CHAPTER-V

AGRO-BASED INDUSTRIES OF DISTRICT JALAUN
CHAPTER-5

AGRO-BASED INDUSTRIES OF DISTRICT JALAUN

5.1 Sample Units of The District :-

As it has already been stated that in the district there are many agro-based industries. In the district mostly Oil Mills, Dal Mills, Flour Mills, Spices Industries, Bakery Industries, Hand Made Paper Industry, Seed Processing Industries and Food Products Industries etc. are established.

For analyzing the inns and outs of the agro-based industries the sample units have been taken. Samples have been drawn using stratified random sampling technique. For analysing the various factors related to the industries, two industries; situated in the district Jalaun have been selected and the intense study has been made. Proper discussion has been made with the owner and the responsible management of the industries. Discussion on various matters related to production process, management, marketing, finance, existence of labour and labour problems has been made. The two industries selected are Spices industry and the Flour Mill.

The name of selected spices industry is “SUN FOOD KHADI GRAM UDYOGIC SAMITI” and the name of the flour mill is “ORAI FLOUR MILL”.

The details of the above two industries are as follows:

THE SPICE INDUSTRY

(Sun Food Khadi Gram Udyogic Samiti)

Introduction

The story of Indian Spices dates back to 7000 years into the past. It is a chequered history of lands, discovered or destroyed, kingdoms built or brought down, wars won or lost, treaties signed or flouted, favours sought or offered. Today Indian Spices hold the same spell. The history and culture of Indian spices is probably as old as human civilization itself. The Vedas, the Bible and the Quran are all replete with references –
direct or indirect – to Indian spices. The earliest literary record in India on spices is the Rig Veda (around 6000 BC), and the other three Vedas – Yajur, Sama and Atharva.

India is called the land of spices, where it grows over 50 different varieties of spices. Total production is around 2.7 million tonnes. Of this about 0.25 million tonnes (8-10 per cent) is exported to more than 150 countries. The Indian share of the world trade in spices is about 45-50 per cent by volume (25 per cent in value terms). Within the past one decade the international trade in spices has grown by leaps and bounds. An estimated 500,000 tonnes of spices and herbs valued at 1500 million US dollars are now imported globally every year. An impressive 46% of this supply comes from India. India’s exports of spice extracts have shown spectacular growth attaining over 50 percent of the global market within a short span. In the world of spices and herbs, India plays a pivotal role. More than 52 spices and herbs are grown in our country. Our annual production is two million tons. This nature’s bounty has enabled us to contribute the lion’s share in spices and herbs in the international market.

Over the past decade, the Indian Spices industry has made quality the cutting edge of its global game plan. In recent years, export of Indian Spices has been taking giant leaps. The Indian export of spices has crossed the 450 million US dollar mark during 1999-2000 and has reached 468 million US dollar. This remarkable achievement is born of a sea change in the industry scenario. From traditional commodity exports, Indian Spices have evolved into a state-of-the-art industry. Absorbing technology, broad basing its products range, developing value added products, identifying niche markets, forging strategic alliances clinching global collaborations and joint ventures.

Currently, India’s spice export amounts to 40 per cent of global spice trade in quantity and 19.5 percent in value equivalent to 2,20,000 tons in quantity and US $ 340 million in value. This reveals India’s leadership in the trade. Our export spectrum is led by pepper followed in the order by chillies, spice oils and other spices. Since, the inception of the spices board in 1987, several quality improvement measures have been adopted with close interaction with the exporting community represented by the All India Spices Exporters Forum. In this era of fast changing world economy, closer co-operation is vital between trading partners globally. As a member of WTO, each country becomes part of the global economy and so quality concerns and trade barriers are to be well
disseminated and debated to have a better understanding of all concerned for faster development in each sector.

Now the spice industry is focusing on the major concerns of the trade such as pesticide residues, mycotoxins, heavy metals, microbial contamination etc. A business plan is underway to tackle these quality issues in collaboration with the world organizations. In addition, dissemination of information on these issues to farmers and training programmes at the grass root level are in progress. This will lead to an assured source of excellent raw material. Our ultimate goal is to deliver ‘clean spices’ rather than ‘cleaned’ spices, towards this end; organic farming of spices is a major initiative.

Further, spices and herbs are building blocks to a series of value added derivatives – such as spice oils, oleoresins, food colours, mint oils, hydroxycitric acid, ground spices, curry powders, freeze dried green pepper, dehydrated pepper, green and pink pepper in brine. We have the expertise and world class facilities to manufacture all these products which now dominate the international market. This has completely changed the scenario in the processed food, naturaceutical and perfumery industries. Eco-farming is widely practiced and popularized in India with the availability of bio pesticides, bio agents and organic manures. India is capable of supplying a wide range of organically grown spices from white pepper to vanilla and spice products from tamarind paste to vanilla powder/butter. Organic herbs commercially cultivated in India are Basil, Rosemary, Mint, Thyme, Bay Leaf, Oregano & Sage and are used for culinary purposes and medicinal/cosmetic applications. The rich and varied agro-climatic condition/zones in India offers vast scope for commercial production of a variety of herbs from Mint to Parsley to Oregano. New uses of spices in pharmaceutical and cosmetic industries, a pioneering research unit, has developed spice extracts said to be effective in fighting cancer, cataracts and other diseases. Extracts of some spices have also been found useful as pesticides.

In 1990-91, total exports of all commodities amounted to Rs. 43187 crores. While exports of all agricultural commodities amounted to Rs. 6017 crores contributing 13.93 % to the total, the share of spices was a mere Rs. 242 crores at 0.56 %. The share of spices in the export of agricultural products alone was 4.02 %. However, with in just six years in 1996-97 total exports from the country reached Rs. 117525 crores, an increase of 172 %.
Exports of all agricultural products increased by 299 % to Rs. 23988 cores now contributing 20.41 % to the total. But during the same period, export of spices went up by 388 %, crossed the magical figure of Rs. 1000 crores to reach Rs. 1180 crores, now contributing 5.16% of agricultural and 1 % of all exports from the country.

Spices:

Spices are the buds, bark, roots, berries and aromatic seeds that are harvested for use in flavouring cooking. Herbs are the leaves of plants, so when we use coriander leaf we refer to it as a herb, however when we use coriander seed we say we are using a spice. Even the tiny filaments of saffron are referred to as a spice. Saffron is the stigma which is hand plucked from a small mauve crocus native to Kashmir, India. Typical examples of spices are cloves (buds), cinnamon (bark), turmeric (root), peppercorns (berries), vanilla (the bean from a tropical orchid vine) and cumin, coriander, dill and fennel (seeds) to mention just a few.

Spices Come From:

Most spices are grown in the tropical regions of the world, with some thriving in the cool misty highlands. Many of the seed spices come from more temperate areas in India, Africa and the wheat producing areas of South Australia and Western New South Wales.

Spices Are Harvested As:

The majority of spices are still harvested in the way they have been for centuries, by hand! Most of the developments in the spice industry have been with respect to growing and post harvest treatment such as grading and cleaning.

Spices Are Flavoured By:

Through spices, nature provides an incredible variety of colours, textures, aromas and flavours that add interest and depth to our meals. The many and varied flavours in spices are held in the volatile oils that naturally occur in spices. Some of these flavours are apparent in the fresh spice, for example in ginger. Other spices either change or only
develop their true flavour on drying. One dramatic example is vanilla, a green tasteless bean that grows on a tropical climbing orchid. It is only after drying and curing that the enzyme reactions which take place actually form the vanilla flavour. In a similar manner, when peppercorns are picked green, the enzyme reaction that occurs upon drying turns them black and creates the pepper flavour.

**The Best Ways To Storage Spices:**

Because the flavours in spices and culinary herbs are held in the volatile oils, it is essential that they are stored in the correct way so that the flavours do not escape. Firstly, spices must be packaged in high-barrier, good quality materials. This applies to all spices whether whole or ground, however the quality of the package is most critical for ground spices as the grinding process has begun the release of flavour – that is why ground spices are often more convenient to use. Spices should never be packed in thin plastic bags, cellophane packs or cardboard canisters. These packages all allow the volatile oils and thus the flavour to escape.

**Storage & Packing:**

Spice product has to be packed in a top quality, high barrier bag with a reasonable zip seal, so make sure that it is always properly zipped closed after use. Alternatively, one can pack spices in an attractive glass jar which features a top quality metal cap with a compound seal to keep the flavour in. Ground spices lose their flavour quicker than whole spices. Spices are to be packed (ground spices) as soon as possible after grinding, to seal in the freshest flavour. Herbs and spices will fade in bright light, especially sunlight. Delicate herbs such as chives are particularly sensitive, and should be kept in a cupboard for the best colour retention.

Spices has to be dehydrated. So a wet spoon should never be used to measure the spice from the pack. If it is so done, the moisture will affect the product it touches, and cause hard clumps to form. If the weather is extra hot and humid, it might even cause mould.
Spices Should Be Used As:

Often and with enjoyment! When we have a basic understanding of the various spice flavours and how they compliment different foods, we can use our own creativity and taste instincts to experiment with a whole range of combinations. There are also some simple application methods which, depending on our level of confidence and how busy we are, make the daily use of spices rewarding and satisfying.

Main Spice Flavours:

Spices can be grouped into five basic categories. These are; sweet, pungent, tangy, hot, and amalgamating. The way we use these and the amounts we put into cooking are governed by these characteristics. Examples of the different types of spices are;

Sweet: cinnamon, allspice, nutmeg, vanilla
Pungent: cloves, star anise, cardamom
Tangy: ginger, tamarind, sumach, kokam
Hot: pepper, chilli, mustard, horseradish
Amalgamating: coriander seed, fennel seed.

Then most of the herbs (such as thyme, sage, marjoram, oregano, bay leaves, mint and rosemary) are referred to as savoury. The herbs do have varying degrees of flavour intensity, however not as dramatic as with spices.

