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SIGNIFICANCE OF TOBACCO ON THE
AGRICULTURAL ECONOMY OF INDIA

By

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INTRODUCTION

Tobacco was once considered a luxury. Now it is consumed in all countries by the rich and the poor alike in some form or other. It first became popular in the western world and today its consumption has spread to every corner of the world. In India it assumed importance only a century ago. The high prices paid by the European colonists in the seventeenth century stimulated tobacco production at first in the Americas and later in other parts of the world. Tobacco was often accepted in place of gold for the exchange of commodities. It was common during early North American colonial periods, for unmarried males to exchange tobacco for a wife as well as pay the passage for the brides coming over to America to marry a colonist.¹ This was a stimulative for the expansion of tobacco production and subsequent production resulted in low prices. The decline in price made it possible for poorer people

1. "Wisconsin Tobacco Production and Marketing," by Bufton, Hintzman, Goodell.

to use the product for smoking or for snuff. Thus it became a commonly used good which was once a luxury or exclusively a rich man good. There has been a tremendous expansion in the production and consumption of cigarettes among both men and women in many countries. The world production of leaf tobacco in 1950 was about 8 percent above the prewar (1935-39) average. The total world production during 1950 was approximately 7,100,000,000 pounds of which, United States, China and India have accounted for more than fifty percent of the total.

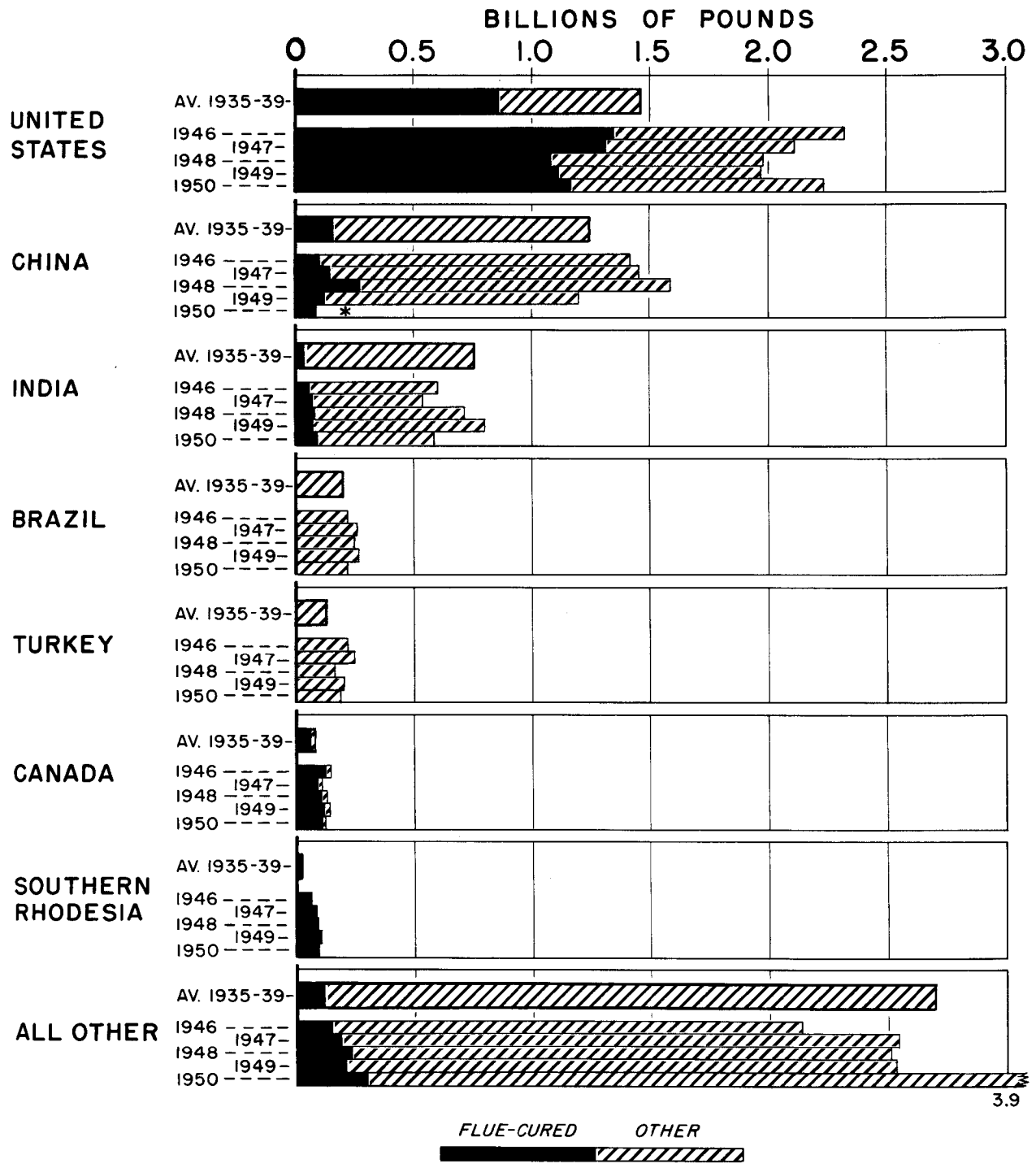
India's large production has been primarily for domestic consumption. Exports have been relatively insignificant. However during recent years numerous agencies both official and private have taken a more active interest in the production and export of both domestic and foreign types of leaf.

The most important foreign type of tobacco has been American flue cured, the production of which has increased from about 2,600,000 pounds in 1931-32 to 108,000,000 pounds in 1950-51, which is an all time record.

Indian flue-cured tobacco is being used in domestic cigarette production in place of American flue cured and native types. It is also being exported to the United Kingdom in large quantities as a substitute for American flue cured.

WORLD PRODUCTION OF TOBACCO

TOTAL AND FLUE-CURED



* INCLUDED IN ALL OTHERS

I had the privilege of studying the various phases of American tobacco industry which has helped quite a good deal in preparing this analysis. Further I would like to acknowledge the assistance given to me by Mr. V. E. Bafton of crop reporting service who made valuable suggestions on various portions of my manuscript.

CHAPTER I

History and Development of Tobacco

The actual date of origin of tobacco plant is still a matter of controversy. The tobacco plant was grown by natives in the western hemisphere long before the first Europeans arrived. The Spaniards found the plant being cultivated by the natives in Central America. Spanish colonial planters began to cultivate for smoking and snuff purposes. Cultivation of the plant was quite wide spread among the Spanish colonies by the middle of the sixteenth century. In the early seventeenth century tobacco was grown in Brazil and by the English colonists of Virginia. Tobacco is believed to have been introduced in Europe as early as in 1600. In the beginning it was considered a medicinal plant or an ornamental plant. It was not long however, until it was used for smoking and as snuff and the production was soon extended throughout Europe.

Contemporary authorities on tobacco generally concede that it was not introduced into India until after the

discovery of America. There is disagreement however, with respect to the date of its introduction. Sir George Watt, an authority on early history of commercial products of India, in his book Dictionary of Economic Products in India gives 1605 as the likely date of introduction. In his later book Commercial Products of India published in 1908, he mentions 1508 as the most likely date of its introduction. It appears that 1508 was too soon after the discovery of America for tobacco to have reached India. Production might have begun at a later date, perhaps between 1580 and 1605.

There are many reports even regarding the source of the seed from which the first tobacco was grown in India. Some authorities report that the first seed was brought from Brazil and other South American countries whereas others report that it had been brought from Europe. It is probable that it came from a number of different sources at about the same time since many varieties of both *Nicotiana tabacum* and *Nicotiana rustica* are known to have existed in India from early days. The first seed introduced from the United States of America of which records are available, was in 1829 when experiments to improve tobacco in India were first made under the orders of the Court of Directors of the East India Company. Seed from

Maryland and Virginia tobacco was used in the experiments and the tobacco produced from it was pronounced by dealers and manufacturers in London as the best samples of India tobacco, they had set up to that date. Tobacco seed from Ohio was planted in 1866.¹

Following the introduction of tobacco production and consumption apparently expanded quite rapidly. As early as 1617 its use had become so general that Emperor Jahaigir prohibited smoking, since he believed that it had a bad effect on the health and mind of the young people. Persons guilty of using tobacco were punished by having their lips cut. Another punishment was forcing the accused person to ride on a donkey, face to tail and with his face blackened.² Smoking was reported to have been practiced by both sexes. As early as in 1614, the artist Floris produced a sketch of a Hindu woman of Masulipatan smoking tobacco.³ Early reports make reference to snuff taking or chewing of tobacco. Apparently the first method of consumption of tobacco, seems to be smoking. 'Hookah' or water pipe smoking appears to be the most common method of smoking. A number of records mention that beautiful

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1. O'Connar, J. E. "Reports on Products of Tobacco in India," Manager, Publications, Delhi, India, 1873.
 2. Watt, George, Commercial Products of India.
 3. Ibid.

Hookahs of various types, having been presented as gifts to ruling princes and other nobles. Smoking of cheroots, bedis that is, granulated tobacco rolled in a species of ebony leaf. Chewing and snuff taking began at a relatively later date. Cigars and cigarettes have come in in more recent times -- cigars probably by about 1850 and cigarettes about 1895.

