

# TOBACCO PRODUCTION IN THE PHILIPPINES

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Tobacco production in the Philippines has had a complex history. It is the oldest industrialized agricultural enterprise in the country, antedating coconut, abaca, and sugar as a major product of commerce and trade. Over the years tobacco production experienced significant changes; these trends were brought or affected by changes in political status or emphasis, by varying economic conditions and trends in world trade, or influenced by changing fashions of consumers, both domestic and foreign. Although this irregularity of production reflects physical factors, economic conditions, and social trends, it is political factors that have accounted for the larger changes over the years.

## EARLY DEVELOPMENTS

Spanish missionaries introduced the tobacco plant, *Nicotiana tabacum*, in the Philippines from Mexico during the sixteenth century. After it proved adaptable to Philippine soil and climate, the Spanish, in an effort to stimulate tobacco production, declared the crop a government monopoly in 1781. This royal decree placed in the hands of the Spanish Governor-General extensive powers in order that tobacco culture might be increased. However, the monopoly covered only the principal tobacco-growing regions of Luzon.

The monopoly was administered with the greatest of detail and energy. Everything from the planting

of the seed to the disposal of the final product was regulated by law. Tobacco experts were brought from the Caribbean region to advise and aid in the development of the industry. These experienced tobacco men brought seeds from the finest plants then available. By experimentation the Cagayan Valley was found to be the most favorable Philippine area for tobacco production. It was in this area that the most severe regulations were imposed. Frequent and rigid inspections were made by the local administrators. If at any time and for any reason the inspectors felt that a grower was failing to meet the high standards of quality or quantity demanded by the Spanish government, immediate public punishment was decreed against the offender. The individual grower failed to profit, except insofar as Spanish officials felt that personal favors would increase production. In manufacturing, too, the Spanish administrators were just as thorough. They brought in skilled workers and overseers, and "Manila Cigars", produced in the five large factories established by the Spanish in Manila, soon came to enjoy a reputation as the finest cigars on the market. Hence, the early development of the tobacco industry in the Philippines must be credited to the ambition of the Spanish conquerors.

In time, the very harshness with which the monopoly was administered produced a condition under which its effectiveness decreased. The

Filipino farmers organized into rebellious groups; riots and uprisings against the rigid control became prevalent. The weakened Spanish government was unable to cope adequately with this situation and in 1882, a century after its inception, the Spanish monopoly was officially abolished.

When the monopoly was finally lifted, the cultivation and marketing of tobacco were continued as a private enterprise, but with varying degrees of success. Many small factories supplanted the five discontinued government factories. These small factories, operating with little or no regulation, did not maintain the high standards that were required under the monopoly. The quality of the cigars declined and the demand decreased accordingly. It was only with difficulty that the quality of the cigar was reestablished and the market partially regained

It was during this period of Philippine economic history (1882-1898) that a few commercial concerns emerged as leaders in the tobacco industry. Alhambra and Tabacalera became synonymous with Philippine tobacco and tobacco products. The "Compania General de Tabacos Filipinas," commonly referred to as "Tabacalera," can be taken as illustrative of this leadership in the tobacco industry. Tobacco was cultivated on Tabacalera *haciendas* in the Cagayan Valley and was purchased from independent growers. Much of it was used in Tabacalera-owned Philippine cigar factories. Because of established trade relations in Europe, Tabacalera became one of the leading exporters of leaf tobacco, much of it to Spain. This leader-

ship, initially acquired during the latter part of the Spanish period, continued with some modifications during the American régime and was reestablished after the interruption associated with Japanese occupation.

#### AMERICAN PERIOD

From 1900 to 1941, tobacco was a very important crop and tobacco and tobacco products for much of that time were the fourth ranking exports from the Philippines. In 1920, the peak year, 65 million kilos were harvested from 100,000 hectares. The Manila cigar again had a world market. The impetus for this growth was primarily the duty-free American market, but the capital was not necessarily American. Spanish interests were probably the foremost, but certainly not the sole, investor in Philippine tobacco and tobacco products during the American colonial and commonwealth period.

