

AN APPRAISAL OF PSYLLIUM FARMING IN HASILPUR TEHSIL: SPATIAL DISTRIBUTION, PRODUCTION AND MARKETING

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ABSTRACT

This study looks into the spatial distribution, production and marketing of Psyllium grown in Hasilpur tehsil of Bahawalpur district located in southern Punjab. Agriculture is the mainstay of this area where most of the inhabitants earn their livelihood from agriculture and crop farming is their major source of income. Production of some medicinal crops has traditionally got prominence and psyllium among them is the most important one. This crop is mainly used for medicinal purposes and is highly valuable. Both primary and secondary data have been used for the study. Secondary data were obtained from various concerned departments and primary data were collected from field survey using questionnaire and conducting interview of farmers. For this purpose, 14 psyllium producing villages were surveyed and data were collected from 60 farming families. The data about distribution and production of psyllium were obtained from Qanongo Office Hasilpur. The collected data were analyzed through computer software. The distribution maps were prepared using Arc GIS. Results show that most of the geographic conditions are favourable for Psyllium farming in Hasilpur. Although, several crops are produced in this region during Rabi and Kharif seasons but production of psyllium is one of the specialties of the farmers of this area. Farmers of some villages have got special skills in this field. Most of the population live in rural areas and engaged in agricultural activities. However, most of the farmers are poor, illiterate and bear small and un-economic land holdings. Water shortage, poor soil quality, unaffordability of farmers to purchase modern tools, seeds and agrochemical, and lack of awareness of farmers to use modern methods are the main hurdles for the successful production of crops. The area, due to its location at tail end, is facing serious shortage of canal water and underground water is mostly brackish, deep and expensive to draw. Soils are saline and have low organic content. At some places, soil pH-values are so high that it does not suit for successful production of crops. If these problems are solved by the application of effective planning, the yield of this valuable crop can be increased manifold that may eventually cause prosperity of the area. Study concludes that agriculture is the mainstay of the economy of Hasilpur and most of the geographic conditions of the tehsil are favourable for the cultivation of Psyllium. Several farmers also have special skills in Psyllium. Therefore, they must be facilitated to promote the production of this crop to earn more profits and to improve the socio-economic conditions of the people.

KEYWORDS: Hasilpur tehsil, Medicinal crops, Psyllium farming, spatial distribution.

INTRODUCTION

Since the field of agricultural geography in the past remained largely unapprised in Pakistan, the studies specifically concerning spatial distribution and production of psyllium are highly sporadic here. On the

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other hand this important field of inquiry can provide useful knowledge about the distribution and production of various crops on commercial or subsistence basis produced under the influence of varied geographic conditions. Pakistan is basically an agrarian country and agriculture has bidirectional impact on boosting its economic growth (Ali et al, 2015). Production per unit of land area is however low and resulting slow growth of agriculture is unable to keep pace with the rapidly growing population pressure (Ali, 2005). Psyllium is an important medicinal crop of some irrigated dry areas of Pakistan. If properly managed on modern scientific basis, it can be highly profitable and may play significant role in supporting local economy. The main objective of this endeavor is to appraise the various aspects of spatial distribution, production and marketing of psyllium in Hasilpur Tehsil of Bahawalpur.

In Pakistan, particularly in its province Punjab, much is paid on selected crops and several profitable crops are cultivated in the fields. If properly managed, psyllium is also a highly profitable crop. It belongs to the group of crops that are used as medicines in different shapes for centuries not only in our country Pakistan but in several other countries over the world as well. Psyllium is basically an annual herb native to parts of Asia specifically Pakistan and Iran, northern Africa, Mediterranean Europe specifically Spain, and Canary Islands (Agarwal, Tandon & Sharma, 2007). Its farming in Pakistan was introduced long ago. The crop is highly sensitive to environmental conditions and essentially require warm dry and sunny harvesting season. The southern districts of Punjab (especially Hasilpur and Ahmedpur tehsils of Bahawalpur district) and adjacent districts of northern Sindh are particularly characterized with the geographic conditions appropriate for psyllium farming. Advances in overall farming practices have affected the production techniques of this crop Hasilpur also. Height of psyllium the plant typically ranges between 15 to 18 inches. Its flowers are small, shining and white in colour. The seeds are enclosed in capsules that open at maturity. The yield of husk ranges from 10% to 25% of the total weight of dried seeds. The water holding capacity of husk is about ten times higher than that of its dry weight. Its mucilage is odorless, colourless and tasteless (Segawa, Kataoka, & Fukuo, 1998). Besides the botanical name *Plantago Ovata* it has several local names. In Pakistan, it is commonly known as isabgol or isapghol, the Persian words 'isap' and 'ghol' meaning horse ear that represents shape of the plant seed. In Pakistan it is grown in the areas of Bahawalpur district located along Sutlej and in the areas of upper Sindh where it is known as isabgula. Some areas of India also grow isabgol where it is mainly used as medicine. It is commercially cultivated in Gujarat where it is called as flea. Rajasthan, Eastern Punjab, Haryana and Uttar Pradesh also produce some amount of psyllium where it is known as spogel. Arid and semi-arid areas having irrigation facilities are considered suitable for its

farming. Psyllium produced in such kind of areas is traditionally used in pharmacology (Patel et al., 1996).

Its seed and husk both are very rich in soluble fiber and used as a dietary supplement and as a medicine for colon cleansing and cholesterol reduction. Besides allopathic medicines, it is used in several other products like ice-cream powder. Parts of the plant and seed cover is also used as animal fodder. It is favorite food for goats. Psyllium is very useful as veterinary medicine. It is known by several genetic and brand names like Metamucil. It is a bulk forming laxative and used to treat gastrointestinal disturbances. Its husk (seed coating) is rich in hemicellulose mucilage which can absorb water and swells inside the intestine. It is used for horses, dogs and cats to treat several gastrointestinal problems like constipation resulting from too little fiber in diet, inflammatory bowel diseases, gland diseases and mega-colon large bowel diarrhea. It has been found very effective for the treatment of sand colic in horses and chronic watery diarrhea in dogs and cats. Although, psyllium is a non-prescription drug and generally safe but it should be used under the guidance of veterinarian. When psyllium is given, at the same time other medicines like digoxin, salicylates and nitrofurantoin should be avoided for at least three hours due to the risk of drug impairment. Furthermore, it may increase flatulence and should not be used for the patients of intestinal obstruction and for rabbits. Sometimes, it may cause esophageal and intestinal obstruction in animals. Thus, water must be available at the time any animal treatment using psyllium.

