

CLUSTER PROFILE

COTTON SEED PROCESSING CLUSTER

RAHIM YAR KHAN



Turn Potential into Profit

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1 Introduction – Rahim Yar Khan

District Rahim Yar Khan is spread over an area of 11,880 square kilometers with four tehsils: -Rahim Yar Khan, Kaput, Liaqatabad and Sadiqabad. It has very hot and dry climate in summer. The maximum temperature touches 49.7°C. The minimum temperature recorded is 6.8°C. The average annual rainfall in the district is 165 mm. The district can be divided into three main parts.

- River area
- Canal irrigated area
- Cholistan area

The river area of the district lies close to the river Indus and Panjnad and the canal irrigated area lies to the South West of the river area. The land in this area is higher than that of the river area. The approximate height of this area is 150 to 200 meters above sea level. The desert area lies in the South-East of the district. It is called as the Cholistan. Sugarcane, Wheat, and Cotton, are main crops grown in the district. Major industries in the district are Beverage, Cotton Ginning & Pressing, Drugs & Pharmaceuticals, Fertilizer, Flour Mills, Fruit Juices, G.I. /M.S. Pipes, Hatchery, Oil Mills, Packages, Paper & Paper Board, Poultry Feed, Seed Processing, Soap & Detergent, Sugar, Sulphuric Acid, Textile Spinning, Textile Weaving and Vegetable Ghee & Cooking Oil.

2 Description of Cluster

2.1 History & Background of Cluster

After the independence of Pakistan in 1947, the seed Industry in Pakistan had a desolate look of misery due to the migration of Hindus and Sikh owners who had left Till the seventies, there was no proper mechanism for the seed processing in Pakistan.

Since the evolution of civilization, mankind has been involved in a plethora of agriculture activities but this practice has reduced with the passage of time. Today, approximately three percent of the world's population is engaged in crop production in most of the industrialized countries, yet more food is produced now than ever in history of mankind.

In reference to Pakistan, agriculture can be considered as the most vital sector in the country's economy. Although its share in the country's GDP has declined from 53% in 1949-50 to 24% in 1999-2000, but still this sector is considered to be the backbone of the economy having the highest share in the National GDP and is the single largest source of employment, providing subsistence to 52% of the country's labour force. Despite the constraints faced by the agriculture sector in Pakistan it has made a significant progress in the 90s.

In 1976, the Government established Provincial Seed Corporations; Punjab Seed Corporation & Sindh Seed Corporation. Currently, these two Corporations are supplying only ten percent of the cereal seeds and 30% of the cotton seed of the country's requirement.

2.2 Description of Product

Seeds are the foundation of human and animal life on earth-the foods we eat, the fiber we wear, and most of the products we use in our daily life, are created from a seed. There is no substitute for a quality seed as quality seed is essential for growing quality crops, which ultimately results in a better quality of life.

Seed processing cluster has very important potential in agriculture sector in which Approved/Certified seeds of cotton will be produced through the multiplication of Basic Seed (Breeder seed), which will be acquired from seed research institutes & Seed Corporations. This business can be started in the rural and peri-urban areas. In this cluster, the approved seed is processed and marketed in the local market. The processing of the seed involves cleaning, grading, treating, packing, and storing operations.

Currently, there is a shortage of the approved seed, due to which its price has spiraled up. Hence, it has become difficult for a farmer to purchase seed at a higher price. In the long-run the seed cluster can be considered as a lucrative investment because the potential for quality seed is quite high in the agriculture market.

2.3 Core Cluster Actors

There is a lot of potential in Rahim yar khan regarding the wheat and cottonseed related industry. This time more than 130 seeds corporations are working in Rahim yar khan and most of them are none registered. According to the Executive district officer Agriculture, the Rahim yar khan is the hub of cottonseed. The Annual production of cotton bales in Rahim yar khan is almost 28 to 30 laks bales annually, which is almost 1/4th of the overall country's cotton production

The seed market in Pakistan values to approximately US\$ 468 million. The average seed requirement in Pakistan of wheat is 846,000 tons and that of cotton is 625,000 tons. Currently, the availability of certified seeds is very low i.e. 19% availability against the total demand for wheat, and 7.8% availability against the total demand for cotton