Early trade

Leaf tobacco and tobacco products have been the articles of Indian commerce and trade for some three hundred years or more. Letters and invoices of shipment as early as 1619 speak of tobacco having been sent from India to Red Sea ports. There are also several records with early dates which show that tobacco was sent abroad, particularly to England as gifts or as samples of tobacco and tobacco products were imported. They were first apparently brought by Portuguese traders sometime during the sixteenth century.

Government official records are available as early as from 1872. For the fiscal year 1872-73 exports of leaf totaled 17,316,000 pounds. By 1874-75 exports increased to 33,412,000 pounds which was the highest record until 1924-5. Leaf imports have never been large. They

CHAPTER II

CLIMATIC AND SOIL CONDITIONS

Most of the country's tobacco is grown in the dry fall and winter months. It is only in the relatively unimportant producing districts in the State of Kashmir, and certain other northern areas, part of the arid districts of northwest and at places of high altitude on the plateau that the crop is grown during summer months. In these districts seed beds are started between the first of March and the middle of June and the crop is harvested during the late summer and fall. Throughout most of the country and in of the principal tobacco producing districts, the bulk of the crop is planted immediately after the wet summer monsoon. Seed beds are started during the latter part of the rainy season, which varies in different sections of the country from August to October. The transplanting is accomplished with the last rains and the crop is grown during the following dry months.

The small quantity of leaf grown during the rainy season in districts where rainfall is heavy is planted so that the harvest period will fall after the wet monsoon. Such leaf tend to be more rank and woody and is of darker color than that grown during dry season, or that was raised during summer months in areas of restricted rainfall.

Location and Topography

Inspite of extensive area India is so situated that it does not have the extreme variation in climatic conditions found in the United States and China where the land areas extend from semi-tropical to north temperate regions.

India with its 356 million population, is a heart shaped subcontinent, covering an area of about 1,500,000 square miles (more than half the size of the United States) situated in South Central Asia between 8° and 37° north latitude. It is therefore all within tropical and south temperate areas. The northern part of the country is made up of the foothills of the Himalayas and those of other mountain regions that drain to the east through the Ganges River into the Bay of Bengal and southwest

through the river into the Arabian Sea. This large plain area in the north and northwest extends south to relatively high plateau which comprises something over half of the total area of the country.

The plateau is composed of extensive regions varying in altitude from 1000 to near 3000 feet with mountain peak in some sections rising from plains to the height of about 4000 feet. It is cut by numerous rivers which in the northwest drain into the Ganges system and into the Arabian Sea north of Bombay. The northeast and most all of southern section of the plateau drain through small rivers into the Bay of Bengal. The smaller rivers have relatively narrow valleys but during the rainy monsoon they carry heavy silt deposits to their mouths. This has resulted in the formation of a coastal plain on both sides of the peninsula. The plain on the east is somewhat more extensive than the plains on the west as rivers which have formed it are larger and more numerous than is the case on the west coast.

Soil and Climate

Variations in climate and soil have been important factors in the development of different types of tobacco in India. Leaf grown in various sections of climate and soil from a same type of seed have somewhat different

characteristics. Considerable variations are also caused by the period of the year in which the crop is grown. Tobacco of some varieties produced during the summer monsoon period when rainfall is extensive may have quite different characteristics from that grown in the same locality during the dry season.

Variations in the rainfall are more even than temperature. The annual acreage precipitations vary from less than 5 inches in the Sind desert where crops are grown satisfactorily only under irrigation, to areas of 200 inches of rainfall in the northeast. Variations in mostly average rainfall during the year are extreme, ranging from many districts from less than one half inch during dry months to over 30 inches in wet months. The sharp variation is due to seasonal changes in the monsoon winds which sweep the country. During the winter months, the winds as a result of high pressure areas in the northern India and relatively low pressure in the south maintained a general trend from north to south directions.¹

The total production in India is made up of many distinct types and varieties of both the *Nicotiana Tabacum* and *Nicotiana rustica* species. There are many more types

1. Normand, C. W. B. The Weather of India, Indian Science Congress Associations, 1 Park Street, Calcutta, India, 1937.

District 1 - North Hills and Mountains

Tobacco Season and Types Produced	: Months of Signif. Rainfall Average : Annual	: Average Minimum : Highest Months	: Maximum and Temperatures : Lowest Months	: Soil Descriptions	: Topographical Features and Climatic Conditions
Spring & summer months	: February to September	: June	: Month of Dec.	: Loams to gravels with some of loam	: Mountains and foothills of Himalayas with nar- row valley areas. Rain- fall and temperatures vary widely between dif- ferent sections.
Largely med. light	: 49.6	: July	: 79 61	: soils strongly alkaline	
Nicotiana ristica	: Annual 54.1	: August	: 45 32		
types with limited areas of na- tive Nicoti- ana tabacum types		: February	: 47 34		

Region 2 - Northwest Plains

Tobacco Season and Types Produced	: Months of Signif. : Rainfall Average : Annual	: Average Maximum and :		Soil Descriptions :	Topographical Features and Climatic Conditions
		Minimum : Highest Months	Temperatures : Lowest Months		
Largely sum- mer and fall months.	July and August 5.3	Month of May 105 77	Month of Dec. 75 46	Fine silt loam and sandy clay along streams;	Rajputana and deserted areas bordered on west and north by high mountains.
Largely light and medium light	Annual 10.3	: June 107 82	: Jan. 71 45	: coarse sands in deserts.	: Crop production limited to irri- gated land along streams.
Nicotiana <u>rustica</u> types; ex- perimental trials of flue-cured.		: July 102 82	: Feb. 75 49		

Region 3a - Central Plains and Plateau

Tobacco Season and Types Produced	: Months of Signif. : Rainfall Average : Annual	: Average Maximum and :		Soil Descriptions :	Topographical Features and Climatic Conditions
		Minimum : Highest Months	Temperatures : Lowest Months		
Largely fall and winter months.	: June to Sept. : 31.0	: Apr. 101 73	: Dec. 79	: Generally fer- 52 tile soils	: Plains and plateau areas with low mountains rising from plateau areas.
Largely light and medium light	: Annual 35.9	: May 104 79	: Jan. 52	: varying from 78 stiff clays 52: to light sands. Most	: Annual rainfall in- creases from west to east and north to south across areas.
Nicotiana tabacum	: : : : : :	: June 99 80	: Feb. 82	: are alkaline 56 in reaction.	: : : : : :
types but ex- tensive areas of Nicotiana rustica types. Several flue- cured areas.	: : : : : : : : : :	: : : : : : : : : :	: : : : : : : : : :	: : : : : : : : : :	: : : : : : : : : :

Region 3b - West coast-north, Coastal plains, and hills

Largely fall and winter.	: June to October 82.4	: Apr. 90 77	: Dec. 87	: Largely derived 68 from volcanic material;	: Narrow coastal plain rising in east to mountains of about 3,000 ft. Very heavy rains, June thru Aug. and relatively uniform temperature throughout year.
Mostly light and medium light Nico- tiana tabacum: types and little dark Nicotiana tabacum	: Annual 84.4	: May 91 81	: Jan. 85	: clays to loams 67 in hills with sandy soils 85 along coast. 68	: : : : : : : : : :

Region 4c - West Coast-South, Coastal Plains, and Hills

Tobacco Season and Types Produced	Months of Signif. Rainfall Average : Annual	Average Minimum Highest Months	Maximum and Temperatures Lowest Months	Soil Descriptions	Topographical Features and Climatic Conditions
Fall & Winter months.	April to November	Mar. 88 76	Dec. 86 71	Clay derived from laterite and sandy loams from harder rock formations	Narrow coastals plain rising to mountains in east. Excessive rain in June, July, & Aug. Temperature relatively uniform throughout : year.
Nicotiana tabacum types medium light & dark.	: 105.1 : Annual : 106.2	Apr. 90 78	Jan. 86 70		
		: May 90 79	: Feb. 87 72		

* Normand, C. W. B., "The Weather of India".

grown than in the United States. The number is probably as numerous as in China, but range in distinction is not so wide. Factors which have resulted in the development of large numbers of types and varieties include variations in the soil and climate of different sections of the country, the commingling of different types and differences in cultural and curing practices.

There has been some effort by the government agencies in India to classify the country's tobacco production into standard classes and types. Under present conditions of a different classification of all types would be of little value, since extensive commercial interest is limited to a few recognized types. Promiscuous crossing constantly resulted in new commercial types and sometimes tobacco of the same type has quite different characteristics.

An additional difficulty in classification is lack of significance of local names for different types. Very often tobacco of quite similar characteristics is known in different localities by different names.

Botanical classification

The country's production can be divided between *Nicotiana tobacum* which represents about two-thirds of

total and *Nicotiana rustica* which represents the remaining third. Beyond this division a botanical classification does not offer a satisfactory system for dividing the production into commercial types that would be understood outside India. Leaf under either the *Nicotiana tabacum* or *Nicotiana rustica* species may be quite different botanically but from a commercial point of view would be similar.

Detailed botanical studies of Indian tobacco were made and the types were classified in accordance with the height of the plant and number of internodes, shape, size and color of uncured leaf and the angle of insertion of the leaves, variation in form, color and measurements of different parts of the flower. The studies resulted in recognition of 51 distant types of *Nicotiana tabacum* and 20 types of *Nicotiana rustica*¹ and more recent studies resulted in recognition of first additional types under this species.² Probably many of them are new types that are developed as a result of further natural cross fertilization.