The study in hand has been conducted due to the reason that psyllium is an important profitable cash crop, produced in some specific areas and used for variety of purposes. It was also the aim of study to put forth some investigation based suggestions to improve the economic conditions of the farmers so that they may keep taking interest in the production of this traditional and worthwhile crop.

THE STUDY AREA AND METHODOLOGY

In terms of spatial extent, the study area Hasilpur is fourth biggest tehsil of Bahawalpur district of the Punjab province. It spreads over an area of 1372 sq. km (338,884 acres). It is located in southern Punjab and occupies the north eastern part of the Bahawalpur district (map 1 & 2). It extends between Sutlej River and Indian boarder. Main settlement Hasilpur is its tehsil headquarter (DCR 1998). The town was settled in 1752 by Hasil Khan Abbasi on his own name. It is linked with other cities predominantly through road transportation and to some extent through railways. It comprises of fifteen Union Councils. The main languages spoken here are Punjabi and Saraiki. About three-fourth of its population is inhabited in rural areas and depend upon agriculture (table 1). Land area of Hasilpur tehsil is very fertile among

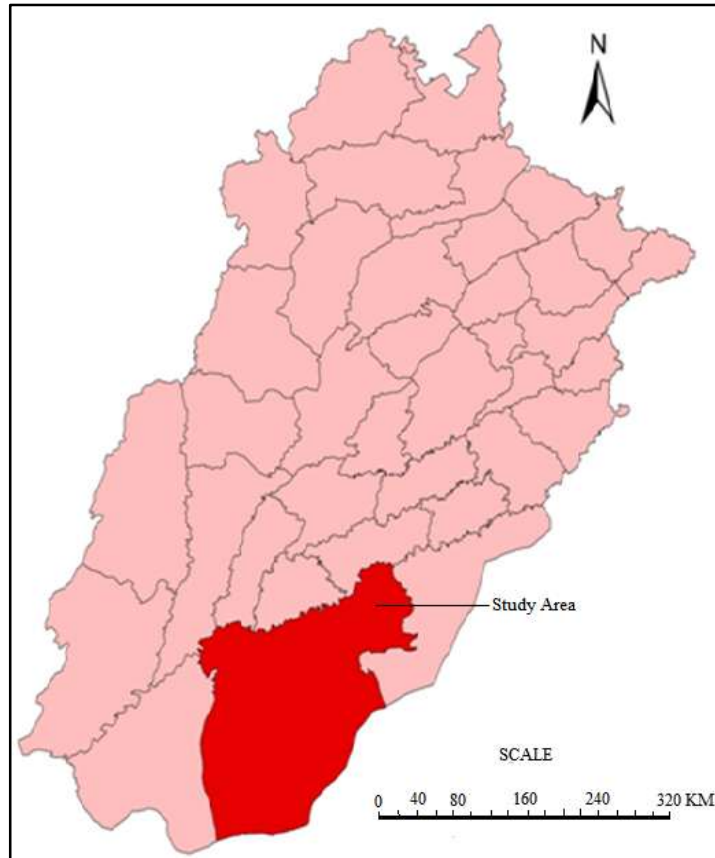
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the tehsils of Bahawalpur district. Major part of its geographic area consists of highly productive agricultural land suitable for the cultivation of several crops. However, due to the lack of proper attention of concerned departments its agriculture is not very progressive and farmers are not well-off. Major crops of the area are cotton, wheat, psyllium, chia herb, rice, onion etc. Success of these crops not only play a significant part in the economy of producing region but the production enters in the intra-country trade channels and play important role in the agriculture revenue of the country also. Table 1 expresses some significant features of the Hasilpur Tehsil.

Table Error! No text of specified style in document.: Some Significant Features of the Hasilpur Tehsil

Features	Description
Tehsil Headquarter	Hasilpur city (population 88,056)
Location	Located in southern Punjab between Sutlej River and Indian Boarder
Coordinates of Hasilpur city	Longitude 72° 33' 19"E (72.555) & Latitude 29° 42' 44"N (29.712)
Altitude	123 meters
Area	1,372 sq.km (338,884 acres)
Population	456,006 persons (Census 2017)
Rural Population	340,470 (74.7% of tehsil's population)
Urban Population	115,536 (25.3% of tehsil's population)
Population Density	332.4 persons/sq.km
Distance from Bahawalpur	91 km
Main Towns	Hasilpur, Qaimpur, Jamalpur, Chonawala
Main Crops	Cotton, Wheat, Rice, Psyllium, Chia Herb and Onion
Main Fruits	Citrus, Mango

To investigate various aspects of Psyllium farming in study area, both primary as well as secondary data were used. Primary data were gathered through field survey using questionnaire and conducting interview of farmers. For this purpose, 14 psyllium producing villages were surveyed and data were collected from 60 farming families. Convenient sampling technique was used to select the respondent farmers. Some basic information concerning the farming activity in study area were obtained from the natives engaged in farming activity including both males and females. Ethno-botanical information about medicinal plants and their uses were collected from individual sites. Secondary data were obtained from literature and concerned offices.