Spices constitute an important group of agricultural commodities which are virtually indispensable in the culinary art. They can be primarily defined as farm products used in various forms viz; fresh, ripe, dried, broken, powdered etc. which contributes aroma, taste, flavour, colour and pungency to food, rather than a lone food seasoning factor. Spices may be either bark, buds, flowers, fruits, leaves, rhizomes, roots, seeds, stigmas and styles or the entire plant tops. They are well known as appetizers or preservatives and many of them have rich medicinal properties and are used in pharmaceutical, perfumery, cosmetic products, religious rituals etc.
THE FLOUR MILL
(Orai Flour Mill)

Introduction

In the present age the needs and habits of people have changed so much that they do not find sufficient time to do the daily work in the old fashion. Therefore a big demand for food products for easy preparation of good hygienic at a reasonable cost exists. It is needless to say that the first basic requirement is that of Atta, Maida & Suji, which are prepared by screening and grinding of wheat. It is understandable that screening and grinding by hand or by power operated chakkies is a time consuming process, but if these wheat products are easily available then a lot of time and work will be saved. To support this cause, Flour Mills were and are being set up in all parts of the country on a small, medium and large scale.

Flour Mill serve the purpose of processing wheat to convert it into flour. Wheat grains are the seeds of the wheat plant which is grown under widely different climatic conditions. Flour are made of hard wheat, soft wheat or combination of these. The percentage yield from a good quality of wheat is estimated as follows:

Fines

| Maida or Suji | 60 % |
| Atta          | 20 % |
| Bran          | 20 % |

Alternative

| Whole Mill Atta   | 92 % |
| Bran              | 06 % |
| Waste - Refraction | 02 % |
In the Orai Flour Mill both methods are opted as require. Different machines used in the Mill are Blender, Sieves, break rolls, smooth steel reduction rolls, aspirators, conveyors, washers etc.

Market Survey

The flour mill industry is an agro-based industry engaged in the production of Atta, Maida, Suji and Bran. Atta produced by flour mills is mostly consumed by hotels and the remaining amount is consumed by households, it is also used to meet the requirements of various distribution programmes. Maida which comprises about 60% of the total production of flour mills is mostly consumed by bakery industry. Suji which comprises about 5% of the total production is sold to hotels, bakery and households. The resultant wheat bran is used as poultry feed, Maida & Suji produced by flour mills serves as a basic raw material for the bread and bakery industry.

Bakery industry is growing at an average rate of about 15% per annum and it is the largest consumer of maida produced by flour mills. The share of bakery industry is rising day by day due to rapid expansion of baking units. The remaining maida is consumed by hotels and households and their demand depends on factors like income level, population, price of food products, etc.

The main raw material used in the flour mill is wheat. The Government supplies it at a fixed price and it is also purchased from the open market, which is easily available in the open market.

In Orai Flour Mill the produced Atta, Maida and Suji is marketed to Kanpur, Mumbai Pune etc. Most of the product is sold through agents or dalal. Main purchasing firms are:

1. Ekta Trading Co. Pune.
2. Modern Food Industries, Kanpur
3. Bichi Trading Co. Mumbai,
4. Jhakat mal, Takhat mal Satna etc.
Manufacturing Process

The milling process breaks open the wheat kernel and reduces the particles formed as to separate the outer and inner portion of the kernel. Bran and germ are almost completely separated from the white interior portions in the milling of refined flour.

Various steps involved in wheat milling are, wheat selection and blending, cleaning, conditioning or tempering, milling and enriching treatment of the flour. It is not necessary that all of these operations are to be performed in every flour mill. Details of manufacturing process are as given under:

1. Wheat selection and Blending: There are different qualities of wheat, varying in the composition of proteins, carbohydrates, vitamins etc. Selection of wheat for milling depends upon the final products i.e. quantum of nutrtions, vitamins, protein values needed in the wheat flour. Sometimes wheats of different grades are blended together in the milling process.

2. Cleaning: In the cleaning process wheat is first relieved of all its impurities like dust, strings, stones, particles etc. this is done in several stages with the help of different machines such as Wheat Cleaning Separators, Branch Machine, Carter Disc Separator, Scourer Reel, Dry Stonner, etc. After the process of cleaning, wheat is washed and by washer and whizzer machines it is relieved of any adhering dirt and moisture, which is important for the milling process. After washing, the wheat is stored in large bins generally made of wood, steel or concrete. The wheat is allowed to rest in these bins for a certain number of hours, depending on the quality of wheat and its likely use.

3. Milling: In this process the final grinding or crushing of wheat takes place. Wheat after being thoroughly cleaned and washed is brought to this section by the help of elevators from the bins. The grinding of wheat is done by the Roller Mill Machine in which two rools run in opposite directions and at different speeds. The break rools have a tendency to open up the grain and scrap the endosperm for making maida. The whole system is called the gradual reduction system which mean that maida from atta is made by gradual reduction of the size of the particles. The centrifugals are used for sieving.
purposes and the purifiers are used for making Suji. The whole process consists of feeding the cleaned wheat from the cleaning section to the roller mills where it is ground and lifted to the centrifugals by the help of bucket elevators. The stock on entering the centrifugals is lifted and divided into different stock which are distributed to different channels, some will go to purifiers and others back to break again for regrinding.

The stock keeps on moving forward like this and feeds to different streams of products. The products are packed in bags, weighted and stitched with automatic stitching machines and finally stored in godowns.

5.2 Small Scale Industries :-

A significant feature of the Indian economy since Independence is the rapid growth of the small industry sector. In the Industrial Policy Resolution of 1948 and 1956, the small sector was given special role for creating additional employment with low capital investment. A new thrust was given in favour of small units by the Industrial Policy Statement of 1977. In 1950, the government grouped small -scale industrial undertakings in to two categories-those using power but employing less than 50 persons and those not using power but employing less than 100 persons. All small-scale enterprises, however, had capital investment of less than Rs. 5 lakhs. None of these criteria taken singly would be a determining test as they undergo changes over a period of time. The third criterion, namely, the character of organisation and management, also can not be considered a sound basis of classification. Apparently, the standing feature of small scale enterprises seems to be the personal character of its organisation and management in contrast with the predominantly impersonal organisation and management of large corporations. In small enterprises management is predominantly proprietary with individual ownership or partnership. But the ownership and management may also be identical in some of the large scale industries. The criterion, therefore, becomes vague and inappropriate.

In 1966, the small-scale enterprises were defined as undertakings with a fixed capital investment of less than Rs. 7.5 lakhs and ancillaries with a fixed capital investment of Rs 10 lakhs. Investment will imply investment in fixed assets in plant and machinery, whether held in ownership term or by lease or by hire purchase. In 1975 this
limit was revised to Rs. 10 lakhs for small-scale enterprises and Rs. 20 lakhs in case of ancillaries. Subsequently, under the Industrial Policy Statement of 1980, this limit was further raised to Rs. 20 lakhs in case of ancillary units and Rs. 25 lakhs in case of ancillaries units. Simultaneously, in the case of tiny units, the limit of investment has been raised from Rs. 1 lakh to Rs. 2 lakhs. In March 1985, the government has again revised the investment limit of small-scale to Rs. 35 lakhs and for ancillary units to Rs. 45 lakhs.

As per the Industrial Policy Statement of May 1990, the investment ceiling in plant and machinery for small scale industries (fixed in 1985) has been raised from Rs. 35 lakhs to Rs. 60 lakhs and correspondingly for ancillary units from Rs. 45 lakhs to Rs. 75 lakhs. Investment ceilings with respect to tiny units has been increased from Rs. 2 lakhs to 5 lakhs. According to the modified definition, an ancillary unit is one which sells not less than 50 percent to its manufacturers to one or more industrial units.

During 1997, on the recommendation of Abid Hussain Committee, the Government has raised the investment limit on plant and machinery for small units and ancillaries from Rs. 60/75 lakhs to Rs. 3 crores and that for tiny units from Rs. 5 lakhs to Rs. 25 lakhs.

The Government in 2000 has reduced the investment limit on plant and machinery from Rs. 3 crores to Rs. 1 crore, but the limit for investment in tiny units has been retained as Rs. 25 lakhs.

**Classification**

A common classification is between traditional small industries and modern small industries. Traditional small industries include Khadi and handloom, village industries, handicrafts, sericulture, coir, etc. Modern small-scale industries produce wide range of goods from comparatively simple items to sophisticated products such as television sets, electronics control system, various engineering products, particularly as ancillaries to the large industries. The traditional small industries are highly labour intensive, while the modern small-scale units make use of highly sophisticated machinery and equipment. In the year 2001-02 some developments have taken place for the SSI sector.
The investment limit for units in hosiery and hand tool sub sectors was enhanced from Rs. 1 crore to Rs. 5 crore.

In a broad sense cottage, small and village industries are treated similar but they fundamentally differ from each other.

Cottage industry is run by family members on full or part time basis. It possesses negligible capital investment. There is hand made production and no wage earning person is employed in cottage industry.

Small industrial units employ wage earning labour and production is done by the use of modern techniques. Capital investment is also there. A few cottage industries which are export oriented, have been included in the category of small sector so that facilities provided to small units may also be given to export-oriented cottage industries.

The industries established in rural areas having population below 10,000 and having less than Rs. 15,000 as fixed capital investment per worker will be termed as village industries. KVIC and state village Industries Board provide economic and technical assistance in establishing and operating these industrial units.

The small scale sector has played a very important role in the socio-economic development of the country during the past 50 years. It has significantly contributed to the overall growth in terms of Gross Domestic Product (GDP), employment generation and exports. The performance of small scale sector, therefore, has a direct impact on the growth of the overall economy.

Despite the global and domestic recession, small-scale industries registered a higher growth rate than the overall industrial sector in terms of number of units, production, employment and exports. During 2002-2003, the number of SSI units was estimated to have increased to 35.72 lakhs from 34.42 lakhs in the previous year, registering an increase of 3.8 percent. The estimated value of production at current prices by the SSI units also increased by 7.5 per cent to Rs. 7,42,021 crore from 6,90,316 crore during 2001-02 and at constant prices by 7.5 per cent to Rs. 5,14,292 crore in 2002-03 from 4,78,456 crore during 2001-02, while employment went up to 199.65 lakh persons from 192.23 lakh persons during 2001-02. Exports increased to Rs. 69757 crore in 2000-01 from Rs.54200 crore during 1999-2000. With the growth of 28.78 % against that of 10.66 % during the previous year.
With the removal quantitative restrictions goods from the outside world are now marketed in India. This has raised basic questions about the rule for SSI reservation. In many labour intensive areas with great export opportunities SSI reservation in India is handicapping the development of efficient economies of scales, while firms in countries such as China are able to compete effectively in the International and in the Indian market. Hence, the process of phasing out of SSI reservation, in consultation with stakeholders, would constitute an important element of policies that foster efficiency and productivity in India.