Tobacco, although raised to some extent in almost every province, was of commercial importance in only a few localized areas. The narrow Cagayan Valley in northeastern Luzon remained the foremost area, and the Ilocos Region of northwestern Luzon was the second area of importance. To a lesser extent, tobacco was cultivated in some of the Visayan (central) Islands. Within these regions certain provinces were noted for tobacco, namely Isabela, Cagayan, La Union, Pangasinan, Ilocos Norte, Iloilo, Negros Oriental, Cebu, Nueva Ecija, and Masbate. From 1935-1939 these ten provinces produced about 85% of the entire tobacco crop, an average of 35,400 short tons annually. About one-half of the cultivated

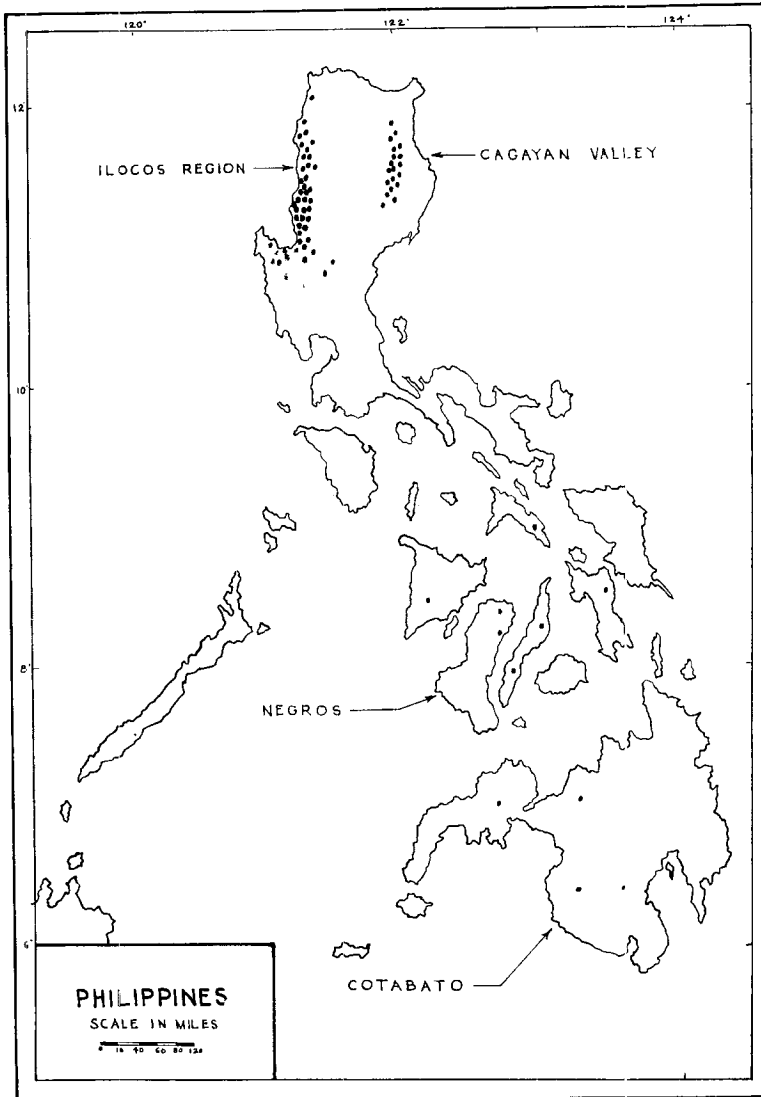


FIG. 1.—Map of Philippines showing principal areas of tobacco culture. One dot represents 1000 hectares (1956). (Data from Philippine Bureau of Agricultural Economics.)

area was in the Cagayan Valley and about 20% in the Ilocos provinces. Between 80 and 100 thousand agricultural workers were supported, at least in part, by tobacco culture. Cash return per hectare was relatively large and it provided an effective use of feminine and child labor. The intensive methods of planting, cultivating, harvesting, and curing made it particularly suitable to the small farms and large families that characterize Philippine agriculture. In 1938, 46% of the tobacco-producing land was cultivated by owners, and an additional 23% by part owners. The fact that tobacco thrives under climatic and soil conditions favorable to corn production has enabled the Filipino farmer of the Cagayan Valley to secure a second crop from the same plot each year—tobacco, a cash crop, and corn for either home use or as a secondary source of income. This helps insure against economic disaster that might result from a single-crop failure or from tobacco market fluctuations.

