

Agricultural and Allied Products of Northern India during Early Medieval Period

Syeda Sadaf Ph.D A.M.U-Aligarh, 08650230299

Abstract

The present paper aims to study the agricultural and allied products of Northern India during early medieval period. Agriculture sector has always been the biggest employer and during the period of study large number of people were employed in cultivation of land. Crop produced during the period were not completely different from those grown earlier. Though it is difficult to countdown the number and varieties of agricultural products with minute detail yet literary as well as epigraphic evidences provide information regarding this. The whole study is based on primary source of information. Primary source of information which is used is mainly in form of literary and epigraphical evidences. Secondary source of information is also used to corroborate the ideas gleaned from the primary sources.

Keywords- Early Medieval Period, Northern India, Agricultural Products, Other Allied Products

I. INTRODUCTION

The bulk of people in India have always been cultivators and undoubtedly during this period too large numbers of people were employed in cultivation of land. A comprehensive study of the different sources clearly establishes the fact that the crops of India during the period were not completely different from those grown in earlier times. Paddy was the most important crop of the period. North India at that time produced most of the crops which have been continuously grown in historic period.¹ Thus in the present paper a humble attempt is made to study the agricultural and allied products of the period taking northern India as a unit of study.

II. OBJECTIVES

- i. The present paper is meant to fulfil certain specific objectives.
- ii. To enlist the chief crops of the period.

- iii. To mention other allied products viz, vegetables, fruits, spices, medicinal herbs etc.

III. METHODOLOGY

Historical as well as analytical method is used in the present study. The entire study is mainly based on primary source of information. Secondary data is also used to corroborate the ideas gleaned from primary sources.

IV. DISCUSSION

Infinitesimal enumeration of agricultural and allied products of the period is quite difficult. Kautilya's *Arthashastra* mentions various agricultural products.² A list of Indian grains is found in the commentary on *Abhidhanachintamani* by Hemachandra.³ Hemachandra enumerates the seventeen kinds of *dhanyas*. The word *dhanya* in his work is used in a wider sense and denotes grains in general, not merely rice. The seventeen kinds of grains as mentioned by Hemachandra are : (1) *vrihi* (rice that ripens during the rains) (2) *yava* (barley) (3) *masura* (lentils) (4) *godhuma* (wheat) (5) *mudga* (kidney bean) (6) *masha* (black gram another variety of kidney bean, *urad* in Hindi, *adad* in Gujarati) (7) *tila* (*sesamum*) (8) *chanaka* (chick pea) (9) *anava* (great millet; *juwar* in Hindi) (10) *priyamgu* (Italian millet-the Sanskrit synonym is *Kangu*) (11) *kodrava* (kodo millet) (12) *mayusthaka* (the aconite leaves, *moth* in Hindi math in Gujarati) (13) *sali* (rice grown under water and reaped during winter) (14) *adhaki* (pigeon pea, *Hindi arahar*)

2 *sali* (usually white rice), *vrihi* (rice), *kodrava* (*paspalumscrobiculatum*), *tila* (sesame), *priangu* (*callicarpamacrophylla*), *daraka* (?), *varaka* (*phaseolustrilobus*) are to be sown at the commencement (*purvavahpah*) of the rainy season. *Mudga* (*phaseolus radiates*), *masha* (*phaseolusmungo*), and *saibya* (a bean ?) are to be sown in the middle of the season. *Kusumbha* (*safflower*), *masura* (*lens culinaris*), *kulutha* (*dolichosuniflorus*), *yava* (barley), *godhuma* (wheat), *kalaya* (*pisumstivum*), *atasi* (linseed), and *sarshapa* (mustard) are to be sown in last. (R. Shamasastri, *Kautilya's Arthashastra*, Seventh edition, 1961, pp.127-131).

1 Puspa Niyogi, *Agrarian and Fiscal Economy of Eastern India*, p. 167, *Contributions to the Economic History of Northern India*, Calcutta, 1962, p. 23.

3 Hemachandra, *Abhidhanachintamani* CF. Puspa Niyogi, *ibid.* p. 23 and *Agrarian and Fiscal Economy in Eastern India*, p. 167, fn. 2.