Government Marketing Classification

In connection with the study of tobacco marketing made by the Agricultural Marketing Adviser of Government

1. Howard and Albert, "Studies in Indian Tobacco."
2. Shaw and Ram, "Studies in Indian Tobacco."

of India, the country's tobacco production has been classified in accordance with purposes of which it is used.¹

That is

Cigarette	Chewing
Cigar	Hookah
Cheroot	Snuff
Bidi	

The preceding classification divert enable to comparison of different types of Indian leaf with similar American leaf or with other types grown outside of India. Color, shape of leaf, its taste and aroma, which are of primary importance, have not been taken into account. It is also misleading in that it segregates tobacco by use without regards to characteristics of the leaf.

The following table shows a classification of Indian tobacco in seven groups that have been in accordance with the above characteristics. It also shows in order of importance the purpose for which tobacco under each of the different classes is used. No indication is given of the taste and aroma of each type; however some indication of mildness and strength of taste and aroma can be ascertained by the species, color and methods of curing.

1. Report on Marketing of Tobacco in India and Burma.

Classification by Species, Color and Method of Curing

Group	Nicotiana tabacum use in order of importance	Nicotiana rustica use in order of importance
I		
Flue-cured	Cigarette; also bidies & hookah	
II Light		
1. Rack-cured	Bidies, hookah, cigarette, snuff	Hookah, snuff, cigarette
2. Ground cured	Bidies, hookah, chewing, snuff	Hookah, cigar- ette
III Medium light		
1. Rack-cured	Hookah, chewing, bidies, cigarettes, snuff, cheerroots, cigar	Hookah, snuff
2. Ground cured	Bidies, hookah, chewing, cigarettes, snuff	Hookah, snuff chewing
3. Air cured	Chewing, hookah, cheerroots, ciga- rettes, bidies, snuff	Hookah, snuff
IV Dark		
1. Rack-cured	Cheerroots, hookah, chewing, cigarettes, cigar, snuff	Hookah, snuff, cheerroots
2. Ground cured	Hookah, chewing, cheerroots, cigar, cigarettes	Hookah, chewing, snuff, cheerroots
3. Air-cured	Cheerroots, cigarettes, cigars, hookah, chewing	Hookah, chew- ing, snuff cheerroots
4. Pit cured	Hookah, chewing, snuff, bidies	Hookah

Tobacco of the *Nicotiana rustica* species in general is stronger in aroma and taste than that of the *Nicotiana tabacum* species. Indian flue cured is milder and sweeter tasting than other Indian types. The light, air rack and ground cured types are generally milder than the darker types. Rack and air cured leaf usually have a more natural taste and aroma than ground or pit cured. Ground cured leaf can usually be recognizable by taste that results from excessive fermentation.

Quality Characteristics of Commercial Classification

(i) Color- Color is an important characteristic of tobacco indicative of strength. The darker the color the stronger is the tobacco. In Virginia tobacco, the best flue cured leaf is of bright lemon color and is in great demand. The inferior stuff is of a reddish brown or green color, sometimes in patches. In the case of brown country tobacco there does not appear to be special preference in light shades in Japan but manufacturers in India require light, medium and dark brown in order of preference. Heavy dark country tobacco is exported to England for the pipe trade.

In cigar wrappers the leaf should be large light brown and thin. For cheroots even dark shades of brown

tobacco from Guntur are used in factories in India. For bidies orange to light greenish stuff is used including scrap of Virginia or country tobacco. Dark brown tobacco is used to give strength to bidies.

For chewing, tobacco of dark color gives pungent taste but is generally held inferior. Color is not so much the deciding factor in chewing as characteristic flavours and white incrustations on leaf. Some superior tobacco as 'Jaffna' are dark in color. For snuff tobacco leaves of reddish color from Krishna district are preferred.

(ii) Texture- This term is associated with the body of the tobacco and the leaf webs. To some extent it is associated with strength; the thicker the tobacco the greater is the reputation for strength or nicotine content. For superior cigarettes the leaf should be thin and silky but not very thin and papery as in this case it will not stand cutting. For cheap cigarettes leaf of medium thickness as of brown country tobacco or sun cured Virginia is used. Brown country tobacco is even said to be blended with 'Virginia' to give more strength or flavor. For cheroots the wrapper leaf should be thin, smooth, glossy, pliable and free from prominent veins. Generally this type of tobacco is obtained direct from the East

Indies or through the Netherlands but a small portion of tobacco grown in South India is used for this purpose. For 'fillers' or internal content of cigar or cheroot leaf may be medium or thick. For bidies a thick but not coarse leaf may be medium or thick. For bidies a thick but not coarse leaf broken into bits is preferred. For chewing tobacco, leaf is of variable thickness, very thick and coarse leaves being considered usually inferior.

(iii) Size of leaf- For Virginia tobacco color is more important than size and leaves of all sizes above six inches long are included in the same grade in India. But the size is very important for chewing and cheroot tobaccos, the larger the leaves being preferred. Large leaves are also preferred for cigar and cheroot wrappers.

(iv) Strength- Variations in strength play an important role in different forms of tobacco used for smoking. Although in Virginia color is especially favoured tobacco of a mild or neutral strength is useful for the superior brands of cigarettes. The nicotine content of flue-cured leaf ranges from 1.2 to 3 percent with an average of 2 percent. To some extent imported American Virginia was used in India for manufacture of superior blends but now even those have been replaced by Indian tobaccos. For mild cigarettes leaves used may have a nicotine content

as low as half percent while stronger ones contain from $2\frac{1}{4}$ to $3\frac{1}{4}$ percent. For cheroots which are stronger, the nicotine content of leaves used for bidies ranges up to $5\frac{1}{2}$ percent with an average of about 4 percent and is also the case with chewing tobacco.

(v) Burning- Burning must be slow, regular and continuous for smoking tobacco, whether cigarette, cigar or cheroot but particularly so for cigars. Some buyers prefer a blue smoke in cigarette tobacco.

(vi) Ash- White ash is preferred in all types of smoking tobaccos whether for cigarettes, cigar, bidies or cheroots, but not for hookah.

(vii) Aroma- The aroma or flavour which is characteristic of each commercial type and within each type is hard to define. It should be free from excessive pungency or objectionable odor. Each brand of cigar has a particular flavour as Havana, Brazilian, Sumatra, etc., and this applies also to cigarettes which are classified as Turkish or Virginia.

(viii) Blemish- Diseased patches, spongy leaves and damages are particularly objectionable in tobacco used for cigarettes, cigars and cheroots but relatively unimportant in others.

CHAPTER III

PRODUCTION METHODS

The cultural practices followed in India in growing tobacco differ very much from one region to another and even between producers in the same locality.

Most of the country's tobacco is grown in the dry fall months. It is only in the relatively unimportant producing districts in the state of Kashmir and certain other northern areas that the crop is grown during the summer months. In these districts seed beds are started between the first of March and the middle of June and the crop is harvested during the late summer and fall months. In most parts of the country and in important growing areas the bulk of the crop is planted immediately following the wet summer monsoon. Seed beds are started during the latter part of the rainy season which in general varies in different sections of the country from August to October. Transplanting is accomplished with the last rains and the crop is grown during the following months.

The small quantity of leaf grown during the rainy season, is planted so that the harvest period falls after the wet monsoon. Such leaf tends to be more dark and woody.

Irrigation from ponds, wells or canals is quite common in almost all districts. In many sections, however the soil is heavy clay loam with high water table and moisture retained in it from the rainy season is sufficient to mature a tobacco crop without irrigation. It is estimated that for the country as a whole, about 60 to 70 percent of tobacco is grown without irrigation. With the exception of tobacco grown in extremely dry areas irrigation is not generally common in the production of higher types.

The practice of rotation is not followed as systematically as in the United States. However, the researches that have been conducted by the agricultural experiment stations indicate that tobacco, if succeeded after sorghum, gives better color. The absence of frost in most sections of the country permits the production of two or three varieties of crops from the same field each year. The crops are selected largely in accordance with the food and cash requirements of the farmer. Attention to the soil requirements is of a secondary importance. More often than not the same field is planted with tobacco

year after year. Now, of course, the department of agriculture is trying to stop this suicidal practice. In many cases fortunately the soil is very fertile and sometimes the fields are irrigated with well water that has a high content of salt peter and other nitrogen and potash compounds. The principal crops grown usually are sorghum, rice, peanuts, millets, sunn hemp, flax, grass, wheat, etc.

The tobacco nurseries are raised beds of about $12^{\circ}/4$ feet. About 200 pounds of trash is evenly spread and the soil is sterilized well by the burning it. The bed is then raked very well and leveled before the farm yard manure is evenly spread. Then an ounce of seed is mixed with suitable quantity of sand and distributed over the bed. The soil is once again raked up and trampled by coolies and watered both morning and evening. Bordeaux mixture is sprayed to prevent the damping off disease. Thinning of seedlings is also done to prevent crowding of the seedlings and give some aeration. The seedlings will be ready in about two months, i.e., middle of August to middle of October.

Ploughing and preparation of the land before planting is done with animal labour. The land is ploughed three to four times with the country plough. Then blade harrow

is passed both heightwise as well as breadthwise. Transplanting is done 3 feet apart both ways. Thus the number of plants generally will be 4840 per acre. The plants are watered from buckets immediately after planting. Topping is not done for flue cured tobacco especially for the American types and the plants are allowed to seed to insure the production of thin leaf.

