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The strategy for increasing output in savannah regions of the Ivory Coast has gone through several phases: a period of coercion in the war years; government support of cooperatives in the pre- and immediate post-Independence period; crop-specific extension and rural "animation" throughout the 1960s; and recent experiments with a transformation approach based on mechanized cultivation. This paper discusses the strengths and limitations of each of these approaches as they apply to the development of rice and cotton, focusing on how successfully the strategy made the crop attractive to the farmer and how well it broke critical supply, production, and marketing bottlenecks.

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La politique agricole pour la savane de la Côte d'Ivoire a passé par plusieurs phases: une période de contrainte administrative et cultivation imposée durant la deuxième guerre mondiale; une période de suscitation des coopératives avant l'Indépendance et immédiatement après; la présente période de politique sectorielle caractérisée par les grands programmes d'encadrement organisés par les sociétés d'état spécialisées et aidées par les services d'animation rurale; et enfin, les expériences récentes avec les opérations intégrées représentant une politique de transformation globale des techniques de production et la vie des populations concernées. Cet article discute des avantages et des limitations de chaque approche appliquée au cas du développement du riz et du coton. La discussion se concentre sur l'efficacité des stratégies en rendant l'agriculture rémunératrice au producteur et son efficacité en résolvant les problèmes techniques de production, d'approvisionnement des fermiers, et de commercialisation du produit.

"Animation Rurale" and "Encadrement Technique" in the Ivory Coast

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The impressive performance over the last two decades of Ivoirian exports of tree crops and forestry products has drawn attention away from serious efforts to develop agricultural production in the less-favored savanna regions in the northern part of the country. While the primary focus of agricultural policy is to maintain the export sector as a prime mover of the economy, one of the benefits of such a policy has been the generation of export tax revenues which along with foreign aid have been used to develop rice and cotton production outside the forest zone. Such a policy permits northerners to benefit from the growth of the forest other than as migrant laborers and may help alleviate some of the problems associated with regional imbalances and low incomes: the rural exodus, the inter-regional migration which is causing land disputes, and a general political dissatisfaction in the poorer regions which could threaten the image of stability so crucial to the "open door" development policy of the country. This paper will discuss the evolution of the Ivoirian strategy of agricultural development for this region as it has emerged from experience with cooperatives, rural animation and community development, vulgarisation (crop-specific extension), and with the transformation approach of mechanized pilot sectors.

I. An Introduction to the Ivoirian Economy

Paced by a strong export performance of coffee, cocoa and timber (which by themselves accounted for 80% or more of total Ivoirian exports in 1970 as well as in 1960)¹ the country achieved an estimated 8.6% annual rate of growth of national product over 1960-65 and 8.2% over 1965-70.² The government has espoused the policy that no resource, whether public or private, foreign or domestic, should be neglected in the effort to develop the country.³ The leaders of the ruling party (PDCI-RDA) are well aware of the problems involved in creating a viable nation out of more than 60 tribes belonging to seven major ethnic groups. They assert that only in an atmosphere of rapid and widely-diffused development can such a nation be born.⁴ The primary concern of the government is with the level of production; the distribution of the benefits of production becomes a major concern only when it becomes so unequal that it threatens the stability of the country.

There are three major geographical zones in the Ivory Coast which also correspond fairly well to the climatic and agricultural zones:

1. A narrow coastal plain about 30 kilometers in width and bordering the lagoons along the eastern half of the country. It has a subequatorial climate with temperatures ranging from 21-33°C., high humidity, two rainy seasons, and abundant rainfall which reaches 2500 mm. in some regions. There are four seasons: two rainy and two dry seasons and the area is the home of oil palms, coconuts, and rubber.

2. The equatorial rain forest which runs the entire width of the country and extends northward for 300 kilometers. The climate is humid with temperatures ranging from 14-39° C. and rainfall varying from 1,000 to 2,500mm. This zone also has two rainy and two dry seasons and is well suited to coffee, cocoa, bananas, and pineapples.