Map 1: Location of Study Area in Punjab

The data about distribution and production of psyllium were obtained from Qanongo Office Hasilpur. On our request, concerned Patwari, Girdawar and Thesildar provided guidance about the use of *Khasra Girdawri*, *Jamabandi*, *Lattha*, Register *Malyat*, and Administrative maps etc. They also helped to compile information about cropped area and production. In *Khasra Girdawri*, and details are given with reference to land owner, cultivator and crops production etc. *Jamabandi* is in fact a register in which the total land area of village and types of its use per *Khasra* are given along with land cover. *Lattha* is a *Khasra* wise detailed map of land which tells the location and accurate characteristics of land up to micro-divisions namely *Khatta* and *Khatoni* etc. In register *Malyat*, land revenues per acre crops are given. In administrative maps, administrative divisions of the area like *mouzas* and villages along with their extent and boundaries are given. All these sources helped in gathering data about cropped are, production and other required information. The collected data were analyzed through computer software and distribution maps were prepared using Arc GIS. Ultimately, by

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processing, integrating and interpreting the gathered information, the study reached to certain conclusions.



Map 2: Location of Study Area in Bahawalpur District

SPATIAL DISTRIBUTION OF PSYLLIUM FARMING IN HASILPUR

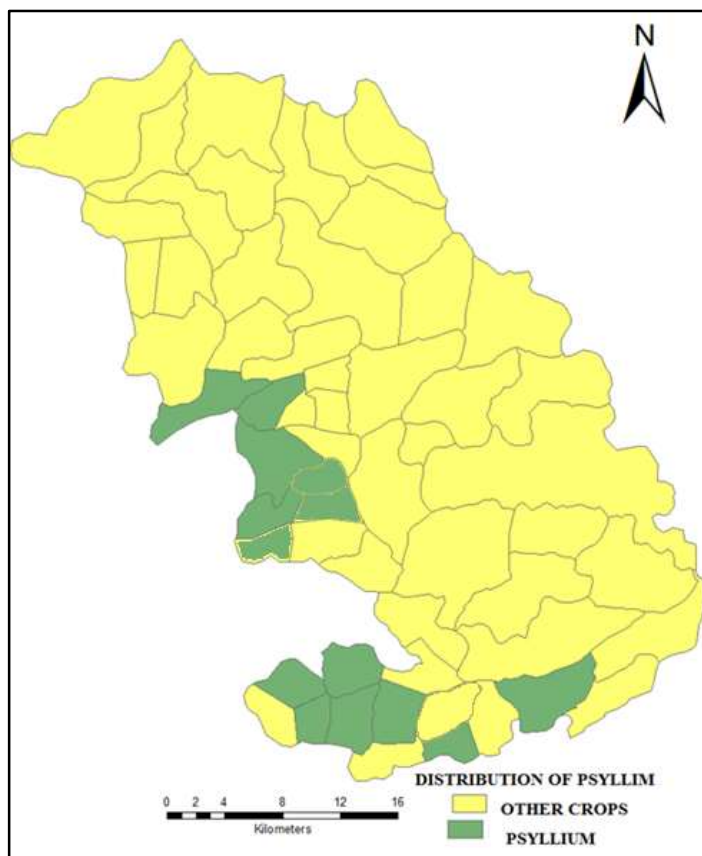
Fourteen villages locally known as chaks of Hasilpur tehsil are famous for the production of Psyllium (table 2). The prime reason of Psyllium farming here is the suitable environmental conditions and skills of farmers who are traditionally trained in cultivation of this crop.

Table 2: Spatial Distribution and Area of Psyllium Producing Villages of Hasilpur Tehsil

Name of Village	Longitude	Latitude	Total area (in acres)	Cultivated area (in acres)	Uncultivated area (in acres)
Chak No.21/F W	72°27'12.50"E	29°39'35.76"N	4,448	1,440	3,008
Chak No. 69 /F	72°28'40.92"E	29°39'27.32"N	2,965	500	2,465
Chak No. 70 / F	72°28'52.99"E	29°39'31.27"N	5,189	1,208	3,981
Chak No. 73/ F	72°30'0.88"E	29°38'4.35"N	1,977	357	1,620
Chak No. 74/ F	72°29'19.46"E	29°35'30.78"N	2,718	677	2,041
Chak No. 75/ F	72°29'22.19"E	29°34'20.47"N	1,977	280	1,697
Chak No. 77/ F	72°31'1.54"E	29°35'44.35"N	2,224	390	1,834
Chak No. 185/ M	72°36'56.03"E	29°28'39.14"N	5,683	1,480	4,203
Chak No. 190/ M	72°34'38.80"E	29°39'31.27"N	1,977	509	1,468
Chak No. 193 /M	72°33'6.07"E	29°30'0.98"N	3,459	787	2,672
Chak No. 194/ M	72°33'53.57"E	29°27'50.38"N	3,458	980	2,478
Chak No. 195/ M	72°31'14.21"E	29°29'49.16"N	3,459	980	2,479
Chak No. 196/ M	72°34'18.63"E	29°31'56.66"N	1,419	236	1,183
Chak No. 197 /M	72°29'39.74"E	29°28'24.04"N	2,718	655	2,063
Total			43,671	10,479	33,192

Source: Qanongo Office, Hasilpur Tehsil.

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Map 3: Distribution of Psyllium Farming Areas in Hasilpur Tehsil

AREA UNDER PSYLLIUM FARMING DURING 2005-06

Table 3 and map 4 show the distribution of psyllium farming area during 2005-06. Psyllium is mainly cultivated in 14 villages locally known as *chaks* (table 2 & map 2). Chak No. 21/ FW located at longitude 72° 27' 12"E and latitude 29° 39' 35" N contains an area of 4,448 acres out of which cultivated area at the time survey was 1,440 acres. The area under psyllium farming was just 44 acres (3.05% of cultivated area). Chak No. 69/F located at longitude 72° 28' 40"E and latitude 29° 39' 27"N consists of 2,965 acres land area out of which 500 acres were found cultivated and area under psyllium was only 40 acres (08% of cultivated area). Chak No. 70/F located at longitude 72° 28' 52"E and latitude 29° 39' 31"N covers an area of 5189 acres out of which 1208 acres land was cultivated. The area under psyllium farming was 80 acres (6.62% of cultivated area). Chak No.73/F located at longitude 72° 30'E and latitude 29° 38' 4"N spreads over an area of 1977 acres out of which 357 acres land was cultivated. The area under psyllium farming was 78 acres (21.84% of cultivated area). Chak No.74/F located at longitude 72° 32'E and latitude 29° 37' 4"N covers an area of 2718 acres out