The use of commercial fertilizers is coming into common use, particularly for the cash crops as also the case with tobacco. The common fertilizers used are the ammonium sulphate, Parry's tobacco mixture apart from the cakes and farm yard manure. In some districts where irrigation is done, the fertilizer is accomplished along with irrigation water containing salt peter, nitrogen and potash.

Most of the crop is harvested as it is done in the United States that is by priming. However most cutting or splitting are also followed in some places for some varieties.

Preparation for Market

The most important factor that determines the quality of tobacco apart from the soil and cultivation methods is the preparation for market. Perhaps no other crop has so much variation in the methods of preparation and hence

greater care has to be taken depending upon the type and the use it is put to, whether for cigarette, cigar or chewing, etc. For instance in the case of flue cured tobacco, the best cured leaf might bring about 15¢ a pound while the worst might bring only 2¢. Similarly some of the famous types as in Chebrom or Meenumpalayanam sell at 15 to 20 cents a pound while the poor types hardly fetch a cent or two a pound. Curing is obviously a greater factor of importance in the quality of tobacco.

Harvesting Methods

The methods of harvesting, the leaves depend on the type of tobacco and the use to which it is put to, whether for cigarettes, cigar or chewing.

Cigarette tobacco- In case of flue-cured Virginia the plant is allowed to flower and set seed. The leaves are cut when fully mature. At this stage they assume a yellowish color. The period of harvest commences at the end of December and proceeds up to February. Leaves are cut generally in two stages beginning from the bottom as they mature. Harvesting is usually done in the evening and leaves are heaped on the field and carted to the barn next morning after wilting overnight. Direct sun is avoided to prevent the scorching of the leaves.

Flue Curing

Flue curing was introduced in India for the first time in 1928, when two American Flue-curing barns were built in Guntur. This process produced a tremendous improvement in color, taste and value for the Virginia tobacco and the old rack curing and hazardous methods were promptly replaced. Today there are 20,000 flue curing barns in India, costing about Rs. 3000/-- (\$600) each.

The curing of tobacco by flue-curing barns is essentially consists in adjusting the temperature during fermentation in order to develop the best color in the leaf and fix it. The main stages of the process consists of

- (a) the yellowing stage
- (b) the fixing stage
- (c) the fermentation of the leaf
- (d) curing of the stalk and the stem.

The size of the barns are variable with one or two furnaces the usual dimensions being for a full size barn also called double barn--20 feet x 20 feet x 22 feet; for a half size or single barn--16 feet x 16 feet x 18 feet.

The heating adjustments are done by a system of metal flues bent twice in the form of a "U". The increase or decrease of temperature is brought about by the addition or withdrawal of coal to the furnace and adjusting the dampers

and eye-pieces. The provisions of ventilators at the sides provides for entrance or closing up of air at the different stages of fermentation. The adjustment of temperature is suited to different stages of curing. For the yellowing stage, the temperature ranging from 85 to 90° F for 30 to 60 hours is used. For fixing the color a temperature of 100 to 120° F is used for 24 to 30 hours; for curing of leaf from 120 to 130° F for about 48 hours; while for the curing of stem and stalk, the temperature is increased by 2 to 5° F every hour up to 165° F and maintained there until the stuff is sufficiently dry. The temperatures given are broadly indicative and the actual period varies with the condition of the leaf at each stage.

Degrees F	Period
<u>Yellowing Stage</u>	
88°	30 hours
95°	6 hours
100°	4 hours

Fixing Stage

(Start fire and reopen both ventilators.) Increase to 120° F at the rate of 2° F at every hour.

Degrees F	Period
<u>Curing Stage (leaf)</u>	
125°	4 hours
130°	6 hours
135°	8 hours
140°	8 hours

Curing Stage (stalk)

Close up ventilators, go to 145°, stop for 6 hours and go up every hour 2° to 165° and stop at this temperature until stuff dries.

The whole process takes five to six days. In arranging the leaves in the barn, cut leaves are stringed with a jute twine and tied to a bamboo stick about 5 feet long leaving some space in the ends. Two to three leaves are looped together in a continuous knot, about 100 leaves facing on two sides. For flue-curing Virginia certain amount of space is necessary as otherwise the colour is liable to be lost. The sticks are mounted 8 to 10 inches apart, more space being allowed on warm days. A full sized barn may contain from 1000 to 1500 sticks arranged along the tiers. The leaves are arranged in the previous evening, the furnace started with ventilators closed. Starting with an initial temperature of about

88° F, it is increased by stages as stated above to 100° F. It is at this time that yellowing begins. From 100 to 120° F the temperature is raised in stages of two to five degrees every hour, the ventilator being first opened by half and later fully. Great care should be taken at this stage and leaves watched to prevent them from becoming spongy. The drying of the leaf is then affected between 125 and 135° F by stages and kept on at latter stages for six to eight hours. Leaves dry practically at the heating stage of 140° F with shutters closed. From this stage on to 165° F the drying of stalk begins by gradual increase of temperature every two hours and maintaining at 165° F until stuff dries which will be in about 6 to 10 hours.

The cured leaves are kept in the cool shade during the night and heaped next morning and shifted. More fermentation takes place at this covered heap stage. The leaves become softer. Then the leaves are graded and packed.

Curing Country Tobacco.- The above process is the one extensively used for Virginia curing at present. A small amount is sun-cured in the ordinary way which is extensively used for country tobacco is as follows:

If the tobacco is to be of light colour, the soil

should be light and planting done early. Topping should be done as high as possible. Leaves are cut about ten days after suckering when they assume a greenish yellow. As in the case of Virginia leaves are cut in the evening, but the whole harvest may be done at one stage or two. A portion of the stem about half an inch on either side is also cut, with a special curved knife. Next morning the leaves are taken to the shade and strung with five ply jute twine. The strings which measure about $2\frac{1}{2}$ yards with about 300 leaves are folded and piled on the floor overnight and covered in the day. They are rearranged the next evening and the process repeated. Altogether 36 hours piling is given when a good yellow color is attained. The strings are then unfolded and tied to racks arranged on the open field. They are arranged closer than in the case of Virginia tobacco. This rapid drying is intended to fix the color. Protection against rain is afforded with thick covering of mats as contact with moisture at any stage of drying spoils the color and quality. The leaves dry first but the mid ribs take about a fortnight or more. When completely dry, bulking is begun on a cool dewy morning. Strings are folded and kept in a dark room in a poor ventilated corner. Bundles are distributed and rearranged, shifted one in two or three days

in the beginning at less frequent intervals of a week to ten days a month later. The process of curing takes from $2\frac{1}{2}$ to 3 months and the strings are then packed in open bundles as in Virginia. Rarely are they graded except for the removal of trash and spoiled leaves, before they are marketed.

Pit-curing

In the case of pit-cured tobacco, however, the process is different. Whole plants are harvested about January and spread in the open field for drying for three or four days. They are then removed out of the field and heaped four or five plants at a time for a few days; and carted to a pit six feet deep, ten feet in diameter at the top and eight feet at the bottom and filled well above the pit for about three feet. A layer of tree leaves is used and the heap covered with mud. It is left in the pit as a sort of silage for twelve to fifteen days. On removal, the stem is cut into two halves, leaves stripped and strung up. They are kept in the open for three or four days, then in the shade for a month with repeated shiftings, first into small heaps and later into bigger bulks. In packing, date palm leaves are used and the bundles range from 80 to 100 pounds in weight.

Redrying of tobacco

Practically all the big exporters of tobacco now use the redrying plant and the quantity of tobacco redrying plants have doubled since 1935. After grading and stripping, where necessary the tobacco is put through the redrying machine where it is redried to uniform moisture content. The machine also adjusts the moisture content and does the baling and pressing irrespective of weather conditions.

There are two types of redrying plants, namely the Quester type of Germany and Proctor Schwatz type of America. It is only the latter that is in use in India. The Proctor type American redrying machine is equipped with a continuous white cloth apron conveyor on which the tobacco is spread by hand and carried through the machine. While doing so the tobacco passes through three operations, namely drying, cooling and re-ordering. The drying compartment which is the first chamber, is made of structural steel framework heavily insulated with asbestos. A large fan above the conveyors are steam coils for heating this air which passes alternately over the steam coils for heating this air which passes alternately over the steam coils and on the tobacco and is replaced by small amounts of moisture laden air. As tobacco progresses through the

drier the temperature of drying air is reduced gradually and the moisture becomes perfectly and uniformly dry at the end of drying chamber. The tobacco now passes the cooling chamber where cool air in great volume is circulated to remove the heat from tobacco which next reaches the re-ordering compartment. Here there are large fans, while between the conveyers and fans are steam coils and on the sides steam jets and atomisers. This arrangement is meant to produce moderately warm saturated air in the compartment. The tobacco in passing through this compartment is uniformly impregnated with the correct amount of moisture and passes out of the machine properly conditioned, then baled, pressed and packed for export.

CHAPTER IV

ASSEMBLING AND MARKETING

Evolution and Development of Markets in India

As in other countries, the evolution and development of marketing in India have largely been dependent upon the availability of surplus goods for exchange. In order therefore to trace the evolution and development of Indian markets, it is necessary to go back to the days of subsistence farming when each unit produced just sufficient to satisfy its immediate needs.