The seed processing is actually done by seed processors in the season from 15 April to June- July. One bag of cottonseed can sow 5 acres of land and 130 companies at Rahim yar khan are producing 6 laks bags of cottonseed. It means that 130 companies are fulfilling the demand of more than 30 laks acres land area of Rahim yar khan. Punjab Seed Corporation is also working in Rahim yar khan and it produces 1 Lak bags of cotton seed in season. The Punjab seed corporation cannot alone fulfill the demand of seeds growers and cotton growers of this area, so 130 private companies are operating effectively to fulfill the demand of more than 50,000 farmers, growers and more than 145 Ginning factories

2.4 Other Cluster Actors

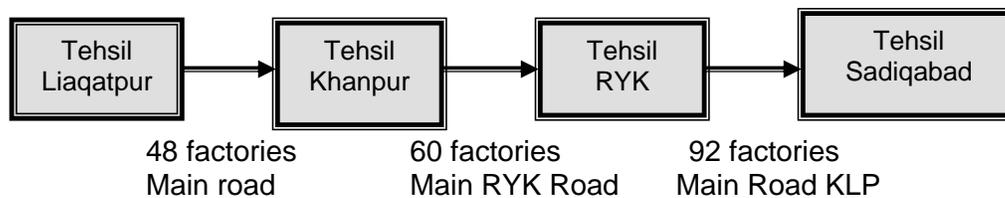
Most seed processors purchase seed cotton from Bupari (agent) and wholesale market (Arthi). On average, the seed processors purchase 70 percent of their required seed through middle men i.e. through Buparis and arthi (commission agent) where as 25 percent is being purchased directly through farmers and only 5% was their own supply. The seed processors pay to the Bupari or Arthi after the rate for raw seed agreed upon. The ginning factories also process the seed cotton (Phutti) for big farmers on contract bases.

Raw Seed mostly transported to seed factories through jute bags or on tractor trolleys fitted with frames wrapped in polypropylene bags. In this way more volume can be carried to the factory from the farmer or wholesale market.

Furthermore, there is a vast network of seed distributors consisting of nearly 1,200 seed dealers across the country. There are approximately 300 seed companies registered with the Government, out of which nearly ten percent are active.

2.5 Geographical Locations of Core Cluster Actors

According to the APPSC (ALL PAKISTAN PRIVATE SEED CORPORATIONS) survey 2006 there are more than 200 seed processing units in Rahim Yar Khan. District Rahim Yar Khan is spread over an area of 11,880 square kilometers with four tehsils: -Rahim Yar Khan, Khanpur, Liaqatabad and Sadiqabad. All the 200 seed processing units of the district are located in four tehsils of Rahim yar khan. One main by pass road connects these four tehsils of district and almost all of the factories are located near by the main road as shown in the location map of the whole district Rahim yar khan below.



2.6 Geographical Location of Other Cluster Actors

Most seed processing units purchase Raw seed from Bupari (agent) and wholesale market (Arthi) or sometimes directly from farmers of the district Rahim yar khan area. The commission agents and Buparis use to sit mostly in the market committees of the district Rahim yar khan to settle the rates between the farmers and ginners. District Rahim yar khan has four market committees, where the Buparis, Arthi commission agents and farmers use to settle down the business with ginners.

- Market Committee Rahim Yar Khan
- Market Committee Khan Pur
- Market Committee Liaqatpur
- Market Committee Sadiqabad

2.7 Current Cluster Scenario

Cotton seed is a major agricultural product of this area. It is grown under a very broad range of climates, soils and cultural practices. Prior to the introduction of man-made artificial fibers, it was only the cotton raw material from which human clothing and other necessary textiles were manufactured. Cotton is the main cash crop and Pakistan is the fourth largest cotton producer in the world. The largest cotton producing country is China followed by USA, India and Pakistan

There is a lot of potential in Rahim yar khan regarding the wheat and cotton seed cluster related industry. This time more than **130 seeds corporations** are working in Rahim yar khan seed cluster. The all business volume of this industry depends upon the sale and distribution of seed. It is estimated that more than 300 tones of seed goes from Rahim yar khan to other cities of Punjab in every seed processing season.

The Government of Pakistan has also declared the seed cluster as an industry, to meet the rising demand in the agriculture sector, especially in wheat and cotton seed, as these two crops are considered to be the staple crops. Wheat fulfils the basic need of food of majority of the populace, whereas the cotton is capable of generating great profits as it has a huge export potential in garments and textile industry.