3. The savanna extending northward from the forest is a zone of transition from the equatorial rain forest to a sahelian zone. In the southern part of this zone (central part of the country) coffee and cocoa may be grown under risky conditions, forest galleries line the rivers, and the climate may be characterized by the four seasons of the rain forest. As one moves northward, the forests disappear, coffee and cocoa give way to cotton and cereals as the potential cash crops, and the climate becomes soudanese, i.e., characterized by only two seasons, a rainy season from July to November and a dry season from December to June. There is a belt of sparse population which runs along the 8° parallel where the climate may exhibit two rainy seasons in one year and only one rainy season the next, thus discouraging settlement and cultivation.

In this paper when we speak of the "South" we group together the first two areas, capable of supporting the rich plantations of tree crops. When we speak of the "Center" we intend to describe the zone of transition between the forest and the grassland. The short-grass savanna will sometimes be designated simply as the "north". These zones correspond to the former political and administrative divisions with the same names for which we show in Table 1 and the differences in agricultural production and monetary incomes in the year 1965, prior to heavy investment in the rice and cotton programs.

Table 1
Regional Disparities in Agricultural Production and Income
(in FCFA** per rural resident)

<u>Total Production*</u>	<u>South</u>	<u>East</u>	<u>Center- West</u>	<u>Center</u>	<u>North</u>	<u>West</u>	<u>South- west</u>
Food Crops	19,040	20,170	16,325	16,125	14,690	9,615	7,835
Cash Crops	<u>25,010</u>	<u>17,905</u>	<u>13,510</u>	<u>11,240</u>	<u>1,580</u>	<u>5,830</u>	<u>835</u>
Total	44,050	38,075	29,835	27,365	16,270	15,445	8,670
Index (South=100)	100	86.4	67.7	62.1	36.9	35.1	19.7
<u>Monetary Income</u>							
Food Crops	3,385	2,615	2,225	2,055	2,175	755	1,066
Cash Crops	<u>24,625</u>	<u>17,795</u>	<u>13,280</u>	<u>10,890</u>	<u>930</u>	<u>5,635</u>	<u>700</u>
Total	28,010	20,410	15,505	12,945	3,105	6,390	1,766
Index (South=100)	100	72.9	55.4	46.2	11.1	22.8	6.3

Source: Figures supplied by the *Direction des Etudes du Développement*, Ministère du Plan.

* Total Production includes the imputed value of produce consumed on the farm; monetary income includes only the value of marketed production.

** US\$1.00 = 250 Communauté Financière Africaine francs (hereafter FCFA). The FCFA bears a fixed parity to the French Franc (50 FCFA = 1 French Franc).

It is evident from Table 1 that all regions produce food for consumption in roughly similar amounts; it is the commercial crops which give rise to the large disparities in monetary incomes. For example, the North has a per capita production roughly one third that of the South when the value imputed to food crops is included; however, the absence of a remunerative cash crop gives farmers in the North monetary incomes which are only one tenth of those in the South. Although the vertical disparities are the most noticeable, we should also recognize the existence of horizontal imbalances: the West's per capita monetary income is only a fifth that of the South even though the West is well suited climatically to growing the same crops as the South. This may be explained by the fact that prior to 1963, high transport costs were shifted back to the producers and discouraged the planting of coffee and cocoa at long distances from the port of Abidjan. Since 1963 the Stabilization Fund has guaranteed a fixed producer price in all parts of the country and thus discriminates in favor of outlying producers. To reduce disparities within the forest zone, the government has been promoting coffee and cocoa in the West and Center-West. It is to reduce the regional differences in monetary incomes between the forest and savanna that the government has invested heavily since 1965 in the rice and cotton programs.

In the first five years after Independence in 1960, the government invested more in government infrastructure than it had planned, and investments in agricultural development captured only 11 per cent of the total of public investments.⁵ Recognizing the danger of neglecting agriculture, the government gave priority to agriculture for the second half of the 1960's so that over the whole decade agriculture received a respectable 22 per cent of public investment. The goals of the program are diversification of exports, regional balance, and import substitution. Large-scale programs such as the planting of 75,000 hectares of oil palms by SODEPALM (Société pour le Développement et l'Exploitation du Palmier à Huile), a coffee and cocoa regeneration program, and private investments in pineapples and bananas will develop and diversify the forest zones.⁶ The rice program is aimed at reducing the large imports of rice while at the same time generating incomes in areas with no commercial crop. The cotton program is designed to bring incomes to the North, to supply local textile industries, and eventually to contribute to the diversification of exports.