Cigar filler, wrapper, aromatic cigarette filler, and miscellaneous types (pipe and chewing tobaccos) were grown. All of these types were sometimes taken from the same field, or even the same plant, because the leaves from a single plant vary in quality during different stages of growth. But there was some regional specialization in terms of type of product.

Most of the good quality cigar filler was and still is grown in the Cagayan Valley, although some was produced on Mindanao. Until the last few years cigar filler was the most important type grown in the Philippines, oftentimes accounting for as

much as 90% of the production. The climate and soil of Cagayan Valley are especially adapted to the production of cigar filler. The principal tobacco soil is a deep, friable, sandy loam, in good physical condition. The flood plain is oftentimes inundated by the flood waters of the Cagayan River, leaving a thin alluvial deposit and thus helping to maintain soil fertility. Furthermore, the short dry season aids harvesting and curing operations. Probably this fortunate combination of circumstances is the primary reason that the Cagayan Valley has remained the leading region for filler tobacco.

Wrapper tobacco, both sun and shade grown, was produced mainly in the provinces of Laguna, Isabela, La Union, Ilocos Sur, and Batangas, but only in limited amounts as most of the wrapper tobacco used during this period was imported from Sumatra and the United States. Each of these provinces has some areas of fertile loam soil that (for tropical soils) is rich in both organic and mineral components, a uniform rainfall throughout the growing season, and a dry season for harvesting and curing. These conditions favor the production of a leaf that is very thin and extremely mild and has a fine texture, and a uniform color, the requisites of good cigar wrapper. Other regions that seem just as favorable have never produced a leaf of the desired quality, a condition that lacks adequate explanation.

Aromatic cigarette filler was grown predominantly in the provinces of central Luzon, *i.e.*, Pampanga, Bulacan, Tarlac, Nueva Ecija, and Pangasinan. The rela-

tively infertile soil of this area was considered by some tobacco men to be an asset in the growing of aromatic cigarette filler since a desirable flavor and texture supposedly result from tobacco cultivation on soils that are not particularly fertile. There was never a large production of cigarette tobacco during the American period as both American aromatic tobacco and U. S. cigarettes were readily available. Most cheaper cigarettes were made of cigar filler.

#### SOIL AND CLIMATIC REQUIREMENTS

The different types of tobacco have slightly different soil and climatic requirements for optimum yield or quality. The normal cigar filler varieties are best adapted to areas that have adequate moisture interspersed with several drier days and friable, fertile soils. A sandy loam is recommended.

Rapid growth is desirable in all wrapper tobaccos. A fertile loam with a generous supply of organic matter is ideal. The sun-grown wrapper types are best adapted to regions with an almost even distribution of rainfall. Much of southern Mindanao has uniform, although not excessive, precipitation and is south of the typhoon belt. It is surprising that Sumatra wrapper has not become significant in Mindanao, that part of the Philippines that is climatically most like Sumatra. Experiments with Sumatra wrapper in the Cagayan Valley have not been really successful. In prewar years shade-grown wrapper was moderately successful in the interior valleys of the Ilocos region and on the volcanic soils in the vicinity of Tagaytay Ridge in Batangas. Neither area is

an important wrapper area today as Virginia leaf has become "king" in the Ilocos area, and Batangas and other provinces of southern Luzon have been insignificant producers of tobacco in any form during the postwar years.

Aromatic cigarette filler is grown to greater advantage in regions that have distinct wet and dry seasons and somewhat heavier, even compact soils. Rapid growth of the plant is discouraged because a thinner leaf that oftentimes has less aroma is thereby produced. Therefore, soils of mediocre fertility are recommended. In the Ilocos area and Pangasinan, Virginia-type tobacco is planted, much of it on paddy soils, immediately after the rice harvest. This region has a long dry season for harvest. Yields can be increased if irrigation is practiced. One or possibly two applications of water normally prove quite profitable, but three or more applications of irrigation water have proven uneconomical in Ilocos Sur. The quantity of tobacco is increased by repeated irrigation and the color remains good, but there is less aroma and a resulting lower classification and lower price. Some of the Turkish varieties give better quality on poor soil, but the yield is so low that there is no profit.

Tobacco is a potash-loving plant. Sufficient potash in the soil appears to improve the burning quality and also increases the oil content. Potash-deficient leaves, when cured, lack body, elasticity and aroma. Most of the soils of the Ilocos plain have inadequate potash for tobacco.