According to EDO Agriculture, the 750,000 acres land is capable of producing cottonseeds and cotton bales. 70,000 to 80,000 bags of seed are required to fulfill the demand of growers and farmers from Sukkher district to Bahawalpur district. And the seed companies are fulfilling the demand of overall all the regions of Punjab and Pakistan. Seed processing industry has a lot of scope in the national market as well as international countries. Delinted and packed seed of cotton and other vegetables can be export to the Middle East and other European countries.

3 Analysis Of Business Operations

3.1 Seed Production Process at Rahim Yar Khan

The seed processing is performed in Rahim Yar Khan between January and April. Once harvested, seed cotton might be directly sold to the ginner, though it is generally going through one or two middlemen's hands before it eventually reaches the seed processing units' gate. The brief production process flow is as follows:

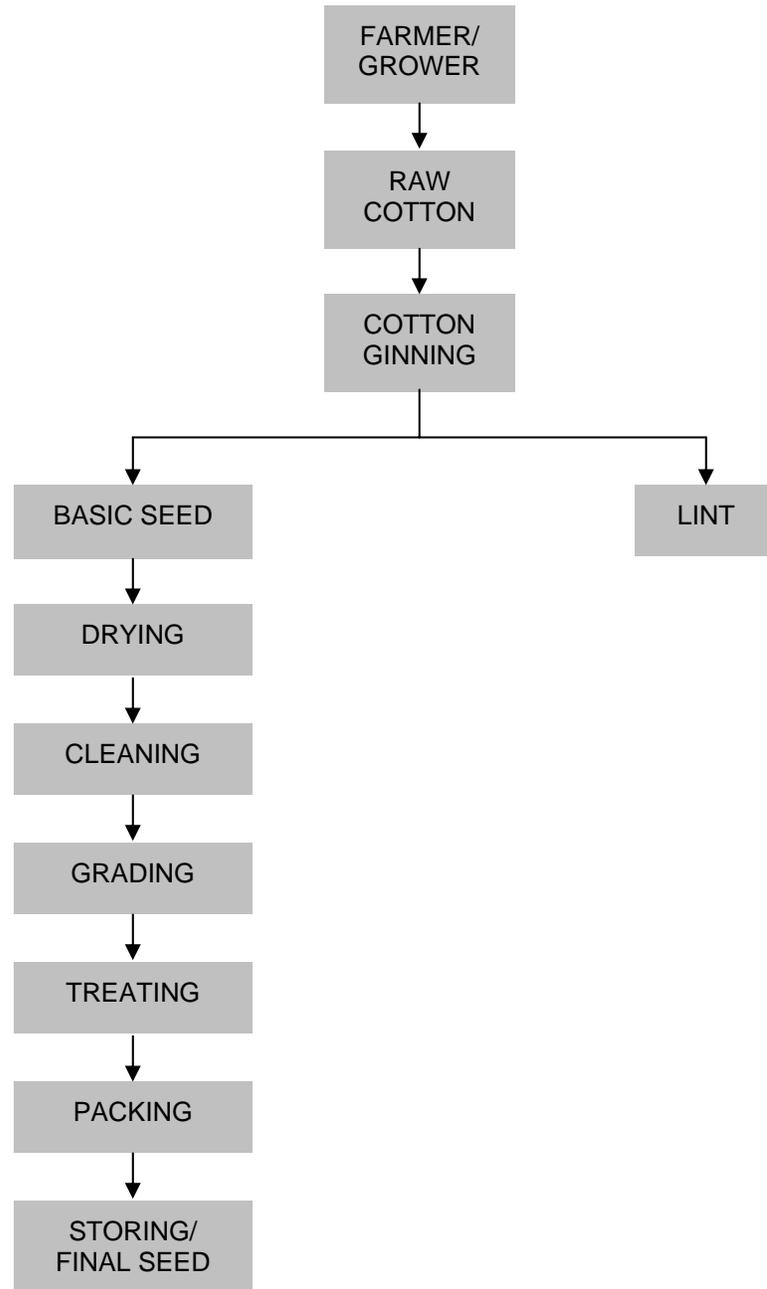
Drying

At the time of harvest, the seed normally contains very high moisture content i.e. above 16% on average. In order to avoid any negative effects of high moisture, the seed has to be dried and the moisture content has to be reduced to 8-12%. If the seed is stored at high moisture content, it loses germination quickly and is infested with pest and diseases.