(15) *kulatha* (horse gram) (16) *kalaya* (pea) and (17) *sana* (hemp, Bengal *san*).⁴ Two lists of grains are also found in Nemichandra's *Pravachanasaroddhara*,⁵ a work antedating Hemachandra with a commentary belonging to the 12th century A.D. One of these lists mentions twenty-four kinds of grains, the other one, twenty-five kinds.⁶ *Pravachana* records *anava*, *chana* and *mayusthaka*.⁷ The additional items furnished in one list are *yavavava* (a kind of barley), *cavalaka* (cow-pea), *krnacanska* (black chick pea), *valla* (climbing bean), *atasi* (common flax), *latva* (sunflower), *koradhushaka*, *barathi*, *siddhartha*, *ralaka*, *mulaka* (radish). The other list enumerates the crops as *swastika*, *triputaka* (chuckling vetch), *ikshu* (sugarcane) and *dhanyaka*.⁸ *Lekhapaddhati* documents also records the names of several fruits, seeds, and other products such as betel nut, coconut, pepper, Indian madder, sugar and molasses, and seeds of *pravala*, *maithi*, a kind of kidney beans (*mung*) etc.⁹

The common agricultural products of India are found referred in literary and epigraphic sources covering a wide range of period of time. These have been divided into two major heads by the scholars for the purpose of study; (i) those serving as staple food articles, (ii) those serving mainly as commercial articles.¹⁰ The crops have been further divided into several sub categories; i.e. corns and cereals, oil seeds, vegetables, fruits and herbs as the varieties of food product. The major commercial products of that time for the purpose of study may be divided into several sub-heads such as, sugarcane, cotton, hemp and other fibrous products as well as varieties of spices, dyes, medicinal herbs, flowers and plants, forest products and fodder.¹¹ However, these classifications cannot be regarded as scientific and precise.¹² Foreign travelers, especially Arab writers were very much impressed

with the flourishing agricultural condition and diversity of agricultural produce.¹³

i. Chief Crops

A. **Paddy** was, undoubtedly, the most important crop of northern India. Rice cultivation has an ancient history.¹⁴ Transplantation of paddy is mentioned by Kalidasa.¹⁵ *Krishparasara* mentions paddy as source of life.¹⁶ *Parasara* also emphasizes about the production of good quality of paddy as he considers the cultivation of paddy more important than possessing gold.¹⁷ *Rajatarangini* also mentions it as the chief crop of Kashmir.¹⁸ Cultivation of rice in Kashmir is also attested by other sources.¹⁹ Different varieties of paddy are mentioned in the *Desinamamala* and *Dvasrayakavya* of Hemachandra and in *Manasollasa*.²⁰ *Shunya Purana* mentions the cultivation of a lot variety of rice in Bengal.²¹ Sarvananda Vandyaghatiya in his *Amarkosha* commentary mentions several varieties of paddy, such as *vrihi*-harvested in rainy season, *asuvrihi*- a quickly ripening

4 *Abhidhanachintamani*, IV. 233. CF. B. N. S. Yadava, *Society and Culture*, p. 259.

5 Puspa Niyogi, *Agrarian and Fiscal Economy of Eastern India*, pp.167-68.

6 Ibid.

7 CF. Puspa Niyogi, *Economic History of Northern India*, p. 24.

8 Ibid.

9 *Lekhapaddhati* (Documents of State and Everyday Life from Ancient and Early Medieval Gujarat), Pushpa Prasad, p. 19.

10 S. M. Devi, *Economic Condition of Ancient India* (from A.D. 750 to A.D. 1200), p. 18.

11 Ibid.

12 Even the broader demarcation between edibles and commercial products are not correctly logical. All these produces can be labeled as both commercial and edible in accordance with their use.(ibid.)

13 Several muslim writers have praised the variety as well as quality of the agricultural produce of India. (Ibid.).

14 Rice cultivation began to spread from east and the earliest evidence of domesticated rice in India has come out from the upper Gangetic Basin, around 3000 BC. (Irfan Habib, *Technology in Medieval India c.650-1750*, Tulika Books, New Delhi, 2008, p.1).

15 R. S. Sharma, *Early Medieval Indian Society*, p. 292. Strabo reported the practice of rice transplantation in India in the early years of the first century AD, which represents a very important development in agricultural technology. By the time of Kalidasa (c. A.D. 400) it has become an established practice.(Irfan Habib, *Technology in Medieval India*, p. 02).

16 *Krishparasara*, op. cit., vv. 4-7, p. 63.

17 "People have to suffer starvation for want of rice even if they have gold in their necks, ears and hands."

(*Krishparasara*, v.5).

18 Rice has as far as we can go back, always been the largest and most important produce of valley. Its character as the main cereal is sufficiently emphasized by the fact that it is usually referred to, in the chronicles by the simple term of *dhanya* grain. (M. A. Stein (tr.) Kalhan's *Rajatarngini A Chronicle of the Kings Of Kashmir*, Vol. II, Book VIII, Chap. III, Section vii, Delhi, first ed. 1900, Reprint 1961,1979, p.427).

19 Thomas Watters, *On Yuan Chang's Travels in India (AD 629-645)* London, 1905. CF. Irfan Habib and Faiz Habib, *Atlas of Ancient Indian History*, New Delhi, 2012, p.105.

20 Hemachandra has mentioned several *desi words like anuo, jonnalia (DN,I,52; DN,III,50.)*, and has also mentioned *salidhanya*, harvested during the season of autumn.(*DV,III ,vv.4-5*) CF. A.K. Majumdar, *Chalukyas of Gujarat* , p. 257. *Manasollasa*, III, 1346-48, 1358.CF.B.N.S Yadava, *Society and Culture*, p. 258.

