E. Afr. Geogr. Rev. No. 8, April 1970, pp. 31—37

THE GEOGRAPHY OF TOBACCO PRODUCTION IN WEST NILE DISTRICT

MALCOLM K. MACKENZIE

The major features of the map (Fig. 1) of commercial tobacco cultivation in Uganda are the rather peripheral distribution and the concentration into three main regions: in West Nile, the "Middle North" (Acholi, Lango, and East Madi), and Bunyoro-Mubende, with one subsidiary region, North Kigezi. Although tobacco can grow anywhere in Uganda, except at very high altitudes, the locational pattern is far from fortuitous. It is due largely to government policy to develop tobacco growing in the west and north where cash crops were needed rather than in the Lake Victoria-Elgon region, where it would have had a harmful effect upon the cotton and coffee already established there. That was during the early establishment of tobacco, in the 1930's and 1940's. Moreover, tobacco is easily of high enough unit value to withstand transport costs, after the originally very high moisture content of the leaf has been greatly reduced by local curing. This is especially true of flue-cured leaf, which is much more remotely situated than the fire-cured variety.[1] However, it is also true that a process of 'natural selection' has been operative: tobacco has been grown at various times in Mengo, Teso, Toro, and Ankole but with no real degree of success because of sub-optimal human and economic, as well as physical, environments. Official policy has also favoured concentration, in the interests of efficiency, for successful tobacco cultivation requires much supervision by trained field staff: thus, the Acholi crop has always suffered from the great 'spread' of the tobacco area, and thus also 'spilling over' into neighbouring districts from the Acholi, Bunyoro, and Kigezi nuclei has been officially resisted.

The tobacco plant tolerates a wide range of temperatures. It grows through over 100° of latitude, from South Central Sweden to Northern New Zealand. The varieties grown in Uganda, of Virginia type, seem to fare best with an average daytime maximum of 70-80°F. and diurnal range of 10-20°, during the short growing season. Below 55°F. may be detrimental. Therefore, the crop is usually found at altitudes of 3,500 to 4,000ft., below or above which quality or yields tend to deteriorate. The plant is drought-resistant. About 20 inches of rain during the four months it is in the field is ideal, if this is well distributed. Severe droughts or long, wet, dull periods are deleterious. Hail may cause great damage because of the large leaves. The Bunyoro crop is particularly susceptible to heavy hail in July; in 1966, 111 acres were '100% destroyed' by hail[2]. Soils for good fire-cured tobacco should be medium to heavy and fertile. For flue-cured, on the other hand they should be light and of low fertility to produce the best type of leaf, light of colour and texture, medium or coarse sands or sandy loams are best, with a fine sandy or sandy clay subsoil for good aeration and drainage are vital. The West Nile tobacco soils are rather poor and light, the Bunyoro soils are heavier and more fertile.

These factors should not be considered in isolation. What is really important is that the plant makes fine responses to changes in the delicate balance held between the variables of weather and soil. Good husbandry is based upon some understanding of this principle. For instance, it is crucial that growers of flue-cured tobacco time their successive operations so that their crop, after transplanting from seedbed to field, is ready to benefit from the nitrogen 'flush' which comes with the equinoctial rains. Nitrogen late in the season impairs the quality of the leaf.[3]

Whereas coarse 'cottage' or 'native' tobacco, grown for home consumption and sale in local markets, has been produced in Uganda for at least a century, it was not until 1927 that proper commercial cultivation began. That was in Bunyoro, with fire-cured Virginia tobacco. From there it soon spread to Mubende and West Nile. However, in West Nile since 1936 this type of tobacco has all been air-cured (with only some fire-assistance in the later stages), for this is an easier process.

Table 1: Tobacco Production in Uganda: 1948–68

Average	Acreage Fire-cured	Acreage Flue-cured	Total	Production ('000lbs) Fire-cured	Production ('000lbs) Flue-cured	Total	Value (£000) Fire-cured	Value (£000) Flue-cured	Total
1948-51	6,750	590	7,340	2,600	200	2,800	64	4	68
1952-55	6,200	2,200	8,400	2,700	600	3,300	103	17	120
1956-59	8,140	3,500	11,640	4,240	1,240	5,480	221	60	281
1960-63	6,060	2,700	8,760	2,600	1,480	4,080	134	115	249
1964-67	9,840	3,290	12,750	4,780	2,910	7,690	204	444	648
1968	9,085	6,230	15,310	3,930	5,990	9,920	154	792	946

SOURCES: Uganda Department of Agriculture Annual Reports to 1964 Department of Agriculture, Entebbe and B.A.T., Arua, for 1965-8.

As is evident from Table 1, fire-cured tobacco has enjoyed no really sustained growth to date. The reasons are several and interconnected. The vicious circle of low earnings; low standards of cultivation, curing, and grading; and low yields and quality, has been frequently described in Annual Reports.[4] The result has been waves of apathy and low morale. It took six price increases to farmers in the decade after the 1948 Report on Tobacco[5] before the Bunyoro growers were really responding.[6] A production peak for fire-cured leaf was reached in 1958 and 1959 and

overseas buyers were sought and attracted; then came a collapse at rejection on grounds of poor quality. Since then, further efforts have been made to support this branch of the industry, especially through emphasis on improved quality. Although the market abroad for this type of tobacco is restricted mainly to parts of West and North Africa, official acreage and production targets have been high; but growers have remained discouraged.

The West Nile air/fire-assisted crop was ended after the 1968 season. This is because of the generally poor quality and market prospects and the competition from much more lucrative flue-cured crop in the same area.

Since 1963, flue-cured tobacco has been ever increasingly the more profitable of the two crops to Ugandan farmers. Its commercial development dates from 1942, in West Nile, but its real expansion was not until 1948, by which year B.A.T. (The British-American Tobacco Company, Ltd.) had assumed responsibility for its organisation in Northern Province. It has spread through Acholi to Lango and East Madi and has also been developed in North Kigezi, but West Nile has remained by far the leading area since 1950, accounting for some 80% of the crop by value since 1964. It is interesting to compare the acreage, production, and value totals for the two crops in 1968 (in Table 1); the disparity is the product of the enormously greater yields and unit value of West Nile flue-cured leaf, as shown in Table 2.

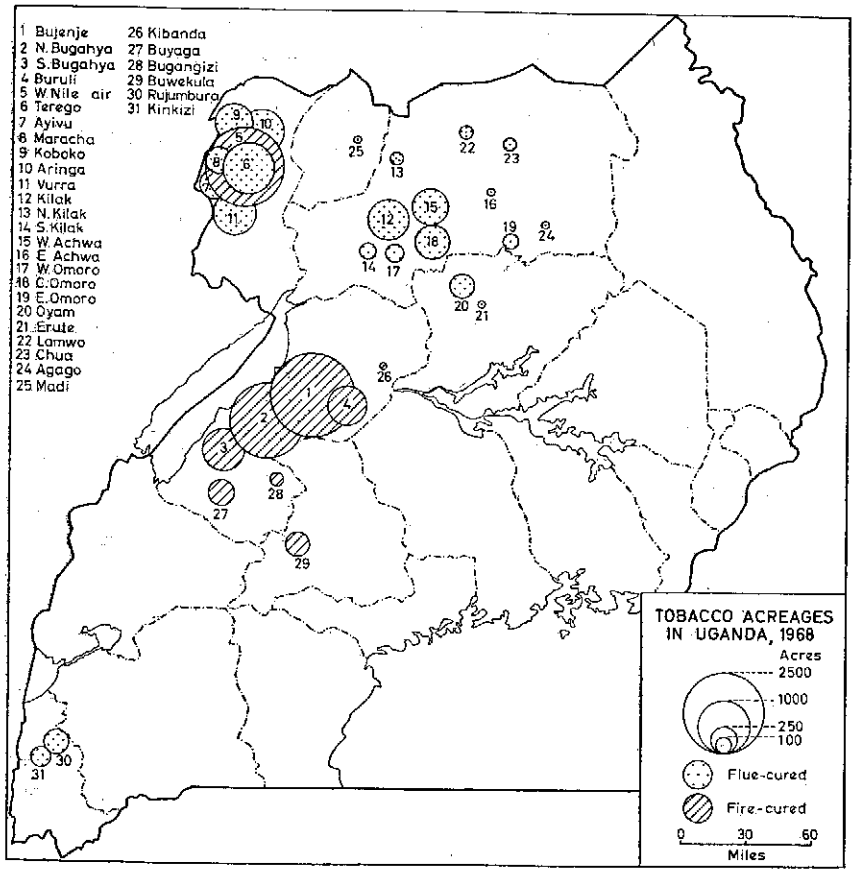
TABLE 2

Some Comparisons: (a) *Bunyoro Fire-Cured &* (b) *West Nile Flue-Cured Tobacco*

	YIELD (lbs./acre)		PRICE (per lb.)		PRICE (per acre)	
	(a)	(b)	(a)	(b)	(a)	(b)
1965	595	1136	85c.	3/22c.	560/-	3,360/-
1966	309	1196	69c.	3/40c.	214/-	4,054/-
1967	332	1395	82c.	3/21c.	270/-	4,476/-
1968	361	1349	80c.	2/66c.	288/-	3,583/-

SOURCES: Department of Agriculture, Entebbe; B.A.T., Arua.

The price paid per pound depends on leaf quality. In 1968, fire-cured leaf was divided into 5 grades; only 7% of Bunyoro leaf was classified as grade I, earning



1/50c. per lb. The West Nile flue-cured crop was divided into 26 grades; 25% of the leaf was in the top 9 grades, earning 4/- to 4/95c. per lb.

Probably the greatest success in the history of tobacco growing in East Africa, and a model that other nations have copied, has been in West Nile district. This achievement has derived entirely from the response of cultivators there to the enlightened deployment of the human and material resources of a large international business concern (B.A.T.)[7] Until the late 1950's growth was unspectacular. To obviate the need for high capital outlay by the growers, the company bought their greenleaf for a few cents per pound and then flue-cured it in the large company barns strategically situated throughout the area. This Greenleaf Scheme was unsatisfactory to all because the growers' earnings were small and each batch of cured leaf was too heterogeneous. Next, a co-operative scheme was tried, but with no

real success. The breakthrough came with the discovery after trials that by using scaled-down barns, each to cure a one-acre crop, for the first time in East Africa ordinary peasant cultivators could produce high quality cured leaf. Thus inaugurated the company's Master Growers' Scheme. Each grower had a ¼-acre plot and belonged to a group of four who shared a miniature brick barn. Credit facilities for barn-building and buying such necessary items of equipment as metal flue-pipes, insecticides, and fertilizer were arranged by the company, latterly through two national banks.[8] Close supervision and guidance from experienced field staff were supplied. Recently, the Special Development tractor hire service has become an important part of the scheme.

The scheme is admirably adapted to local conditions. Flue-cured leaf thrives on soils that are rather poor for other cash crops. Altitudinally, this area falls between the best Arabica coffee and cotton parts of the district. The main tobacco area, in the counties of Ayivu, Maracha, and Western Terego, is densely settled and closely cultivated for food crops, so labour is at hand for the intensive work involved, and the small scale of each master grower's operations ensures that he has full control of his crop at all stages, without greatly aggravating problems of land and food availability. Tobacco fits well into local crop rotations, as an opening crop followed by various foodcrops (especially cassava) for two or three years and fallow for one to three years, depending on pressure on land.

Other innovations followed the new barns and contributed greatly to the success of the scheme. In 1961-2, a new, high-yielding and disease-resistant variety of flue-cured tobacco, White Gold, replaced the previous type. It was also found that early, 'dry' planting (in January-February, with two pints of water per plant) and application as recommended of the balanced fertilizer, imported and supplied by the company, greatly increased yields. The growers have learned to employ almost clinical care in their seedling nurseries and scientific techniques in curing, for they appreciate the value of quality. The top grades earn six times more than the bottom ones.

The hierarchical structure of the flue-curing organization in West Nile makes an interesting study in location. Today some 10,000 master growers between them own 3119 barns. These have been erected beside their owners' homesteads and very often by the roadside, and the tobacco plots are usually nearby. Seedbed sites are on river banks, because of the large water requirement, and centrally placed, to serve many growers. The barns are grouped into loose clusters of between 48 and 240, with each grouping orientated to the nearest one of the twenty Leaf Buying Centres. To these the cured leaf is borne on head or bicycle for final grading, sale, and baling, a distance of up to 5 miles in the original, central area, but sometimes as much as 10 miles in the newer, larger, peripheral areas. Expansion has been outwards from the Central Lugbaraland 'core area' just north of Arua to Koboko and Aringa counties in the north and Vurra and Madi/Okollo in the south. Further areal expansion should be northwards, as the land there is 'good tobacco country'

whereas it is limited westwards and southwards by high ground along the Nile-Congo watershed and the international border, and eastwards by rather low ground and low rainfall.

The twenty centres are located near main roads on permanent streams or beside boreholes. The ten older ones are on sites which are a legacy from the 'greenleaf' days, because each foundation represents a fair amount of capital outlay by B.A.T., and so an element of 'geographical inertia' is evident. The ten new centres have been positioned centrally in areas selected for 'opening up'; in some cases new roads have to be made, linking with main roads.

At present, expansion is upwards rather than outwards. All the barns in the district are being 'raised' to cope with a 1½-acre crop each. This effects big fuel economies, which is a vital consideration as the shortage of fuel is the greatest threat to the industry. The fuel used is wood. In the early days, the local bushfuel was found in abundance but it is now sorely depleted. Several government plantations of eucalyptus established in the 1950's have been a useful supplement but the continued existence of the industry depends on supplies from the eucalyptus plantation begun in 1964. At present over 6,500 acres have been planted; by 1975, some 15,000 acres will have been planted, but it takes five or six years for the trees to be mature enough for use. Other forms of fuel have been considered, of which charcoal offers the best possibility as it transports more cheaply than timber and so could be brought from further afield.

The twenty centres have been leased by B.A.T. as headquarters for the twenty Tobacco and Woodfuel Societies recently formed to take over gradual control of organization in the district, as part of the company's policy of Africanization.

Although a 'minor' crop, tobacco's value far exceeds the £1-million earned by its growers in 1968. The country benefits directly from an excise duty (a minimum of 12/- per lb.) on tobacco grown and sold for use in Uganda and a high rate of customs duty on imports, while homegrown tobacco allows import substitution. A useful sum is earned annually in foreign exchange on exports (an average of over £1 million per year since 1965). Thousands of Ugandans find employment in B.A.T.'s Kampala redrying plant and Jinja cigarette factory and in the retail trade, as well as in growing and curing. Profits have been used for general developments in areas like West Nile, where new roads, bridges, and buildings are helping to transform the landscape. Finally, and much less tangibly, new attitudes and skills are being acquired. For one thing, because of the handsome returns earned on high inputs of skilled labour and capital,[9] a healthy materialism is developing among those who not long ago were purely subsistence cultivators.

Flue-cured tobacco expansion has been given high priority as an important component of the diversification programme considered vital to Uganda's economic wellbeing.[10] Negotiations are in hand with the International Bank for Reconstruction and Development (The World Bank) to finance the proposed expansion

programme, which aims at doubling flue-cured tobacco production in Uganda over the next ten years. This will be based almost entirely on the export market. It will be confined to the present areas, namely in Northern Province and North Kigezi.

NOTES

1. Special barns must be built for *fire-curing and flue-curing* tobacco, usually of mud and wattle for the former and brick for the latter. It must be done a few hours after harvesting. The moisture content of the leaf is reduced from over 80 per cent to about 8 per cent, by heating. In flue-curing, hot air is circulated from a small external furnace through thin metal flue-pipes in the barn. *Air-curing* requires no fire and is often done in growers houses. Flue-curing is the most exact process and produces better quality leaf.

2. UGANDA GOVERNMENT: Department of Agriculture, Entebbe; *Monthly and Annual Reports,* Open File.

3. Akehurst, B.C., 1968, *Tobacco,* Longmans, London, deals fully with physical requirements.

4. For instance, the *Department of Agriculture Annual Reports* for 1950, p.31; for 1951, p.30; for 1960, pp. 12, 13. Government Printer, Entebbe.

5. Murray, S.S., 1949, *Report on Tobacco,* H.M.S.O., London.

6. Purseglove, J., 1951, *Tobacco in Uganda,* Government Printer, Entebbe gives a summary of the position to that time.

7. Yet the Department of Agriculture Annual Report for 1935 on p.11 describes the West Nile cultivators as possessing "intense conservatism and reluctance to accept innovations" and the 1937 Report calls them "primitive people" with whom it was dangerous to make spectacular increases in area (p.11).

8. A one-acre barn costs 1,600/- and total expenditure is over 900/- per acre per year. Loan default rate is only 10 per cent.

9. An acre of flue-cured tobacco in West Nile is worth three times more than in Acholi, thirteen times more than fire-cured in Bunyoro, and almost thirty times more than cotton in Uganda (1968). This omits consideration of labour and capital costs.)

10. UGANDA GOVERNMENT: Uganda's Second Five-Year Plan. 1966-71, *Work for Progress,* Government Printer, Entebbe (1967), especially p.15, 68.