As the large scale and medium scale industries provide assistance to the economy by producing goods as per their capacity, similarly the small scale industries make the economy strong. Small scale industries generate employment opportunities with low investment of capital and such industries may be expended in cities, towns and villages too.

In the district Jalaun the total number of small scale industries established up to 2000-2001 was 3231. In these industries the total investment of capital was 4734.40 lakhs and 13,836 persons were employed.

As per the information received from the District Industries Centres the item wise details of the industries are as follows:

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Code No.</th>
<th>Product Name</th>
<th>No. of Units</th>
<th>Capital Investment (In lakhs)</th>
<th>Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>20-21</td>
<td>Food products</td>
<td>737</td>
<td>1075.90</td>
<td>2420</td>
</tr>
<tr>
<td>2.</td>
<td>22</td>
<td>Drinking &amp; Tobacco</td>
<td>14</td>
<td>3.82</td>
<td>142</td>
</tr>
<tr>
<td>3.</td>
<td>23</td>
<td>Cotton textiles</td>
<td>14</td>
<td>88.32</td>
<td>81</td>
</tr>
<tr>
<td>4.</td>
<td>24</td>
<td>Wool silk &amp; Synthetic Tex.</td>
<td>16</td>
<td>197.56</td>
<td>181</td>
</tr>
<tr>
<td>5.</td>
<td>25</td>
<td>Jute, Hemp, Mesta Tex.</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6.</td>
<td>26</td>
<td>Hosiery &amp; Garments</td>
<td>378</td>
<td>140.60</td>
<td>1025</td>
</tr>
<tr>
<td>7.</td>
<td>27</td>
<td>Wood products</td>
<td>266</td>
<td>70.10</td>
<td>887</td>
</tr>
<tr>
<td>8.</td>
<td>28</td>
<td>Paper &amp; Printing</td>
<td>147</td>
<td>152.25</td>
<td>606</td>
</tr>
</tbody>
</table>
9.  29  Leather & Leather product      113  95.77  309  
10.  30  Rubber & Plastic product     50  145.37  222  
11.  31  Chemical & its products      93  156.82  388  
12.  32  Non-metal mineral product    29  156.84  2331 
13.  33  Basic Metal product          16  820.38  221  
14.  34  Metal products               361 1179.41 1425 
15.  35  Machinery & parts            56  32.75  144  
16.  36  Electrical machinery & tools  153  49.99  360  
17.  37  Transport equipment & parts  1   0.05   2   
18.  38  Sundry products              237  184.13  1751 
19.  96-97 Repairing & Service       550  184.34  1341 

Total  3231  4734.40  13836

Source: District Industry Centre, Jalaun place Orai.

The above table indicates that in the district the highest number of established units (737) are of the food products providing employment to 2420 persons. The capital invested in these industries is 1075.90 lakhs. From the capital investment point of view the highest investment of capital amounting Rs. 1179.41 lakhs is in metal products industry. Although in this sector 361 units are registered and providing employment to 1425 persons. After the food products industry, the highest employment generating industry is non-metal mineral product, having 29 units and providing employment to 2331 persons.

Khadi and Village Industries Board:

The Khadi and Village Industries Board has great importance in making the economy strong. In this sector the units are established keeping in mind the availability of resources and skill ness. The units may also be run as part time job. Its main reason is that the agriculture work is not available during the whole year so the labourers may be engaged in such units. The main work of this department is to make the finance available to the individual units, Non-government organisation and Cooperative Societies for establishing units. Now units establishing in this sector have to pay interest at a lower rate
and the government subsidy is also available to these units. Due to these facilities the units; based on modern technology are established in this area.

The informations received from the District Khadi and Village Industries Board, Kalpi the present scenario is as follows:

**Present Scenario Of Khadi & Village Industries Board In The District : ( From Beginning To 10-10-2001) :**

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Plan name</th>
<th>No. of Financed Units</th>
<th>Production (in lakhs)</th>
<th>Employment Fully</th>
<th>Partially</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Institution</td>
<td>Society</td>
<td>Individual</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Financed by</td>
<td>69</td>
<td>26</td>
<td>2375</td>
<td>70.55</td>
</tr>
<tr>
<td></td>
<td>KVIB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Interest Subsidy</td>
<td>02</td>
<td>-</td>
<td>-</td>
<td>15.00</td>
</tr>
<tr>
<td></td>
<td>plan of KVIB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Interest Subsidy</td>
<td></td>
<td>-</td>
<td>178</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>plan ( Bank finance)</td>
<td>-</td>
<td>-</td>
<td>178</td>
<td>-</td>
</tr>
<tr>
<td>4.</td>
<td>Margin Money Scheme</td>
<td>-</td>
<td>-</td>
<td>15</td>
<td>-</td>
</tr>
</tbody>
</table>

**Source :** District, Khadi & Village Industries Board; Kalpi, Jalaun

The main industries of the above mentioned units

Khadi, Pulses processing units, Ghur, Oil mill, Carpenter- wood works, Gum, Fruit processing, Agarbatties, Textile, Fiber, Hand made paper, Herbal products, Aluminium, Soap, Milk, Tiles, Plastic products, Service, Leather products etc.

**5.3 Industries Promoting Agriculture Development :-**

As it has already been discussed that the economy of district Jalaun is agrarian. It is known from the dates that 79% of the total population of the district is dependent upon the agriculture. The marginal productivity of the labour is zero or sometimes it is negative too. Thus in the district disguised unemployment exists. Thus for reducing the dependency of labour on agriculture, it is essential to develop the industries, so that the excess labour may be shifted from agriculture to industry. Now a question arises that
what types of industries should be developed keeping in view the available resources and the skills of the labourers.

Agro-based industries in the district have great opportunities to be developed because of the availability of raw material, labour force and being these industries are labour intensive so a large amount of capital is also not required.

Both two types of industries may be developed as :

1- Industries, promoting conventional agriculture development and

2- Industries promoting modern agriculture development.

Agro-based industries like Oil mill, dall mill, flour mill and spices industry, snacks food industry, food processing industry etc. require conventional agricultural raw material like wheat, dall, spices etc. Thus these industries promote conventional agricultural development.

At the same time there are also many agro-based industries which promote modern agricultural development. Industries like herbal cosmetic industry, Ayurvedic industry, menthol processing industry etc. as these industries require raw materials like safed moosely, sahajan, peppermint etc. the farming of herbal items is very beneficial to the farmers as the productivity of land (in terms of money) in herbal farming is much more than the conventional farming. Thus these industries promote modern agriculture development.

(A) The details of some Agro-based industries which directly promote the conventional agriculture development and also have the opportunities to be established in the district are as follows :

**Roasted And Fried Dry Fruits, Ground Nut, Grams, Peas Etc. :-**

**Introduction**

The cultivated groundnut originated in South America and is now grown in 82 countries in the world and India is the largest producers of the crop. India, China, Nigeria, U.S.A. and Sri Lanka account for four-fifths of the world’s ground nut production.
Besides the use of ground nut as all bearing seed, which constitute 40 to 50 per cent of the seed on weight basis. Its kernels are eaten raw, roasted or sweetened.

Salted groundnut is manufactured from seeds after dehulling. Followed by roasting and blending with salt, salted groundnut kernels are rich in protein and vitamins A, B and some members of the B₂ group. Their caloric value is 349 cal./100 gm.

Use & Applications

Salted groundnuts is a convenient food item which is taken with soft or hot drink in general. It avoids the cumbersome job of peeling, cleaning and addition of salt separately. With the change of life style and lack of time it is going to be more popular day by day, especially in cities. In foreign countries such as Saudi Arabia & Abu Dhabi people like salted groundnut very much with beverages and wines.

Properties
- Salted groundnut is very tasty
- Their Caloric value is 349 per 100 gram.

Digestibility of the proteins found in salted ground nuts is around 97.4 % and biological value 57.9 %. It is cheap and rich source of fat, protein, carbohydrates, and vitamins A, B, and B₂, nicotinic acid and vitamin E.

Market Survey

No oil seeds other than groundnut can fulfill simultaneously the energy and protein need required. That is why it is consumed in various forms. Its oil is consumed in Vanaspati-Industry. Its kernel are eaten in every corner of the country. Salted ground nuts (Kernels) are becoming more popular now a days within the country as well as abroad. Export earning through groundnut kernel H.P.S. has been generative source of foreign exchange for some years. A very progressive trend is observed especially since last decade.

B.I.S. Specifications
Although no I.S.I. Specification is available for “salted groundnut (kernels).” But I.S. : 9071 and I.S. : 4427 may be consulted for better informations regarding groundnut kernels in particular for oil milling and table use.

IS : 10065- Ground nut Kernel Roasted.
IS : 4427 – Ground nut Kernel Grading

Manufacturing Process :
Roasting & Frying of Dry Fruits

The well cleaned Kernels are roasted in the rotary drum type electric roaster fitted with thermostatic control arrangement for 15 to 40 minutes according to the desired colour appearance. The temperature is usually maintained at 150° C, on roasting, oil dozes on the surface of the kernels. No salt is added and the heater is switched off.

At this stage citric acid may also be added in order to avoid rancidity. In some plants roasting is accomplish by deep frying of the kernels in thermostat controlled pans in vegetable oil. Frying at controlled steady temperature (150° C) helps to get the desired roasted colour for the groundnut, After 10-20 minutes roasting of kernels is stopped and the kernels are dressed with a solution of anti oxidant and are acid synergist to prevent rancidity. Salt is mixed with kernels before they are packed. The basic difference in both type of roasting is that in first process there is a loss in weight of kernels due to partial evaporation of oil and in the later process there is a gain in weight of kernels due to frying with vegetable oil.