Cleaning

In order to make the seed suitable for cultivation, impurities like weeds, immature seeds, inert matters, infected seeds, other crop seeds have to be removed.

Seed Processing Production flow



Grading

After cleaning, the seed requires grading. The grading is of the following types:

- **Length grading**
The clean seed is further graded in this process from the point of view of its length and the immature/infected seeds or any foreign matter that may not have been removed in the cleaning process are removed in the length grading process.

- **Gravity Separating**
Gravity separating is followed after length grading and is helpful in removing light and immature seeds having low germination.
- **Treating**
This process is followed after gravity separating. In the process, a suitable fungicide and color is used to protect the seed from fungus and various soil related diseases. The color also gives a suitable appearance to the seed and proving that a check has been performed, confirming that all seeds have been uniformly treated.
- **Packing**
To avoid any moisture contents the processed seed is stored in bags which are stored properly.

3.2 Raw Materials Availability and Requirements

The Basic Seed which is the basic raw material for the production of processed seed can be obtained from the seed corporations. The Basic seed will be cultivated under the controlled environment at various seed farms, which will result in multiplying it and producing approved seed through processing. The approved seed is the final product of the seed processing cluster, which will then be distributed and sold through marketing for growing crops with higher yields.

Raw cotton is the main raw material for the ginning industry. Rahim-Yar-Khan is at the top in production of cotton in Pakistan. Cotton is mainly raised in irrigated area on the alluvial plains of the Indus river, sowing being performed in March-April for the Sindh province and in May-June for the Punjab where 80% of the total crop is planted. Harvesting is achieved from August to February. The yield per hectare is low for irrigated cotton (1,650 kg/ha, that is 545 kg of fiber per ha).

3.3 Technology Status

Seed processing is done through the ginning machinery. Some machines that are made at this time are based on models belongs to the past and often consuming too much horsepower. The Saw Gin machines that are being used in the ginning factories of Rahim Yar Khan are locally made copy of U.S.A. brands like Lummus, Centinal and Continental technology that was used in 1950-60 in U.S.A.

The local manufacturers who copied this technology were semi-skilled mechanics without any professional training. So during manufacturing of Saw-Gin machines, these semi-skilled manufacturers failed to make exact copy of technology and missed many parts during manufacturing of Saw Gin machines. This was a major drawback of our local made Saw-Gin machines. The productive rate of local made single machine is 2 bales/ hour while the branded continental Eagle machine is producing 7.5 bales per hour. So the copy of that machine contributes only 30 %. We are going back instead of going forward because we are not following the operations that were recommended in the consultant of DAGRIS Report(DAGRIS is a public limited French company.

In addition to the ginning machinery, some other machinery is also needed for the processing operations of Seed

- Pre-Cleaning System

- Flat Bed Static Dryer
- Separating/Grading System
- Liquid/Powder Seed Treatment System
- Weighing & Bagging System

3.4 Legal Issues

There are too many taxes by the Govt on the industry, which mainly includes the following:

- Income tax
- Sales tax
- Professional tax
- Market committee
- Employee old age benefit
- Social security

3.5 Quality Assurance

Quality control and quality assurance related to ginners and farmers. For example, The Federal Seed Certification & Registration Department controls the quality of seeds. This department has the following functions:

- Registration of the Growers
- Field inspection of the Crops
- Sampling and testing of seeds
- Control of the quality of seeds
- Certification of Seeds
- Issuance of the quality certificate

This department, for achieving the quality standards and for insuring genetic identity/purity of seeds, adopts the following modus operandi for seed certification;

Field Inspections

Field Inspections are carried out for determining the crops in which seed development is necessary. Furthermore, the origin and history as well as the progress of various seeds is also determined during these inspections.

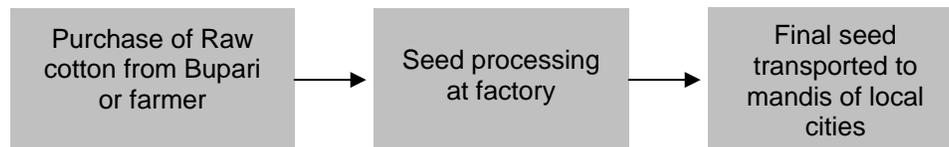
Seed Tests:

The department also carries out various laboratory tests, which includes germination, purity analysis, moisture analysis, seed diseases, seed pests, seed health.

