6
1949-50	3,726	1,016	3,417	8,159	-
1951-52	3,387	1,830	3,203	8,420	0.1
1955-56	5,418	1,861	3,766	11,045	0.9
1958-59	7,023	1,702	4,424	13,149	37.5
1961-62	5,785	1,367	4,603	11,755	- 7.5
1965-66	4,224	1,733	3,987	9,944	-19.9
1971-72	5,081	1,683	4,330	11,094	- 6.1
1975-76	5,879	2,099	5,061	13,039	30.2
1978-79	5,835	1,914	4,421	12,170	1.7
1979-80	5,350	1,790	4,200	11,320	- 6.8

Note : Other pulses include Kulthi, Math, Massor, Peas, Beans, etc.

Source : Commerce, Vol. 140, May 17, 1980, p. 822.

The best production of 13.1 million tonnes was achieved in 1975-76. However, the very following year 1976-77, the production dipped by nearly 13 percent. After that the production of pulses reached the level of 12.2 million tonnes in 1978-79 to fall again by abbout 7 percent in 1979-80 (a drought year) as against the target of 13.5 million tonnes for the year.

TRENDS IN PRICES

The ever-widening gap between supply and demand for pulses in the country has resulted into a sharp rise in their prices (Table 1.7).

Table 1.7

Index Numbers of Wholesale prices of pulses and cereals.

(Base : 1970-71 = 100)

Year	Average Index		Percentage change over previous year.	
	Pulses	Cereals	Pulses	Creals
1971-72	110.7	101.9	+ 10.7	+ 1.9
1972-73	137.9	115.8	+ 24.6	+ 13.6
1973-74	179.9	134.8	+ 28.3	+ 16.4
1974-75	215.7	191.8	+ 21.9	+ 42.3
1975-76	181.6	172.6	- 15.8	- 10.0
1976-77	145.7	154.1	- 19.8	- 10.7
1977-78	215.2	161.3	+ 47.7	+ 4.7
1978-79	247.1	157.6	+ 14.8	- 2.3
1979-80	244.3	173.2	- 1.1	+ 9.9

Source : Commerce, Vol. 140, 17 May, 1980, p. 823.

Between 1970-71 and 1979-80 the index of wholesale prices of pluses spurted by as much as 144 percentage points or at the annual average rate of 10.4 percent. Another interesting feature is that except in 1976-77, all along the nineteen seventies, the average wholesale price index of pulses remained higher than that of cereals. It may particularly be noted that fluctuations in the prices of pulses were very sharp.

VII

FRAMEWORK OF THE PRESENT STUDY.

1. OBJECTIVE

In dal production Barsi town has been an important centre and its products have earned a good name within and without Maharashtra State. Hence, the industry forms a good subject for an indepth study. So for this has remained a totally untouched subject. An inquiry into the development of dal industry in Barsi town since the initiation, factors leading to its growth, present position and specific problems would be much revealing. In other words, the present investigation purports to get acquainted with the birth and growth of an agricultural processing industry of long standing. Special objectives of the study are as under :

(1) To study the history and growth of Barsi town as a dal-making centre.

(2) To review the development of dal-making units in Barsi town.

(3) To inquire into assembling of pulses by the mills, processing them into dal and marketing of the produce.

(4) To know the present position and the problems of dal mills and look into the prospects of the industry.

2. HYPOTHESIS

Areas of concentrated production of certain agricultural commodities are normally suitable for development of the activities concerned with processing of the commodities privately or otherwise. Emergence of the processing units, a few on large-scale or many on small-scale, provides an opportunity for vertical integration in the agricultural sector. This kind of development sustains both the industry and the agricultural production activity. In addition the processing activity becomes a nucleus of the peripheral economy. Dal industry of Barsi town is a case in point.

3. METHODOLOGY.

Barsi town is the taluka headquarters of Barsi taluka; one of the 11 talukas of Solapur District. As Barsi town happened to be a pioneering place in dal-making activity in the district having a long standing since 1932, the choice of the place was purposive. For the investigation all dal-making units in the town as also all kinds of dals manufactured by the mills are covered. Manufacturing of tur dal is the principal activity of the mills; moong dal, udid dal and gram dal are the other products of some importance.

For the collection of data, records of dal mills have been scanned through besides the Annual Reports of the Agricultural Produce Market Committee, Barsi. In addition, records of Barsi Municipal Council were used along with the various government publications. Apart from these documentary sources, interview method was also adopted. Discussions were held with the proprietors of dal mills, principal officers in the mills and the pulses traders to know the matters in proper perspective and to elicit information on the points contained in the present study. Furthermore, the researcher himself observed the entire processing activity carried on in different mills so as to get acquainted with the particulars and understand their significance in proper perspective. Finally, books and articles relevant to the subject were also referred.

4. CHAPTER SCHEME

The study of Barsi dal mill is presented in five chapters as below.

Chapter One is an introductory one and deals with importance of agro-industries, pulses as an important component of human diet, trends in the consumption of pulses in India and trends in the production and prices of pulses in India. Besides, the framework of the present study is presented.

Chapter Two gives a bird's eye-view of Barsi town.

Chapter Three throws light on the development of dal industry in Barsi town.

Chapter Four delves into the details of processing and marketing activity of dal mills in Barsi town. It studies the sources of raw material, performance of dal mills, processing cost, production of dal, dispersion of finished products, channels of marketing, financial position of dal mills, and prices of dals.

Chapter Five brings forth the problems and prospects of the dal industry of Barsi and offers a few suggestions.

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