Readymade Processed Food (Canned Fruits & Vegetables) :-

Introduction

Canning of hermetic sealing is one of the most important commercial processes developed in vegetables. The canning of hermetic sealing in metal or glass containers after heat sterilization, food preservation is assured both by the destruction organism present in the container and by prevention of infection from outside sources. Almost all the methods of preservation, excepting cold storage and dehydration, are covered by the term canning, and the material preserved cover a wide range including fruits and vegetables, fish and meat and milk and dairy products.
Besides protecting foodstuffs against deterioration, canning has helped in creating products with great appeal to consumers. Canning has also helped to overcome seasonal and regional gluts and scarcities, by preserving surpluses whenever and wherever available, and making them available in all seasons over wide regions. By utilizing surplus materials, the canning industry has not only prevented wastage but also helped to stabilize prices.

**Uses and Applications**

Canned fruits and vegetables are consumed mainly in Big Cities. The potential of its consumption is rather higher in big cities than small cities, because, inhabitants residing in small cities prefer the fresh vegetables & fruits. However, the consumption of canned fruits and vegetable is very high in Defence Department. Due to non-availability of off-season fruits and vegetable, the canned fruits and vegetables are getting awareness in our countries to fill the glut of the fruit, and vegetables.

**Market Survey**

Due to its unique geographical and climatic conditions India is gifted with a wide range of fruits and vegetables. The present level of annual production of fruits and vegetables in India is estimated at about 54 million tonnes, out of which fruits constitute about 43%. Since fruits and vegetables are seasonal and are highly perishable in nature, it is estimated (even though no systematic study has been made) that there occurs a loss of 25 to 40% in various stages from plucking, packaging, transportation, storage, marketing and consumption. Hardly, 9.3% of the fruits and vegetables produced in the country are used for processing for their consumption in the off season as also for export outside the country. There is, therefore; a vast potential to develop the industry by integrating production with processing and marketing which will go a long way in improving the national economy and benefit the grower and the consumer.

**Future Scope**

Owing to rich horticultural potential that exists in the country, the fruit and vegetable processing industry can play an important role in salvaging the wastage by utilizing ‘CULL’ and sub-grade fruits, help in stabilization of prices during the glut.
season, afford employment opportunity (as this industry is labour intensive), meet the requirements of Defence forces in boarder areas, and last but not the least earn foreign exchange for the country. There is heavy concentration of the units in some areas like Maharashtra, Tamilnadu, U.P., West Bengal, Kerala, Punjab, Karnataka, Delhi, Gujarat and Andhra Pradesh as compared to some of other places like Bihar, Orissa and the states of Northern-Eastern Region, where the number of processing units is much less. This is mainly due to the un-economic conditions of processing in those areas. It is not only the availability of fruits and vegetables but also other factors like the cost of production, convenient market and the availability of infrastructural facilities which all together contributed in the establishment of the processing units.

During the last few years the fruit and vegetable processing industry has expanded considerably, bulk of the production consists of jams/jellies, fruit juices/pulps, ready-serve fruit beverages and pickles. The major outlets for the products of this industry are the institutional sectors such as Hotels, Restaurants, Defence Establishment and the export market. The domestic and house hold sectors consume about 10% of the total production of processed fruits and vegetables. The bulk of the production exported consists of fruit juices/pulp, jams and pickles.

(B) The details of Agro-based industry which directly promote the modern agriculture development and also have the opportunities to be established in the district are as follows:

**Medicinal And Aromatic Plants & Herbs Industry**

**Introduction**

India is a vast country with rich biological diversity. It is also a treasure house of about 45,000 species of plants comprising vascular plants (15,000) petridophytes (600), bryophytes (2,700) algae (5,000) fungi (20,000) and lichens (1,600). These contributes valuable raw materials for indigenous industries in the pharmaceutical, perfumery, cosmetics, flavour and fragrances sectors. India is endowed with rich flora and nearly three-fourth of the drugs mentioned in the various pharmacopoeia grow naturally in the
wild. Approximately 1/3 of all pharmaceuticals are of plant origin, fungi and bacteria are also included, over sixty percent of all the pharmaceuticals are plant based.

With the growing interest in medicinal plants as source of new pharmaceutical products and the increasing demand for herbal products throughout the world, it is expected that the demand for raw materials will also increase. Most of the medicinal plant resources are in natural forest. Due to uncontrolled exploitation, this natural resources is greatly depleted and many forest species face extinction. It is therefore necessary to formulate plans and incorporating with proper silviculture practices to cultivate selected species, both in forest and non-forest area such as under planting with oil palm. Traditionally, oil palm has long been grown as monoculture crop and land under the mature palms are generally under utilized. Medicinal and aromatic plants present an opportunity exploiting the inter row spaces for economic gains. We therefore highlights some economically important medicinal and aromatics plants which can be integrated with oil palm. Suitable methods of integrating medicinal and aromatic plants with oil palm can be achieved.

Many of our local plants are also rich in aromatic compounds that can be used commercially as flavour and fragrance agents in beverages, food products, confectionery, toothpaste, cosmetics and medicinal preparations. Given the tremendous diversity of aromatic plant species available in India and the continuous demand for flavour and fragrance by industries, the economic potential of commercial application of these species is very promising.

**Medicinal plants**

Indian flora is very rich in medicinal plants. Because of its vast area and wide variations in climatic conditions and soils, India is the only country in the world where most of them medicinal plants used in modern medicine are obtained either from the wild or from cultivate sources. Over 7,000 different species of plants found in the different ecosystems and are said to be used for medicinal purposes in India.

One of the earliest treatises of Indian medicine, the Charaka Sanhita (1,000 BC) mentions the use of over 2,000 herbs for medicinal use. Presently the Indian system of medicine uses over 1,100 medicinal plants, of which over five dozens are said to be in
larger demand. Eighty percent of raw material for the drugs used in the Indian system of medicine are based on plant products extracted mostly from wild sources. At present there are about 10,000 pharmacies using the Indian system of medicine who largely consume the extracts of herbal plants.

In addition to exploiting the majority of the medicinal plants harvested from the wild, for the production of drugs used in the traditional systems of medicine, as well as, lately, in modern medicinal systems, India has developed a significant potential for the production and utilization of medicinal plants through research and development. The medicinal plants as a whole occupy a stable position even in modern medicine, since the pharmaceuticals industry is showing special interest in using or synthesizing natural substances extracted from plants.

**Uses**

It is estimated that approximately over three-fourth of the world population is still dependent on traditional medicine. In India there are about 10,000 licensed pharmacies practicing the Indian system of medicine. In addition to this, there are thousands of local vaidhyas, herbal healers, monks, bone setters, tribal doctors etc., who possess a vast body of knowledge, practice this system of medicine and also what is more important, prescribe and use the extracts of medicinal plants.

**The use of plant** —

Based products for disease prevention and treatment has become increasingly popular in many societies. The World Health Organization (WHO) has estimated that about 80% of the population in developing countries rely chiefly on traditional medicine for their health care needs, of which a major portion involves the use of plant extracts. With growing interest in medicinal plants as a source of new pharmaceutical products and the increasing demand for herbal products throughout the Globe, it is expected that the demand for raw materials will also increase. Since most of the medicinal plants resources are from natural resources and many plant species are now facing extinction, it is of necessary to domesticate and cultivate selected species from both forest and non-forest areas. The success of such domestication programme will assist in the conversation
of plant genetic resources, avoid further depletion and meet the demand for raw materials from the herbal industries.

The biodiversity of plant resources offers some 12,500 species of flowering plants and 5,000 species of cryptograms. About 2,000 species are recognized for their medical properties and they are still being used among certain communities. Some of these plants that are used as traditional medicines are also used as common spices or food additives and a few species which have been commonly used for herbal preparations.

India has about 45,000 plant species that includes 2,532 plants; medicinal properties have been assigned to several thousand. About 2,000 figure frequently in the literature; indigenous systems commonly employ 500. The value of ethno medicine has been realized. Statistical methods are being used to assess the credibility of claims. A scrutiny of folk claims found 203 plants for evaluation. Less well known ethno medicines have been identified that are used to treat intestinal, joint, liver and skin diseases.

Generally, the medicinal plant based industry has four major end use segments conveniently classified as below:

✓ Plants utilized as medicinal agents.
✓ Over the counter non prescription items (OTC).
✓ Essentials oils.
✓ Phyto- pharmaceuticals.

Plants utilized as medicinal agents: Earlier, the medicines used in the indigenous systems in India were generally prepared by the practicing physician himself, but now the practice has been greatly replaced by the establishment of more or less organized indigenous drug industries. The large number of traditional pharmacies consume the herbal plants which are mostly collected from the wild.

Plants used in over the counter prescriptions: The medicinal plants are not only being directly used by traditional medicines in developing countries, but also used in over the counter preparations in developed countries in Europe and in USA, in the forms of: tinctures, galenicals, unos, decoctions etc.
Plants as a source of essential oil: In India, the essential oil industry was earlier and traditionally a cottage industry, but now a number of industries have come up and produce essentials oil, oleoresins and perfumes in the country.

Phyto-pharmaceuticals: At the present time, phyto-pharmaceuticals and chemical sciences have greatly contributed to the enhancement of utility of medicinal herbs. Medicinal herbs have been subjected or rigorous chemical analysis and biodynamic compounds have been isolated and evaluated. As a result, new drugs have been discovered and new applications have been found for compounds already in use.

✓ These biodynamic compounds are mainly used as sources of:
  ✓ Direct therapeutic agents
  ✓ Starting materials for elaboration of more complex and bio-active semi-synthetic compounds
  ✓ Substances which can be used as models for few synthetic compounds.
  ✓ Botanical pesticides, fertilizers, insecticides etc.

Sources And Cultivation

Planting Of Medicinal Plant

In India medicinal plants are generally collected from the wild, with limited cultivation being carried out. This has lead to serious depletion of certain species and put some in danger of extinction. Interest has grown in the cultivation of medicinal plants for herbal use. However, to ensure satisfactory, returns from planting medicinal plant, plant selection must be focused on species highly demanded by the industry. Planting will depend on land availability.