Virginia tobacco does not require a high nitrogen content in the soil, nor is high organic matter desirable.

Heavy applications of either should not immediately precede the tobacco crop. Since tobacco may follow rice in the Virginia-producing areas of the Philippines, and since rice needs nitrogen, careful fertilization of the rice crop must be practiced in order to provide an adequate amount of nitrogen for rice, but to avoid heavy applications that may eventually render the soil unsuitable for the production of flue-cured tobacco. All Philippine tobacco soils are low in organic matter, and if organic matter is added to improve soil structure, a commendable practice, it can be done when planting other crops and thereby not affect the tobacco crop in another season or year.

An adequate amount of calcium improves the taste, aroma, burn and general quality of the cured and fermented leaf. In tobacco plants, especially Virginia tobacco, a high lime content may cause objectionable flaking of the ash. Liming the soil for flue-cured tobacco is not recommended unless the pH is below five.

#### CULTURE PRACTICES

In general, agricultural procedures followed in the production of tobacco in the Philippines are semi-primitive rather than modern. Except in a few areas, little or no fertilizer is applied and a low production per hectare may result. Seed beds are sometimes permitted to lie fallow for a year or more in areas where land is plentiful. Little machinery is used, improved machinery having been little more than introduced in the tobacco growing areas. The Philippine government has experimented extensively in an attempt to solve

the various problems associated with tobacco farming, but has been unable to put many of the findings into practice because, until recently, most tobacco farmers were not especially sympathetic with or adaptable to change.

As with many other crops, the tobacco plant is nurtured in seedbeds for the first few weeks and then transplanted into the field in which it is to be grown. Most seed beds are shaded with palm leaves. In all tobacco districts of Luzon the seeding is done in September or October with transplanting in November and December. Transplanting takes place at 6 to 8 weeks, spaced 18-20 inches in rows 36 inches apart. The soil is carefully prepared for transplanting and the crop is cultivated three or more times, in almost all cases by manual methods. Harvesting is begun in January or early February and may continue through April or into May depending upon local conditions. Harvest is by priming, which consists of picking leaves singly by hand. A field is normally primed each week, in some cases more often, during the period of harvest. If all types are to be secured from the same field or plant, the harvesting of wrapper tobacco, cigar filler, chewing, and smoking tobacco is begun and completed in that order.

After priming, the leaves are laid on the ground; later, possibly the next day, they are sorted according to size, and poled. This procedure consists of folding the leaf lengthwise along the midrib and threading it on a small, pointed bamboo pole by piercing the midrib from side to side. Specific procedures are then followed in the curing of various



FIG. 2.—Tobacco seedlings under shade of coconut leaves and grass in Ilocos Sur.

types. The poled wrapper types, which are not folded before poling as are the other types, are placed in the curing barn on racks without exposure to the rays of the sun. About 26 to 32 days are required for curing. Filler and miscellaneous types are exposed to the direct rays of the sun for three days and then placed in the curing barn, or whatever shelter is used, and the process is completed in 18 to 22 days.

Since 1950, most aromatic cigarette tobaccos have been cured in specially built flue-curing barns, some privately owned and some, particularly the redrying barns, owned and operated by the national government or by a cigarette manufacturing concern. The facilities are generally poor and oftentimes unsanitary so there is some deterioration and spoilage. The flue-curing barns are normally well-constructed and operated much as are those of the United States and Canada; some are operated efficiently. Although curing conditions are specified by law, enforcement is oftentimes lax. However, the general low quality of Philippine cigarette

tobacco is more often the result of inefficient field operations or improper handling, rather than improper curing.

#### DISEASES AND PESTS

The most serious disease of Philippine tobacco is greenleaf spot which affects shade-grown wrapper. It is most prevalent when harvest coincides with humid weather. Mosaic and other wilt diseases, although generally less serious, may become locally significant among areas of open culture production. The only practical remedy for wilt is crop rotation and development of more resistant varieties.

Two pests are prevalent, tobacco worm, *Protoparce quinquemaculata*, and cigarette beetle, *Lasioderma senicorne*. The cutworm feeds voraciously on the tender leaves and is especially destructive during the drier season, from November until March. The long-horned green grasshopper is also destructive, but less so than the cutworm. Both can be



FIG. 3.—Harvesting tobacco in La Union. Women do much of the harvesting; they are less likely to assist with planting operations.

controlled by hand picking or by dusting with arsenic powder or other insecticides. Insecticides are used if finances permit.