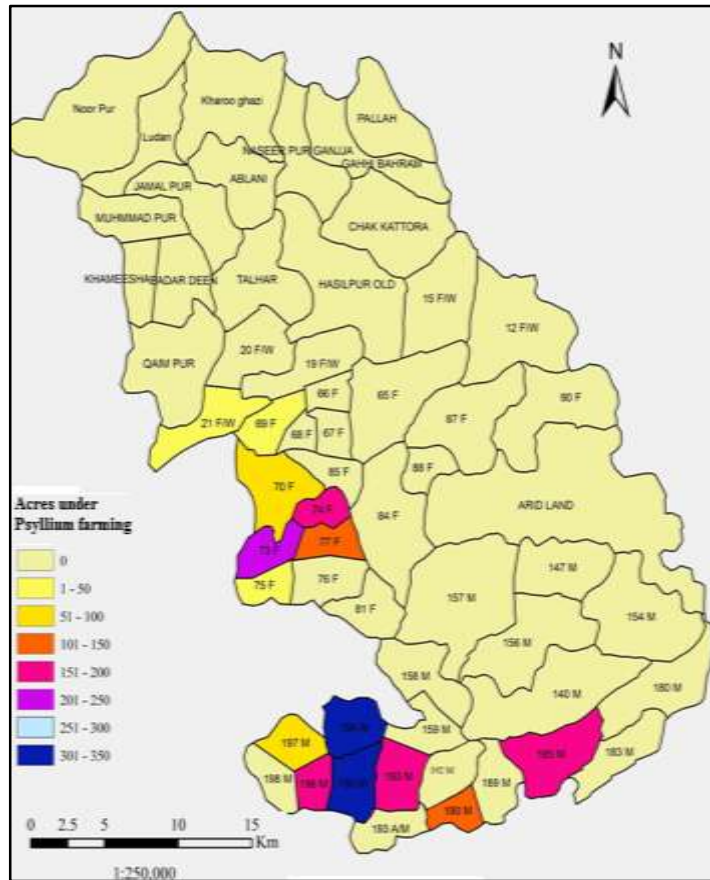
of which 677 acres was cultivated area. The area under psyllium farming was 220 acres (32.49% of cultivated area). Chak No.75/F is located at longitude 72° 29' 22"E and latitude 29° 34' 20"N covers an area of 1977 acres out of which 280 acres was cultivated area. Area under psyllium farming was 50 acres (17.49% of cultivated area). Chak No.77/F located at longitude 72°31'54"E and latitude 29° 35' 44"N contains an area of 2224 acres out of which 390 acres was cultivated area. Area under psyllium farming was 105 acres (26.92% latitude 29° 35' 44"N). Chak No. 185/M located at longitude 72°34'63"E and latitude 29° 31' 56"N covers an area of 5683 acres out of which 1480 acres was cultivated area. The area under psyllium crop was 55 acres (3.72% of cultivated area). Chak No. 190/M located at longitude 72° 36' 03"E and latitude 29° 28' 39"N covers an area of 1977 acres out of which 509 acres was cultivated area. The area under psyllium crop was 110 acres (21.61% of cultivated area). Chak No. 193/M located at longitude 72°34'09"E and latitude 29° 39' 31"N spreads over an area of 3459 acres out of which 787 acres was cultivated area. Area under psyllium crop was 190 acres (24.14% of cultivated area). Chak No. 194/M located at longitude 72°33'07"E and latitude 29° 30'N contains an area of 3458 acres out of which 980 acres was cultivated. Psyllium was sown on an area of 320 acres (32.65% of cultivated area). Chak No. 195/M located at longitude 72°33'53"E and latitude 29° 27' 50"N covers an area of 3459 acres out of which 980 acres was cultivated area. Psyllium was sown on 320 acres (35.71% of cultivated area). Chak No.196/M located at longitude 72° 31' 54"E and latitude 29° 35' 44"N covers an area of 1419 acres out of which 236 acres was cultivated area. Area under psyllium crop was 30 acres (12.92% of cultivated area). Chak No. 197/M located at longitude 72° 31' 14"E and latitude 29° 29' 49"N covers an area of 2718 acres out of which 655 acres was cultivated area. The area under psyllium cultivation was 90 acres (13.74% of cultivated area). Marked differences can be noted in the total area of the above mentioned villages as well as in the percentage of cultivated area and the percentage of area under psyllium farming. Local farmers of psyllium told during the field survey that area under this crop has reduced considerably over the years due discouraging policies of the government, increasing input costs, reducing profits, and marketing issues. The lowest area under psyllium farming was 30 acres recorded in Chak No. 196/M and highest was 320 acres recorded in Chak No. 194/M and Chak No. 195/M each. Total area under psyllium farming during this period was 1762 acres (16.81% of the total cultivated area).

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Table 3: Area under Psyllium Farming in different Years

Name of Village	Area under Psyllium Farming	% of cultivated area under Psyllium	Area under Psyllium Farming	% of cultivated area under Psyllium	Area under Psyllium Farming	% of cultivated area under Psyllium	Area under Psyllium Farming	% of cultivated area under Psyllium
	Acres in 2005-06		Acres in 2008-09		Acres in 2012-13		Acres in 2015-16	
Chak No. 21/FW	44	03.05	23	1.59	15	1.041	38	2.63
Chak No. 69 /F	40	08.00	32	6.4	24	4.8	86	17.2
Chak No. 70 /F	80	06.62	22	1.82	15	1.24	44	3.64
Chak No. 73/F	78	21.84	78	21.84	78	21.84	78	21.84
Chak No. 74/F	220	32.49	55	8.12	39	5.76	115	16.98
Chak No. 75/F	50	17.49	38	13.57	26	9.28	64	22.85
Chak No. 77/F	105	26.92	80	20.50	68	17.43	35	8.97
Chak No. 185/M	55	3.72	120	8.10	105	7.094	80	5.40
Chak No. 190/M	110	21.61	90	17.69	75	14.73	49	9.62
Chak No. 193/M	190	24.14	175	22.27	123	15.62	105	13.341
Chak No. 194/M	320	32.65	88	8.97	50	5.10	180	18.36
Chak No. 195/M	320	35.71	200	20.40	150	15.30	236	24.08
Chak No. 196/M	30	12.92	30	12.70	30	12.71	30	12.71
Chak No. 197/M	90	13.74	68	10.381	60	9.16	43	6.56
Total	1,762	-	1,099	-	858	-	1,183	-

Source: Qanongo Office, Hasilpur Tehsil.