21 There is a mention of more than hundred varieties of rice in *Sunya Purana*. (Puspa Niyogi, *Agrarian and Fiscal Economy*, Appendix-I, pp. 190-193).

variety of paddy known in Bengal as *borodhan*, *jombula* or *devadhanya*, *priyangu* or *kangani* variety of paddy.²² Some villages in south-eastern Bengal with *boraka* name-endings were probably so called for the cultivation of *boro* variety of paddy.²³ Inscriptions covering the period from tenth to thirteenth century of Assam, Bengal, Punjab, Malwa, Madhya Pradesh, Uttar Pradesh, Western India etc. also provide the similar informations.²⁴ The inscriptions of Assam, frequently mentioned rice as an important crop. Infact in Assam land is measured on the basis of the quantity of rice produced.²⁵ Inscriptional evidences also strengthen this statement. The Nowgong Copperplate of Balavarman²⁶ mentions a piece of land whose area is indicated by stating that it produces four thousand measures of rice.²⁷ Similar references are also found in some other land grants of Assam.²⁸ In the region of Assam and Orissa another variety of paddy known as *xali* is found mentioned which could be raised only through transplanted.²⁹ It was different from *vrihi* which was grown through sowing.³⁰ Bengal was another important rice producing area.³¹ *Ramacharita* mentions paddy plants of various kinds grown in Varendri.³² The inscriptions of the Sena kings mention 'smooth fields' growing excellent paddy and a vast number of villages consisting of land growing paddy in excessive quantities.³³ Ibn Batuta's account also enforces the fact that Bengal abounds in rice.³⁴ In the Panahera inscription of the time of Jayasimhadeva of Paramara dynasty of Malwa (V.S. 1116) grants of rice fields are noted.³⁵ Rice is also mentioned in the Chamba Copper plate of Somavarmadeva and Asatadeva,³⁶ the Mathura Prashasti of the reign of

Vijayapala of Kanauj (V.S. 1207),³⁷ and the Binnal stone inscription of Udayasimhadeva of the Chahmana dynasty (V.S. 1306).³⁸ Mathura Prasasti of the reign of Vijayapala (vs.1207) refers that Jajja an individual of a kashtriya race, supervising the trustees (*goshtikana*) of a temple of Vishnu built by himself with help of trustees made an endowment to God Vishnu consisting of two houses and rows of shops, a garden a *goniprasriti* of rice (*anna*). The term *goniprasriti* is however unclear. It appears that a *goni* is large measure equal to four *kharis* and *prasriti* is a handful equal to two *palas*. The quantity of rice was probably meant for the *naivedya* offerings.³⁹ The specific mention to weight, size and flavor of a particular variety of rice denotes its excellence and fineness in quality.

Sometimes rice was used as a medium of exchange in Kashmir.⁴⁰ *Ras Mala* mentions that the cultivators' wives were guarding the ripening rice crops in the plains.⁴¹ However, it is difficult to fully ascertain as to what method was employed in the cultivation of paddy.⁴² The land was cultivated twice and the method of cultivation was practically same as followed in modern times.⁴³ The evidence to digging up the clump of rice and replanting them is also found.⁴⁴ The use of fertilizer is also evident from *Naisadhiyacharitam*.⁴⁵

On the basis of the above literary and inscriptional evidences, it can be concluded that from the Vedic period onwards, paddy was the chief crop of northern part of the country throughout its length and breadth and this period also did not divert from the track once laid and followed.⁴⁶

B. Wheat

The next important crop was **wheat**. The study of the lexicons⁴⁷ of the period and literary works, indigenous⁴⁸ and foreign⁴⁹ as well as inscriptions,⁵⁰

22 B. P. Mazumdar, *Socio Economic History of Northern India (1030-1194 A.D.)*, p. 177.
 23 Ranbir Chakravarti, *Exploring Early India*, p. 323.
 24 Puspa Niyogi, *Contributions to the Economic History of Northern India*, pp. 25-27. See also S. M. Devi, op. cit., pp. 19-23.
 25 Puspa Niyogi, *ibid.*, p. 26.
 26 *Ibid.*
 27 *Ibid.*
 28 *Ibid.*
 29 R. S. Sharma, *Early Medieval Indian Society*, p. 292.
 30 *Ibid.*
 31 Puspa Niyogi, *Economic History of Northern India*, p.26.
 32 *Ibid.*
 33 *Ibid.*
 34 *The Rehla of Ibn Battuta*. CF. *ibid.*
 35 *EI*, Vol. XXI, p. 42 ff.
 36 *IA*, Vol. XVII, p. 7 ff.