The cigarette beetle affects leaf tobacco and manufactured products. The only effective measures of control are sterilization and strict observance of sanitary measures in barns and storage areas.

#### POST-WAR TRENDS

During the period of Japanese occupation commercial tobacco production in the Philippines was negligible. When the industry was rehabilitated after the war it faced a completely different set of circumstances. The foreign market for the famous Manila cigar had been lost and could not be regained. Apparently cigar smokers had acquired the taste for other cigars during the period that Manila cigars were not available, although there were other conditions, primarily economic factors, that were significant. Then too, the postwar Philippine public demanded greater quantities of Ameri-

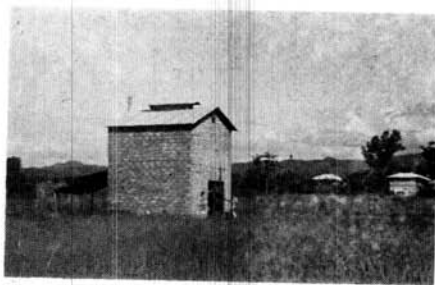


FIG. 4.—A concrete-block flue-curing barn amid rice paddies in Ilocos Sur. Barns may be constructed of galvanized iron, concrete blocks, wood, or mud over a lattice-work of split bamboo. Most roofs are galvanized iron.

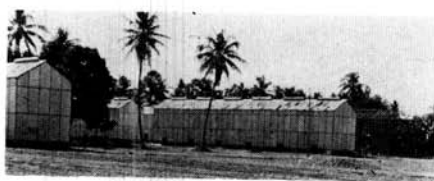


FIG. 5.—Flue-curing barns surrounded by coconuts, mango trees and bananas. Although a cluster of a dozen, or even three or four dozen, individual barns is not unusual, this battery arrangement of barns is not common.

can-type aromatic cigarettes, apparently a taste acquired and cultivated during the months of liberation and the years that large numbers of allied forces were stationed in the Islands. In 1950 Philippine tobacco production was only about 70% of the prewar production and imports (Virginia-type leaf tobacco) totaled about 50% of the Philippine production.

Virginia leaf was introduced into the Philippines and the first flue-curing barns were built in 1950, in an effort to supply the expanding domestic aromatic cigarette industry as import controls restricted the imports of American tobacco and cigarettes. However, it was not until the passage of the government price-support program in 1954 that tobacco production regained its prewar position among the agricultural crops, with the biggest expansion from 1955 to 1957.

Price supports have been unrealistically high, and even inferior grades of Virginia leaf were included in the support program. This program was responsible for a very rapid expansion of the tobacco industry with the emphasis on quantity rather than quality tobacco. In August, 1957, supports were re-

moved from the very low grades but continued to be abnormally high on those grades that remained within the support program.

Most of the expanded production of Virginia leaf has been in the Ilocos Region, particularly in La Union and Ilocos Sur, but also in

TABLE 1.—Production and Imports of Virginia-type Tobacco.

	Production, in kilos	Imports in, kilos
1945-49 av. . . .	insignificant	112,466
1950 . . . . .	100,000	13,060,151
1951 . . . . .	400,000	4,477,391
1952 . . . . .	1,407,000	14,761,128
1953 . . . . .	1,519,000	11,543,314
1954 . . . . .	2,051,170	6,598,763
1955 . . . . .	6,829,540	11,158,495
1956 . . . . .	21,906,490	4,256,459
1957 . . . . .	31,824,318	not available
1958 estimate.	29,955,000	4,500,000

eastern Pangasinan and, to a lesser extent, in Nueva Ecija and Negros Occidental. It is interesting to note that the production of the Cagayan Valley has not changed materially, either in amount or kind of tobacco. Isabela, historically the principal tobacco province, produced less than 50 hectares of Virginia tobacco in 1956. Experiments have indicated that Virginia leaf tobacco does not have aromatic quality when grown in the Cagayan Valley.