In ancient times, people wandered from place to place in search of food. But as times passed they learned the function of seed, cleared up patches of forests and started raising crops. Social instinct and the exigencies of defence brought together groups which worked on a co-operative basis, cleared up forests for growing their food and building up their shelter. As the population in each settlement grew, the food supply from the surrounding cultivated land was found to be inadequate and a part of the population migrated to other localities

formed subsidiary settlement. This led to the development of villages and hamlets. As the number of villages gradually increased, a crude system of intercommunication was developed and a simple system of exchange of labor had necessitated. The cultivator produced agricultural commodities, the weaver provided cloth, the potter made the pots, the blacksmith the implements and the artisan the other needs of the village. Thus each village became a self contained unit.

With the further increase in the population the desire of possession of land became great and everyone made an attempt to secure a fertile piece of land. This led to frequent disputes for the settlement of which rudimentary government came into existence. The duties of the government was not only the internal administration but also the defence from external aggression. The establishment of government led to the founding of a central place for the congregation of the people. To meet the needs of the people, middlemen, merchants, artisans, administrators, etc., gathered together at a central place and this population had to be fed. Hence each cultivator had to grow more than his personal needs and the surplus produce went to satisfy the needs of these non-cultivators. In the beginning all these people were paid in kind but

but this system was proved to be inconvenient and some tokens as a basis of exchange had to be evolved, thus making the trade simpler. Certain places had a special advantage of their situation or opportunities for small scale industries and the necessity for transportation is felt, resulting in the roads.

Unlike in other countries religion played a prominent part in the development of trade in India. The religious gathering at the time of Kumbhas, Ardha Kumbher, solar and lunar eclipses and at certain shrines attended by thousands and millions of people, afforded excellent opportunities for the development of commerce. While transporting goods from one place to another, traders moved in caravans and travelled along certain well established routes. For instance in the sixth century B.C. the main trade routes recorded are "North to South-west" "North to South-east" and "East to West." "Besides the above we are told of traders going from Videha to Gandhara, from Maghadha to Sovira, from Bharukcha round the coast to Burma."¹ There were numerous stopping places along each route and each place is provided with a rest house for the convenience of the travellers. In the Moghul period these stopping places were called Serias. "For the use

1. Buddhist India, by Rhys Davis.

of wayfarers there were throughout the realm of the Moghul on every route many series. Each one of them held approximately 800 to 1000 persons with their horses, camels, carriages and some of them even larger."¹ At each place the traders disposed of part of their goods. There were taxes and duties at each different country entered; and a heavy item in the cost was the hire of volunteer police who lead themselves out in bands to protect the caravans against robbers on the way."²

The lack of proper communications was not only the obstacle in the way of development of agricultural trade but also the inconsistent demand of the state which were instrumental in keeping down production to a minimum. During the British administration, the development and improvement of communication systems has stimulated the growth of markets and trade. "The effect of improved communication in stimulating production and facilitating distribution has been great. Their influence in another direction is also becoming increasingly marked. The old self sufficiency type of agriculture is in some measure being replaced by more commercialized system in which the cultivation of money crops, that is, crops intended en-

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1. Pepys of Moghul India.
 2. Buddist India by Rhys Davis.

tirely for sale, such as cotton, jute and soil seeds is increasingly prominent. The cultivation has begun to look beyond the present needs of the family and the demand of the market are more and more determining what shall be produced."¹ Not only the internal traffic expansion but also the overseas trade grew enormously. When the Suez Canal was opened the exports were valued at Rs 800 million but three years ending 1926-27 the value of exports exceeded Rs 3500 million.²

Thus we have seen the evolution of markets in India and now before considering the marketing systems of tobacco exclusively, we would do well to consider briefly the various methods of marketing systems prevailing in the country.

The marketing systems in India can be broadly classified into three major classes each of which can be further divided into sub-classes

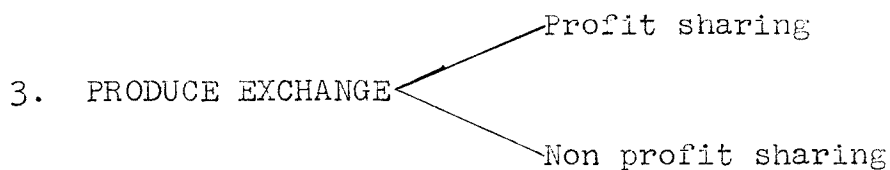
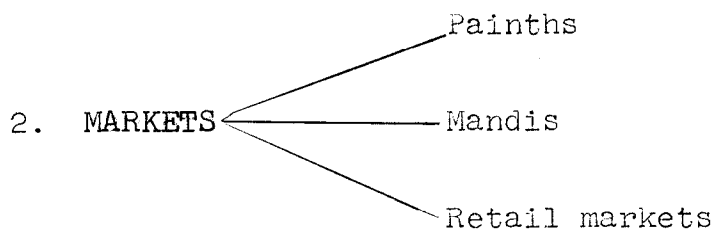
1. FAIRS

(a) Fairs which have acquired importance in trade of agriculture products

(b) which have mainly religion in their nature but incidentally assumed commercial importance.

1. Report of Royal Commission of Agriculture in India.

2. Present exchange rate, 1 rupee = 21 cents.



1. Fairs

Fairs are gatherings of people who assemble at a regular interval at a particular place, generally around shrines or other religious institutions. For instance Sonepur fair has had a religious importance¹ but later on acquired a commercial complexion to a larger extent. The transactions in these markets is mostly retail in nature.

2. Markets.

Markets like fairs are gatherings at a fixed place, but the gatherings occur more frequently. Moreover unlike a fair which is associated with a spirit of holiday making as the very name 'fair' was derived from 'feria' meaning holiday. The gathering in a market is exclusively a

1. The legend says that this site was the fight between the mythological lords, Gaj and Grah

business one, there are buyers and sellers of commodities assembled here.

The market in India can be classified as follows:

(a) Painths, Hats and Shandies- These are periodical markets held weekly or bi-weekly for a day on the roadside in groves, etc. where there may or may not any semi-permanent sheds but where no permanent market structures exist. A wide range of articles are available for sale, viz., fruits, vegetables, food grains, tobacco, etc.

(b) Mandis- There are regular wholesale markets held in fixed marketplaces where business is transacted daily. In many of the old markets the shops are arranged on both sides of a road where as mandis are invariably built in the form of a square or a quadrangle with a gateway on each side. As the produce is handled in fairly large quantities, specialized functionaries such as weighmen, brokers, and commission agents operate in these markets for the performance of different marketing services. The market serves as an assembling point for local produce as well as a distributing centre and often provided with facilities for storage.

(c) Retail market- These include retail shops either scattered over the town or concentrated in a spe-

cialized localities. The retailer usually deals in a large variety of goods e.g., food grains, flour, pulses, spices, oil and other household provisions. In the bigger towns municipalities have organized retail markets for vegetables, fruits, fish, etc. These sales are mostly in cash.

3. Produce Exchange-

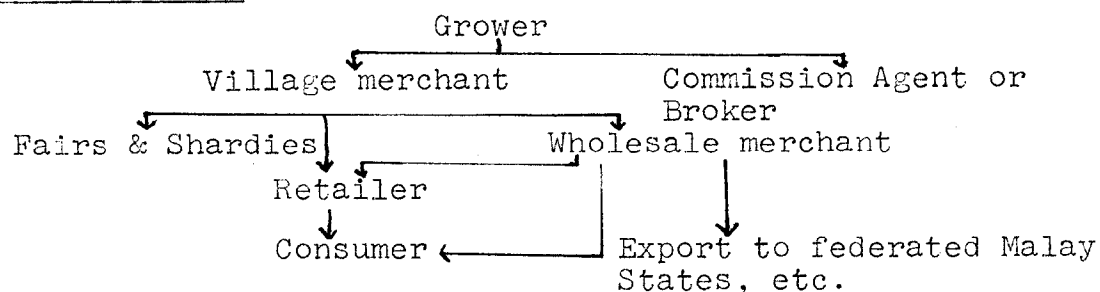
The produce may be regarded as a specialized wholesale market devoted to a particular commodity or group of commodities where the trading is confined to members who may however transact business for non-members also. Business is done according to the definite rules and by-laws of institution. The management is vested in a board of directors elected after fixed periods by members. Although the main function of produce exchanges is to provide facilities for trading in "Futures," some of them regulate spot transactions also. The produce exchanges are linked with the world markets through a quick agency market news service and thus able to secure a certain amount of parity of prices which is an important function of an efficient and organized market. The produce is not exposed for sale except in the case of spot transactions, where samples are made available. Business in futures is done on the accepted grades. The business is general-

ly done through brokers and commission agents and provisions are also made for arbitration, etc., in case of disputes.

Having considered the agricultural marketing systems in India in general, we are now in a position to study the tobacco marketing in particular. Even in tobacco marketing, again they vary according to the type of tobacco. For instance the produce followed for flue-cured tobacco is different from that for chewing or cigar tobacco or the tobacco used for snuff, since the preparation for the market is so varied for each type which we have already discussed.