37 *EI*, Vol. I, p. 287 ff.
 38 Besides rice, *godhuma* i.e. wheat and *mung* pulse are also mentioned. (*EI*, Vol. XI, pp.55-58).
 39 *EI*, Vol I, p.288 fn.3.
 40 Puspa Niyogi, *Economic History of Northern India*, p. 26.
 41 *Ras Mala*, p. 42.
 42 S. M. Devi, op. cit., p. 23.
 43 *Ibid.*
 44 *Ibid.*
 45 *Naisadhiyacharitam* of Sri-Harsa.III.21, XXI.153. CF. *ibid.*
 46 *Ibid.*, p.22.
 47 *Paryayaratnamala* of Madhavakara. CF. *Ibid.*
 48 *Niyatalakanda* of Laxmidhara, 396-97; *Krtyaratnakara*, pp. 257, 278. CF. *Ibid.*
 49 Irfan Habib (op. cit. p. 105) also mentions the production of wheat especially in upper Gangetic Basin quoting the account of Watters. See also Elliot and Dowson, *History of*

reinforce the point that Punjab, Uttar Pradesh,⁵¹ Rajasthan and Sindh were the important wheat producing areas during that time.⁵² Wheat was also cultivated into the Kuruksetra and Delhi area.⁵³ Bhinmal Stone Inscription of Udayasimhadeva, v.s.1306 makes a reference to *godhumapakva* which scholars think a crop of wheat ready for being reaped.⁵⁴ Dabkund Stone Inscription of Vikramasimha, mentions about wheat. The place, where the inscription is found is situated 76 miles to the south west of Gwalior.⁵⁵

C. Yava or barley was another crop widely cultivated in all parts of northern India from very early times. Inscriptions of Rajputana specifically refer to its cultivation.⁵⁶ In Kashmir, a festival was observed on the day on which barley became ripe.⁵⁷ Alberuni also records the crop of barley.⁵⁸

D. Pulses

There are ample references to pulses namely, *mudga* (both black and yellow varieties), *kalyaya* (pea, *chanaka*, or chick pea), *kulaththa* (horse-grain), *masura*, *valla*, *adhaki*, *masa* and *rajamasa* as mentioned in lexicons.⁵⁹ Some inscriptions of early medieval northern India also refer to a variety of pulses.⁶⁰ Merutunga's account suggests the good production of gram pulse.⁶¹

E. Oil Seeds

-
- India as told by its own Historians*, pp. 15-16 and introduction, p. 54.
- 50 *EI*, Vol. XI, pp.55-58.
- 51 *Ukti-Vyakti-Prakarna* of Pandit Damodar Sarman was first noticed by C. D. Dalal and published by Jinavijaya Muni in the Singhi Jain Series, Bhartiya Vidya Bhawan, 1953, the text contains some important data on agriculture around the region of Varanasi in 12th century. (Dev Raj Chanana, 'Data on Agriculture Around Varanasi', in R. N. Dandekar et.al. (ed.), *Sanskrit and Indological Studies. Dr. V. Raghavan Felicitation Volume*, p.85).
- 52 S. M. Devi, op. cit., p. 23.
- 53 Dashrat Sharma, *Early Chauhan Dynasty*, Delhi, 1959, p. 298.
- 54 *EI*, Vol. XI, 57.
- 55 *EI*, Vol. II, 236).
- 56 *EI*. Vol. X.,50 and Vol. XIV, 303.
- 57 *Nilamata Purana*, vv. 696-697.CF.B.P.Mazumdar, op. cit., p. 181.
- 58 Alberuni quoting Varahmihira states that 8 barley corns put together are equal to *Iangula*, i.e. finger (E. C. Sachau, *Alberuni's India*, op. cit., pp.166, 161).
- 59 *Abhidhanaratnamala*, II, 425-29, 110.CF. S. M. Devi, op. cit., pp. 24-25.
- 60 *EI*, Vol. XI, p. 56 ff.
- 61 *Prabandhachintamani*, op. cit., p.106.

Amongst oil seeds mustard, *tila*, *jartila* and *alasi* are found in the lexicons.⁶² *Prabandhachintamani* refers to mustard and *gunja* seeds.⁶³ Sesame, Sanskrit *tila* has its ancient history.⁶⁴ Kautilya also mentions it to be cultivated during the rainy season.⁶⁵ Aparaka (c.1100 A.D.), in his commentary on *Yajnavalkya Smriti* stated that rice cooked with sesame called *palaudana* is offered to God Vinayaka.⁶⁶ Manasollasa, an encyclopaedic Sanskrit work composed by Chalukya king Somesvara (c. 1130A.D), mentions that the perfumes containing sesame were applied on the king's body during bath.⁶⁷