3.6 Marketing, Sales and Distribution channel

Currently there are 4 markets in the district Rahim yar khan, performing the business activities between seed processors and farmers

- Market Committee Rahim Yar Khan
- Market Committee Khan Pur
- Market Committee Liaqatpur
- Market Committee Sadiqabad



Most seed processors purchase Raw seed cotton from Bupari (agent) and wholesale market (Arthi) or sometimes directly from farmers of the district Rahim yar khan area. The commission agents and Buparis use to sit mostly in the market committees of the district Rahim yar khan to settle the rates between the farmers and seed processors. District Rahim yar khan has four market committees, where the Buparis, Arthi commission agents and farmers use to settle down the business with ginners. The seed processors take raw seed to their seed processing units and after performing the seed processing operations at the factory they transported the final seed to seed markets of Faisalabad, Lahore, Karachi and Gujranwala. Some of them use to focus on international market as well. Currently the seed processors of RYK are not interested in promotions, and advertising of the product.

3.7 Financing

Currently, there is no financial constrain regarding getting loan for seed processors. The loan is easily available from the private banks to meet the working capital requirements. In seed Cluster, almost all the seed processing factories obtain their operating capital by borrowing from the commercial banks. Seasonal short term loans are commonly borrowed by seed processors for making seed cotton purchase. These loans are for 5 to 6 month duration and are repaid after the sale of cotton lint.

The total financing to seed processors, growers and SMEs is approximately between 7 to 15 million. The financing rates of the banks, varies between 10 to 15 % per annum. The management of seed processors also financed to seed growers directly and through middlemen as well to meet production expenses of Raw cotton seed. These loans are in the form of cash, seed cotton, fertilizers and pesticides. The period of this loan was for crop seasons. Although the seed processors do not charge any interest over such loans but by paying less price for seed cotton than the market price, the lose of interest compensated in this way. When the loan activated, the farmer or the middlemen who are the borrower of loan make a commitment with the seed processor that the Raw seed cotton (Phutti) will be supplied after picking.

3.8 Human Resources

In the seed cluster Rahim-Yar-Khan, the seed factories are being run by none professionally trained person. These people are illiterate and uneducated. They learned technical skill through experience or from father Mistri who was also not well qualified in

this field. They even not know about the material and its composition that is used in the seed processing plant. Instead improving the process these semi trained Mistri creating more problem in the process. These technicians can not make proper adjustment of saws, Ribs and pipe adjustment etc that also result in low productivity rate and more consumption of electricity. Currently, there are no specific criteria set by the seed processors of RYK regarding the education level, requirements and technical knowledge of the workers. They are hiring people on the basis of their experience in seed industry.

4 Institutional Setup

4.1 Entrepreneurs Associations

200 seed processing units are performing the business operations in this area but still there is no formal entrepreneurs association exists. Every body has its own setup and they don't have any collaboration with other industry and associations. **ALL Pakistan PRIVATE SEED CORPORATIONS ASSOCIATION (APPSCA)** is the main association who has representation from R Y Khan.

4.2 Govt/Semi Govt Support Institutions

The following supporting institutions are playing vital role to develop the SEED industry of Rahim yar khan

4.2.1 Seed certification department

The federal Government has established seed certification department. The Federal Seed Certification & Registration Department controls the quality of seeds. This department has the following functions:

- Registration of the Growers
- Field inspection of the Crops
- Sampling and testing of seeds
- Control of the quality of seeds
- Certification of Seeds
- Issuance of the quality certificate

This department, for achieving the quality standards and for insuring genetic identity/purity of seeds, adopts the following modus operandi for seed certification;

4.2.2 Punjab Small Industries Corporation

This institute is working under the Ministry of industries with the objectives of SMEs financing and cluster development programs

4.2.3 Regional Business Coordinator SMEDA

SMEDA has started its Regional Business Center at DCO office Rahim Yar khan with the objective of providing guidance and support to SMEs and all the local industry players of Rahim yar khan regarding business development services, corporate mercantile and cluster development issues.