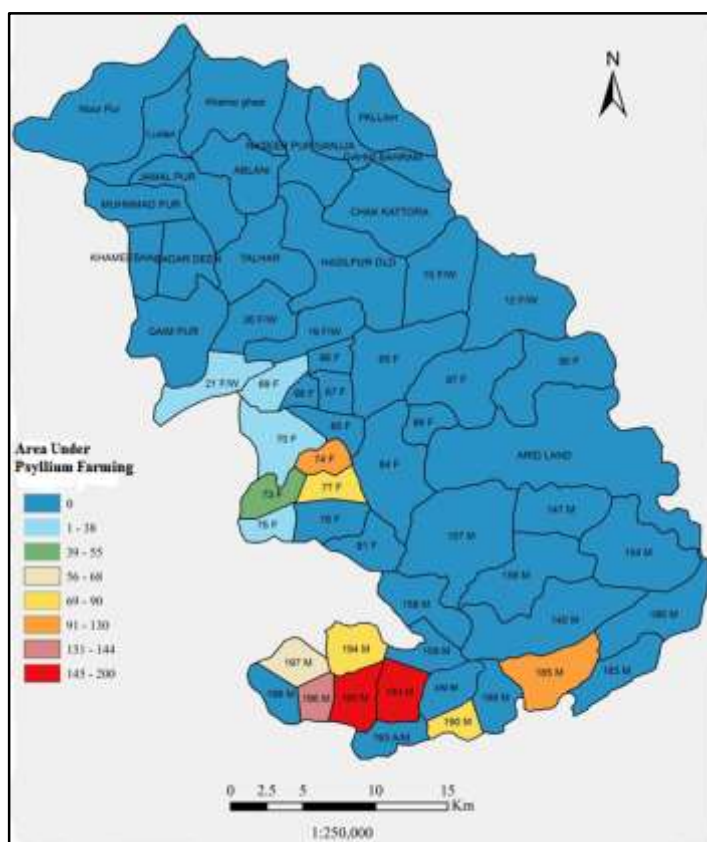
Map 4: Distribution and Acreage of Psyllium Farming Areas in Hasilpur Tehsil during 2005-06

AREA UNDER PSYLLIUM FARMING DURING 2008-09

Table 3 and map 5 show the distribution of psyllium farming area during 2008-09. The area under psyllium farming in Chak No. 21/ FW during this period was 23 acres (1.59% of the total cultivated area) In Chak No. Chak No. 69/F the area under this crop was 32 acres (6.4% of the total farmed area). In Chak No.70/F the area under this crop was 22 acres (1.82% of the total farmed area). In Chak No. 73/F the area under psyllium cultivation was 78 acres (21.84% of the total cultivated area). In Chak No. 74/F farmed area under this crop was 55 acres (8.12% of the total farmed area). In Chak No. 75/F farmed area under this crop was 38 acres (13.49% of the total farmed area). In Chak No. 77/F farmed area under this crop was 80 acres (20.50% of the total farmed area). In Chak No. 185/M cultivated area under this crop was 120 acres (8.10% of the total farmed area). In Chak No. 190/M farmed area under this crop was 90 acres (17.69% of the total farmed area). In Chak

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No. 193/M farmed area under this crop was 175 acres (22.27% of the total farmed). In Chak No. 194/M farmed area under this crop was 88 acres (8.97% of the total farmed area). In Chak No. 195/M farmed area under this crop was 200 acres (20.40% of the total area under cultivation). In Chak No. 196/M farmed area under this crop was 30 acres (12.92% of the total area under cultivation). In Chak No. 197/M, area under cultivation of this crop was 68 acres (10.38% of the total area under cultivation). The lowest area under psyllium farming was 22 acres recorded in Chak No. 70/F and highest was 200 acres recorded in Chak No. 195/M. Total area under psyllium farming during this period was 1099 acres (8.19% of the total area under cultivation). A decrease of 663 acres in the area of psyllium farming was noted than that of the area under farming of this crop in 2005-06.

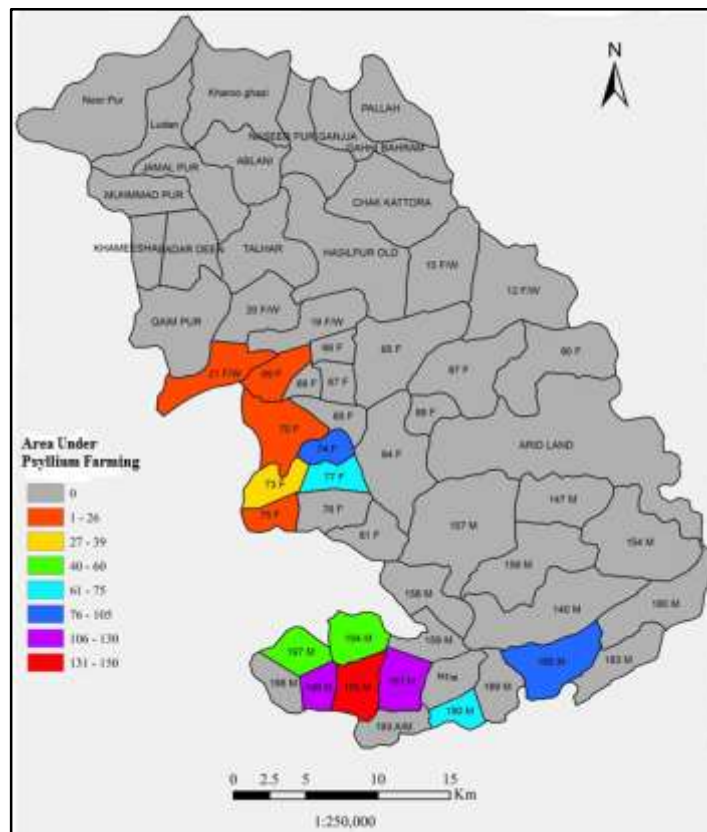


Map 5: Distribution and Acreage of Psyllium Farming Areas in Hasilpur Tehsil during 2008-09