F. Sugarcane

Sugarcane was one of the most important commercial products of India. There are innumerable references to its cultivation in ancient India.⁶⁸ Kautilya also refers about its cultivation.⁶⁹ The sources of the period provide information regarding the regions which have been famous for its production, the method employed in its cultivation and the manner of its utilisation. *Amarkosa* mentions that sugarcane was cultivated in the fields where rice used to be grown and harvested generally in winter.⁷⁰ According to *Sandhyakaranandi* Varendri was famous for sugarcane cultivation this evidence has also been supported by other sources.⁷¹ That Sindh and Gujarat produced sugarcane is proved by the accounts of the Muslims writers.⁷² Kalhana refers to its cultivation in Kashmir.⁷³ There is also reference of sugarcane in *Prabandhachintamani* of Merutunga. Narrating one of the stories Merutunga notices the degradation of

-
- 62 *Abhidhanaratnamala*, II, 426-428.CF.S.M.Devi, op. cit., p.25.
- 63 *Gunja* seeds were used by the goldsmiths as smallest weights for weighing gold. (*Prabandhachintamani*, op. cit., p. 61, fn. 3).
- 64 K. L. Mehra, 'History of Sesame in India and its Cultural Significance', Y. L. Nene (ed.), *Glimpses of Agricultural Heritage of India*, op. cit., pp. 596-604.
- 65 R. Shamasastri (tr.), *Kautilya's Arthashastra*, op. cit., pp. 129-133.
- 66 K. L. Mehra, op. cit., p. 597.
- 67 Ibid.
- 68 S. M. Devi, op. cit., p. 36 and related footnotes.
- 69 Kautilya considers the cultivation of sugarcane crop as worst, for being subject to various evils and require much care and expenditure to reap. (*Kautilya's Arthashastra*, op. cit., pp.129-133).
- 70 S.P. Raychaudhari, 'Agriculture', D. M. Bose et.al.(eds.), *A Concise History of Science in India*, p.363.
- 71 S. M. Devi, op. cit., p.37.
- 72 Elliot and Dowson, *History of India*, I, pp. 16-16, 24, 27-28, 35, 37-40.
- 73 *Rajatarangini*, II. 60, VII.1574.

sugarcane crop by putting the following words in the mouth of a woman “In old times a stalk of sugarcane contains enough juice in all to fill a pitcher together with a *vahatika*, but now that a king’s mind is evilly disposed towards his subjects, for a long time a stalk of sugarcane has yielded enough juice to fill a *vahatika*; this is the cause of my distress.”⁷⁴ Sources mention three varieties of sugarcane, i.e. red, black and white, to have been grown in Assam, which excels in softness and sweetness.⁷⁵ Bana mentions the unbroken rows of the fields of *paundra* variety of sugarcane.⁷⁶ Sugarcane was reaped in winter as evident from the study of *Upamitibhavaprapanchakaha* and the works of Kalidasa.⁷⁷ There was a plenty of cultivation of sugarcane in Rajasthan along with other agricultural goods which led to the rural prosperity by facilitating trade between urban and rural areas.⁷⁸ It can be said on the basis of extant evidences that there was practically no difference in the planting and harvesting times of sugarcane from those of the present days and it was cultivated almost in whole of northern India.

G. Cotton

Cotton was another important commercial product of the country. Gujarat and Bengal were two main cotton growing centers, according to the writings of the foreign travelers.⁷⁹ Marco Polo, states ‘they (i.e. the Bengalees) grow cotton in which they drive a great trade.’⁸⁰ Inscriptions of Rajasthan also mention cotton as an important article of trade along with other agricultural and non-agricultural products.⁸¹ The silk cotton was obtained from the trade called *salmali*. From the Chandella records it becomes clear that cotton was an ordinary product of country.⁸² Orissa had also its cotton plantations. The Arthuna inscription of Parmara Chamundaraja makes it clear that cotton was a

trade article.⁸³ The other fibrous products were hemp and flax. Chakrapanidatta (11th century A.D.), author of *Sabdacandrika* mentions the *bhanga*, (hemp) plant.⁸⁴ The leaves of plant were generally used for preparing a particular type of drink. The *Abhidhanaratnamala* records the fields in which *bhanga* was grown.⁸⁵ Flax is also referred as a variety of Bengal *sana*.⁸⁶ The Chandella records refer a word called *sana*.⁸⁷ This may suggest that Central India at least during the Chandellas was the land for its production.⁸⁸

H. Indigo

Besides the above agricultural crops, **Indigo** used to be extensively cultivated in western India. According to Marco Polo there was plenty of indigo in Gujarat.⁸⁹ That indigo grew in Bihar (Champaran district) and Uttar Pradesh from long time before is well known.⁹⁰ Hemachandra also mentions about the indigo colour.⁹¹

ii. Other Agricultural and Allied Products

A. Vegetables

Sources also mention about the cultivation of different varieties of vegetables. Kautilya categorised vegetables as of intermediate nature.⁹² Kashyapa suggests that farmers should cultivate delicious vegetables like *jatikarasijatika*, *valhika*, *patolika*, *sanaka*, *pumpkin*, gourd, *karala*, *haldi*, ginger etc.⁹³ Various kinds of vegetables (*sagas*) are also mentioned by the muslim writers.⁹⁴ *Amarkosa* mentions cucumber, onion, pumpkin, gourd etc.⁹⁵ Mashrooms were also used as vegetables.⁹⁶ Onion and garlic are also mentioned.⁹⁷ The Deopara inscription of king Vijayasena too refers to certain

74 C. H. Tawney (tr.), *Prabandhachintamani* of Merutunga, Indian Book Gallery, Delhi, 1982, p.70. *Vahatika* is Gujrati *vati*, which meant as a vessel of metal or anything like a cup. (ibid., p. 70, fn. 3).