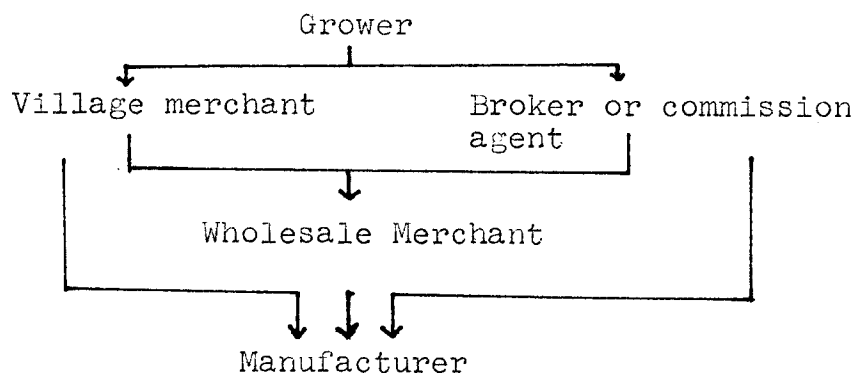
In many districts the native tobacco is grown only for local consumption. In such cases farmers sell their leaf to small local dealers or in some cases convert it into tobacco products. In surplus producing districts, part of the crop is sold for local consumption and the rest of it is purchased by small dealers or brokers for wholesale dealers at the established buying points where tobacco is exclusively handled.

Chewing tobacco-



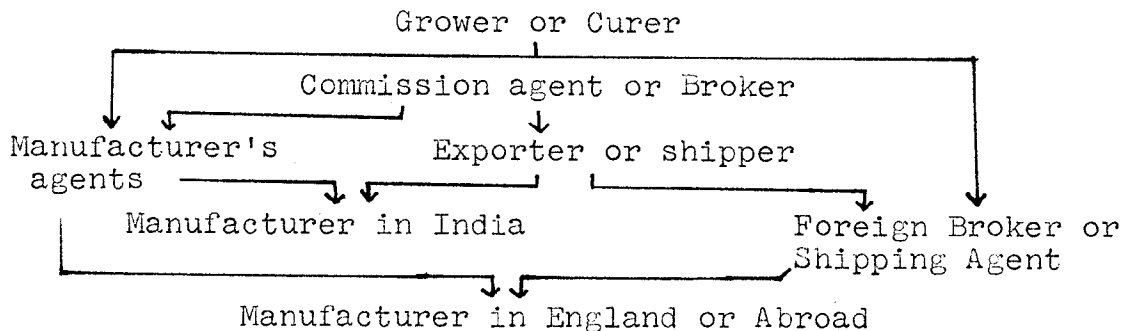
The grower usually sells his produce either to a village merchant or to a commission agent. Sometimes the wholesale merchants send their broken to the growers. Between the consumer and the wholesalers we find the retailers. During the fairs and shardies village merchants sell directly to the consumers.

Cigar or Cheroot Tobacco-



Cheroot tobacco before it finally reaches the manufacturer, passes through the village merchant. However there are few cases where the manufacturers deal directly with the village merchant or brokers.

Cigarette Tobacco-



The representatives of large cigarette factories usually buy the flue-cured Virginia tobacco on contracts. The tobacco purchased on contract system passes directly from the grower or curer to manufacturer's agents (generally in Guntur) who exports to England or to their cigarette factories in India. Exporters and shippers who are not the representatives of the manufacturers usually buy flue-cured tobacco from the former's premises. They go from village to village from one farmer to another and purchase the tobacco. The help of a broker is in common use. In interior villages the produce passes through the commission agents or village merchants to reach the exporters who depend upon their brokers for assembling tobacco for contracting the growers.

We have been considering the general routes of assembling and distribution of tobacco. The part played by each one of these agencies is rather worthwhile discussing.

Manufacturer's representative- The major portion of the cigarette tobacco is assembled by the few manufacturer's agent like Indian Tobacco Development Company, British India Tobacco Company and the National Tobacco Company. The I.L.T.D. Company is the largest. The main function of these representative companies is to purchase the

tobacco, processing and grading for export to their respective manufacturing centers. They also keep information regarding the area, yield, types and varieties. They also have experimental farms and seedling farms to get their special varieties to suit their special blends.

Exporters and Shippers - There are a number of exporters but few only do deal directly with manufacturers. Some of them deal with the brokers in foreign countries while most of them supply the big firms and the representatives of manufacturers. The small firms deal usually in low grades and naturally enter business when the higher grades are sold out. The main function of these exporters are processing, grading and export to agents or brokers abroad.

Brokers and Commission Agents- Brokers are usually employed by the shippers and exporters for the assembly of the produce. Many of these brokers also happen to be growers. They visit merchants and growers to settle prices and arrange the transportation to the merchants godowns. The trade in the chewing tobacco is largely in the hands of the commission agents. They operate in many interior villages especially for low grade stuff. In cigarette tobacco they have a little part.

Growers and Curers - A fairly good amount of flue-cured tobacco is purchased directly from growers and curers by

the manufacturer's agents. Some of the big growers and curers, do act themselves as assembling agents on commission by purchasing from small growers and supplying to the exporters. In rare cases we even find that grower exporting directly to foreign brokers. In the case of chewing tobacco direct purchase by the wholesaler, from the grower is rare.

Organized trade contracts

The big processing firms such as the Indian Leaf Tobacco Development Company Ltd., British Tobacco Company and National Tobacco Company, enter written contracts with the sellers every year for the purchase of Virginia tobacco and in some years even half of the crop was so contracted. Generally the sellers are paid fixed amounts for each specified trade. Broadly the grades can be described as

Grade No. I	Sound leaves of bright lemon color of good texture free from blemish with veins well cured to yellow.
II	Color as above but veins green
III	Yellow color with patches of green and brown in places
IV	Leaves of reddish and green color not well cured.
V	Scraps and rejections but not sweeping or dust.

Thus these companies enter into contracts with the growers and curers under standard grades (approved under Ag mark). Several months in advance and the average price gotten by the seller depends on the proportion of different grades as decided by the company's agent. The prices fixed in advance are only the minimum prices and the transactions. Under the terms of contracts the contractor who is a grower and curer shall grow in the specified season, a sufficient acreage to produce a specified quantity of flue-cured tobacco under normal conditions. The company shall endeavor to supply him with specified rates per thousand, the amount to be deducted at the time of final transactions. Some companies particularly I.L.T.D. Co. Ltd. even make available their flue-curing barns to growers who do not possess of their own. However a specified rent is charged which is also deducted at the time of final transaction. The contractor shall use the barn solely for the purpose of curing the contracted for and he will not allow any other person to use the barn. Tobacco which is unsuitable for flue-curing shall be rack cured under company's approval. The contractors shall grade the tobacco within 72 hours after the completion of the flue-curing according to their grades.

CHAPTER V

In the recent years tobacco is gaining importance in the agricultural exports and imports. During 1950 the world exports in unmanufactured tobacco totaled 1,173,261,000 pounds as compared to 1,153,710,000 in 1935-39. In 1950, the United States continued to be the leading exporting country. U.S. exports for the year totaled 476,152,000 pounds, comprised of 40 percent of the world exports. However there is decline in the exports from the United States due to the restrictions imposed by the importing countries as to the use of dollar exchange. This restriction however has increased the exports from Southern Rhodesia, Brazil, Canada, Italy and particularly from India which has made an all time record both in production and exports. 1950-51 the Indian exports of unmanufactured tobacco has totaled 90,000,000 pounds valued at Rs 124,000,000 (\$25,000,000). Forty percent of the exports were to the United Kingdom, 17.5 percent to Europe and 13.8 percent to Middle East and Pakistan.

Of the total 1950 world exports flue-cured leaf has accounted for 380,932,000 pounds or 80 percent of the total compared with 379,939,000 pounds or 76 percent in 1949. Nearly 90 percent of exports from India consisted of flue-cured tobacco, the bulk of which was taken in the form of strips, that is most of the mid ribs removed. Burley exports in 1950 totaled 37,521,000 pounds or 8 percent of the total unmanufactured tobacco exports.

It is believed that India has sea borne trade as early as in the seventeenth century. However records are available from 1874-75, when exports tobacco in all forms by sea from India have ranged from 6,500,000 to 44,000,000 pounds annually and imports have ranged only from 1,000,000 to 12,000,000 pounds. Most of the imports have been either cigarettes or pipe tobacco but since 1923-24 imports have also been strip or leaf tobacco. In addition to the movements by sea there is also a substantial movement by land routes into and out of Iran, Afghanistan, Nepal, Tibet and certain other central Asiatic territories. Till very recently this movement has not been included in the international trade.