AREA UNDER PSYLLIUM FARMING DURING 2012-13

Table 3 and map 6 show the distribution of psyllium farming area during 2012-13. During this period the area under psyllium farming in Chak No. 21/FW was just 15 acres (1.04% of the total farmed area). In Chak No. 69/F,

farmed area under this crop was 24 acres (4.80% of the total area under cultivation). In Chak No. 70/F, farmed area under this crop was 15 acres (1.24% of the total farmed area). In Chak No. 73/F, farmed area under this crop was 78 acres (21.84% of the total area under cultivation). In Chak No. 74/F, farmed area under this crop was 39 acres (5.76% of the total farmed area). In Chak No. 75/F, area under the cultivation of this crop was 26 acres (9.28% of the total area under cultivation). In Chak No. 77/F, farmed area under this crop was 68 acres (17.48% of the total farmed area). In Chak No. 185/M, area under this crop cultivation was 105 acres (3.09% of the total area under cultivation). In Chak No. 190/M, farmed area under this crop was 75 acres (14.73% of the total farmed area). In Chak No. 193/M, farmed area under this crop was 123 acres (15.62% of the total farmed area). In Chak No. 194/M, area under this crop cultivation was 50 acres (5.10% of the total farmed area).



Map 6: Distribution and Acreage of Psyllium Farming Areas in Hasilpur Tehsil during 2012-13

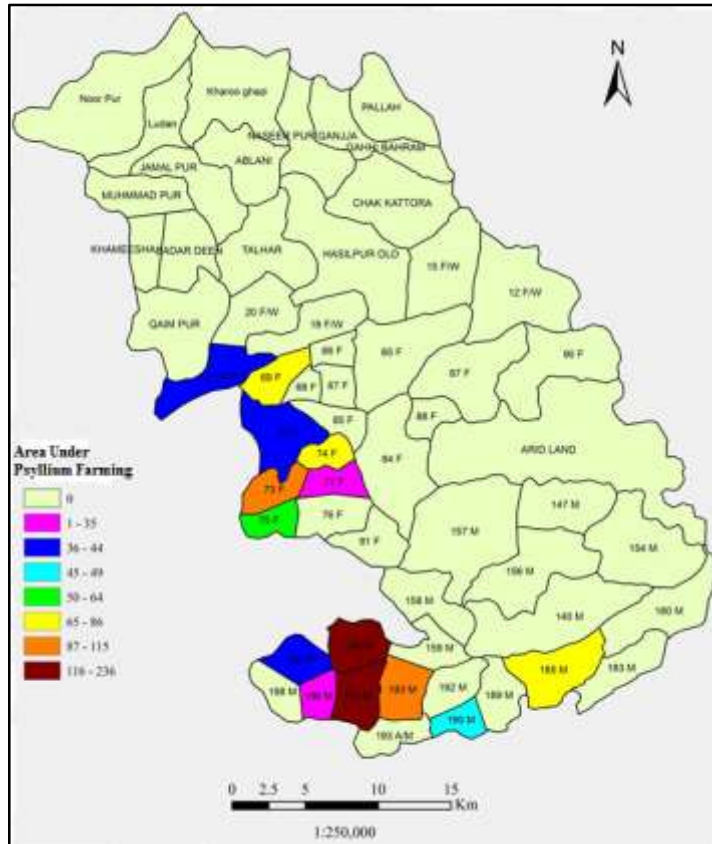
In Chak No. 195/M, farmed area under this crop was 150 acres (15.30% of the total farmed area). In Chak No. 196/M area under this crop cultivation

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was 30 acres (12.72% of the total area under cultivation). In Chak No. 197/M, area under psyllium farming was 60 acres (9.16% of the total farmed area). The lowest area under psyllium farming was 15 acres recorded in Chak No. 21/FW and Chak No. 70/F each and highest was 150 acres recorded in Chak No. 195/M. Total area under psyllium farming during this period was 858 acres (10.49% of the total cultivated area). A decrease of 241 acres in the psyllium area was noted as compared to the area under farming of this crop in 2008-09 (table 3).

AREA UNDER PSYLLIUM FARMING DURING 2015-16

Table 3 and map 7 show the distribution of psyllium farming area during 2015-16. Psyllium farming area during this period in Chak No. 21/ FW was 38 acres (2.63% of total farmed area). In Chak No.69/F, area under this crop was 86 acres (17.20% of total farmed area). In Chak No. 70/F, farmed area under this crop was 44 acres (3.64% of total farmed area). In Chak No. 73/F, farmed area under this crop was 78 acres (21.84% of total farmed area). In Chak No. 74/F, farmed area under this crop was 115 acres (16.98% of total farmed area). In Chak No. 75/F, area under psyllium farming was 64 acres (22.49% of total farmed area). In Chak No. 77/F, area under psyllium was 35 acres (8.97% of total farmed area). In Chak No. 185/M, area under this crop was 80 acres (5.72% of total farmed area). In Chak No. 190/M, area under this crop was 49 acres (09.61% of total farmed area). In Chak No. 193/M, area under psyllium farming was 105 acres (13.34% of total farmed area). In Chak No. 194/M, area under this crop was 180 acres (18.36% of total area under cultivation). In Chak No. 195/M, farmed area under this crop was 236 acres (24.41% of total farmed area). In Chak No. 196/M, area under psyllium farming was 30 acres (12.92% of total cropped area). In Chak No. 197/M, farmed area under this crop was 43 acres (06.54% of total farmed area). The minimum area under psyllium farming during the above mentioned period was 30 acres recorded in Chak No. 196/M and maximum was 236 acres recorded in Chak No. 195/M. Total area under psyllium farming during this period was 1183 acres (11.29% of the total cultivated area). An increase of 325 acres in psyllium farming area was noted than that of the area under farming of this crop in 2012-13 (table 3).