75 S. M. Devi, op. cit., p. 37.

76 E. B. Cowell and F. B. Thomas, (trans.), *Harsacarita* of Banabhatta, Delhi, 1961, pp.94, 229.

77 B. P. Majumdar, *Socio-Economic History of Northern India (1030-1194 A.D.)* Calcutta, 1960, p. 180.

78 S. R. Sharma, op. cit., pp. 202-203.

79 The merchant Sulaiman says that the kingdom of Rahimi was a great emporium of cotton cloths. His statement is supported by other Arab writers. Marco Polo states that Bengal produced cotton fibers, which had a great market. (C.F.S.M. Devi, op.cit., pp.38-39, fn.1,2,3).

80 C.F. Puspa Niyogi, *Agrarian and Fiscal Economy*, op.cit., p.175.

81 S.R. Sharma, op.cit., p.205.

82 *EI*, Vol. XX, No.14b, p.150.

83 *EI*, Vol. XIV, pp.295ff.

84 Puspa Niyogi, *Agrarian and Fiscal Economy*, op. cit., p.177.

85 Ibid.

86 S.M. Devi, op. cit., p. 41.

87 Ibid.

88 Ibid.

89 A.K. Majumdar, *Chalukyay of Gujarat*, op. cit., p. 258.

90 S. M. Devi, op. cit., p.43.

91 C.F. A. K. Majumdar, op. cit., p. 259.

92 Kautilya puts rice as the best, vegetable of intermediate and sugarcane as worst crop. (*Kautilya’s Arthashastra*, op. cit., pp.129-133).

93 G. C. Chauhan, op. cit., p.93.

94 Ibid.

95 S.P. Raychaudhuri, ‘Agriculture’, op. cit., p.362.

96 S. M. Devi, op. cit., p.25.

97 Ibid.

vegetables.⁹⁸ *Rajatarangini* also mentions the lotus root named *visa*, used as vegetable.⁹⁹

B. Fruits

Besides vegetable, the sources also provide a long list of fruits grown in the country. Mango was much relished in India and has an ancient history. Ashoka mentions mango orchards; perhaps it was the very first reference to the fruit.¹⁰⁰ *Brahmavaivarta Purana* also considers it auspicious and one of the best trees to be planted.¹⁰¹ There are a number of load of references to the effect that mango trees were grown in almost every part of the country. One of the Arab travelers also mentions not about the cultivation of mango but also its abundance as he records that its price was low.¹⁰² Banana was also one of the most popular of the fruits cultivated.¹⁰³ *Krsiparasara* also suggests its cultivation.¹⁰⁴ Grape was another popular fruit of the country. Kalhana designates grapes and saffron among the things that even in heaven are difficult to find but are common in Kashmir region.¹⁰⁵

Arab traveler also mentions the cultivation of date and lemon.¹⁰⁶ Coconut was also cultivated in India. *Brahmavaivarta Purana* also appreciates the plantation of coconut tree and considers it a source of wealth for the family.¹⁰⁷ The arrival of coconut, a very crucial product for the pre-modern economy of western coast, was first attested at Arikamedu near Pondicherry in the first century BC, and it apparently became widespread on the western coast only in the second century A.D.¹⁰⁸

Varieties of cucumber class of fruits are referred to as being grown on cultivated fields. Orange,

lemons, citrus, tamarind, figs, wood apple, almond, pomegranates, pears, plantations, dates, tamarind etc. are mentioned in inscriptions as well as literary texts.¹⁰⁹ That the country was abounded by fruits, flowers is indicated by a variety of fruits as mentioned in eye witness accounts. Ibn Haukal and Bushari provide ample testimony in eye witness accounts. this regard, especially about Sindh and Multan as having gardens of green fruits.¹¹⁰