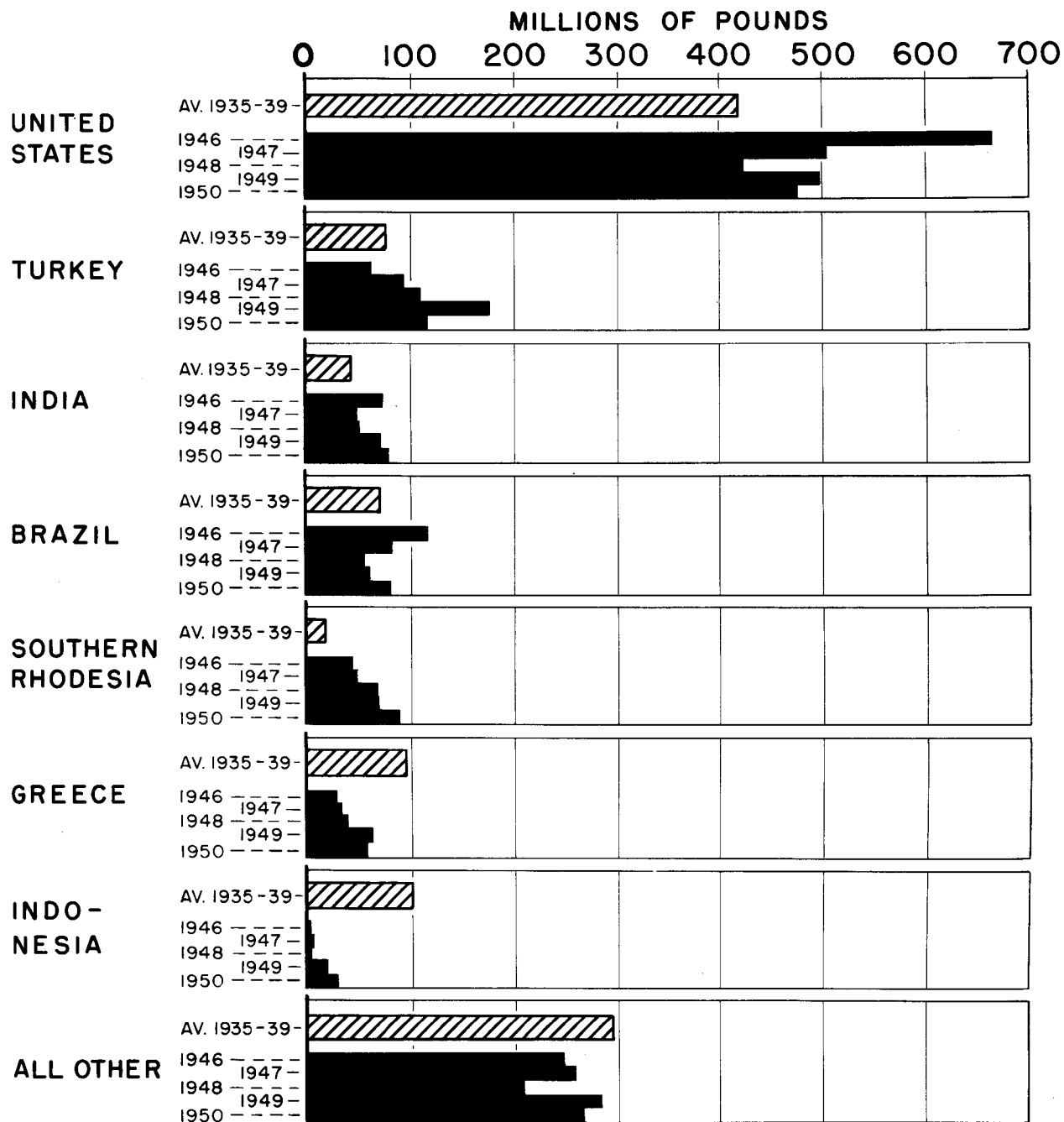
Export to England - United Kingdom is the largest market for Indian flue-cured tobacco which forms over 90 percent of its exports. For the Imperial Tobacco Company which

is a large manufacturing concern in England, the supplies are made directly by the Indian Leaf Tobacco Developing Company at Gurtur. Other exporters send tobacco on consignment basis to brokers in England where it has to await variable period before sale to a manufacturer. But the situation has changed now due to the dollar shortage as well as the Imperial preference agreement. Under the Imperial preference agreement between the Commonwealth countries there is special concession rate on the tax levied on tobacco imported from one sister commonwealth country to another which has given agent fillip to the production as well as exports.

Apart from the external demand, the demand for internal consumption has been increasing year to year since the outbreak of the war and the necessity to supply cigarettes and other tobacco products from India to middle east and far eastern countries. This opportunity has been well utilized by increasing production internally and thus the exports. To meet the demand for tobacco products, the imports of American tobacco were also increased to be used in high quality blends. In 1945 the American imports were amounted to 16 million pounds. This alarming rise in the imports have drawn the attention of the Government of India and of the Indian central

WORLD EXPORTS OF TOBACCO*

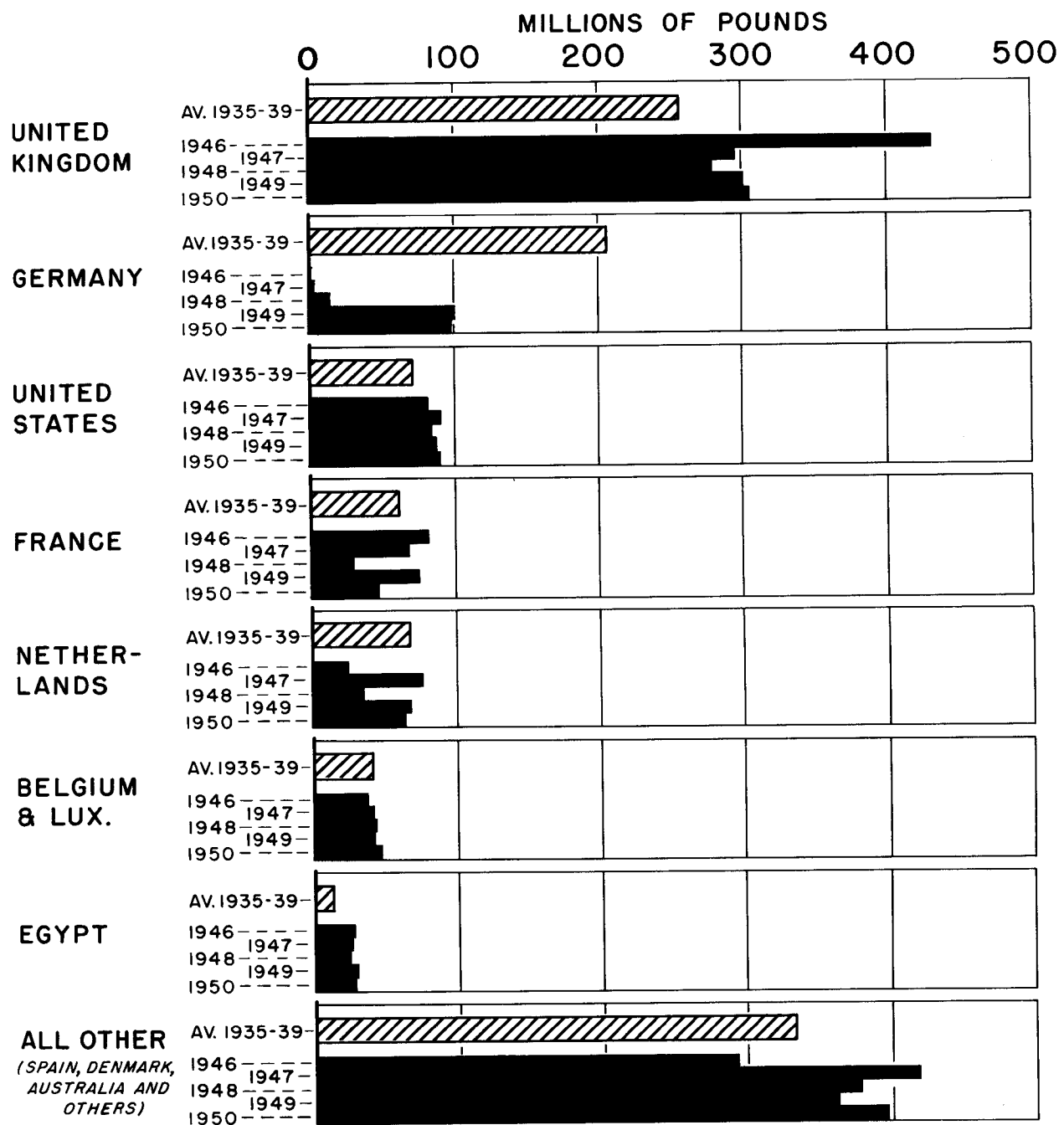
BY COUNTRIES



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WORLD IMPORTS OF TOBACCO*

BY COUNTRIES



*UNMANUFACTURED

tobacco committee which recommended the government of India to in 1946 for judicious restrictions of imports of tobacco from the United States in the light of the report of the tobacco utilization officer of the central tobacco committee that British manufacturers admit no difference in quality between Indian Virginia and American Virginia tobaccos and the desire of the country to use more domestically grown leaf in her manufacture in preference to leaf from outside the commonwealth. Thus a restriction has been imposed on the imports of tobacco from the United States. These restrictions by India and by other commonwealth countries, and the low prices of Indian tobacco has gained a considerable fillip to Indian exports. The tobacco trade of India has thus built up a reputation with many foreign countries both in Europe as well as in Asia. The prospects of increasing manufacture of tobacco products in India for catering to Eastern countries in view of increased manufacturing costs and industrial troubles in the United Kingdom has added to the demand which is already strong.

During April to September in 1951 India has exported 17.7 million pounds of tobacco to Hong Kong valued at over Rs 10,000,000.¹ Imports of unmanufactured leaf tobacco into the United Kingdom during the first 10 months of 1951

1. Rupee = 21 U.S. cents.

has totaled 249 million pounds or 25 million pounds more than in the same period last year. Of this flue-cured tobacco has accounted for 223 million, an increase of 36 million pounds over the previous year. Thus India's tobacco exports are only second to the United States. The U.S.A. supplied just over two-thirds of the world exports and India ranked second with 22 percent and Southern Rhodesia 16 percent.