As a result of the growth of export agriculture and of the incomes thus generated, there has been a high rate of growth of import-substitution industry (15-20 per annum during 1960-70).⁷ Accompanying the growth of industry, agriculture, and government service, there has been a rapid growth of the cities. In 1958 only 9 per cent of the population lived in towns of more than 10,000 people; in 1970 the percentage was nearer 25 per cent.⁸ The riots of the unemployed in Treichville in October of 1969 brought new urgency to the search for solutions to urban unemployment. The government admitted a rate of urban unemployment of 7.5 per cent of the adult male population in 1964 and estimates based on a census of the unemployed following the riots put the rate for Ivoirians around 19 per cent, largely made up of young men under 25.⁹ To stem the growing population of immigrants living in the bidonvilles around Abidjan the government recognized that it must make agriculture more profitable and the rural areas more attractive; that it cannot solve the problem by urging city-dwellers to send unemployed relatives back to their villages.

The approach to agricultural development in the Ivory Coast has passed through a number of phases. During the colonial period before and during the Second World War, the policy involved coercion and the use of forced labour; during the 1950's and the early 1960's, the policy reversed itself and relied on the "natural dynamism" of the peasants -- supposedly, only the creation of a cooperative structure was needed to make self-help an effective means of development. Disappointment with the cooperative movement led to the current methods of vulgarisation, a program of "popularization" or widespread distribution of the new seeds, the technical knowledge, and the complementary inputs necessary for the improvement of peasant agriculture. In the Ivory Coast it is accomplished by creating specialized parastatal agencies (sociétés d'état) for each crop to be promoted. Their agents (encadreurs) provide the supervision and close technical support for the peasants who grow their crop. The goal of the government is to create a network in some ways resembling an extension service (called a network of encadrement) which reaches all the peasants. This form of technical assistance to the peasants is viewed as a medium-term measure to increase incomes and output through the improvement of peasant agriculture. The long-run goal of the government is the transformation of agricultural structures through the gradual extension of "integrated agriculture", as practiced in the Secteurs Pilotes. This system involves crop rotation on fixed fields with livestock in the fallow areas and mechanized plowing and seeding to eliminate the main bottlenecks to increasing the size of a farmer's plot. Since the process represents a profound transformation of the rural milieu, it is expensive and can be extended to only one or two privileged areas at a time. Coopération, vulgarisation and transformation do not merely represent historical phases of Ivoirian policy but also different facets of current programs existing in the same areas.

II. The Failure of the Early Cooperative Movement

The attempts to start a cooperative movement in the Ivory Coast began as early as 1926 with the Sociétés de Prévoyance. Closely linked to the colonial government with the commandant de cercle as president, they had the limited goals of supplying seeds and fertilizer, storing the harvest, and building a reserve fund as protection against bad harvests. They were financed by a special levy collected by the commandant. Most of them functioned satisfactorily, but they bore a closer resemblance to coercive organizations than cooperative movements. Under a postwar policy of associating the peasants more closely with their own development many Sociétés de Prévoyance were transformed into Sociétés Mutuelles de Production Rurale (SMPRs) in the mid-1950's. These were more democratic in the sense that the council of administration was composed of representatives of the peasants along with the administrative and technical officials working in the area. However, the peasant representatives were usually the notables (elders), many of whom were unable to speak French, and acted more as a screen between the peasants and the SMPR than as a link.

The SMPR was to be a channel through which agricultural credit could be made available to the peasants. Because the peasant could not offer a mortgage on his land as security for loans, most of the agricultural credit granted in the colony went to the European colonials. The system by which peasants could borrow against the registered capital of their cooperative led to a reversal of the relative shares of Africans and Europeans in agricultural credit.

However, the SMPRs ran into many difficulties. In addition to cases of mismanagement of funds, non-repayment of loans, and lack of precise goals, the movement suffered from overextension and poor design. It is impossible to create a cooperative movement with large numbers of people who have no basis of cooperation. If a cooperative is restricted to the village or the extended family the members will respect their obligations; however, there existed SMPRs such as that of Bongouanou with 20,000 members and 10 million FCFA in annual levies. Bongouanou became well-known for its peasant revolt in 1956-57 in which 95 per cent of the members claimed that they did not benefit from the organization and refused to pay the 500 franc tax. The SMPR was criticized for concentrating its action on the richest farmers who were most able to invest in the recommended improvements. Following the revolt, the SMPR restricted its action to those peasants believed to be receptive and finally was replaced by a renovated Société de Prévoyance in 1958 which stayed out of agriculture and limited its action to improving transportation and housing. The SMPR also suffered from an untimely fall in cocoa prices; after succeeding in encouraging the planters to improve the quality of their cocoa, they were blamed for having caused the peasants to work harder for nothing when the improved quality fetched no more than the lower quality had previously earned.