C. Spices and other products

Jiraka (cumin seeds), *ardraka* (ginger), *pippali* (dry ginger), *camphor* (karpura) and *saffron* (kumkum), *maricha* (black pepper), *sunthi* (dry ginger) are mentioned in the lexicon.¹¹¹ In Dvaraka region, cloves and cardamom were grown.¹¹² Ginger was also produced in Kashmir.¹¹³ *Kumkum* and *Kesara* seem to be the ordinary products of Kashmir.¹¹⁴ Sources also provide names for turmeric, ginger, cumin seeds, long pepper, pepper, mustard, camphor, *tejpat* etc. as important products of Assam.¹¹⁵ Betel-leaf and betel nuts were also widely cultivated in India. The production of betel leaf and betel nuts may also be inferred from Alberuni's account.¹¹⁶ *Prabandhachitamani* mentions about the use of *Pan* or betel leaf along with other ingredients.¹¹⁷ Inscriptions of tenth century Rajasthan also refers about betel leaves brought to market along with other agricultural and non-agricultural products.¹¹⁸

Prabandhachintamani also mentions about the use of palm leaves as fans held in hand in summer and sandal wood ointment to anoint the cloths of the kings and upper class elites.¹¹⁹ A specific variety of wood known as *khadira* was used for making

98 *El*, Vol. I, 11.21-22, v. 23.

99 *Rajatarangini*, VIII.676.

100 Irfan Habib, *Technology in Medieval India*, op. cit., p. 2.

101 *Shrikrishna Jamma Khanda*, chap.102. CF. G. P. Majumdar, *Upavana-Vinoda*, op. cit., p. 8.

102 Abu Ishak Al Istakhari, *Kitabul Akalim* in Elliot and Dowson, *History of India as Told by its Own Historians*, Low Price Publication, Delhi, 2008, Vol. I, p.26. The date of his journey as well as the date of his composition is not certain, but he must have written this account about the middle of the tenth century A.D. (Ibid).

103 T. C. Dasgupta, *Aspects of Bengali Society from old Bengali Literature*, University of Calcutta, 1935, pp. 237-38.

104 Parasara mentions the use of banana leaves to serve the various delicacies (*Krsiparasara*, op.cit., Introduction, p. xvi).

105 *Kalhana's Rajatarangini*, op. cit., book VIII, chap. III, sec. vii, pp.428-29.

106 Elliot and Dowson, op. cit., Vol. I, p.26.

107 G. P. Majumdar, *Upavana Vinoda*, op. cit., p. 8.

108 Irfan Habib, *Technology in Medieval India*, op. cit., p.2.

109 S. M. Devi, op. cit., pp. 26-36, see also Puspa Niyogi, *Agrarian and Fiscal Economy*, pp. 177-180, also see the *Contribution to the Economic History of Northern India*, pp.34-37.

110 S. M. Devi, op. cit., p.36.

111 Ibid., pp.41-42.

112 *Sishupalavadha*, pp. 87-88, vv.70-81.CF. ibid., p. 42.

113 *Rajatarangini*, VIII. p. 141.

114 Ibid., VIII, Chap.III, Sec.vii,pp.428-29.

115 S. M. Devi, op. cit., p. 42.

116 While discussing about the permitted and prohibited food articles for Indians, he records that it was told to him that brahmanas must strengthen their stomach by eating the leaves of betel and by chewing the betel nut after dinner. (*Alberuni's India*, op. cit., Vol. I, p. 152).

117 *Prabandhacintamani*, op. cit., p. 68.

118 Rajor inscription of Mathanandeva, AD 959, *El*, Vol. III, pp. 263F.; Hastikundi inscription of Dhavala, A.D 997; *El*, Vol. X, pp.20f. See also S. R. Sharma, *Society and Culture in Rajasthan*, p. 205.

119 *Prabandhachintamani*, op. cit., p. 49.

charcoal.¹²⁰ Camphor was also used as perfumes.¹²¹ Kalhana mentions the sandal trees while discussing the soothing effect of it.¹²²

Henna or *mehndi* is regarded as important products, the origin of which may be traced as the early introduction from the Islamic world.¹²³ P. K. Gode traced a reference to *henna* under the Indian name *mendi* in eleventh century text of Gallana, where its use as skin dye is explicitly referred to.¹²⁴ Dallana (c.A.D.1100), the Kashmirian commentator of *Susrutsamhita* mentions *mendi* with its use for colouring the nails etc.¹²⁵

iii. Medicinal Herbs

In the lexicons, a number of terms indicating the names of medicinal herbs are found, e.g. *aga* (a tree), *amalaki*, *aragavadha*, *usira* (fragrant root), *osadhi*, *kantakarika*, *karvira*, *karahata* etc.¹²⁶ *Prabandhachintamani* mentions about the use of saffron, musk and camphor for medicinal purpose.¹²⁷ Musk (two *palas*) was used for preparing ointment to cure headache. Juice of the root of full grown *karira* was also applied as ointment for headache.¹²⁸ In fact medicinal herbs were also an object of trade are found recorded in Kumarapalacharitas.¹²⁹ The medical science, however did not record as much advancement as in the modern days.

V. CONCLUSION

From the above account it may be deduced that the agricultural methods employed along with season, did not considerably differ from earlier or what they are in the present time. Paddy continued as the chief crop of the period. Most of the crops and other agricultural products remained same as grown in earlier period and the cultivation of these persisted

even now. The cultivation of cash crops, undoubtedly, led towards the progress of long distance trade, resulting in turn to the economic prosperity of the country at that time.