Planting under forest conditions which include virgin forest, logged-over forest and plantation forest: in forest where its resources have been removed (logged over forest), enrichment planting with selected medicinal plants is suitable and beneficial. In plantation forest, planting can be carried out in conventional forest plantations where selected medicinal plants are planted under forest species such as teak, pine, acasia, azadirachta exelsa and aquilaria malaccensis.
Though medicinal plants are largely collected from the wild, attempts are being made to cultivate certain medicinal plants that prove economical for cultivation as crops under field conditions. Efforts are also in process by certain non-governmental organizations to promote the cultivation of these plants in-situ, that is at the site where it is available in the wild, in conjunction with the trials.

Integration with agricultural crops: Other than planting under forest conditions, medicinal plants can also be integrated with other commercial crops such as rubber and oil palm. Such crops are able to provide shade and artificial forest environment to the medicinal species, and Under open condition: under this condition, medicinal species that have high tolerance to high light intensities may be planted.

Cultivation of medicinal plants in India is increasing slowly. Educated farmers are taking interest for such work. Though, Medicinal Plants are not alternative to irrigated crops but some uncultivated open lands may useful for such cultivation. It is the main objective for the medicinal plants cultivation. In India, more than 70% agricultural land is depends on rainwater. Out of these, 40% land can be utilized for such medicinal plants under cultivation in future. Some times, lands remain uncultivated due to non availability of water. If rains are not in proper time, farmer could not harvest any thing from, such land. Some medicinal plants are growing naturally as xerophytic habitat without any special care or maintenance. Hence, the cultivation of medicinal plants has special significance in such lands. Farmers will get something from such cultivation. However, cultivation of medicinal plants has importance for such farmers.

There are so many types in medicinal plants. Some herbaceous plants can be cultivated as intercropping plantation in fruit crop or forestry plants. Shrubby medicinal plants those getting returns after 3 to 5 years may be cultivated separately or in between area of fruit tree plantations as a intercrop, on distance of 3 to 5 meters. There are some big trees also available in medicinal plants. It requires more than 10 to 15 year for harvesting and their returns. Such plants may be planted on distance of 10 to 15 meters on separate plane lands or on slopes of hillsides. Tree habited plant can be selected for forestation in social forestry.
In fruit cultivation, some medicinal fruits can be selected for plantations. Herbaceous medicinal plants have special significance for intercropping in fruit cultivation. Because, of its short life cycle and annual harvesting. It gives early returns to the farmers. This will be benefited to primary expenditure of such long range plantation of fruit crop. Medicinal plant cultivation in large scale has importance to cure the number of diseases of human life as well as natural health care. Some important medicinal plants has to be included for commercial cultivation to the farmers. They must think for such cultivation in future programme of plantation. For example: Dehradun, Hardwar, and Saharanpur region is vital having rich flora and fauna in nearby Himalayas. A market survey carried out by an agency of about five important endangered species of medicinal plants Aconitum heterophyllum (atis karwa), Swertia chirayita (chirayita), Hedychium spicatum (kappoor-kachri), Nardostachys jatamansi (jatamansi), Inula racemosa (pushkarmool) has been carried out and the results are tremendous and found that their demand is huge. The same had presented to the government on information like the trade route(s), number of traders dealing in the species, average selling rate(s), rate trends, trade volumes, availability, demand, future availability trends, storage time, adulteration and trade dynamics.

The flora of medicinal plants existing in different agro-climatic zones of the state has been surveyed to identify the plant species growing under natural habits. Simultaneously, herbal gardens have been developed in the hills, terai zones, alluvial zones and red and laterite soil zones to be used for conservation as well as demonstration purposes. Side by side, research works are continuing in these zonal gardens to develop the agro-technology suitable for that particular environment. About 170 species of medicinal plants are preserved in these herbal gardens.

Certain drugs are now obtained almost exclusively from cultivated plants. These includes spices like cardamom, ginger turmeric, garlic; peppermint and spearmint for oil production, oilseeds like castor and linseed and traditionally cinchona and opium. Some plants have been cultivated from time immemorial (e.g. flax, opium poppy and coca). Others are grown now because supplies of wild plants are insufficient to meet the demand or because, owing to sparse distribution or inaccessibility, collection is difficult. Cultivation is essential in the case of drugs such as Indian hemp and opium, which are
subject to government control, and many cases it is advisable because of the improved quality of the drug which it is possible to produce. Soil Different plants species vary enormously in their soil and nutritive requirements, and this aspects has received considerable attention with medicinal plants. Three important basic characteristics of soils are their physical, chemical and microbiological properties.

**Planting Of Medicinal And Aromatic Plants Under Oil Palm –**

**Agro-forestry As An Option**

Traditionally, raw materials of most medicinal and aromatic plants have been sourced from natural forests. Continuous extraction from this source without concerted efforts on replacement through replanting has inevitably led to the depletion of these important raw materials. One of the key determinant of the future development of the medicinal and aromatic plants industries in this country is the sustainable supply of the raw materials. For continuous and sustainable supply of the raw materials, some forms of planting are deemed necessary.

A major limitation in the wide scale planting of potentially high economic value crops such as medicinal and aromatic plants is the issue of the land availability. Land for the planting of any crop, used to be available in abundance but is currently getting scarce. Furthermore, because environmental consideration, clearing of forests for the purpose of crop cultivation is currently not encouraged. There is a tremendous pressure to conserve our forests. In addition, a lot of our natural forests have been gazetted as permanent forests.

Even in new plantings, with the good price of palm oil, the focus is more on the planting of this crop. In addition, monoculture planting of medicinal and aromatic plants, although of potentially high value, may involve some form of biological and economic risks. With this scenario, it is therefore imperative that alternative forms of planting of medicinal and aromatic plants are sought and considered.

A combining agricultural crops such as oil palm with medicinal and aromatic plants on the same piece of land. Under the concept of maximum land utilization and the need for diversification and alleviating potential risks in planting, medicinal and aromatic
plants providing added value to the land. In anyway agro-forestry planting system to be adopted, due consideration should be given to minimizing possible competitive effects between the various component species and the provision of conducive environments for the proper establishment and growth of all component species.

In view of this, various factors have to be taken into consideration in considering the integration of medicinal and aromatic plants with oil palm and these include:

✓ Growth habits of forest species in terms of growth rates, crown shape and size etc.
✓ Growth requirements for light, moisture, nutrients, space etc., of all component species.
✓ Duration of growth
✓ Topography, either flat, undulating or hilly terrain.
✓ Planting direction in terms of maximizing light transmission and capture.
✓ Taking the above factors into consideration, the following are some illustrations and interim proposals on the integration of selected medicinal and aromatic plants with oil palm in an agro-forestry system of planting.

The local tribes in the different forest in India are mainly engaged in the collection of medicinal plants from around these forests. However, the supply of raw material to the industry is mainly through contractors / brokers, who pay the tribals for plant collected from the wild. The collectors / tribals settled in forests who do the collection are generally paid only subsistence allowances. Pricing the ultimate product for the user industry generally depends on the season. The availability of good quality material, free from adulterants, in adequate quantity and at sustainable prices has been among the chronic problems of the industry. The demand for these materials is said to be increasing year after year. No effort appears to have been made to assess the extend of area available under these crops (both in wild and cultivated from), their present supply positions and also the demand of the existing pharmacies.

The important plants cultivated extensively for their medicinal properties as well as plants collected from wild sources.
<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Medicinal plants</th>
<th>Cultivated</th>
<th>Collected from wild</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Belladona (Atropa belladona)</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Cinchon (Cinchona sp.)</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Derberis (Derberis s.)</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>4.</td>
<td>Dioscorea (Dioscorea deltoidea )</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>5.</td>
<td>Ergot / Rye (Claviceps purpurea)</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Indian podophyllum (Podophyllum emodi)</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>7.</td>
<td>Indian valerian (Valeriana Wallichii)</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>8.</td>
<td>Medicinal yams (Dioscorea sp.)</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Opium poppy (Papaver somiferum)</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Psyllium seed (Plantago ouata)</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Serpent wood (Rauwolfia serpentine)</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

**Demand For Medicinal And Aromatic Plants & Herbs**

The imports of medicinal and aromatic plants come mainly from China, India and Indonesia while exports are largely to Singapore, Philippines, Australia, Malaysia and Hong Kong. Under the spice category, garlic is the important import item. In industry, medicinal plants and their parts are used in the form of extracts with high and standardized contents of active constituents for the pharmaceutical and natural products industries. Many plants which have been traditionally used to treat certain ailments are now being processed using modern technology for the production of functional foods and tonics.

There is increasing demands of herbs and herbal formulation from U.S., Germany, France and UAE. India is one of the reservoirs of natural bio-resource, different agro-climatic conditions, sufficient trained skill and manpower to exploit the dominance in this business. Keeping this in view the immense knowledge on medicinal herbs available in the ancient literature can provide endless business opportunities. There
is indiscriminate harvesting of medicinal and aromatic herbs, which leads to extinction to herbal populations in agro-resources. Now there is a need to domesticate and produce organically grown quality medicinal herbs of high standards for internal consumption as well as export. It is also felt that all the indigenous medicines that are produced by the pharmaceuticals and agro-based industry for internal use and export must be subjected to strict quality control tests before marketed. Therefore, the overall need for production and quality control of medicinal herbs for making desired dent has been highlighted in the world market.

**Propagation From Seeds:**

To ensure success the seed must be collected when perfectly ripe. If not planted immediately, they should normally be stored in a cool and dry place and must not be kilndried. Some seed such as cacao, coffee and nutmegs rapidly lose their power of germination if allowed to dry. Long storage of all seeds usually much decreases the percentage which germinate.

**Propagation By Vegetative Means:**

The following examples of vegetative propagation may be mentioned:

✓ By the developments of bulbs (e.g. squill); corms (e.g. colchicum); tubers (e.g. jalap and aconite); or rhizomes (e.g. ginger).

✓ By division, a term usually applied to the separation of a plant which has a number of aerial stems or buds, into separate parts each having roots and a growing point. This method may be used for altheas, rhubarb, gentian and male fern.

✓ By runners or offsets (e.g. chamomile and the mints).

✓ By suckers or stolons (e.g. liquorice and valerian).