In 1959 the government created a national organization, the Centre National de Coopération et de Mutualité Agricole (CNCMA), designed to bring some order to the mass of cooperatives which had grown up between 1956 and 1959. The CNCMA created a network of Centres de Coopération et de Coopération Agricole (CCCA) to replace the old Sociétés de Prévoyance and SMPRs. Their job was to coordinate the actions of the technical services in their areas as well as to supervise the cooperatives. In addition, these CCCA served as collection and storage points in the marketing of coffee and cocoa produced by the members of their cooperatives. There was a rapid growth in the number of cooperatives following the implantation of the 40 CCCAs throughout the countryside. By 1961 they had established about pre-cooperatives (formal groupings of farmers for cooperative activities but not having completed the three year trial period for certification as a full cooperative) and 250 certified cooperatives (of which maybe 150 worked properly).¹¹ The growth of the movement was aided by an unfortunate propaganda campaign which emphasized that the formation of a cooperative would enable farmers collectively to borrow up to ten times the registered capital of the cooperative. Undoubtedly, this was the sole reason for creation of many of the groups.

The rapid extension of the organization to all parts of the country was possible only at the expense of quality. Many of the agents in the centers lacked the skills and professional ethic for the job. The CNCMA as the national organization was overly-bureaucratized and overly-centralized in Abidjan. In the field, the technical services claimed that the CCCAs did not deal with the basic agricultural and technical problems of the peasants and that they only upset the close relations which the technical services had established with the peasants. In their commercial and marketing role the CCCAs did not have the chance to operate profitably. In order to protect private enterprise's role in the coffee and cocoa marketing, the government prohibited the CCCAs from dealing directly with the large export companies. After performing the difficult job of collection and storing the crop at central pick-up points, they were forced to sell through wholesalers who gained the margin that could have gone to the cooperative for little

additional effort. Finally, the national organization became politically suspect with the implication of some of its cadres in the 1963 plots against the President. The successive replacement of two Ministers of Agriculture identified with the movement weakened it further, and in 1964 the CNCMA was dissolved. Its dissolution almost caused the failure of the agricultural credit fund (Caisse Nationale de Crédit Agricole) which was saved only by a subsidy from the government. A combination of problems led to the liquidation of the credit fund four years later.

At the present time the government is trying to revive the cooperative movement in a form which eliminates most of the problems associated with the earlier movement. With the help of the U.N.D.P. (United Nations Development Program), the government has begun a training center for encadreurs of the cooperative movement which eventually will also be a school for peasant animateurs¹² of cooperatives. The short-run goal is to place encadreurs over the cooperatives which still exist from the earlier movement. Any new cooperatives must pass through a three-year test period before they become eligible for certification. A cooperative will be based on the level of the village or the extended family and there will be no attempt to create a national organization. The rational implantation, restricted size, and close encadrement of these cooperatives bring together some of the factors necessary for success. A new agricultural development bank (Banque Nationale de Développement Agricole) is expanding its operations and promises to be more careful in granting loans than its predecessor. Its policy is to grant loans only where the peasants are under the technical encadrement of one of the Sociétés d'Etat. This encadrement ensures increasing incomes from which the loan may be repaid and a supervision which increases the chance of being repaid by the peasant when he sells the crop. The former agricultural credit fund found that peasants are not averse to repaying their debts, but they will not travel long distances to do so. Facetiously, officials suggest that the credit fund must follow the traditional method of collection: a creditor who has not been paid arrives at the door of the debtor along with two friends and remains at the expense of the debtor until the loan is repaid. This custom usually ensures a prompt acquittance of the debt. Where the debtor is a cooperative whose members have family or village ties, the member who does not fulfill his obligation is subject to efficient sanctions by the other members who are forced to regulate the external debt for him. This illustrates one of the strengths of the new orientation of the cooperative movement with its restricted size of cooperatives.