List of different kinds of paddy as mentioned in ShunyaPurana:

1. Joudhan
2. Jhighira
3. Amla – Myrobalan
4. Alachit
5. Phaphari – the black rice
6. Sanakharki – straw like
7. Durga bhog – offering for the goddess Durga
8. Angikal
9. Muktahar – the pearl necklace
10. Kalmugra – the black club
11. Nagaryuyan – youthful lover
12. Tulasali – cotton like Sali
13. Asati – unchaste
14. Bak-cowrie – the white cowry
15. Gotampalal
16. Pangu-sia – the faded
17. Bhad-mukhi – the Bhadoi
18. Talsa-dhan – the cotton white paddy
19. Dudhuraa – milk-white
20. Gujura – Gujarati (?)
21. Yoja-ali – yoke-shaped
22. Dar – the oar-shaped
23. Hathi-Panjar – the elephant's rib (in hardness)
24. Bura Matha – the ripe Datura
25. Hatia
26. Hutia
27. Kaa
28. Tilsagari
29. Lata-mou – honey of a creeper
30. Mau-kalas – the jar of honey
31. Khajur-chari – the bunch of dates
32. Parvat Jira – the cumin seed of the mountain
33. Gandha-Tulsi – the holy basil (*Ocimum sanctum*)
34. Dala-guri
35. Bandhi – the prisoner
36. Basgaja
37. Sitasali – the Sali rice bearing the name of Sita
38. Huccoli
39. Harikali
40. Kusum Sali – the Sali rice resembling the beauty and scent of a flower
41. Rakta-Sali – the red sali
42. Chandansali – the sandal-scented Sali
43. Rajdal – the vanquisher of kings,
44. Ura-Sali – the flying Sali (due to lightness)
45. Vindhya-Sali – the Sali rice of the Vindhya region

120 Ibid., p.65, also see p.189.

121 Ibid., p.156.

122 While praising Jayasimha (1128-49), the Kashmiri king, for his generosity, Kalhana compares him with sandal tree by stating that 'he was soothing to his enemies like sandal tree, which while burning gives delight to one sets it to fire' (*Rajatarangini*, Vol. II, Book VIII, PP.183-84).

123 Irfan Habib, *Technology in Medieval India*, op. cit., p.6.

124 Ibid.

125 P. K. Gode, 'History of Mendi or Henna (Between B.C.2000 and A.D. 1850)', *Studies in Indian Cultural History*, Vol. I, pp. 351, 356.

126 S. M. Devi, op. cit., pp.43-44.

127 *Prabandhachintamani*, op. cit., p.26.

128 Ibid., p.81.

129 *Kumarapalacharita*, II.50. Cf. V. K. Jain, *Trade and Traders in Western India*, p. 218.

46. Lau-Sali – the Sali rice resembling a long gourd
47. Ajanasali
48. Kalakartik – the black beauty
49. Maghi
50. Khirkamba
51. Pachal
52. Rasaja – best taste
53. Kamad – bestower at will,
54. Khud-dudhu-raj – tiny milk white grains
55. Javana – coming from Java
56. Baki – the bent
57. Mula – the radish
58. Pipirah – the ant
59. Kakachi
60. Madhavalata – the Madhavi creeper
61. Bagunbichi – the brinjal seed
62. Kotamata
63. Raigarh – coming from Raygarh
64. Tojana
65. Arbor
66. Kumar-bhog – a prince's meal
67. Jalarang – the rice which makes the water red (perhaps after being boiled),
68. Kanakahar – yellow coloured (lit. thief of gold)
69. Lalkamani – the red-complexioned girl,
70. Sholpona
71. Pachaha-bhog – the offering for the Padishaha (the emperor)
72. Bukhi
73. Ajana Lakshmi – the unknown prosperity
74. Basmati
75. Pashi,
76. Kad – Bestower at will
77. Gandha-malati – name of flower gandhamalati
78. Ampaban
79. Gayabali – the sand of Gaya
80. Pathra – stony
81. Masilot
82. Jhingasal
83. Samadhuna
84. Hari-bearing the name of the God Hari (Visnu)
85. Tangan
86. Su-asan – the comfortable seat
87. Mahipala – Pala king
88. Baksal
89. Mangalan – the bestower of bliss
90. Bakchor
91. Puan – the Estern
92. Bidi
93. Gari – the snail
94. Gopal – Gopal, the Pala king
95. Hura
96. Baskata
97. Marich – Vangueria spinosa
98. Ajay – the unconquerable
99. Amol
100. Palia
101. Dawa – obligation
102. Bira
103. Boy
104. Latra

Source : Puspa Niyogi, *Agrarian and Fiscal Economy in Eastern India*, pp.191-193.