✓ By cutting or portions of the plant severed from the plant, capable of developing roots. Cutting may be employed for the propagation of mints, lavender, rosemary, duboisias, tree daturas coca and vanilla, to mention but a few.
✓ By layers. A layer is a branch or shoot which is induced to develop roots before it is completely severed from the parent plant. Used this method for the propagation of cascara.

✓ By grafting and budding. Grafting is an operation in which two cut surfaces, usually of different but closely related plants, are placed so as to unite and grow together. In Guatemala young Cinchona ledgeriana scions are grafted on Cinchona succirubra root-stocks eventually giving a tree which produces bark rich in the alkaloid quinidine. Budding consist of the introduction of a piece of bark bearing a bud into a suitable cavity or T-shaped slit made in the bark of the stock, Budding largely used for Citrus species.

Aromatic Plants

In India, various types of climate and soils are available, hence aromatic herbs can be grown naturally all over the country. Those, the value of raw material is less, but processed products and extracted oil can be sold with higher rates. Extraction of oil may be done on small scale industry, on farms. Before plantation of such aromatic herbs, it should be spent some amount for processing unit. The aromatic oils and its compounds have some skilled technology for extraction. Growers should learn the technology and then cultivate such type of aromatic herbs. Aromatic oils and their compounds have very good demand in national and international markets. The herbal products like high grade scents, flavored food products, cosmetics, toiletries, various types of scented soaps, talcum powders, face powders, creams, Agarbatties, etc. Some of the plants products / parts are used as spices for flavoring the meal or last food products as also medicinal products.

Essential Oil from Aromatic Plants

Use of aromatic plants and their products is as old as our history. The aromatic plant and aroma chemicals contained in them, play a vital role in our day-to-day living. Many people use perfume and perfumed products. India has varied climate conditions and suitable soil exists in one or other part of the country. Hence, it is possible to grow almost any type of essential oil bearing plant.
Aromatic plants and their parts are the sources of essential oils, resin, turpentine, flavours and fragrances which can be used in the preparation of traditional medicines as well as in industry. Some of the important essential oils used in medicine are mint oil, peppermint oil, eucalyptus oil, citronella oil and cinnamon leaf oil.

India’s share of essential oil in the world market can be improved greatly if some of the bottlenecks that prevail now are removed. They are:

- Adoption of age old technology is still being followed for essential oil production.
- Wide quality and price fluctuations.
- Availability of low priced synthetic substitutes

**Herbs – Aromatic Plants**

We have plants for bronchial asthma, hepatitis and arthritis. We do have herbs where we can relieve headache, fever, gastroenteritis, sneezing and coughing. These conditions can easily be alleviated. We have other plants which have been shown to be effective for treating sexually transmitted diseases and they have been used in that way by tribal populations for centuries.

Pharmaceutical companies have already expressed an interest in developing some of these remedies commercially for sale in the West. To create awareness about the herbal wealth of medicinal importance growing available in surrounding specially in villages. Under some existing schemes, a percentage of the company’s profits is given to a local village. This is because many of the remedies are based on a combination of plants which taken on their own would not be effective.

There are hundreds of herbs but we are unable at the moment to do very good testing for combinations of plants. In the Ayurvedic system they use usually combinations. But testing combinations with modern technology is difficult.

**Common Standards:**

The herbal remedies would have to be produced to a common standard before they could ever hope to make pharmacy shelves. There are many herbs that are very effective and wouldn’t many hesitate to prescribe them or even take them but only if it has been standardized. Millions of people living across India use traditional medicine.
some rural areas, between 60% and 70% seek help from Ayurveda and Siddha practitioners. If this was taken away our health services would collapse. However, the tradition is losing out to western-style medicine.

There are vast areas of India where there is no healthcare and people look after themselves with their tradition, their folklore, their tribal systems and their inherent knowledge of plants. They use this but a lot of this is being lost because the knowledge goes when the folk healer dies. Before it is too late, it is better to acquire knowledge from them and test in labs for commercial purpose, where there would be a great demand for them in western countries as well as in Asian countries who seek natural medicines. The council hoped to continue to collect information on the traditional herbs and to identify those which can be scientifically proven to work.

Ayurveda recommends that the mind and the senses must be healthy and full of life in order to enjoy a disease free healthy and happy life. The air that we breath must be free from pollution and must be peasant. The herbs that add fragrance to the atmosphere are covered under the Aromatic plants. These form a part of all festivals of India and are generally used to create a light and refreshing atmosphere.

**Mogra – Jasmine (Jati):**

Jasmine flowers and garlands are worn by women in India for a long time now, it has a very pleasant and gentle fragrance. The oil extracted from this is widely used as a perfume. Ayurveda identifies twelve species of Jasmine which it uses for a variety of purposes. It is valuable in expelling worms, regulating menstrual flow and keeping the kidneys clean. The juice obtained from its leaves is used to remove corns.

**Kevda – Fragrant Screw Pine (Ketaki):**

Called as the “Moist Musk” by Emperor Babur this fragrant flower is used to flavor food and medicine, its oil is used to make perfumes and its highly scented flowers are useful in headaches and ear-ache. It is also prescribed as a stimulant and an aphrodisiac, It is also beneficial in asthma and other bronchial infections.
Jaiphal – Nutmeg (Jatiphal):

Jaiphal when powdered produces a strong scented oil which is used in massage and perfumes. It aids in keeping the skin and hair healthy. Nutmeg acts as a narcotic hence must be taken with care. It is beneficial in cases of nausea, dysentery, insomnia and a lot of bronchial irritations.

Long – Clove (Lavanga):

Clove oil is universally known as the best treatment for toothaches. It is used as a mouth-freshener and also as an antiseptic for inflammations for the mouth and the throat. It also prevents vomiting and aids in digestion. Its oil is a strong antiseptic and germicide.

Gulab – Rose (Shatpatri):

Shatpatri means hundred petals, the cabbage rose has been used for its mystifying fragrance and aroma in a variety of ways in Ayurveda and the general lifestyle. Royal people used to take a bath in a pool filled with roses which used to keep them sweet smelling a swell as cleanse their bodies and disinfect them. Rose water is used as an integral part of eye tonics and eye washes. The syrup made from its petals is used as a laxative. Rose oil is used to make perfumes and is also used to flavor cuisines.

Chandan – Sandalwood (Chandana):

Sandalwood is a highly priced tree providing scented wood which is largely used in Ayurvedic preparations. It is also used by women and men as a paste on the body because of its cooling effect and fragrance. It is applied on the forehead by priests and noblemen as it keeps the mind cool and pure. It is widely used to make cosmetics and soaps.

Common Herbs – Sacred Plants

Nature worship was a common phenomenon in the earliest civilizations as these forces provided all the basic necessities of the people and gradually people found out the importance of some plants to be of great benefit to them. And about 3000 years BC we find the evidence of actual worship in the Indian subcontinent as well as a reverence for
nature as a source of medicine. This practice is much older than the period when Ayurveda became a serious science.

Traditional medicine is popular in India for centuries and believed today that mankind is survived because of the herbs used by our ancestors. Hundreds and thousands of herbs used for centuries by traditional healers in India could soon be on western pharmacy shelves. The Indian Council of Medical Research has launched a series of studies to test the health claims surrounding a variety traditional medicines. Clinical trials have shown that herbal remedies for asthma, diabetes and even sexually transmitted diseases may be effective and in some cases the herbs may be more effective than Western- style medicines. The council is looking at treatments for a range of other conditions used for over a thousand years by practitioners of Ayurveda and Siddha medicine. Herbal Medicine may be in the form of powder, fresh juice, decoction and paste etc. have been complied from literature, scientific research work and experience of eminent physicians.

**Banyan – Barh (Nvagrodha):**

Called as the “Many footed tree”, this is one of the most sacred tree, under which holy preaching was given. A tonic made from its seeds may be used as a aphrodisiac. The latex obtained from its trunk has a healing effect on wounds and open sores. The medicines made from this tree are found to be blood clotting, contains antiseptic, and astringent properties.

**Tulsi – Holy Basil (Tulas):**

This shrub is grown in all traditional houses of India and is grown in then center of the open yard. It is a holy plant and everyday water is offered to it along with prayers and now modern science has also realized that this shrub purifies the air within a large radius of its location. Its leaves are crushed and mixed with honey to cure coughs, colds and bronchitis. It is also used to reduce fevers. Tulsi leaves mixed with ginger is good for stomach aches in children. Its oil is used as an antiseptic and also as an insect repellent.
Its root crushed and reduced to paste is used to soothe bites & stings and even as an antidote to scorpion and snake bites.

**Nariyal – Coconut (Narikeram):**

Fishermen in India offer coconuts to the sea to propitiate Lord Varuna, the Lord winds and Waters. Coconut forms an essential part of all religious ceremonies of India. Coconut is believed to guarantee aspiration and auspicious beginnings. Coconut is rich in proteins, minerals and vitamins. It is used in a variety of Ayurvedic preparations and is used to cure burns, restoration of hair growth and dissolution of kidney stones and also for treatment of heart troubles and blood pressure.

**Bel – Bel (Bilva):**

Bel leaves are offered to Hindu God. The tree is so sacred that the Atharva Veda even tell that this may never be used as fuel. The decoction of the leaves is used to treat fevers, influenza and fatigue. The pulp of its fruit is an excellent cure for dysentery, while its used to cure stomach disorders and as an appetizer. It also purifies blood.

**Rudraksha – Ustram Bead (Rudraksha):**

Rudraksha necklaces regulate blood pressure and also have a soothing effect on the nervous system. Rudra is a name for Lord Vishnu and it is believed that it is the tear of rage that fell form Shiva’s eye hence Rudraksha. A bead may be valued at its weight in gold depending on the number of faces it has and its natural structure.

**Pipal – Sacred Fig (Ashvattha):**

Lord Krishna describing himself in the Holy Gita says “Among trees I am the Ashvattha”, tells the importance of this tree. The wood of this tree was used to fuel the sacred fire with which Gods granted knowledge to the human race. Lord Buddha got enlightenment under this tree also called as Bodhi tree and so Buddha is also known as Bodhisatva.
Neem – Margosa (Nimba):

Neem ah’s perhaps the most powerful, and varied medicative properties. Its stems are used still today as a tooth brush and paste, the stem is chewed which releases juices which kill germs and cleans the passage, stops bad breath, chewing helps build strong gums and teeth. It forms part of a lot of Ayurvedic preparations and is also used to make tooth pastes antiseptic medicines, its leaves are kept in grain to prevent it from insects. Dried leave burned deeps out mosquitoes and other insects. Its leaves boiled and eaten prevents malaria.