Map 7: Distribution and Acreage of Psyllium Farming Areas in Hasilpur Tehsil during 2015-16

In Pakistan, most of the population live in rural areas served by small market towns locally called as *mondis* (Tahir and Riaz, 1997). These *mondis* are not well-connected with main trading routes and trading centers. As a result, farmers sell their commodities in local markets or to the middlemen (brokers) at low cost earning very little profits.

TEMPORAL VIEW OF PSYLLIUM PRODUCTION IN HASILPUR

Psyllium is an important and traditional cash crop of Hasilpur. Favourable climate, fertile soils and inherently experienced farmers are chief factors responsible for its cultivation. According to agriculture department of Bahawalpur district, about 25 to 35% land of the study area is highly useful for crop production. The area is fortunate to have warm dry summers and cool dry winters, mineral rich and slightly saline fertile land except for a few barren parts left behind because of water shortage. Crop cultivation depends upon irrigation. Therefore, water availability affects the cultivation and yield seriously. About 11 to 19% of the cropped area of Hasilpur is given

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to Psyllium farming and it shares about 16% of the total output of this crop produced in Bahawalpur district (CRS Punjab, 2015). Area under Psyllium farming and production from 2005-06 to 2015-16 is given in table 4. Data indicates a fluctuating but generally a declining trend both in area and production of Psyllium over the past decade (figure 1). This may be attributed to the farmer's problems and their decreasing interest in the cultivation of this crop.

Table 4: Area and production of Psyllium from 2005-06 to 2015-16

Years	Psyllium farming area (in acres)	Production (in mounds)	Production (in metric tons)
2005-06	1,762	14,096	526.12
2006-07	1,225	12,025	448.82
2007-08	1,400	10,065	375.67
2008-09	1,090	8,792	328.15
2009-10	960	8,000	298.60
2010-11	1,100	7,950	296.72
2011-12	980	10,065	375.67
2012-13	858	7,500	279.93
2013-14	856	1,300	048.52
2014-15	1,183	6,750	251.94
2015-16	1,183	6,900	257.54

Source: Qanongo Office, Hasilpur Tehsil.

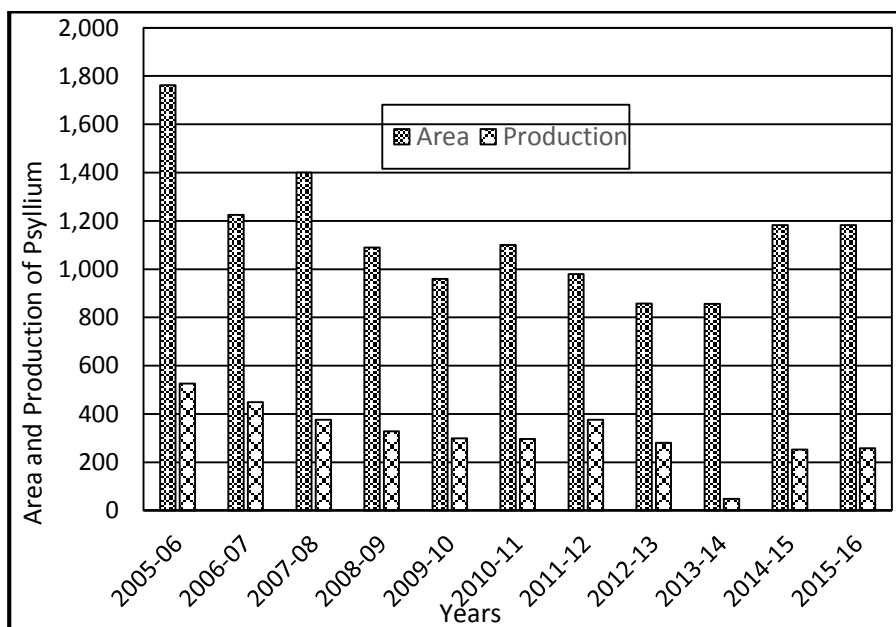


Figure 1: Area and production of Psyllium from 2005-06 to 2015-16

PSYLLIUM MARKETING FROM HASILPUR TO OTHER AREAS

Sale of the harvested yields at proper times and appropriate market rates of the crop are highly encouraging factors that make the farmers economically stable. If in any year, the production per unit area is ample but the market sale price is not adequate, the economic condition of farmers weakens and they usually step back from the routine farming. Profit of the farmers can be calculated as; $P = MR - PC$ Where $P = \text{Farmer's profit}$, $MR = \text{Market rate of the commodity}$, and $PC = \text{Production cost of the commodity}$.

During the field survey, some Psyllium farmers told that 'they are suppressed under loans borrowed from relatives, friends and banks. The people concerned with the crops trade also rob them with both hands. Low crop rates and unfair means of crop measurement used by the brokers have weakened their position in family and community and they are unable to strengthen themselves economically. They put lot of effort in their agricultural work and use their maximum potential to enhance economic status but the malicious factors demote them to disgraceful social conditions'. However, despite all such problems, it is hard for them to leave the farming occupation completely. Thus, concerned departments should pay attention to improve their deplorable conditions. On the other hand, the significance of agriculture in the economy of Hasilpur tehsil cannot be ignored. The prosperous future of this region by and large is based on the improvement of agriculture and farmer's economic conditions. There is no proper packing and storage facility for the crop in Hasilpur. Farmer's usually pack their crop in common bags and bring it to local market known as *Ghalla Mondhi* availing locally available transportation facility. Most commonly they sell their crop in *Ghalla Mondhi* or in the hands of brokers (locally known as *Beoparis*) earning little profits. From here, more often traders and rarely farmers themselves transport and sell the commodity in the big markets of other cities of Pakistan including mainly the cities of the Punjab and Sindh provinces where prices are higher than that of local market (figure 2). In this way, the middle-men earn real profits.