India's long standing policy for self sufficiency in tobacco is obviously proving successful. This as I already stated is responsible due to the agreement between commonwealth countries popularly known as Imperial preference and also due to the devaluation of the sterling. The present Indian manufacturers are now using 100 percent domestic tobacco for blends which originally were made of 100 percent U.S. tobacco. According to the trade sources about Rs 200 million were invested in cigarette manufacture industry. This capital investment is spread over eight companies manufacturing over 24 billion pieces. This output is more than treble that of the prewar average of 7.5 billion. In spite of such an increase in the machine made cigarettes, the sale of bidies are roughly seven times that of the cigarettes in this country.

Conclusions and Recommendations

We have till now considered the importance of tobacco industry and its various phases in India. I would like to conclude my study with a few remarks for the further development. Firstly the improvement of the quality of the high grade tobacco and retaining the uniformity year after year. In spite of the high prices paid to the superior quality tobacco, the quantity of low grade tobaccos is many folds and there are so many grades than any one can possibly name. Measures have to be taken to increase the production of high quality tobacco and also the uniformity of grades year after year through the help of organized methods of cultivation well supported by research station. More research stations should be formed to give advice to the farmers at every stage of production.

The special training for the curing of the leaf should be given to the farmers and the government should offer services of trained personnel to advice and help for the curing which is the most important factor to determine the quality of the tobacco. Facilities for redrying should also be given to those who wish to utilize by establishing a public redrying plant. Unless tobacco is properly redried, it is very difficult to keep up the quality. If the quality often falls from a higher grade

to a lower due to lack of redrying facilities. All the fifteen redrying plants in Guntur, where 91 percent of the flue-cured tobacco is grown, are all privately owned and are not available to the growers and small merchants. Recently the All India Tobacco Central Committee has sanctioned for the installation of a redrying plant in Guntur for public use at a minimum charge.

Another step to be taken to keep up the quality of tobacco is to make proper facilities for the cold storage. In Guntur during summer, which is the important season for the marketing of tobacco, the temperature is at its maximum and it is considerably responsible for the deterioration of the quality. Hence government should take steps to enforce certain regulations for the warehouses and the cold storage of tobacco.

Inspite of the huge value of the tobacco sold every year there is no single organized market till recently. The tobacco marketing association is trying to establish a marketing floor in Guntur without much success. This as I see is due to the poor transport facilities available in the country. The growers seldom like to take the crop to bullock carts to the market where there are no storage facilities in case he wishes to store for the next days market, if the price offered on that day is not favorable.

The recent enforcement of Agmark grades by the Government of India has standardized the grades in the country. This has now given confidence in the foreign countries and the absence regarding the quality of the tobacco to the minimum specifications.

Finally the improvement of the market news service. The growers are very poorly informed regarding the price fluctuations and trade prospects due to the poor literacy in the villages as well as the poor market service available in the country. The government however is trying to announce the market news through radio during the farm program but the chances of accessibility of the farmer to the radio are scarce.

The cooperative societies are limited in the case of tobacco production and marketing but these recent reports are rather encouraging.

And finally the reduction in marketing costs. The studies that are recently made indicate that the cost of tobacco in Guntur amount to little over 40 percent of the realized cost in England. It appears to me that more organized system of marketing and with good transport facilities might reduce the marketing costs so that the growers might get their fair share.

APPENDIX

Tobacco: World Production, Total and Flue-Cured
Average 1935-39 annual 1946-50 ²

Country	Average 1935-39	1946	1947	1948	1949	1950
	1000 Pounds	1000 Pounds	1000 Pounds	1000 Pounds	1000 Pounds	1000 Pounds
United States	1,460,054	2,321,596	2,110,131	1,981,272	1,972,541	2,032,450
China	1,254,539	1,421,759	1,452,293	1,593,169	1,200,000	
India	761,600	603,000	542,304	725,200	800,000	
Brazil	202,703	224,364	259,320	195,892	212,953	218,026
Turkey	128,505	215,945	224,710	162,986	200,162	186,229
Canada	76,556	141,384	106,688	126,629	139,820	120,298
S. Rhodesia	24,623	63,692	77,918	83,608	106,733	88,208
All Others	2,688,821	2,127,924	2,536,636	2,510,244	2,532,791	3,867,889
<u>Total</u>	6,597,401	7,119,664	7,310,000	7,225,000	6,865,000	7,100,000

2. Unmanufactured tobacco

World Imports Tobacco (Unmanufactured)¹

Country	Average 1935-39	1946	1947	1948	1949	1950
		<u>1000 Pounds</u>				
United States	71,274	82,061	90,386	84,392	87,933	89,521
Belgium & Luxembourg	40,695	37,580	40,591	42,547	41,848	47,227
Denmark	20,206	27,917	18,932	20,023	25,463	30,515
France	61,576	81,985	68,486	28,117	74,299	46,097
Germany	204,644	500 ²	3,200 ²	13,813 ²	100,883 ²	98,978 ²
Netherlands	67,349	24,024	76,228	35,840	68,030	63,790
Spain	30,979	32,083	56,502	32,361	41,469	55,600
United Kingdom	258,486	432,708	295,621	280,715	301,163	305,762
Egypt	13,014	26,735	24,923	25,078	29,707	28,345
Australia	21,537	22,164	21,333	29,941	22,190	25,799
All Others	262,000	213,097	323,468	297,029	272,291	285,404

1. Calendar year
2. Western Germany only

Flue Cured

Country	Average 1935-39	1946	1947	1948	1949	1950
United States	836,620	1,352,024	1,317,466	1,089,584	1,114,508	1,257,280
China	150,900	108,000	143,000	270,000	120,000	80,000
Canada	54,616	119,027	86,863	102,442	116,662	108,202
S. Rhodesia	24,623	57,918	75,385	83,388	105,492	87,500
India	31,280	58,650	71,000	80,000	97,000	188,000
All Others	113,000	144,000	183,000	229,611	207,127	289,864
<u>Total</u>	1,238,039	1,839,619	1,876,714	1,850,025	1,783,789	1,906,846

World Exports of Tobacco (Unmanufactured)

Country	Average 1935-39	1946	1947	1948	1949	1950
	1000 Pounds					
United States	420,707	663,162	507,286	426,608	498,198	476,152
Greece	97,657	28,364	32,084	40,386	62,597	56,630
Turkey	78,054	62,911	93,239	111,055	175,721	110,577
India	43,500	72,151	49,945	50,850	71,378	80,000
Indonesia	101,176	1,715	4,916	2,672	18,411	27,280
Brazil	71,955	116,586	82,860	54,789	62,308	80,850
So. Rhodesia	19,166	41,634	46,657	67,661	67,973	89,253
All others	296,000	248,664	256,407	208,693	284,188	265,308
Totals	1,128,305	1,235,187	1,073,394	962,714	1,240,738	1,186,050

Tobacco (Unmanufactured) Imports¹ From

Countries	(Lbs.)			
	During the month of September 1951	During the corresponding period of last year	From 1st April 1951 to Sept. 1951	During the corresponding period of last year
U.S.A.	867,659	1,189,480	2,619,154	2,184,459
Pakistan (Western) . . . . .	..	..	..	..
U.K. . . . .	..	..	..	..
Burma	90,048	10,875	185,073	10,875
Egypt . . . . .	..	..	..	..
Netherlands . . . . .	..	..	..	..
Ceylon . . . . .	..	..	..	..
U.S.S.R. . . . .	..	..	..	..
Total.	957,707	1,200,355	2,804,227	2,195,334

¹ Into the principal ports--Calcutta, Bombay and Madras.
Source: Agriculture Situation in India, Vol. VI, No. 9, Published by Government of India.

Tobacco (Unmanufactured) Exports¹ To
(Lbs.)

Countries	During the month of September 1951	During the corresponding period of last year	From 1st April 1951 to Sept. 1951	During the corresponding period of last year
Aden and Dependencies	12,810	815,245	3,459,809	3,846,951
Yemen	11,000	..	11,000	151,565
Pakistan (Western)	74,079	762,592	1,377,758	4,678,878
U.K.	4,440,698	7,574,693	21,715,519	27,149,743
China.	1,375,471	..	3,013,332	..
Egypt. . . . .	..	581,622	577,476	1,299,204
Belgium	113,563	280,581	373,296	1,393,677
Sweden	736,370	202,360	1,606,099	1,368,666
Ceylon	80,291	51,871	627,601	221,817
Morocco . . . . .	..	..	..	..
Hongkong	4,600,945	53,737	15,020,066	968,654
Netherlands	294,699	492,263	836,082	3,587,948
Denmark	141,050	209,268	185,089	890,339
Germany	3,750	51,527	80,809	1,311,407
Ireland . . . . .	..	3,041	319,372	3,369,891
Italy . . . . .	..	699,814	..	330,674
Kenya Colony . . . . .	..	..	400,400	699,814
U.S.S.R.	2,382,711	..	3,431,788	1,472,077
Others	1,833,321	196,569	6,667,779	2,683,857
Total	16,100,758	11,975,183	59,703,275	55,425,162

1. Exports from principal ports--Calcutta, Bombay and Madras.
Source: Agriculture Situation in India, Vol. VI, No. 9, Published by Government of India.

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