Herbs – Medicinal Plants

An important exponent of Ayurveda, Charaka, has categorized medicinal plants into fifty groups according to the physiological actions of the medicines that can be extracted from them. Modern science has also followed this path and is continuously harnessing medications from plants. The aromatic plants like pepper, turmeric, ginger, cinnamomum, lemon grass etc. are exclusively used in the house-hold sector as natural food flavouring. Some of the aromatic plants which have the potential to be used in industry. The demand for natural aromatic resources is increasing in the international essential oil market. Essential oils which are obtained from the bark, leaves, flowers and fruits are natural sources for fragrance, flavour, species and medicine.

Ashok – Asoka (Ashoka):

Ashoka means “unsorrowing”. A tree associated with women in India. The tree is believed to have sprouted out of a seed when kicked by a virgin. Its bark has astringent properties. Its flower buds are eaten which are highly nutritious and are believed to eradicate grief.

Amla – Emblic Myrobalan (Amlaki):

Amlaki translates to “The Sustainer” or “The fruit where the goddess of prosperity resides”. It is one of the richest source of Vitamin C. It is beneficial in problems relating to liver, excreting urinary waste. It has a cooling effect on the body.
The fruit is found to be antiviral, helps raise protein in the body, activates adrenalin response and protects against tremors and convulsions.

**Kela – Banana (Kadali-Phala):**

Banana leaves are a must for all religious ceremonies of India. It is also a part of marriage ceremonies. Its fruit and flowers are eaten and are beneficial to general health. Its flowers dried and powdered are used for gynecological purposes. Ripe banana is rich in minerals and vitamins.

**Medicinal herbs as Cosmetics**

The medicinal herb mentioned in ayurveda by experienced sages basically state that the function of ayurvedic herbs is to purify blood and eliminate vitiated doshas (vata, pitta, kapha) from the body as they are mainly responsible for skin disorders and other diseases.

Among the written information on ayurveda also, like in Charakh Sanhita, the sage Charakh stated numerous medicinal plants in Varnya Kashaya. The herbs mentioned can be used to obtain glowing complexion. Various herbs for which description and usage can be found in ayurvedic inscriptions are mentioned are: Chandana, Nagkeshara, Padmak, Khus, Yashtimadhu, Manjistha, Sariva, Payasya, Seta (shweta durva), Lata (shyama durva).

There is also the mention of various herbs from kushthagna Mahakashaya that are effective curatives for skin disorders. Few such herbs are: Khadira, Abhaya, Amalaki, Haridra, Bhallataka, Saptaparna, Aragvadha, Karaviram, Vidanga, Jati.

Like the notifications of charakh and other sages, Sushrut said that Eladi Gana contains: Ela, tagar, kusstha, jatamansi, tvak, dhmamaka, patra, nagkeshar, priyangu, harenuka, vyaghranakha, shukti, stouneyaka, choraka, shriveshta, khus, goggol, sarjarasa, turushka, kundaru, agaru, ushira, devdaru, keshara, and padmakeshara. All these herbs can eliminate toxins from the body, clear the complexion that leads to a glow on the skin and alleviates puritus, kusstha and boils.
Herbs In Cosmetics

Dated ages back, in the famous fairy tale of the snow white and Seven Dwarfs, the wish of the wicked step-mother to be the most beautiful woman on earth, even today strikes the chord that being beautiful irrespective of age, sex and color is not a thing desired just today.

As ayurveda the concept of beauty has an age-old origin. Whether in fairy tales it was the wicked mother or the fairy that beautified Cinderella on the ball night, creating beauty by magic potions or herbs proves that beauty, its concepts and cosmetics go hand in hand. Especially for females, the desire to look beautiful, charming and young by different beauty ways, using various herbs are things known by the world since centuries.

Ancient scriptures like Abhigyan Shakuntalam and Meghadootam of Kalidasa and many mythological epics encompass the reference of cosmetics like: Tilak, Kajal, Alita and Agaru (Aquilaria agalbeha) that were used as body decorative and to create beauty spots on the chin and cheeks in the era ruled by gods and their deities.

In fact, the concept of beauty and cosmetics is as old as mankind and civilization. The famous depictions in the Ajanta and Ellora caves, Khajurao prove that not only women but men also adorned themselves with jewelry, scents and cosmetics. Enscripted in history is the Aryan period that witnessed the use of turmeric- haridra, (curcuma long, linn), saffron, alkanet, agaru, chlorophyll green from nettle plants and indigo for bodily-decorations apart from using Raktachandran (pterocarpus Santalinus Linn), Chandan (Santalum Album) for beautification. Using Mehendi (henna) for dying hair in different colors and conditioning was also practiced in the olden times.

Common herbs used as cosmetics

According to ayurveda there are certain herbs that have their mention in the old ages also, such as:

**Indigo**: Being blue in color it was used as a bindi / Tika (dot) on the forehead and chin.

**Madder Root**: Being available in color that suits the lips this was utilized as to beautify lips and cheeks.

**Hibiscus Rosa Cynensis (Jaswand or Shoe Flower)**: With dark color of its own this was used to blacken and maintain hair color.
**Raktachandan:** This was another natural component available in attractive color and hence was used as fresh, red bindi / Tika (dot) on the forehead.

**Aloe Vera:** With the traits that prevent aging and regenerate growth of cells this was used as an essential component to keep oneself fit and young and protect the skin and prevents and heals skin irritations.

**Chandan and Vertiver (Usheer):** It was used as scrubs and face packs that were applied on face and whole body to remove dead cells, regenerate growth of new cells and give a young look.

**Haldi (Turmeric):** It was used as a face pack along with usher (Vertiver) and also as an antiseptic.

**Culinary Plants**

Ayurveda says that we are (to a great extent) what we eat. Thus Dietetics forms an integral part of Ayurveda. Again in this section there is a varied classification of edible and potable substances. The science of Ayurveda was at its peak when the teaching of Buddha had enlightened the masses and thus Ayurveda is more concentrated on vegetarianism however in exceptional cases animal products may also be prescribed in Ayurveda.

**Jeera – Cumin (Jiraka):**

An important spice used by Indians to season curries, pickles and bread. It is beneficial in digestion, gastric troubles, dysentery and diarrhoea when roasted and consumed. It is also used to make gripe water for infants and is also beneficial for pregnant women and nursing mothers (it increases lactation). It forms an important ingredient in food preparations which are cooling, appetising, protect against indigestion and a lot of water borne diseases.

**Kalimirch – Black Pepper (Marica):**

Pepper was one of the most important merchandise among trades with Greeks, Romans, Portuguese and other countries during the past and still is to this day. An excellent preservative it is used in a variety of recepies and Ayurvedic preparations. It is
beneficial in problems like colds, coughs, catarrhs, constipation and bronchial complaints. It was also used to make a medicinal preparation against Cholera.

Dhaniya – Coriander (Dhanyaka):

One of the most important culinary plants of India, it is used in almost every household sprinkled over curries and vegetables and its seed are used as spices in a variety of ways. It helps in the easy passage of urine and also as a coolant to do away with fevers. It may also be used as a gargle to treat ulcers or as an eye-tonic to treat conjunctivitis.

Aam – Mango (Amra):

Mango is said to be the king of all fruits. Mangoes are rich in Vitamin C and are highly effective in sunstrokes and thus are used in a variety of summer drinks. The pulp is used in decoctions for treatment of diabetes and blood pressure. Its twigs are antiseptic and are used as toothbrushes. Its seed powdered is used to counter vaginal discharge and also to cure dysentery.

ILaichi – Cardamom (Ela):

ILaichi has long been cultivated in India for its culinary, aromatic and medicinal properties. It is beneficial in disorders like retention of urine, stomach disorders, respiratory diseases. It is also used to add flavour to Ayurvedic preparations and foods as well.

Lasan – Garlic (Rasona):

Garlic is largely used in a large amount of food preparations all across India. Garlic destroys bacteria. Eaten raw with salt it cleanses blood and also used in nervous disorders like headache and hysteria. It is used in rheumatism, as an expectorant for lungs, to reduce cholesterol as well as blood pressure. Crushed and mixed with coconut or mustard oil, it is used as an antiseptic

Adrak – Ginger (Shunthi):
Ayurveda symbolises Ginger as “Universal Remedy”. Eaten fresh it is an excellent as a digestive and carminative. It is widely used as a preservative and also forms part of a lot of Ayurvedic preparations. Dried ginger is called as the “Great Medicament” by Ayurveda, it is beneficial against colds, coughs, rhinitis, bronchitis and indigestion. It is also prescribed for abdominal distention, colic diarrhoea and nausea. Crushed ginger is applied to the forehead to ease up headaches and colds. Ginger candies are used as throat lozenges. It is a widely acclaimed anti-cholesterol and an anticoagulant. It is also a stimulant.

Dalchini – Cinnamon (Tvak):

Cinnamon is widely used as an aromatic in Ayurvedic preparations as well as the Indian cuisine. Cinnamon is the dried inner bark of the tree but its oil is also beneficial against headaches, rheumatic pains, early morning stiffness and body pain during winter and rains. The bark is often boiled and its vapours inhaled for coughs, colds and sore throats.

Cosmetic Plants

Cosmetics that have been described in classical Indian poetry have come a long way through the harems of royals as well as through the houses of women of desire and are still very popular. These cosmetics are used to supplement beauty and health to the skin, hair and for other body treatments.

Mehandi – Henna (Madayantika):

Henna has been used as a cosmetic for thousands of years now, not only does it add to the beauty of the person but also has medicinal properties as it is an effective anti irritant, a deodorant and an antiseptic. Ayurveda also recommends it especially during the summer because of its cooling properties. It is used for boils, burns, bruises and skin inflammations. It is applied by women in a decorative way on their palms and feet and it is widely used to dye hair and to add luster to it. It gives a reddish brown effect after drying.
Ritha – Soap Nut (Aristaka):

Widely used for centuries as a home made shampoo. It adds life and luster to the hair giving it a radiant look and sine as well making it healthy. It also is beneficial in eradicating dandruff and its regular use is advised. The oil extracted from this is used to make Ayurvedic medicines for diarrhoea and cholera. Other preparations made out of this are used for making nose drops for hysteria, epilepsy and hemicrania.