#### TOBACCO MANUFACTURE

Cigars, cigarettes, pipe tobacco, and chewing tobacco are manufactured in the Philippines. There are many small factories in the provinces, but the greatest concentration of tobacco processing is in the Manila area. 1939 there were 112 tobacco

factories in the Philippines; 41 were in Manila. However, the Manila factories were, in general, the larger ones and, consequently, accounted for a much larger percentage of the total production than their number indicated. In fact, the tobacco industry ranked first as an employer of manufacturing labor in Manila in 1939.

Until recently cigar manufacturing has been the most important aspect of tobacco manufacturing. It is a hand operation, a skill that has developed through centuries of experience. Although the wage of the Filipino cigar maker has never been enviable, minimum wage laws have materially improved his position. This increased cost of labor has been a principal cause of the inability to regain foreign markets in the post-war years. Good Manila cigars are no longer cheap cigars. The filler tobacco used in cigars must go through a three-year curing process and a three- to four-month steam sterilizing process before it is ready for use. In prewar years it was necessary for the manufacturers to import essentially all of the wrappers used, and especially that used for the cigars made for export to the United States. Even with the imposition of import controls 90% of the wrapper is imported, most of it from the United States.

The manufacture of cigarettes has ranked second to that of cigar manufacturing, but it is doubtful if this remains true since 1958. In recent years the cigarette factories have begun to mechanize, some factories using machines for the entire process. Since greater mechanization of the industry would result in more un-

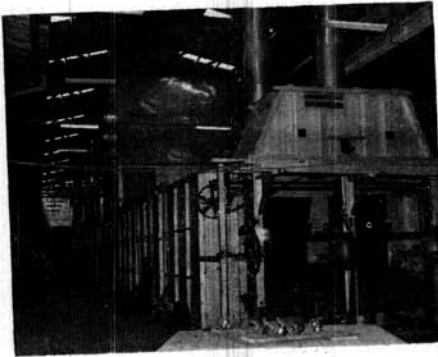


FIG. 6.—Modern tobacco-drying equipment. (Courtesy Philippine Tobacco Flue-curing and Redrying Corp.)

employment, government policy discouraged mechanization by a higher tax on machine-made cigarettes than on those manufactured by manual methods. Cigarettes are produced largely for domestic consumption in spite of the attempts of manufacturers to appeal to the cigarette taste of the foreign market by importing flue-cured tobacco from the United States to blend with Philippine aromatic tobacco. Imports of Virginia-type tobacco are supposed to be on the banned list, but a barter contract was permitted in January, 1958, which would permit the import of 10 million pounds of high grade U. S. Virginia leaf in exchange for 14 million pounds of low grade surplus Philippine Virginia leaf. The manufacture of cigarettes is definitely concentrated in the Manila metropolitan area. Seventeen factories produce Virginia-type cigarettes; 6 of them account for 95% of the total production (1957 figures).

Chewing and pipe tobaccos are manufactured entirely for local use. Most of them are made from the thickest and darkest leaves and do

not have the benefit of flavoring or blending. Much of the chewing tobacco is made in the form of twists or sticks. Most pipe tobacco is shredded in the same manner as cigarette tobacco. Only one brand of pipe tobacco is cut and blended in a manner comparable to foreign brands, and it is not readily available, even in Manila.

#### SUMMARY OBSERVATIONS AND PROSPECTS

The tobacco industry, although overshadowed by sugar, coconuts and abaca, is an important industry in the Philippines. In recent years about 20% of the total income of the Bureau of Internal Revenue has been

TABLE 2.—Tobacco Production (hectares) Philippines and Selected Provinces, 1956.

	Native	Virginia leaf	Total
Philippines...	39,770	35,330	75,100
Isabela....	14,700	30	14,730
Cagayan...	3,480	40	3,520
La Union..	700	15,150	15,850
Ilocos Sur..	2,500	8,450	10,950
Ilocos Norte	560	2,240	2,800
Abra.....	700	270	970
Pangasinan.	6,500	5,460	11,960
Nueva Ecija	900	1,300	2,200
Cotabato...	1,330	80	1,410
Cebu.....	1,930	.....	1,930
Leyte.....	810	.....	810
Negros Occidental..	700	730	1,430
Iloilo.....	680	.....	680
Masbate...	420	10	430
Negros Oriental....	430	80	510
Pampanga..	.....	430	430
Zambales...	30	430	460

supplied by tobacco. These collections may be even higher in future years as a rate increase on cigarettes was passed during the 1956 session of Congress.