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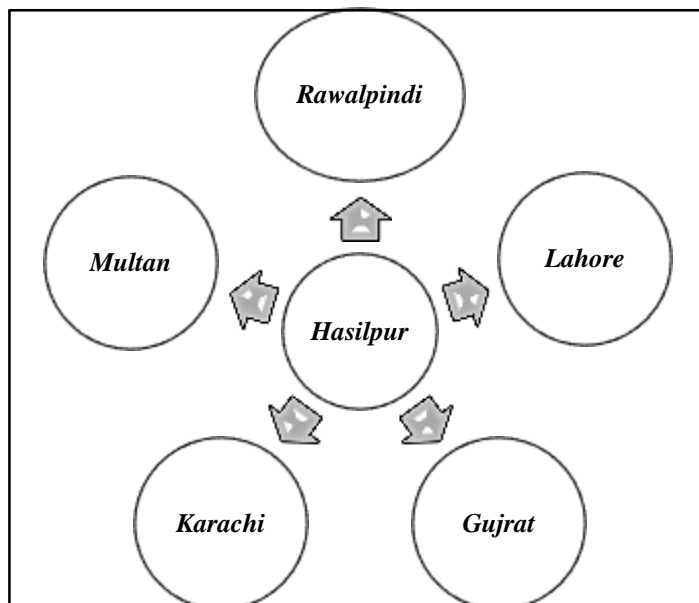


Figure 2Error! No text of specified style in document.: Main markets of Psyllium Produced in Hasilpur

CONCLUSION AND SUGGESTIONS

On the basis of findings the study concludes that psyllium as a medicinal crop is extremely useful and worthwhile but it is delicate and highly sensitive to physical environmental. The success of its yield is based on numerous interlinked elements. Although, natural and geographic factors are largely favourable in Hasilpur tehsil for the production of psyllium but the shortage of irrigation water and poor marketing facilities are discouraging factors for the famers. Because of its location at the tail of canal irrigation system adjacent to the Cholistan desert, extreme arid conditions prevail all over the region. For this reason, psyllium farming is practiced on a very small area of the tehsil located in its western and southern parts. Study revealed clearly that throughout the entire region, only fourteen chaks (villages) produce psyllium on a small proportion of their total farmed area. In terms of suitability of climate, soil types, availability of irrigation water and skilled farmers, these villages are relatively more suitable for psyllium farming than that of the other areas of Hasilpur tehsil. Even if, the farmers inherently bear sufficient skills in the production of these crops but their socio-economic conditions are not too satisfactory. Poor marketing facilities and absence of incentives by the government are major depressing problems for psyllium farmers. They are losing their interests in the cultivation of this crop over time. Thus, a gradual declining trend in psyllium farming in both terms of area as well as in terms of production has been recorded. The area under psyllium farming in the above mentioned 14 villages in 2005-06 was 1762

acres that decreased to 1183 acres in 2015-16. It means, a decrease of 579 acres occurred only in 10 years. Presently only about one-fourth of the entire land area of fourteen psyllium producing chaks (villages) is under cultivation and three-fourth is uncultivated which mostly consists on barren land. Only about 11.3% of total farmed area is under psyllium farming. By providing irrigation water, this barren arid area can be brought under cultivation and psyllium production can be increased. Some other reasons of declining trends of psyllium farming are the diversion of farmer's interest towards other crops, high input costs and lot of efforts required for the psyllium production, and shortage and irregularity in the supply of canal irrigation water at desirable times, low per acre production associated with the use of old and traditional tools, techniques and equipment, and non-scientific application of small quantity of fertilizers. The growers are also not well-heeled and they cannot afford to buy costly and necessary inputs at required times. All these are not appreciable signs for the future of psyllium farming in Hasilpur tehsil. For the improvement of psyllium farming in the light of these realities the study suggests that;

1. The role of various concerned departments of government in providing guidance and incentives to the farmers for timely purchase and utilization of inputs such as seeds of high yielding varieties, fertilizers, and modern implements must appear significantly on the scene. The most productive and pest-resist seeds and fertilizers should be provided by the government at subsidized rates to the farmers. Facility of loan for psyllium farmers on easy terms and conditions should also be made available.
2. Proper counseling and guidance at every step should be provided to every psyllium farmer specifically in the selection of seeds, irrigation, harvest and selling of products. Farmers should be introduced with recent techniques which are effective for psyllium farming in arid lands. Plant protection and training programs for increasing per acre yield and better handling of crop are also required to be introduced in these areas. The farmers should be provided training opportunities to increase per acre yield and to better handle the crop. Seminars, meetings and talks can be conducted with the farmers to motivate them for practicing modern agricultural techniques.
3. Guidance and irrigation facilities should be provided specifically to the psyllium farmers for the conversion of their barren lands into arable lands. In addition to this transportation and marketing facilities should be improved to bring the crops from fields to the market for sale easily.
4. The rates of irrigation water purchased from the tube-wells run with diesel or electricity are very high which should be fixed by the

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government. In addition to this, canal irrigation water should also be provided in sufficient amounts round the year for successful psyllium farming.

5. The rates of the psyllium products should be determined by the government and implemented strictly to ensure reasonable profit for the farmers and to minimize the role of middle-men. Farmers of the study area are facing serious problems of crop selling on reasonable rates. Thus, marketing facilities are needed to be improved. Last but not least, practical steps should be taken to encourage the psyllium farmers. This is what is required to save the future of this valuable crop in the region.

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