Haldi – Turmeric (Haridra):

Turmeric has strong antiseptic and aromatic properties. Its paste is applied over the body after an oil massage and before a bath for cleansing and also as an antiseptic making the body free of microorganisms. It is an essential part of the Indian cuisine because of its numerous qualities. Its oil has anti inflammatory effect. It is applied on wounds and bruises for its antiseptic properties and is also taken with milk to cure coughs and other respiratory disorders.

Nimbu – Lime (Nimbuka):

Nimbu or lemon, it has an astonishing amount of Vitamin-C in it which is very beneficial for the skin and hair. It forms a part of Indian cosmetics, Ayurveda and cuisine alike. It is a traditional hair conditioner, it removes excess grease secreted by the scalp as well removes dandruff. Lime juice mixed with rose water forms and excellent skin tonic. Lime juice eases stomach disorders, improves appetite and also beneficial in case of dehydration.

Kesar – Saffron (Kunkuma):

Saffron is obtained as the stamen of the crocus plant. A large number of flowers are required to produce a very small quantity of Saffron which makes it expensive. It was largely used by royals as a paste for the face to do away with pimples and rashes. It is an antiallergenic and is also supposed to be an aphrodisiac for men. It is also used to tone the uterus after childbirth and also to regulate gynecological disorders, for treating fevers, spasmodic coughs and asthma. It is also believed to improve vision.
Paan – Betel Leaf (Tambula):

One of the earliest breath freshner, it is taken with areca nut and burnt lime paste to deliver red colour to the lips and the mouth. It is an aromatic, stimulant, carminative, astringent, aphrodisiac and an antiseptic.

**Common Herbs**

Herbs are obtained from a variety of plants which are broadly divided into five categories.

1. **Sacred Plants:** Nature worship was a common phenomenon in the earliest civilisations as these forces provided all the basic necessities of the people and gradually people found out the importance of some plants to be of great benefit to them. And about 3000 years BC we find the evidence of actual worship in the Indian subcontinent as well as a reverence for nature as a source of medicine. This practice is much older than the period when Ayurveda became a serious science.

2. **Medicinal Plants:** An important exponent of Ayurveda, Charaka, has categorized medicinal plants into fifty groups according the physiological actions of the medicines that can be extracted from them. Modern science has also followed this path and is continuously harnessing medications from plants.

### 5.4 Form of Employment:

In the district Jalaun large number of the working population is engaged in agriculture. The marginal productivity of the farmers is very low, some where it is zero and some where even it is negative too. At the same time in the industries the productivity of labour is not zero but it is higher than in the agriculture.

The form of employment in the agro-based industries of the district Jalaun has been analysed as the ratio of unskilled labour and the skilled labour is 5:1. however unskilled labour also include the semi-skilled labour in the analysis.

As in the district nearly 80% of the population live in the villages so the number of unskilled labourers are much more than the skilled labourers. Also in the agro-based
industries the very much skill ness is also not required so there exists great opportunities in the agro-based industries for the employment generation.

Agro-based industries may also be started with low investment of capital and in the form of cottage and villages industries. Further for developing such industries Self Help Groups are also being made in the district and they are producing many products. In such groups many man and women are getting employment and also these industries are fulfilling the local demand of many products, like Pickles, Papar, Sauce etc.

5.5 Localisation of Industries :-

The Jalaun district is divided into 5 Tehsil & 9 Community development blocks. Tehsils are Orai, Jalaun, Kalpi, Konch and Madhogarh and Blocks are Dakor, Jalaun, Kuthond, Kadaura, Mahewa, Konch, Nadigaon, Madhogarh and Rampura.

Orai :- In Orai many agro-based industries are established. In Orai main agro-based industries are Dal Mills, Oil Mills, Flour Mills, Spices and Bakery industries. But most of the Spices industries and Bakery industries are not registered as they are producing spices and bakery products in unorganised manner. Although mostly Dal Mills, Flour Mills, and Oil Mills are registered. In Orai there are also many Milk Dairy working properly whether in organised or in unorganised way. Milk dairy are producing the Ghee and Paneer. In Orai there are also many food products units but most of them are not registered.

Recently, the scope of agro-forestry i.e. herbal plantation is increasing. Many farmers are now farming of Safed Moosely, Sahajan and jetropha. These herbs are used in medicine and also in cosmetic items.

Jalaun :- In Jalaun seed processing units are established. There is also a farm house in which the herbal plantation is being made. Safed Moosely and Lemon Grass is being planted. At the same time the milk dairy, bakery industries and some other types of products like peanuts items and others are also produced.

Konch :- In Konch there is one fish hatchery of 16 hectare managed by Fisheries Development Corporation in which various types of Fish culture are developed and sold out. There are also some Dall Mills and Oil Mills working in organised way and
Bakery industries are working in unorganised way. The floriculture is also developing in Konch territory.

In Konch area the farming of peppermint plants is also in practice in large scale. There is big production of peppermint oil in the district. Many big and small units for extracting peppermint oil are established and working properly. The most of the peppermint oil is marketed to other district and big cities. The rate of peppermint oil is very fluctuating and lays near about between Rs. 375 to Rs. 600 per kg. the main reason of this fluctuation is the demand and supply factor, in other words when there is more supply than demand the rate of peppermint oil falls and vice versa.

Although there are many units of extracting peppermint oil yet there is no unit of making peppermint crystals and further processing. There is great scope of value addition in peppermint oil and the market price of such products is also very high.

Thus in the district there is great opportunity of establishing peppermint oil extracting and further processing units.

Kalpi :- In Kalpi Tehsil there are many units of hand made paper. This; hand made paper is a special type of product. As per the information received there are nearly 42 units in which nearly 5000 persons are employed. This industry is basically labour-intensive industry but in recent years some units are also using machines for quick and large production.

For producing the hand made paper the used raw materials are jute, rough paper and cloth cuttings etc.

As per a estimate for establishing a unit in proper way nearly the amount of Rs. 15 lakhs is required. In such unit the business may be made up to Rs 5 crore in a year out of which the export of the product amounting to Rs. 2 crore is possible. Thus there is great opportunity in this sector. Such units are localized in Kalpi only.

The hand made paper is like a sheet which can be used for making coloured, designed or plane paper. Many goods are made with this product, as file cover, carry bag, office folders, portfolio bag etc. The things made by handmade paper are good in quality and also light & long life.
**Madhogarh**: In the Madhogarh there are some Oil Mills. Milk dairies are also working in unorganised way, but these dairies are giving their full participation in the production of milk, ghee and Paneer.

### 5.6 Performance of Production:

The performance of production of the industries of district Jalaun vary from industry to industry. When we see the performance of hand made papers, it is quite well so the market of this product is wide and that’s why it is also exported. But we may not just jump into the conclusion that there is no need of the further quality improvements. In this industry modern techniques may also be used to improve the quality as well as the production.

The products of bakeries, situated in Orai & Konch are not qualitative. These products are consumed within the district and rarely are marketed to the other district. The quality development in this sector is very necessary so that this sector may further develop as there is great opportunity in this sector. The performance of flour mill, dall mill and oil mill is satisfactory.

The herbals plantation industry is under developed in the district. As there is great opportunity in this sector. The plantations of Safed Mosoely, Jetropha and Sahajan are growing in the district yet it is not to the extent, it should be. Although the soil of the district is supporting to the farming of these herbs and many NGOs and government departments (like SISI and Fragrance & Flavour Development Centre) are promoting farmers for the farming of these herbs. These herbs are very beneficial to the farmers from the productivity point of view as well as for the manufacturing of medicines and herbal cosmetic items.

The quality of the peppermint oil is also quite well as this oil is sold to other districts and cities. Although there is good production of peppermint oil, yet the farmers as well as the entrepreneurs are not aware of the fact that there is very good opportunity in this sector. There exists great scope of establishing units of making peppermint crystals and further value addition in oils and in crystals.

Many units are making various types of spices and marketing these spices within and outside the district. The production of some spices industries is qualitative, yet some
unit’s production is poor in quality. The spices industry of the district is facing big competition in price with the other units established outside the district. The spices industry of the district is mostly dependent on the raw material purchased from the District or from the Kanpur and Lucknow. Mostly the raw material is not purchased from the source so it creates high costing and leaves extra burden on the industry. Thus the market price of the spices of these industries is high in comparison to the other brands. And the units which are selling their products at low rate, they fails to maintain the quality of the products.
5.7 Questionnaires

(A) QUESTIONNARIE REGARDING THE INFORMATIONS OF AGRO-BASED INDUSTRIES

1 Name of The Company/ Firm :
2 Name of The Candidate :
3 Designation :
4 Main Product of The Company / Firm :
5 Raw Material Used :
6 Availability of Present Source :
7 Marketing Source (Channels of Distribution)
   Direct : Agent : Agencies : Home Delivery :
8 Marketing Problems :
   Lack of Agents :
      Quality :
      Price :
      Commission :
9 Employment Generation : No. of Workers
   Skilled :
   Unskilled :
10 Source of Finance: Amount Rate of Interest
   Proprietors Capital
   Bank: C.C
        T.L
        O.D
   N.B.F.C.
   Others
11 Production Process :
   Assembling
   Manufacturing
   Processing
   Refining
12 Utilisation of Machines
(B) QUESTIONNARIE REGARDING THE INFORMATIONS FROM THE GOVERNMENT INSTITUTIONS

Name of The Institution:
Head Office:
Branch Office:
Name of The Assisting Candidate:
Designation:
Other Institution:
Government’s Scheme To Provide Assistance To:

Agriculture Sector :-
Financial Assistance:
Technical Assistance:

Industrial Sector :-
Financial Assistance:
Technical Assistance:

Institutions Assistance Provided To :-

Agriculture Sector :-
Financial Assistance:
Technical Assistance:

Industrial Sector :-
Financial Assistance:
Technical Assistance: