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STATE FARMS IN GHANA

by

MARVIN P. MIRACLE and ANN SEIDMAN

The Land Tenure Center, while it provided no support for this study, is issuing this report because of its interest to those concerned with agricultural development and agrarian reform in the less developed countries.

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There has long been a controversy concerning the optimum scale of agricultural production units in the tropics, particularly in Africa. Some crops are grown almost exclusively on plantations, others predominantly by small holders, and a number by both large and small scale producers.[1]

Since independence, several African states have experimented with new forms of large-scale production units. State farms, in particular, have received considerable publicity. In tropical Africa, these have been attempted primarily in Guinea and Ghana. In Guinea, the state farms are reported to have ended, largely, if not entirely,

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*Associate professor of agricultural economics, and project assistant in agricultural economics, respectively, at the University of Wisconsin. The authors would like to express their appreciation to the officials of the Government of Ghana, who gave generously of their time and information for this study.

[1]For discussion of some different approaches and problems in Africa, cf. John de Wilde, (et al.) Experiences with Agricultural Development in Tropical Africa, Baltimore, 1967; V.D. Wickizer, "The Plantation System in the Development of Tropical Economics," Journal of Farm Economics, February 1958; Sir Alan Pim, Colonial Agricultural Production, Royal Institute of International Affairs, London, 1946; W.A. Hance, African Economic Development, New York, 1958; A. Wood, The Groundnut Affair, London, 1950; K.D.S. Baldwin, The Niger Agricultural Project, Oxford, 1957; C.E. Johnson, African Farming Improvement in the Plateau Tonga Maize Areas of Northern Rhodesia, Northern Rhodesia, Department of Agriculture, Agricultural Bulletin, No. 15, February 1956; R. de Coene, "Agricultural Settlement Schemes in the Belgian Congo," Tropical Agriculture, January 1956, pp. 1-17.

in failure. Most have now been abandoned.[2] In Ghana, the state farms appear to have encountered serious difficulties in their brief five years of existence. Many were abandoned after the 1966 coup d'etat; some were sold to foreign private firms; a few, after careful evaluation, have been continued as state enterprises.

The first tropical African country to gain full political independence in the post-World War II period (in 1957), Ghana had long been regarded as one of the most prosperous countries in the region.[3] As in most of tropical Africa, its eight million inhabitants are heavily dependent on agriculture. About 60 percent of the labor force is estimated to be in agriculture.[4] Manufacturing produced only about two percent of gross domestic product in 1961.[5] Starchy staples--mainly manioc, maize, yams, plantain, taro, millets, and sorghums, and rice--account for over 80 percent of caloric intake;[6] but inadequacies of global statistics severely limit analysis of

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[2]See Elliot Berg, "Socialism and Economic Development in Tropical Africa," Quarterly Journal of Economics, November 1964.

[3]No precise ranking of the degree of development of African countries is possible, but non-monetary indicators substantiate this judgment: cf. W.O. Jones and C. Mérat, "Consumption of Exotic Consumer Goods as an Indicator of Economic Achievement in Ten Countries of Tropical Africa," Food Research Institute Studies, February 1962, and Marvin P. Miracle, Maize in Tropical Africa, Madison, Wisconsin, 1966, Table 2-1, pp. 27-28.

[4]The Economy of Ghana, Vol. I of A Study of Contemporary Ghana, edited by W. Birmingham, I. Neustadt, and E.N. Omaboe, London, 1966, p. 25.

[5]R. Szereszewski, "Sectoral Structure of the Economy," The Economy of Ghana, op. cit. Table 3:2, p. 68.

[6]See Miracle, op. cit. p. 120; and B.F. Johnston, The Staple Food Economies of Western Tropical Africa, Stanford, 1958, p. 200.

changes in foodstuff output. Fairly reliable data is available for cocoa, which is responsible for about two-thirds of Ghana's exports. Cocoa exports increased about 70 percent in the post-war years. However, because of the fall of cocoa prices as supply outpaced demand in international markets, foreign exchange earned by cocoa remained about the same.[7]

In 1961, faced with development expenditures expanding faster than export earnings, the Ghana Government imposed import restrictions. By 1965, lack of imported raw materials severely hampered agricultural, as well as industrial output, and rising foodstuff prices constituted a major factor in mounting urban discontent.[8] This, many observers believe, was a major cause of the fall of Nkrumah in the coup of April, 1966.

The use of the state apparatus to foster large-scale farms in Ghana started in the early 1950's. This program was sharply accelerated in 1962, as world cocoa prices fell and foreign exchange shortages led to reduction of the import of raw materials and foodstuffs.

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[7]Food and Agricultural Organization of the United Nations (FAO) Production Yearbook, and ibid., Trade Yearbook, various issues.

[8]Ghana Economic Survey, 1965, Accra, 1966, pp. 76, 101. For description and evaluation of Ghana's over-all development experience from 1951, when the National Government assumed power, to 1965, the last year before the coup d'etat, see Ann Seidman, Ghana's Development Experience, 1951-1965, (Doctoral thesis, University of Wisconsin, in preparation); for detailed analysis of the Ghana Government's efforts to build cooperatives as part of its agricultural program, see Marvin P. Miracle and Ann Seidman, "Agricultural Cooperatives and Quasi-Cooperatives in Ghana, 1951-1965," Land Tenure Center, Madison, Wisconsin, 1968.

The Seven-Year Development Plan for 1963-64 to 1969-70 described the planned role of state farms in Ghana as follows:[9]

> The farming plan for the State Farms Corporation during the next seven years envisages heavy concentration on cereal and basic crops especially to meet demand in the rapidly expanding urban areas and on the establishment of new farming acreages in the savannah zones of Ghana. More specifically, the State Farms Corporation should concern itself with the introduction of new crops and proven techniques and establish itself in uncultivated, rather than already farmed, areas. This would be an effective means of popularizing new methods and ensuring that idle land resources are put to productive use. In addition, state farms will play a leading part in the production of sugar cane, cotton, rubber, non-apparel fibres, and meat where large-scale organization has decided advantages in production.

In this paper the available evidence[10] is evaluated in an effort to discover the nature of progress made and difficulties encountered in carrying out this program. First, the history of post-war government efforts to establish large-scale projects will be summarized. Second, the scope and size of the state farm program established in 1962 will be described. Third, some of the specific projects established will be examined in detail. Fourth, an over-all evaluation will be attempted, based on evidence available to date.

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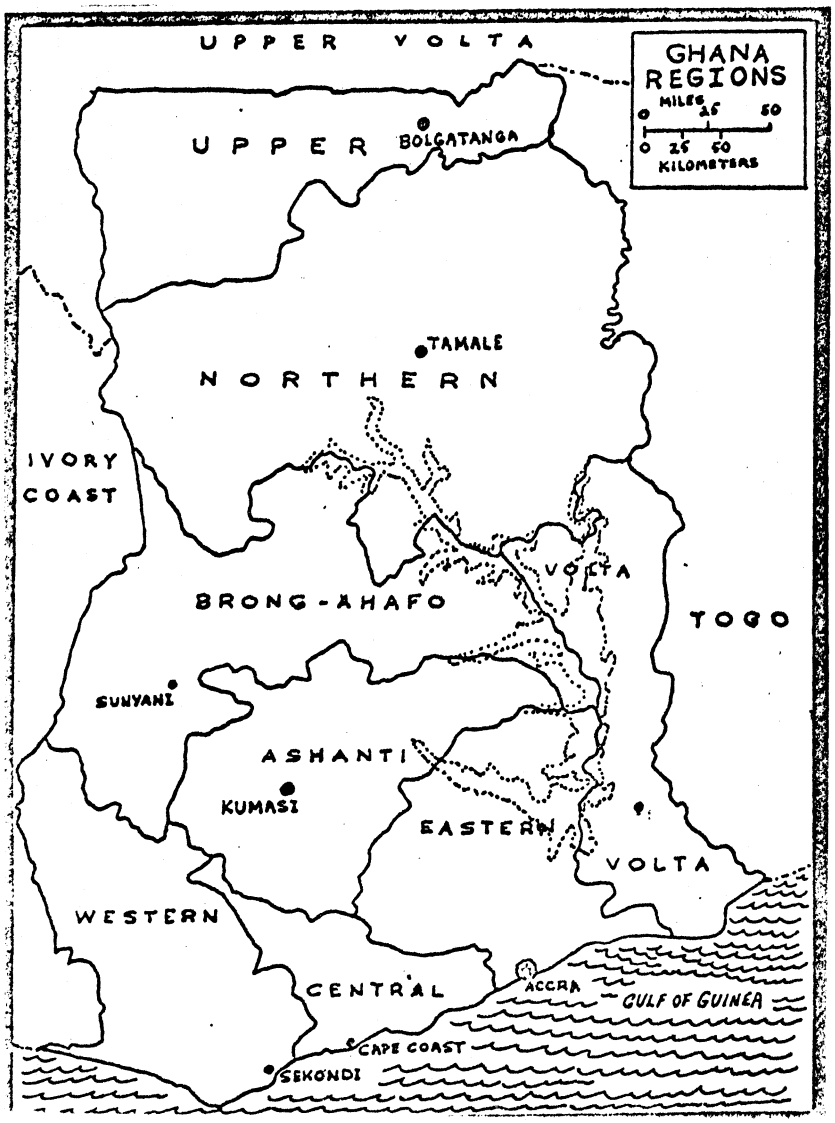
[9] Ghana Seven-Year Development Plan, 1963/64 to 1969/70, Office of the Planning Commission, Accra: 1964, p. 79.

[10] As yet unpublished studies made in Ghana to determine which state farms should be continued after the 1966 coup might shed additional light on the issues here discussed. Only brief reports in the Ghana press have, however, been available to the authors.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CENTRAL
ACCRA
GULF OF GUINEA
CAPE COAST
SEKONDI

History of State Agricultural Projects to 1962

The British colonial administration tried to create a large-scale mechanized agricultural project in the northern Ghana savannah almost immediately after World War II. One of several British-sponsored projects to augment foodstuff and raw material output in Africa,[11] the Gonja Development Company was formed in 1950 by a newly established Agricultural Development Corporation which described the project's aim as follows:[12]

> The world problem of rapidly increasing populations unaccompanied by a rise in basic food production assumes particularly serious proportions in areas, such as exist in the Gold Coast, where intensive cultivation and soil erosion have resulted in a marked decrease in soil fertility. In such areas, the necessity for finding means to increase food supplies is vital. An increase in food production may be achieved in various ways, one of which is the introduction of mechanized agriculture into previously undeveloped land.

Specifically, the Gonja project (located near Damongo about 80 miles west of Tamale) aimed (1) to work out a system of mechanized agriculture suitable for Northern Territories; (2) to increase the food supply of the region, which was thought to suffer fairly frequent and severe seasonal shortages; and (3) to promote resettlement of the farmers from the overcrowded Northeast in the sparsely settled Gonja territory.[13]

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[11]See A. Wood, The Groundnut Affair, London: 1950, and D.S. Baldwin, The Niger Agricultural Project, Oxford: 1957.

[12]Gold Coast Agricultural Development Corp., Ltd., Annual Report and Accounts for Year 1951, Gold Coast: Government Printing Office, 1952, p. 6. (Hereinafter cited as Agricultural Development Corp. Report).

[13]Agricultural Development Corp., Report, 1956, passim.

Initially, the Gonja project was to encompass 32,000 acres. By 1953, only 4,000 acres had been cultivated. By 1955, the acreage was further reduced to 1,500.[14] By 1957, a fact-finding committee had recommended the voluntary liquidation of the Gonja Development Company, and the continuation only of the tobacco scheme based on fallow rotation and the use of light equipment.[15]

There appear to be several obvious reasons for the failure of the Gonja project:

1. The Company initiated an extensive and expensive infrastructural program which included the following:

   a. 15 miles of gravel road with 12-inch culverts at about $1,800 a mile;
   b. quarters for 10 senior staff (British), three junior staff members, and 24 artisans, and 280 laborers (these last were concrete houses with aluminum roofs);
   c. a 1,200 square foot shop, a corn-milling and grain store;
   d. three store buildings;
   e. an office block;
   f. a tobacco barn;
   g. a butcher shop;
   h. a power station;
   i. a fully equipped hospital;
   j. and a water supply plant.

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[14] Ibid.

[15] Agricultural Development Corp., Report, 1957, p. 14.

2. The Company relied for management on a British staff (each paid about $6,000 a year, plus passage home). In the first year, of 17 recruited, one resigned, three were dismissed, and four terminated their contracts on "medical advice."[16]

3. It was difficult to attract settlers. By the end of the first year, only 11 families were settled, each receiving 30 acres of arable land, a two-acre garden plot, and their own house. The ultimate goal was to re-settle 450 families. The relationship between the families and the company remained undecided, but tentatively two-thirds of the returns were scheduled to go to the company, one-third to the farmers.[17]

4. Land clearing, executed by winches and tractors, and leaving buffer strips of grass and trees to prevent soil erosion, cost about $18.00 an acre. It quickly appeared that 6,400 acres could not be cleared at all, due to rock. The buffers eliminated more land area, so the total available cultivable area was reduced to 14,000 acres.[18]

5. Frequent breakdowns of machinery and prolonged periods of waiting for spare parts repeatedly delayed progress.

6. The project apparently attempted to experiment with crops which were not suitable to the local situation. The first maize crop was lost due to rust. The millet crop was lost on account of excessive rains. Yams planted in the first two strips cleared proved uneconomic. Peanuts and rice, however, did well; the rice yield was 2,000 pounds per acre. Eight acres of tobacco grew well,

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[16] Agricultural Development Corp., Report, 1951, pp. 3-8.

[17] Ibid., p. 7.

[18] Ibid., pp. 4-5.

but experiments with air-curing failed.[19]

When the Gonja project was liquidated in 1957, it encompassed 60 acres of rice, 100 acres of peanuts, 300 acres of maize, 50 of tobacco, and 100 of dwarf sorghum. By that time, however, the reduced area left the administrative buildings, services, machinery, and equipment "all out of proportion with present needs." The Agricultural Development Corporation concluded that "With the exception of tobacco, there is no possibility of avoiding a loss on all field crops so far grown at Damongo under the present system of mechanized cultivation."[20]

During the fifties, the Agricultural Development Corporation (ADC) initiated or took over other projects, particularly in tobacco, rubber, and palm oil. None of these projects was on the scale originally projected for the Gonja Development Company. A 30-acre farm was started in 1957 to produce tobacco and wrappers for the Industrial Development Corporation.[21] The assets of a private poultry farm were purchased in 1956, and the stock was increased by importing more chicks.[22]

The Agricultural Development Corporation also purchased the 2,483-acre Prestea oil palm estate from a private owner who had gone into voluntary liquidation. Pamol (a United African Company subsidiary) became the managing agents in return for a 10% share of

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[19] Ibid., passim.

[20] Agricultural Development Corp., Report, 1957, p. 14.

[21] Agricultural Development Corp., Report, 1958, passim.

[22] Ibid.

the capital. The Government took over the entire project in 1961.[23] In 1961, the Government also purchased, for over $300,000, a small palm oil factory which had been started by Pamol in 1914. Only 1,000 acres were producing in 1961; another 328 acres were not yet bearing.[24]

The ADC's most ambitious projects were in rubber production. A 1,900-acre rubber plantation, the Ettekrum Rubber Estate, was purchased from a Major Holland who had started it back in 1903. Holland had planted about 540 acres of trees, of which 500 acres were still being tapped. The plantation had a factory with modern rubber-pressing equipment, and an 80-family estate village. The concession acreage not planted with rubber was rented to local farmers at 10 shillings an acre a year for growing cocoa. Free rubber tree seedlings were also given to the farmers and raw latex was purchased for 10d a pound.[25]

In 1957, the ADC, together with a Danish firm, R. T. Briscoe, started the 5,000-acre Dixcove Rubber Estate, of which some 2,140 acres were planted by 1961. Briscoe handled the management. About 500 laborers were employed, of whom about 200 were women. Costs,

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[23]A. K. Wontumi, "Development of Estate Agriculture in Ghana," Kumasi, 1961 (mimeographed), p. 12. Wontumi visited a number of farming areas during the long vacation, 1960 and interviewed farmers in not less than 30 villages concerning their attitudes towards estate farms.

[24]Ibid., pp. 8-9.

[25]National Investment Bank, (Ghana), Domestic Rubber Production, A Report by the Development Service Institute, Accra, 1965, p. 1-2; and Wontumi, "Estate Agriculture," op. cit., p. 6.

from the planting to the production stage, were estimated to add up to $600 per acre.[26] In 1956, the ADC purchased two smaller rubber estates from the Avrebo Rubber Company. By 1961, the one in Avrebo had about 1,000 acres planted; the other, in Abura, had about 800 acres planted.[27]

The Agricultural Development Corporation was not a profitable organization. Few of its supposedly productive projects were reported to be producing significant profits. Its development fund had allegedly accumulated a net deficit from 1955 to 1958 of almost $400,000.[28] Viewing this apparently heavy financial loss, one must bear in mind that several of ADC's agricultural projects had just been initiated.[29] Also, the Corporation subsidized machinery and equipment which it rented to private and cooperative farmers.[30] On

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[26] Wontumi, op. cit., p. 6.

[27] Ibid., Table 1.

[28] Agricultural Development Corporation, Ghana, Report, 1958, Consolidated Profits and Losses Sheet.

An interesting study could be made of the career of the ADC's chairman, Mr. Ayeh-Kumi. He appears to have been a wealthy businessman who was appointed to various critical positions by President Nkrumah, including that of Chairman of the Industrial Development Corporation, (which was dissolved after failing). Ayeh-Kumi was fired in 1961 after the President's "Dawn Broadcast" against corruption, but was later appointed as the President's personal economic advisor. After the coup of March 1966, Ayeh-Kumi denounced Nkrumah, declaring his own opposition to socialism. Several post-coup hearings on corruption have suggested his implication in various lucrative deals.

[29] Ibid.

[30] Marvin P. Miracle and A. Seidman, "Agricultural Cooperatives and Quasi-Cooperatives in Ghana, 1951-1965," Land Tenure Center, University of Wisconsin, 1968.

the other hand, ADC's central office was heavily staffed with 70 members--including 13 senior officers--all of whom received free medical care and other welfare facilities. The ADC was liquidated in the early sixties under circumstances which aroused suspicions of corruption, although the financial details have not yet been published.

A study made in 1961,[31] just before the ADC was liquidated, specified the kinds of problems encountered in the operation of the ADC's estate farms themselves:

1. Labor costs were relatively high. For example, a worker received 13s[32] for 120 palm trees harvested at Prestea, and for 88 trees in Sese, compared to 3/9d for 120 trees in Eastern Nigeria.

2. Improved varieties of planting materials were expensive and scarce.

3. Skilled labor was scarce. Most employees had no education. The laborers worked in groups under the supervision of a headman who possessed seniority, although he frequently lacked adequate skills. Even estate factorymen were semi-literate and learned their skills on the job. The director of the former Holland estate had been on the job 15 years and remained the only man there who could run the modern rubber-pressing machinery. At Prestea, only the fitter was literate.

4. Efforts to introduce mechanization encountered difficulties. Anthills, steep slopes, stumps, roots, and rocks caused damage to

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[31] Wontumi, op. cit.

[32] Until recently Ghana's currency consisted of Ghanaian pounds and shillings at par with Britain's. During the period covered in this paper, a shilling was worth $ .14, a pound $2.80.

machines. Cleared land tended to erode when exposed to the heavy rains. Improper operation of machinery and frequent breakage led to increased costs for spare parts and made it necessary to set up local workshops and servicing units. Lack of scheduled maintenance programs and lack of skilled fitters aggravated the problems.

5. The introduction of new modes of life and farming required special social skills among the farm organizers, skills which were in short supply. The farmers reportedly suspected the motives of the officers, especially expatriates, and found it difficult to accept new ideas and methods. They objected to efforts to settle them in estate villages despite improved social amenities. Those who did stay went home on the weekends to be with their families or to carry out their social responsibilities.

In sum, the Agricultural Development Corporation, in its endeavors to establish estate farms, encountered serious managerial, technical, and financial problems.

Organization of the State Farms Corporation

The State Farms Corporation (SFC) was officially established in January, 1963. Actually, operations commenced in June of 1962, shortly after the liquidation of the Agricultural Development Corporation. The SFC was established because of Government dissatisfaction with the growth of agricultural production in the traditional agricultural sector, the necessity to reduce food and raw material imports, and the desire to diversify and expand agricultural exports.[33]

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[33] Files of the Ghana Planning Commission, Accra, 1966.

The Corporation took over the management of the Ministry of Agriculture's agricultural stations and the projects which had been established by the defunct ADC. Six new units were established, four with Soviet technical assistance and two with Israeli aid. In November 1962, the Corporation was asked to absorb 10,000 workers formerly employed by the Ministry of Agriculture.[34] In March 1963, the SFC took over the management and control of 12 cocoa trial and demonstration stations. By 1965, it had control of a total of 105 farms,[35] including 42 demonstration and experiment stations, eight Agricultural Development Corporation projects, one private plantation, and 54 new farms.

It should be emphasized that large-scale, specialized, institutional and cooperative farms continued to represent only 1.2 percent of the total cultivated area in Ghana in 1964. Evidence concerning the area acquired for large-scale farms is somewhat contradictory. According to the Ghana Government Preliminary Agricultural Census it totalled a little over a million acres, of which 250,268 were owned by state farms. Only 203,000 acres of lands acquired by all large-scale farms were cleared, and only 99,000 acres were actually put under crops. Of this, state farms cropped 50 percent of the cultivated area (about 50,000 acres). Cooperatives cropped 24 percent, Brigade Farms 13 percent,[36] and the remaining 13 percent was cropped by other

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[34] Later some of these were returned to the Cocoa Division of the Ministry of Agriculture.

[35] Ibid.

[36] The State Farms Corporation was entirely separate from the Workers' Brigade, although the latter also established large-scale farms.

specialized and institutional farms.[37] According to the World Bank team studying the productivity of tropical African agriculture, (headed by John C. de Wilde), total land in large-scale farms was 465,000 acres in 1964, of which 145,000 acres had been cleared and only 64,000 put under cultivation.[38] Most of the large-scale farms planted permanent crops. Over half (51 percent) of the state farms were devoted to permanent crops, primarily rubber and oil palm.[39]

The Workers' Brigade was initially established in 1961 as a para-military training program for unemployed workers, and shifted into agricultural production on large farms in 1962. Some $12 million were allocated to the Brigade's agricultural wing under the Seven Year Development plan. Its goals included 1,000-acre farms in the southern forest areas to grow a mixture of tree and arable crops with a minimum of mechanization. Two thousand-acre farms in the savannah zones were to be managed with a high level of mechanization. Investment costs for each type of farm were reportedly estimated by the Brigade to total about $200,000. The Brigade members lived near the farms, in neighboring villages, and received 6s, 6d for a day's work. It is

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[37]Ministry of Agriculture, Division of Economics and Statistics, Statistics of Large Scale, Specialised, Institutional and Co-operative Farming, 1964, Vol. 1, Accra: 1964 (mimeographed) p. 6, (hereinafter referred to as Agricultural Census, Vol. 1).

[38]John C. de Wilde, (et. al), op cit., Vol. 1, p. 129.

[39]Ministry of Agriculture, Statistics of Large Scale, Specialised, Institutional and Co-operative Farming, op. cit., p. 6.

difficult to get adequate data on costs or productivity of the Brigade, but they were probably not too different from those of the state farms.[40] Since the coup, there is evidence suggesting that several camps which the Brigade claimed to have established may have been fictitious, those in charge diverting the funds to their private accounts.[41]

The SFC proposed and initiated the construction of several processing mills. Its plans included a £ 37,000 palm oil extraction mill near Prestea designed to process 18 tons of palm fruit hourly when completed in 1967; a rubber mill in Ara to produce rubber sheets for the rubber products factory; a bacon factory in Dawhenya; and an animal feed processing plant to end the import of feed for livestock.[42]

The SFC lacked adequate personnel at all levels and was--possibly partly for this reason--run from the top down. Its head office, in Accra, was responsible for overall planning, policy making, and administration. Smaller regional headquarters were in charge of specific crops and farms in given regions. The farm managers directed daily activities and implemented headquarter directives with little direct initiative or responsibility. The managerial staff consisted partly of former members of the General Agricultural Division from the Ministry

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[40] Files of the Planning Commission, 1966; also conversations with Israeli Technical Advisor in National Office of the Workers' Brigade, 1962, and visit to Workers' Brigade Farms by A. Seidman.

[41] Cf. Ghana Daily Graphic, November 30, 1966.

[42] Ghana State Farms Corporation, Second Annual Report, 1963/64, with production targets for 1965. Accra, 1964.

of Agriculture, partly former members of ADC, and partly personnel recruited by the Corporation. The staff members were characterized as "entirely inadequate for the direction of the corporation's present program. This inadequacy extends both to technical and economic ability."[43] The shortage of competent field staff allegedly forced the headquarters to try to direct daily activities at the farm level, leading to much travel and ad hoc decision making without adequate basic information. Even the national economic and planning unit lacked technical staff for overall planning. The resulting targets were reportedly recognized by the SFC itself as over ambitious and hurried.[44]

Each farm employed 100 to 500 workers. The farm management was supposed to consist of technical personnel and the farm manager. A farm committee was to be elected by the workers. The chairman was the farm manager while the secretary was elected by the workers. The stated aims of the committee were: to strengthen party activities and achieve yearly production targets, to maintain cordial relations with the farmers, to take disciplinary action against "lazy" workers, to assist in running the farms, and to promote social and health programs, including canteens.[45]

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[43]State Farms Corporation, Second Annual Report, op. cit., passim.

[44]Files of the Ghana Planning Commission, 1966.

[45]Ghana State Farms Corporation, Second Annual Report, op. cit., pp. 7-8.

The farmers themselves were usually employed from the surrounding area. Few workers lived on the farm; most travelled to the farm from their home villages. Casual labor was employed only in peak seasons in order to reduce costs. The workers were supposed to be assigned daily to a gang or brigade. They were to be given certain tasks in accordance with an agreement between the agricultural office and the trade union.[46] In many cases, however, the workers appear to have simply been paid daily wages.

In 1965, the total state farm labor force, including management, was reported to be about 18,800, with a wage bill of about $6 million.[47] Of those employed, 116, primarily farm managers, received about $1,400 each. Some 1,759 tractor drivers and artisans received $560 to $1,400 each. The rest received less than $600. There is little evidence from reports to indicate that productivity had been increased by efforts to introduce piece rates.

Canteens were to be established to which the workers were to contribute about $2.50 a month, which entitled them to receive both breakfast and lunch. That these were not overwhelmingly welcomed is indicated by the comment in the Corporation Report: "(With) constant persuasions the workers have now realized the importance of the canteens . . . ."[48]

Dispensaries were to be established on all the farms with nurses seconded from the Ministry of Health. The SFC initially aimed to

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[46] Ibid., p. 7.

[47] Files of the Ghana Planning Commission, 1966.

[48] Ghana State Farms Corporation, Second Annual Report, p. 8.

house all the workers on the farms, supplying materials and technical advice so the workers could build their own homes.[49] Conversations and first-hand observations indicate that this aspect of the program was not pursued; the workers are reported to have expressed their desire to remain in their own villages.[50]

The farms received subventions in addition to physical assets. These assets included machinery, land, crops, and buildings received from the Ministry of Agriculture and the Agricultural Development Corporation.

	1962/3	1963/4
	(₵ 000s)	
Machinery and equipment	582	400
Crop farms	1,012	1,284
Poultry	69	201
Cattle	5	56

In theory, the farms were to be commercial enterprises, and they were expected to pay off the subventions within 20 years.[51]

The highly ambitious targets of the development plan were reported to have been only half met by 1965.[52]

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[49] Ibid., p. 8

[50] Visits by A. Seidman to Dawhenya State Farm, and conversations with Atta-Mensah, Director of State Farms Corporation, in early 1964.

[51] Files of the Planning Commission, 1966.

[52] Ibid.

Using global data, efforts to estimate the productivity of the state farms compared to private farmers yield the following:[53]

	Ghanaian Traditional Agricultural Sector	State Farm Corporation
Number of Workers	1,600,000	18,000
Acres cultivated	3,000,000	49,000
Production (long tons)	3,500,000	10,000
Acres per Worker	1.87	2.72
Yields (long tons per acre)	1.17	0.21
Production per Worker (long tons)	2.18	0.59

It would, however, seem unjustified to give much credence to such an approach to evaluation of productivity for at least two reasons. First, the inadequacy of information about the traditional agricultural sector in Africa is notorious,[54] and Ghana is no exception.[55]

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[53] Ibid.; see also Birmingham, et al. (eds.), The Economy of Ghana, op. cit., pp. 229ff, for estimates of productivity in traditional agriculture.

[54] Cf. Marvin P. Miracle, Maize in Tropical Africa (Madison, Wisconsin, 1966), Appendix I for discussion of adequacy of data on Tropical African Agriculture and H.C. Farnsworth, "Defects, Uses and Abuses of National Food Supply and Consumption Data," Food Research Studies, November 1961, pp. 179-201.

[55] The Government of Ghana is currently engaging in its first complete agricultural census which is expected to be completed by 1970.

The comparison of state farm data with such "norms" are therefore hardly justifiable. Secondly, over half the state farms were planted with rubber and palm trees, a major share of which were not yet bearing,[56] so the estimates on productivity per state farm worker and per acre are based on that account. Additional bias may be involved because some crops require much more labor than others.

Part of the reason for the apparent low productivity of state farms was labor policies. There is evidence to suggest that the state farms hired large numbers of laborers, some of whom were not really needed. These laborers constituted as much as half their labor force in some instances.[57] This would affect global estimates, since the output per worker on state farms appears to have been obtained by dividing total output by the total number of employed workers.

It has been argued that, by another criterion, the state farms clearly failed to achieve their goals: on a nation-wide basis, they were still, at the time of the 1966 coup, unable to meet their annual operating costs, much less contribute any return on initial capital invested.[58] It should be remembered, however, that a large number of the farms were devoted primarily to production of tree crops which had not yet come to bear.

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[56] Agricultural Census, Vol. 1, op. cit., pp. 6, 20.

[57] Ghana Daily Graphic, November 21, 1966.

[58] J.C. de Wilde, et al., op. cit., Vol. 1, p. 129.

In general, an overall analysis appears inadequate to evaluate the successes and failure of the state farm program. The remainder of this paper, therefore, is devoted to examining it on a crop-by-crop basis in terms of the data available.

Some Examples of State Farms

The state farms varied greatly from crop to crop and region to region. Some appear to have had some promise; others were abject failures. The evidence the authors have at present is fragmentary, but there is enough to suggest the nature of the approaches which were adopted and the problems encountered.

Rubber

Western Ghana has been described as "exceptionally favorable" for rubber.[59] Towards the latter part of the nineteenth century, Ghana was the world's third largest rubber exporter. It lost its place partly because lack of control over production and marketing permitted adulteration of rubber produced, and partly because peasant collection of latex from wild plants could not compete on the world market with expanding Asian plantations. Private plantation owners in Ghana could not compete effectively for labor with the rapidly expanding cocoa industry. Some of them turned to the more lucrative cocoa production themselves.

By the late 1950s, Ghana's domestic demand for rubber products was expanding, and several processing factories either had been or

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[59] National Investment Bank, Ghana, Development Service Institute, Domestic Rubber Production, Accra, 1965, p. 27.

were about to be put into operation. The need for developing local supplies for this new industry, as well as expanding exports, was apparent.[60] A private factory, Ghana Rubber Products, Ltd., began to produce rubber and canvas footwear. This operation consumed 13 to 15 long tons of smoked sheet a month, with the capacity to double output. The defunct Industrial Development Corp. and Tech-export (The Czech State Trading Corporation) agreed in 1961 to provide machinery and equipment for a rubber tire factory at Bonase, 11 miles from Tarkwa, with a production target of 450 tires and 450 tubes a day by operating three shifts.[61] The SFC reported that a Dutch firm, RCMA, had shown interest in establishing a processing plant at Abura to handle all rubber produced on concessions there.[62] It was estimated that the expanding domestic needs required additional rubber production. Already the existing plants were reported to be importing some compound rubber, since Ghana's output was inadequate.[63]

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[60] Ghana Information Services, "Ghana is Developing Rubber to Diversify Her One-Crop Economy," The Ghana Farmer, Vol. V, No. 1, p. 17.

[61] National Investment Bank, Ghana, Development Service Institute, Domestic Rubber Production, op. cit., p. 10.

The machinery for the factory was actually reported to be on the site only in 1964 and the contracts for engineering, construction, and installations were only then put out for bid; it was estimated that the plant would take about 24 to 30 months to build.

[62] Ibid., p. 6.

[63] Ghana Information Services, op. cit., p. 17.

In 1959, a Ministry of Agriculture survey estimated that a total of 8,500 acres were planted with rubber in Ghana, 3,500 acres in small farms, and the remainder in large estates.[64] Yet exports of rubber declined from 642 long tons (£ 79,038) in 1959 to 335 long tons (£ 52,294) in 1964 because of increased use of domestic rubber by Ghana Rubber Products, Ltd.[65]

In view of this expanding domestic market, the state in 1959 initiated a coordinated expansion program for rubber production involving the University of Ghana, the Ministry of Food and Agriculture, the Academy of Science, AID, the then ADC, the State Farms Corporation (when it came into being), the United Ghana Farm Cooperative Council, and the Workers' Brigade. Seven rubber nurseries were established under AID supervision with full-time AID advisors at the center in Aiyinasi. Some 200 budded stumps of Harbel 1 and 150,000 clonal seeds were initially imported from Firestone's Liberian plantation in 1959 and planted along with seeds from the Ghanaian estates. About 200 men were trained in the latest techniques of bud-grafting. From 1960 to 1964, 6,837 acres of rubber were planted.[66]

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[64] National Investment Bank, Ghana, Development Service Institute, Domestic Rubber Production, op. cit., p. 2.

The records of the estates indicated that they owned not 5,000 but 7,500 acres of rubber, apparently not an unusual statistical discrepancy.

[65] Ibid., p. 2.

[66] Ibid., p. 3.

The State Farms Corporation took over the ADC plantations in 1963, which included 4,160 acres of rubber on the Avrebo and Sukusuku estates, 1,100 acres of new rubber at Aburu 1, and 2,140 acres at Dixcove. The SFC acquired more land 28 miles from Takoradi, creating a new concession of 40,000 acres with the possibility of expanding to 45,000. This was divided into nine contiguous plantations and placed under the management of Ghanaian agricultural officers.[67]

The State Farms Corporation cleared the estates by hand, using an estimated 10 to 15 man-days to clear one acre of secondary forest, and 25 to 40 man-days an acre in virgin forest areas. The cost of developing an acre from clearing to tapping was estimated at $280 to $325 an acre. The clearing results were reported to be "outstanding."[68] The SFC also employed hand labor to plant maize in a burned-over area of about 2,500 acres to provide a cash crop while the rubber trees were growing.[69] By 1964, the SFC claimed to have planted 9,225 acres of new rubber trees, cleared 6,270 acres more to be planted in 1965, and set a target of 39,310 to be planted by 1966.[70]

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[67]The Workers' Brigade planted 282 acres of rubber in two plantations with another 218 acres ready for planting. The Academy of Science established another 200 acres of experimental rubber plantings.

[68]National Investment Bank, Ghana, Development Service Institute, Domestic Rubber Production, op. cit., p. 6.

[69]Ibid., p. 7.

[70]Ibid., p. 5.

The state rubber plantations created a substantial demand for labor in the regions where they were located. A number of potential cooperative farmers apparently left their own rubber trees unattended and obtained daily-wage jobs on the SFC concessions.[71] Nevertheless, the recruiting of sufficient labor for the state farms apparently continues to be a problem. Only a small portion of the farmers live on the plantations; the remainder live in scattered villages. When the time for tapping arrives, it will be necessary to obtain 8,000 laborers for the 40,000 acres. It has been argued by some experts that it will be necessary to establish estate housing, and provide neighboring areas for cultivating food crops.[72]

One evaluation of Ghana's rubber prospects by foreign experts showed that the SFC had made a relatively good start. This evaluation showed that although the 2,148 planted acres of the Dixcove plantations[73] had suffered from inadequate maintenance during the two-year negotiations for state purchase, the Abra project had 13,000 acres planted under a high level of management. The overall program suffered from too rapid a pace of expansion. Experience showed that rubber intercropped with maize could not be adequately managed. The

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[71] Ibid., p. 8; see also Miracle and Seidman, "Agricultural Cooperatives and Quasi-Cooperatives in Ghana," op. cit., p. 40.

[72] Ibid., p. 7.

[73] Acquired outright by the Corporation for about $1,200,000 in 1962, with another $300,000 or more spent for expansion. (Files of the Ghana Planning Commission, 1966).

experts concluded, however, that the SFC program could be successful if excessive production targets were reduced, and research was initiated at Abra as the major processing area.[74]

Palm Oil

In the nineteenth century, oil palm produce, like rubber, was a major Ghanaian export. West Africa as a whole is well suited to growing oil palms, and, until the 1920s, produced about two-thirds of the world's total oil palm output. Today, West Africa produces about a third of the world output, much of it in Nigeria's Eastern Region.[75] Ghana's oil palm exports failed to expand, perhaps partly because the domestic demand for palm oil expanded as farmers tended to specialize in production of cocoa for cash. Furthermore, Ghana's oil palm produce has been of a relatively low grade.[76] By 1960, over half of Ghana's oil palm trees were over 20 years old, with an average remaining potentially productive life span of only 10 years.[77]

In recent years, Ghana's domestic demand has increased enough that she is now a net importer of palm oil, importing almost $1 million

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[74]After the February 1966 coup, the U.S. Rubber Corporation purchased several of the State Farms Rubber estates.

[75]S. LaAnyane, "Oil Palm Belt of Ghana," Ghanaian Bulletin of Agricultural Economics, Division of Agricultural Economics, Ministry of Agriculture, Accra, Vol. 1, No. 1, June 1961, p. 34.

[76]Ibid.

[77]Ibid., p. 23.

worth of vegetable oils in 1964.[78] Local prices have risen too. By 1965 they were reported to be about $120 a long ton, compared to the State Marketing Board Price of under $110.

S. LaAnyane, then head of Ghana's Ministry of Agricultural Economics Division wrote in 1961, that oil palms are the most efficient source of increased vegetable oil, since its potential yield per acre--1,250 pounds--is higher than that of other oil crops. Peanuts, its nearest competitor, produces only 904 pounds of oil per acre.[79] LaAnyane argued that increased mechanized processing should improve Ghana's palm oil quality and reduce local prices.[80] In weighing the arguments for and against larger scale oil palm plantations, LaAnyane pointed out that the "system of small-scale peasant production leaves much to be desired on the score of efficiency." On the other hand, the large initial capital and heavy overhead required for "armies of administrative bodies," and the danger of discouraging peasant farmers with a long tradition in the industry, he said, argue against large-scale production. Yet large plantations employ less labor, have better yeilds if properly managed, and, if the capital cost could be lowered, could be more efficient.[81]

The State Farms Corporation took over the oil palm estates which had previously been acquired by the Agricultural Development Corporation.

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[78] Files of the Ghana Planning Commission, 1966.

[79] From Johnson and Raymond, "The African Oil Palm," cited by LaAnyane, "Oil Palm Belt of Ghana," op. cit., p. 31.

[80] LaAnyane, "Oil Palm Belt of Ghana," op cit., p. 31.

[81] Ibid., p. 23.

SFC oil palm estates were, by 1965, reported to include some 8,656 acres of trees, of which 1,994 acres were over 30 years of age and required replanting. Only 3,848 acres were actually producing. Experiments with improved palm seeds had shown good yields. Fertilizer trials at the Bunse Station in the Eastern Region produced as much as 17 long tons of bunched fruit an acre.[82] The Development Program called for an increase in output from 15,000 long tons in 1963 to 42,000 long tons in 1969/70--a 22,000 long ton increase in the public sector, and a 5,000 long ton increase in the private sector.[83]

In 1963, the Vegetable Oil Mills Corporation (VOMC) was established to run the oil processing plants which had been established earlier by the then defunct Industrial Development Corporation. VOMC's production fell short of the targets established in the Seven Year Development Plan.[84] Its plant at Asesewa, Eastern Region, produced 352 to 440 gallons a day in three eight-hour shifts. By 1965, it had equipment on the site to increase output to 1,320 gallons per day of palm oil and palm kernel oil. Even with its existing capacity, its profit margins were declining and threatened to turn into losses, allegedly because of the shortage of local raw

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[82] Files of the Ghana Planning Commission, 1966.

[83] Ghana Seven Year Development Plan, 1963/64 to 1969/70, Accra, 1964, pp. 70-73.

[84] Ibid.; also files of the Ghana Planning Commission, 1966.

materials.[85] A potential new source of palm produce was at Nuhunya, 13 miles away, but this SFC itself began to establish an oil mill at Asuoya to serve Huhynya and the state plantation at Kwamoso.

A 1965 survey[86] indicates that there was room for expansion of the oil palm estates in Ghana; the major problem was to initiate further research and obtain improved seed.[87] The Prestea plantation, which covered some 5,657 acres, was managed by the United African Company under agreement until 1962. It was then taken over by the State Farms Corporation. It apparently exhibited moderately good standards of management, better than that of other SFC plantations. Reportedly, this was so because of the establishment of standard labor tasks for development and maintenance, the long experience of the SFC deputy director on commercial oil plantations in Nigeria, and the use of research results provided by the French.

Tobacco

The Pioneer Tobacco Company, a subsidiary of the British American Tobacco Company, started to encourage growth of tobacco in Ghana in the mid-1950s in order to end the importing of leaf for its processing plant. Fire-cured tobacco output expanded rapidly, primarily among

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[85] The Asesewa Mill was required to pay state taxes, which made it difficult to compete with local processors who did not.

[86] Files of the Ghana Planning Commission, 1966.

[87] This had already been recognized by the Ghana Academy of Science which had employed a consultant. It had, in addition, however, only two other full-time scientists responsible for all crop research. There was also a recommended revision of the apparently contradictory policy which shifted oil palm supplies from the state processing mill to less efficient local processors.

private farmers in the Volta, Eastern, and Central Regions. The Company provided credit for fertilizers, pesticides, and curing facilities. The Tobacco Marketing Board provided seedlings (initially free, later for a small fee) and functioned as the sole purchasing agent.[88] Tobacco output multiplied from about 2.7 tons of cured leaves in 1953 to 892.0 long tons in 1964; imports of manufactured and unmanufactured tobacco dropped from about $5 million in 1952 to $600,000 in 1964.[89]

In 1964, the State Tobacco Products Corporation was formed to take over all the Pioneer Tobacco Company activities except manufacturing. The new corporation established its own productive units in cooperation with the UGFCC, the State Farms Corporation, the Workers' Brigade, and the Volta Region Authority. The State Corporation operated on a loan from the Pioneer Tobacco Company and was staffed primarily by former company employees.

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[88] National Investment Bank, Ghana, Development Service Institute, Tobacco, Accra, 1964, p. 3.

[89] Files of the Ghana Planning Commission, 1966.

Its 1964 production targets and actual plantings were:[90]

	Average (Acres)	Estimated Production (Pounds)	Actual Plantings (Acres)
UGFCC	450	225,000	nil
State Farms	500	250,000	248
Workers' Brigade	50	25,000	nil
Volta Region Authority	100	50,000	28

It was estimated that each acre planted should produce about 500 pounds of saleable tobacco.[91] The SFC reported their costs (including clearing, construction of roads, fertilizers, seeds, and curing) to be about $240 an acre, with an estimated net return of about $90.[92]

The Development Service Institute was requested to study the state farms and other large farm units to determine the possibility of producing Black Strap tobacco (not yet produced in Ghana) on a 2,000-acre unit for a proposed new state factory in Tema. The Institute estimated that the cost of producing tobacco by hand would be only $98. per acre, compared with $140. per acre with semi-mechanized production.[93] The Institute concluded, moreover, that establishment

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[90]Development Service Institute, Tobacco, op. cit., p. 4.

[91]Ibid.

[92]The State Farms Corporation data is highly suspect, as later examples will illustrate.

[93]Ibid., p. 31, Appendix 3.

of a 1,000-acre tobacco area with two curing barns for its own, as well as for expanded peasant production, would be more economical than the original proposal.[94] The Institute proposal appears to have been based on the argument that existence of a 1,000-acre state farm would ensure adequate supplies for the success of the project, and at the same time encourage the expansion of peasant supplies.

Cotton

Another aspect of the projected state farms program was the development of cotton production. Ghana imported about $60 million worth of textiles in 1961. This amount had been reduced by almost half by 1964 as a result of the establishment of domestic private and government textiles production facilities and foreign exchange restrictions. However, all the raw materials required for the plants continued to be imported. By 1970, according to estimates, about $10 million worth of cotton would have to be imported annually.[95]

Ghanaian peasant farmers had produced a considerable amount of cotton in the Volta Region before and immediately after the first World War. Cotton was intercropped with cereals or yams, and yielded up to 500 pounds of seed cotton per acre.[96] Research carried on since 1961 indicated the possibility of producing as much as 1,450 pounds of seed cotton per acre in Agma Swedru and up to 1,884 pounds per acre in Kwadaso.

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[94] Ibid., p. 9.

[95] Files of the Ghana Planning Commission, 1966.

[96] E.N. Afful, Development Service Institute, National Investment Bank, State Farms Corporation (Cotton Ginnery), (Revised), Accra, 1965, p. 1.

In 1964, the State Farms Corporation established ten farms, totalling 1,630 acres, to grow cotton. The main farms were in Zongo Macheri, where some 12,000 acres were to be cultivated with Soviet technical assistance, and in Abutia in the Volta Region.

The cotton production targets set for the state farms were ambitious as the following table shows:[97]

Year	State Farms	Private Farms	Total Acreage	Average Yield Per Acre (lbs.)	Total Production (lbs.)
1965	5,000	-	5,000	600	3,000,000
1970	40,000	13,000	53,000	800	43,400,000

The average yield per acre was reported to be small in the first year--only 233 pounds. Since Ghana had no cotton gins the harvest apparently remained unginned.

The State Farms Corporation requested assistance from the National Investment Bank to establish a cotton gin in the Volta Region. The Bank's Development Service Institute examined the proposal and recommended that the SFC, as a first step, operate several pilot farms on a large scale. This was to facilitate making the decision as to where the gin mill would be built. These pilot farms were also to serve as a cushion for small-farm supplies, which were to be encouraged.[98] The SFC was to provide the necessary work force for the gin. This would consist of seven persons working an eight-hour shift,

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[97] Ibid., p. 2.

[98] Ibid.

including one qualified technician, a manager, two assistants, and laborers. The plant manufacturers were to provide technical staff to supervise the installation and train the plant operatives in a three-month period. Cotton seed could be processed by existing oil mills. The Institute recommended that the gin process local farmers' output for a fee, rather than buy it outright, thus taking less risk with initial heavy working capital outlays.[99]

Domestic Food Crops

In the 1960s, the Government of Ghana became increasingly concerned about the problem of inadequate food supplies. As a consequence of this concern, the State Farms Corporation turned to food crop production for domestic consumption, both on separate farms and on acreage intended for permanent tree crops.[100] Here two major difficulties arose, in addition to those encountered by all state farms. First, the state farms were in competition with private farmers who produced food crops without heavy overhead costs. Unless state farms could greatly increase productivity per acre and per man-hour, it would be difficult for them to compete with small farmers. In the early years the state farms were unable to meet this test, apparently because of poor management and lack of skilled labor to operate the large amounts of mechanized equipment the farms had acquired.[101] Furthermore, machinery was not utilized fully because of

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[99] Ibid., pp. 5-6.

[100] See Appendix II, No. 3.

[101] Files of the Ghana Planning Commission, 1966.

the danger that mechanized ploughing of large areas might lead to soil erosion during the heavy rains.[102]

In 1965, the state farms produced a negligible amount of domestic food crops, with the exception of rice as the following figures show:[103]

	Production (long tons)
Peanuts	2,225
Rice	15,041
Maize (for poultry only)	4,449
Yams	8,970
Vegetables	1,190

These amounts were entirely inadequate to meet Ghana's growing food needs. However, the farms had barely been functioning for two years, perhaps too short a period to solve all the problems of opening land with a new, unskilled labor force.

The second problem confronting the SFC food production program was that of marketing. Originally, the Agricultural Produce Marketing Board (usually called the Cocoa Marketing Board), was to buy all the state farm produce at fixed prices and sell it to the consumers. Actually, the Marketing Board was unable to handle any crops other than maize, which it sold in 1962-63 at prices lower than the market price. The Board's inefficient storage of maize in cocoa sheds led to high weevil infestation, so that finally it had to be sold to

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[102] Cf. Wontumi, "Estate Agriculture," op. cit., p. 16.

[103] Files of the Ghana Planning Commission, 1966.

middlemen at less than cost. As a result of this situation, the SFC took over its own marketing, which added further difficulties to its already mushrooming program. The Ministry of Finance provided no funds for the SFC marketing operations. By 1965, there were only eight persons on the staff who had marketing backgrounds of any kind, including storekeepers. In practice, most of the state farm output was sold by contract to hospitals and to the army, both organizations taking delivery at the farm. In addition, the SFC established a few kiosks in major centers, this being an attempt to limit customers' purchases in order to avoid speculative resale.[104]

Evidence available concerning one state farm rice project, the Dawhenya State Farm, suggests that the State Farm Corporation--at least on this occasion--set targets for food production which could not possibly be met with existing resources.[105] An earth dam with a concrete spillway had been constructed by the Agriculture Department with a view to experimenting with the production possibilities of the Accra plans. The dam was to store some 7,000 acre-feet of water

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[104]Ghana State Farms Corporation, Second Annual Report, op. cit., p. 22, and files of the Ghana Planning Commission, 1966.

The Workers' Brigade, with a smaller output, had a larger sales force, but apparently it was still inadequate to handle the task of marketing.

[105]C.L. Terrel, Development Service Institute, National Investment Bank, Dawhenya Farm Project, Loan Application Analysis, Accra, 1964; also three personal visits by A. Seidman over the last four years, and an interview with S. LaAnyane, April 26, 1966.

(1,903 million gallons), for irrigating some 600 acres of rice.[106] The project envisaged a model township, fish ponds, and extended grazing for livestock.[107]

The Minister of Agriculture, Kojo Botsio, when he laid the foundation stone of the dam, declared:[108]

> People have talked for generations about realising the immense agricultural potentialities of the vast Accra Plains . . . . At last, with the inauguration of this Dawhenya Project, this dream is being turned into a living reality. We are now tackling this corner of the vast Accra Plains; soon the tractors and bulldozers will be humming over the rest of the plains and turning this desolate area into one of the foremost prosperous agricultural areas of the world.

By 1962, the farm had about 23 acres of terraced paddy rice under cultivation, irrigated by water pumped up from the dam.[109] The total yield of the project was 38 long tons of paddy rice, at a total current cost of about $18,000 excluding depreciation. About $16,000 was paid out in wages and salaries.[110] The project had 93 pieces of equipment, including some of British, German, and Russian origin, of which 12 pieces were unserviceable due to lack of spare parts. The total value was almost $60,000.[111]

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[106] C.L. Terrel, Development Service Institute, Dawhenya Farm Project, op. cit., p. 12.

[107] "The Dawhenya Dam," The Ghana Farmer, Vol. V, No. 2, p. 88.

[108] Quoted in The Ghana Farmer, Vol. V, No. 4, p. 175.

[109] C.L. Terrel, Development Service Institute, Dawhenya Farm Project, op. cit., p. 12.

[110] Ibid.

[111] Ibid., p. 13.

The State Farms Corporation, which took the project over in 1962, requested about $750,000 from the National Investment Bank for expansion of a joint swine and rice project. The request was rejected on technical grounds. Neither water nor irrigable land was available for more than a third of the proposed project. The market for the rice to be produced was clearly available, but that for the proposed pork output had yet to be proven.[112] Food requirements for the swine project were significantly underestimated in quantity, and the logistics of the food supply, requiring about four times the proposed number of trucks, had not been adequately worked out. The proposed mechanized rice project, accompanied by a high utilization of labor, appeared to lack a consistent dependence on either labor or capital-intensive techniques. Aside from the technical problems, the Corporation itself estimated it would take about eleven years before the rice project would begin to pay off, and the costing on the swine project appeared altogether inadequate.[113]

S. LaAnyane, who served on the National Liberation Committee's Agricultural Review Committee after the 1966 coup, held the Dawhenya project to be too ambitious. He regarded the costs as prohibitively high, and the returns too low to justify mechanized production. However, the other three rice projects initiated by the SFC appeared to LaAnyane more likely to succeed, particularly the one at Afife

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[112] About one-third of Ghana's population is Moslem.

[113] Ibid., pp. 19-20.

operated with Soviet technical assistance. He thought that Afife might, in the near future, be able to meet the rice needs of the country.[114] Press reports suggest that the Afife farm, after about half the labor force had been laid off, would be economically viable and would be continued as a state project.[115]

Poultry and Livestock

The State Farms Corporation expanded previous efforts to augment production of livestock and poultry. For example, in order to increase domestic protein consumption, a large, modern, state-owned poultry project (which appears as efficient as any to be seen in the United States), was established near Accra. The goal of this project was to produce thousands of chickens each month for breeding, egg production, and for sale as broilers.[116] Unfortunately, data on costs and returns of this program are not available.

One aspect of the program appears to have created something of an anomaly. Both pigs and poultry consume grain in competition with human consumption.[117] The proposed yearly production of 10 million poultry was estimated to require 150,000 long tons of grain a year. This constituted a major drain on available grain supplies; already the entire maize crop of the state farms was being devoted to poultry production.[118]

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[114] Interview, April 26, 1966.

[115] Ghana Daily Graphic, September 29, 1966.

[116] Personal visits by A. Seidman in early 1963, 1964.

[117] C.L. Terrel, Development Service Institute, Dawhenya Farm Project, op. cit., pp. 19-20.

[118] Files of the Ghana Planning Commission, 1966.

Sugar Production

In 1961, Ghana imported 62,000 long tons of sugar, compared to about 6,000 long tons in the pre-war period. It is estimated that Ghana would have had to import about 80,000 long tons yearly by 1970 if it had not developed its own supply.[119]

A number of arguments were presented for establishment of a sugar refining industry in Ghana. Such an industry would provide factory and agricultural employment, save foreign exchange, and produce bagasse for the manufacture of hard boards and wrapping papers. It would also create such by-products as alcohol for beverages, bases for cosmetic and pharmaceutical industries, and (together with petroleum products), a base for plastics industries. In 1961-62, the government ordered two factories, one from Czechoslovakia and the other from Poland, to be installed and managed by Polish technicians.

The first project, for which the Czech agency was to provide only the plant and equipment, appears to have been a dismal failure, due to inadequate planning and management.[120] The machinery, previously ordered for Tsito, was shipped to Komenda after two years of storage in a Czech warehouse. Apparently, no feasibility studies had been made. The plant was finally completed at Komenda in 1966, but no water supply was available; water had to be pumped from 16 miles away at a cost of about $1.5 million. About 400 acres of cane

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[119] "Sugpro," Sugar Products Corporation, publicity section, Pamphlet No. 1, October 1963, P.O. Box 3610, Accra, pp. 7-9.

[120] Files of the Ghana Planning Commission, 1966.

had been planted in consultation with a Dutch firm starting in 1960. This was barely enough output to keep the plant running two weeks, even if the water problem had been solved. The State Farms Corporation took over the operation in 1965 and planted an additional 500 acres, but the management appears to have been below standard. Irrigation schemes proposed for a 4,000-acre area would cost about $4 million, with an estimated average yield of 40 long tons of cane an acre (compared to 20 to 25 long tons without irrigation). All in all, the Komenda project, which the SFC appears to have inherited in a sad state, could hardly be called successful.

The second project, which involved plant equipment and construction costs worth about $15 million,[121] was established under Polish supervision at Akuse, after careful planning. The first studies were undertaken jointly by University of Ghana and Food and Agriculture Organization experts in the mid-1950s. About 8,000 acres near Akuse were demarcated for irrigated sugar cane production. The Poles financed the plant through a deferred-payment program, and provided the management.[122] The development of the sugar cane acreage under Ministry of Agriculture management was delayed; so the Polish management, under the Sugar Products Corporation (Sugpro) and using commodity exchange funds, took over that aspect of the project as well. By 1965, 1,300 acres were planted and 6,000 long tons of sugar had been refined. The Sugar Products Corporation also undertook to work, together with

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[121] Ibid.

[122] "Sugpro," Pamphlet No. 1, 1964, p. 17.

the UGFCC, to establish cooperatives in the area in order to speed production of the cane required for raw material for the project.[123]

The Sugar Products Corporation estimated that the agricultural aspect of the project consumed the labor of 0.45 persons per acre. The management established training classes for field assistants and skilled technicians. The curriculum included elementary arithmetic for measurement and field calculations, principles of elementary agriculture, and field organization and management.[124] The management reported that the costs of irrigating the cane would be about 25 to 33 percent of the total cost of cane production, necessitating increased yields per acre. Tests were initiated to determine the best methods of seeding in order to use mechanical weeding and inter-row cultivation. Using the results of tests of the UN Special Fund Project, the Sugar Products Corporation selected the highest yielding practices. They also utilized part of the acreage to experiment with additional new ones.[125]

The cooperative aspect of the project was done with the help of the UGFCC. The UGFCC was to clear, plough, and ridge non-irrigated land for nine farmers' cooperatives. The Sugar Products Corporation was prepared to contract with the farmers to buy all their produce.[126]

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[123]From the files of the Ghana Planning Commission, 1966.

[124]"Sugpro," Pamphlet No. 2, 1964, p. 17.

[125]Ibid.

[126]"Sugpro," Pamphlet No. 3, 1965, p. 12.

A 1965 survey by outside observers indicated that, thanks to careful selection of the site and the "dynamism" of the SPC team, the project was on the verge of success.[127] A post-coup press report[128] indicated that the project is expected to continue. An additional 98 Polish experts were reported to have been invited to assist the nine who remained of the initial staff. About 24,000 long tons of sugar were to be harvested by January 1967. Some 600 Ghanaians were reported to be employed on the project.

Evaluation

Because of the fragmentary evidence at hand, it is not possible to make a full evaluation of Ghana's state farm program. In its first few years of existence, the Corporation was clearly far from profitable. The cumulative net loss by the end of 1964 was reported to be about $4 million. This was estimated to have reached about $7 million by 1965, and was expected to rise to over $9 million by the end of 1966. Total fixed assets and net current assets of the Corporation were estimated in 1965 to be about $21 million, without accounting for depreciation.[129]

Nevertheless, the State Farms Corporation appears to have done relatively well with tree crop projects. If the management standards were improved, these projects could have been expanded after consolidation. The Corporation's experience suggests that large-scale state

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[127] From the files of the Ghana Planning Commission, 1966.

[128] Ghana Daily Graphic, September 29, 1966.

[129] From the files of the Ghana Planning Commission, 1966.

farms might best be established to produce such tree crops as rubber and oil palms, and industrial crops such as sugar, cotton, and fibers. These require special skills, heavy initial capital expenditures, and processing facilities which individual farmers have neither the funds nor training to provide. Furthermore, estate agriculture offers the assurance that there would be a steady supply of such raw materials, perhaps supplemented by small-farmer produce. These would enable processing plants to operate at capacity.

On the other hand, large-scale mechanized farms do not appear able to compete effectively with peasant food farmers who have little or no overhead in the initial phases of development. Even this tentative conclusion must be qualified, however, in view of the apparent success of the Soviet-assisted rice farm at Afife. Further research appears to be necessary on the effect of mechanized ploughing in West African laterite soils and the potential dangers of erosion.

In Ghana, it seems clear that the State Farms Corporation attempted to expand far too rapidly for the country's limited technical personnel. Management was clearly inadequate on the farm level, and adequate overall direction could not be expected from Accra, even if the headquarters' staff had been highly qualified in every respect. Apparently, Sugpro, which was free of SFC control, and staffed with highly qualified management personnel, was far more successful than most of the other large-scale farming projects.

A serious hindrance to the State Farms Corporation was the policy of hiring large numbers of redundant laborers in an effort to reduce unemployment. No organization could be expected to function efficiently

or economically with a surplus labor force of as much as twice its actual requirements.

The necessity of training a major portion of the labor force for large-scale mechanized agriculture appears substantiated by the Sugpro experience. Initiation of new methods and scientific farming, as well as the operation of complex modern machinery, requires a high degree of skill at many levels. The more literate and the more trained the labor force, the more effectively can its members employ the skills and equipment required by large, modern, productive units such as the State Farms Corporation sought to build. It appears almost inevitable that, without adequate training, the workers on the State Farms Workers' committees, where they did exist, should concern themselves primarily with workers' welfare rather than with techniques for increasing productivity.

Ghanaian agricultural economists[130] have emphasized that inefficiency and corruption are critical problems in the State Farms program. J.S. Amoafo urged a policy of payment according to production to ensure adequate incentives for the workers. It seems desirable that managers of individual farms be given full authority and responsibility under some kind of incentive-penalty system, with management preparing a budget and an operation plan which would then be approved by higher authorities. Perhaps the danger of corruption could be reduced by establishment of an accounting system under independent auspices.

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[130] Interview with J.S. Amoafo, November 5, 1966; and LaAnyane, op. cit.; see also Wontumi, "Estate Agriculture," op. cit.

In sum, Ghana's state farms program strongly suggests that, for any large-scale farming projects to succeed in Africa, there must be careful prior research, adequate numbers of managerial personnel, and trained technicians, and availability of all the complementary resources and marketing facilities. Initially, at least, such projects should probably be limited to those tree crops and industrial raw materials associated with given processing facilities. Where possible, efforts should be made to stimulate private production of additional supplies. In the last analysis, all the financial resources of the state (and of Ghana were, for Africa, extensive) are not adequate to meet all the expanding food and raw material needs of a developing economy by means of state-owned projects. If the Government of Ghana had used the same amount of money and organizational talent that were expended on the state farm program, to develop techniques and provide incentives for small farmers, there would probably have been a far greater increase in domestic food production.

APPENDIX I

State Farms in Ghana, 1964*

1. Number of Holdings by Region:

Western	11	Ashanti	18
Central	6	Brong-Ahafo	15
Eastern	28	Northern	11
Volta	14	Upper	9

2. Tenure of Acquired Land:

	Rented in Cash or In Kind	Purchased (Freehold)	Free Use	Total
		(acres)		
Privately owned	644	6,233	5,052	13,929
Stool land	3,197	5,030	159,736	167,963
Government land	-	57	70,319	70,376
Total	3,841	11,320	235,107	250,268

3. Kinds of Crops:

Annual Crops	Main Crops	Secondary Crops	Vegetables	Main Crops	Secondary Crops
	(acres)			(acres)	
Maize	6,281	394	Pepper	233	119
Guinea corn	595	202	Garden eggs	7	
Millet	37		Okra	5	
Rice	8,818		Tomatoes	7	
Ground nuts	4,211		Beans (green)	3	
Cow peas	355		Cabbage	8	
Pigeon peas	20		Cauliflower	5	
Bambara beans	60		Carrots	2	
Lima beans	3		Radishes	1	
Cassava	226	172	Melon	2	
Cocoyam		178	Cucumber	1	
Yam	659		Spinach	3	
Potatoes	275		Lettuce	5	
Dry Onions	63		Mixed	11	
Shallots	30				
Cotton	1,238				
Sugar cane	4				
Tobacco	708				
Urena lobata	711				
Total	24,294	946		293	119

* Ghana Ministry of Agriculture, Division of Economics and Statistics, "Statistics of Large Scale, Specialized, Institutional and Cooperative Farming, 1964," Agricultural Census, Phase II, Volume I.

Permanent Crops--Industrial	Main Crops	Secondary Crops
	(acres)	
Cocoa		
Bearing	1,142	
Non-bearing	754	
Coffee		
Bearing	68	
Non-bearing	1	
Kola		
Bearing	0	1
Non-bearing	589	40
Coconut		
Bearing	266	477
Non-bearing	34	90
Oilpalm		
Bearing	3,812	
Non-bearing	5,632	45
Rubber		
Bearing	80	
Non-bearing	9,830	
Kapok, Silk Cotton, Raffia and Makamia		
Bearing		
Non-bearing	3	

Permanent Crops--Fruits, Others	Main Crops	Secondary Crops
	(acres)	
Plantain		
Bearing	427	54
Non-bearing	435	232
Banana		
Bearing	263	
Non-bearing	1,466	
Pineapple		
Bearing	184	
Non-bearing	165	3
Sweet oranges		
Bearing	32	
Non-bearing	413	10
Other citrus		
Bearing	12	
Non-bearing		
Mango, Guava, Avocado		
Bearing	8	
Non-bearing		
Cashew		
Bearing		
Non-bearing	100	

Livestock

Cattle	2,019
Sheep	1,115
Pigs	1,958
Fowl	116,041
Turkeys	648

4. Irrigation and Drainage (22 cases of irrigation, 12 cases of drainage):

Source of Water		Method of Irrigation		Drainage
River	198	Hand	38	Total 268
Well	4	Gravity	50	
Dam/pond	442	Mechanical pumps	100	
		Pipes	456	

5. Employment:

Normal Labor		Extra Labor		Use of Extra Labor (cases)	
Cases	110	Cases	40	Clearing	2
Number	15,116	Number	411	Planting	3
				Weeding	14
				Harvesting	28

6. Marketing

Number of holdings	112
Without response	6
Without production	10

Wholesale - 72 cases

To traders:	
Small, middlemen	24
Large, GNTC, CFAO, etc.	14
State concern	
UGFCC, CMB, etc.	17
Own organization	26
For consumption:	
Schools, universities, army, hospitals	27
Factories	11
Poultry Farms	2

Retail Sale and Self-consumed - 56 cases

Commercial	1
Town employees	2
Self-consumed	-

Marketing Problems - 18 cases

Lack of transport	12
Lack of storage	4
Lack of demand or low prices	8

7. Machinery, Major Machines:

Item	Working and Under Repair	Loaned Out	Not In Use But Service-able	Not Service-able	Total
			(units)		
Power					
Tractor with wheels	354	21	123	55	553
Track layer tractor	138	2	12	9	161
Tillage and Cultivation					
Plow-tractor operated	136	14	25	26	201
Harrows-tractor operated	87	4	8	12	111
Sprayer Duster-motor operated	80	1	12	16	109
Sprayer Duster-hand operated	173	1	64	47	285
Fertilizer-tractor operated	25	-	1	3	29
Planter	28	1	-	2	31
Harvesting					
Combine-tractor operated	24	1	1	-	26
Combine-self propelled	24	1	-	9	34
Processing					
Maize Sheller	17	4	2	4	27
Storage Equipment					
Silo	14	-	-	-	14
Granary	31	-	-	-	31
Deep freezer	2	-	-	-	2
Refrigerator	4	-	1	-	5
Livestock					
Incubator	24	4	6	3	37
Transport					
Lorry and truck	127	4	7	23	161
Trailer	124	8	7	7	146

APPENDIX II*

Effects of the Weather on Production in 1965

The first cropping season--the Major--was a success. Crops were planted late in April and early May because the rains came late. However, crops planted did very well and a bumper harvest was taken in.

The Minor Season Planting, which usually starts in September, was in great contrast to the Major cropping. The rains which failed almost entirely, were erratic and scanty during the last quarter of the year. There was severe drought throughout the country which caused a failure of almost all crops.

The foregoing disappointing weather conditions reduced drastically the yield of annual crops in the Minor Season and has affected the total annual harvest.

Measures Taken to Improve, Increase, and Diversify Agricultural Production

It can be seen from the acreage planted to various crops that less annual or food crops were planted in comparison with the previous year. This was done in conformity with the government's policy of increasing the output of industrial crops to feed primary factories. Hence, attention was given to crops like tobacco, urena lobata, cotton, sugar cane, and rubber. Acreages have almost doubled under each of these crops.

Expansion of acreage devoted to these crops, coupled with improved cultural operations such as intensive spraying against cotton pests,

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*From Ghana Ministry of Agriculture, Division of Economics, 1966.

plus importation of improved hybrid oil palm seeds from Nigeria and cotton seeds from the U.S.A. have also greatly helped to increase production.

To help minimize the effect of the erratic nature of the rains, irrigation projects were started on some of our four farms and great improvement had been observed on these farms. Projects partly under irrigation were the Nsawam pineapple and vegetables farm, Adidome and Afife farms in the Volta Region, and the potato farm at Anansu in the Ashanti Region.

APPENDIX III

State Farms Corporation Report
Crop Acreage and Production, 1964 and 1965

	1964		1965	
	Acreage Planted	Production (long tons)	Acreage Planted	Production (long tons)
Food Crops[a]				
Maize	7,328	1,657	7,155	1,376
Rice	8,584	874	7,707	1,239
Yams	550	845	470	800
Potatoes	334	302	338	530
Beans and Peas	518	48	945	10[b]
Onions/shallots	153	128	65	68
Ground nuts	4,557	465	4,210	463
Cassava	120	600	280	-c
Cocoyam	100	200	120	-c
Plantain	110	430	132	-c
Other vegetables	105	133	90	102
Non-Food Crops[b]				
Oil palm	8,469	4,120	8,728	4,813[d]
Rubber	9,455	84	15,245	10e
Cotton	1,420	79	3,730	438
Coconut	599	-	1,429	-f
Urena lobata	410	100	715	275
Tobacco	801	105	1,350	130
Kola	605	-	844	-g
Citrus	490	160	546	685
Cashew	100	-	100	-
Pineapple	493	283	446	170
Sugar cane	-	-	630[a]	-
Banana	2,000	141	2,747	-

Source: Files of the Ghana Ministry of Agriculture. Acreages under perennial crops are cumulative. Harvesting and processing of the 1965 Minor Season's crops had not yet been completed when these data were collected, hence production figures are not complete for all crops.

a. Being harvested for seed cane.
b. This crop failed almost completely.
c. Not yet harvested.
d. Palm fruit oil produced was 1,079 long tons.
e. Tapping of rubber has been stopped at Dixcove farm and will be resumed by October 1967.
f. Harvest for seeds only from 54 acres at Asuansi.
g. Not yet ripe when data were collected.