4.2.4 District Officer Industries

DOI is also responsible for the development and the growth of industry at Rahim yar khan. Office industries also provide the information of the registered or non registered industrial units of the district Rahim yar khan.

4.2.5 Technical Education and Vocational Training Authority

TEVTA is responsible for training the unskilled or semi skilled labor in order to perform better in the various departments of the industrial units. Unfortunately, TEVAT has not yet developed a mechanism for the training of the seed processors.

4.2.6 Market Committees

Currently there are 4 markets as discussed above in the district Rahim yar khan, performing the business activities between seed processors and farmers.

4.2.7 Office of agriculture officer

District officer agriculture is also playing vital role to promote and control the seed industry

4.3 Educational Institutions

As regards the availability of skilled labor, there are 10 technical / commercial / vocational institutions (9 for men and 1 for women) at Rahim yar khan, imparting training in various trades e.g. mechanical, electrical, auto-engineering, welding, wood working and commerce. In all about 1,122 technicians, artisans and workers are trained every year. The district Rahim-Yar-Khan is at the top in cotton production as well as in number of seed factories in Punjab but unfortunately, there is no institute in the district that imparts training for seed processing technicians.

4.4 Banks and Financial Institutions

The following 5 Banks and financial institutions of Rahim yar khan are providing the fabulous financing facilities to the SEED CLUSTER and SMEs.

Name of the Financial Institutions	No of Branches in District
Askari Commercial Bank limited	1
The Bank of Punjab	5
Punjab Provincial cooperative Bank	4
Zarai Taraqiati Bank	4
Khushali Bank Limited	2
Standard and chartered	1

4.5 Private BDS Providers

Currently there are no private BDS providers working at RYK

5 SWOT Analysis

5.1 Strengths

- Raw seed available locally
- Low Production Cost
- Infrastructure available
- Excess install capacity
- High Germination Seed Available
- Relative Humidity and temperature level at this area

5.2 Weaknesses

- Four times less productivity by use of local made old technology
- Non conformity of standard
- Semi skilled labor
- No technical training institute for seed Industry
- No acid delinting plant for seed
- No proper packing and labeling facility for seed
- Seed plants don't have internal quality control systems
- No laboratories in the plants to assess the quality of seed
- Lack of online market facility to access international buyers
- No warehouses and seed storage facilities

5.3 Opportunities

- Introduction of latest modern seed processing technology being used in developed countries
- Export of seed to other countries
- Possibilities to achieve premium for best quality that government had announced on the basis of grade
- Access to international markets through online market
- SMEDA's Project of Acid delinting plant

5.4 Threats

- Weak or improper marketing strategies can result in failure of the project
- Government regulations i.e. lot of taxes on the industry
- Since this project is dependent on the contract growers, therefore, if the entrepreneur is not able to maintain a controlled environment through constant monitoring mechanism, it may result in the altered seed variety, hence resulting in disturbing the production chain
- Improper identification of varieties, which are not suitable for the Pakistani climatic and agriculture conditions, or varieties prone to diseases, or requiring high inputs (having low returns on investment) can be a major threat to the project
- Import of cotton

- Inadequate supply of agriculture inputs such as fertilizer, irrigation water, pesticides, etc. can result in hampering the intended project benefits.

6 Investment Opportunities in Seed Cluster

Rahim Yar Khan is the largest seed producing area of Pakistan so the investor will get benefit of the quality and availability of the raw material. So he can invest in the following project:

- Seed processing and packing units
- Export of seed to other countries
- Acid Delinting plants

Some other potential projects are as follows:

SMEDA has also worked on projects and Pre-feasibilities regarding agriculture projects which can be successful in this area. List of these projects are as follows:

- Green house farms
- Off season vegetable farming
- Dates processing and packing
- Mangoes, Tomatoes processing and packing
- Fruits and vegetables seed processing

These studies are available at SMEDA website and can be downloaded from web link: www.smeda.org.pk



For Further Information Please Contact SMEDA Regional Business Center, Rahim Yar Khan

SOURCES OF INFORMATION

1. Office Of Agriculture District Officer
2. Ministry Of Food And Agriculture
3. Seed Corporations
4. Market Committees
5. Seed Growers And Suppliers
6. Seed Certification Department
7. Web Sites Punjab Seeds