Although Philippine tobacco production in 1956 (40,000 metric tons) was more than during the 1934-1938 period (35,000 tons) its relative position among the major world producers has declined. During this interval the production of the United States, Southern Rhodesia, Thailand, and Canada has increased greatly and that of Brazil, Turkey, Japan, Italy, France, Mexico and Cuba has increased much more than has Philippine production.

The 1956 exports (almost 7,710 metric tons) are about 80% that of the 1938 figure (9,840 metric tons), but the relative position of tobacco in the value of total exports is much less than in prewar years. The value of some of the metallic products, particularly chromite ore and copper concentrates, is considerably greater than in 1938 and the production of some other export commodities (copra and canned pineapple, for example) has expanded considerably. Spain is the principal foreign market for Philippine leaf tobacco and the United States, actually Hawaii, is the principal importer of Philippine cigars.

Philippine native tobacco bears the same reputation in Asia that Cuban tobacco does in the Western World, and in general the export has been comparable. In each case the quantity production has been cigar filler and has been grown for both domestic and foreign markets. Philippine production was well above that of Cuba in the pre-war

years, but has been below the expanded Cuban post-war production.

Although the production of Virginia leaf tobacco is almost equal to that of all other tobaccos and the rate of increase in production has been phenomenal, it is not yet truly established. It has boomed because of import controls and high support prices. The quality of the product is not yet satisfactory and the cost of production is high. Nonetheless, the Virginia tobacco industry is potentially strong. Its problems appear to be the result of the inexperience of the grower and the lack of incentive to improve and acquire experience. This results, at least in part, from the government policy of subsidizing incompetence with extravagant support prices. This situation could be remedied by the adoption of one or more of a series of measures: reduction of support prices by at least 25% and withdrawal of support prices from any tobacco that does not qualify for the top two or three of the present six grades; establishment of a rigid and official grading system, with national and international recognition, and comparable to the world-famous Philippine abaca sorting and grading system or patterned after the practices of tobacco grading houses that have been instrumental in the recent expansion of the Rhodesian tobacco industry; prohibition of the growth of other tobacco within 25 miles (or some other workable distance) of Virginia-type tobacco areas, a method that has proven successful in Thailand where tobacco production is under rigid government control; more scientific seed selection and plant distribution, pos-

sibly licensing seed producers, and careful fertilizing. Philippine tobacco yields are too low to be really competitive on the world market.

The Ilocos Region has been most affected by the recent developments. Long characterized by poverty, there is now much evidence of prosperity. Many new and large homes have been built and are being built along the highway and in the towns. There are more work animals than at any time since the war and they are in good physical condition. New lands, mostly uplands, have been placed under cultivation. This condition, plus the increased clearing of secondary forests to obtain fuel for the flue-curing operations, has created additional problems of soil erosion and erosion control.

Theoretically tobacco is the second crop on rice lands in the Ilocos provinces, but the "second crop" has become the first crop in terms of income produced per hectare. It is the second crop only in terms of the date of planting. Despite this increased production, it appears that tobacco has not displaced any single crop in the entire Ilocos area. In Ilocos Norte it has replaced garlic, cabbage and other vegetables to some extent. In Ilocos Sur and La Union there has been a minor decrease in corn or rice in a few municipalities, but this condition is not representative throughout either province. (The Agricultural Economics Division crop forecast in late 1957 indi-

cated that the 1958 corn crop in the Ilocos Region was expected to be almost 15% below the 1957 figure and attributed this decrease primarily to the shift to the production of Virginia leaf tobacco. However the entire Ilocos area produces only one percent of the Philippine corn, so this is in no way a major agricultural change.) There is somewhat less sugar cane grown than formerly, but the Ilocos is a marginal sugar area and the decrease in sugar hectareage cannot be attributed solely to the increased interest in tobacco.

As a result of the increased use of irrigation for a second crop of rice, corn, or vegetables, along with the additional land under cultivation, overall food production has not been greatly affected by the increased production of tobacco. Nonetheless, the Ilocos provinces have a greater food deficit than in 1950, but this condition is a reflection of the increased purchasing power of the population rather than decreased production of food products within those provinces.

#### ACKNOWLEDGMENT

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