It is clear, however, that for the next decade cooperatives will have a limited role in agricultural development. First, they do not fit well with the sectoral method of vulgarisation in which a rice agency or a cotton agency supplies all the necessary inputs (including credit) and makes the market for the output. Planners speak of an (unspecified) time in the future when cooperatives will remove these functions from the technical agencies, but this is not within the current five-year planning period to 1975 nor on the ten-year horizon. Second, the past experience with cooperatives has made the government skeptical about expanding their role without adequate encadrement which will yet require several years to produce. While it is hoped that cooperatives will eventually become major suppliers of foodstuffs to the cities, the government realistically plans to intervene in the supplying of the towns through the creation of specialized sociétés d'état. If the purely private sector proves unequal to the task of providing the necessary quantities at acceptable prices.¹³

III. The "Vulgarisation" of Rice and Cotton

The Ivoirian experience with efforts to develop rice and cotton production in the savanna zone provides instructive lessons in the setting of goals and the organization of programs to meet the established goals. The planners have exhibited flexibility in modifying the programs when experience demonstrates that a goal is unrealistic or that a method is inappropriate.

Both the cotton and the rice programs are examples of what Ivoirian planners call "sectoral operations" (opérations sectorielles). The name derives from their concern with one specialized crop to the exclusion of all others. Whether the crop is coffee, cocoa, rice or cotton the method is basically the same: a government agency (Société d'état), or private company under contract to the government, is responsible for the supervision of peasants growing their crop and close technical support of their efforts. They also arrange within the company the supplying of the selected plants or seeds, fertilizer, and credit. The job of encadrement includes guiding the peasants through each stage of the production process and the guaranteeing of a market when the crop is harvested. In some cases the agency will arrange for the clearing of land, the first plowing, and the first seeding for peasants who want to begin growing their crop.

III.1 The Rice Program

The rice policy of the Ivory Coast must be considered against the background of increasing domestic demand and the instability of the world market. Because the Ivory Coast has the capability of becoming an efficient producer of rice, an import-substitution argument is realistic. One of the concomitants of rapid urbanization has been a change in consumption away from yams and plantains towards rice and wheat (bread) as a result of higher incomes and of the high transport costs of supplying traditional foods to the cities. Rice consumption in the cities is twice as high per capita as rice consumption in rural areas and consumption is rising in both areas. Rising domestic demand gave rise to imports which filled the gap between domestic production and consumption as shown in Table 2.

Table 2

Production and Consumption of Paddy Plus Imports of Hulled Rice

	<u>1960</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	(1,000 tons)
Domestic Production (Paddy)	160.0	250.0	275.6	344.6	365.4	308.0	315.0	
Domestic Consumption (Paddy)	220.0	364.0	412.0	380.0	444.0	394.0	460.0	
Imports (Hulled rice)	35.0	77.9	83.0	28.1	47.2	50.0	100.0	

Source: "Ivory Coast", *Marchés Tropicaux et Méditerranéens*, October 30, 1971, p. 29.

For several reasons a rice program suited the needs of the country well: in addition to substituting for costly imports, the crop would generate incomes in areas with no other attractive cash crop. It was a grain grown traditionally in the country, and it benefited from a growing market and the availability of new seeds and techniques from the research institutes and experimental farms.

The program may be seen as passing through two phases. The first phase was a crash program to increase domestic production and thereby reduce imports of rice to acceptable levels. It was entrusted to SATMACI (Société d'Assistance Technique pour la Modernisation de l'Agriculture en Côte d'Ivoire), a parastatal body (société d'état) which pioneered the development of oilpalm, carried out the cocoa regeneration program and began many other new agricultural programs which later grew into specialized development agencies independent from SATMACI. In the five years from 1966 through 1970, the SATMACI saw its role grow to include the supplying of all inputs and credit, the collection and purchase of the paddy, the processing of the paddy in its factories, and the organization of the distribution of the final product through established commercial channels. At the same time it runs schools for training its own encadreurs and assistants. The second phase began in 1970 with the creation of the Société pour le Développement de la Riziculture (SODERIZ) which took the assets and responsibilities of the rice section of SATMACI. The creation of the new société d'état signaled a change in emphasis away from the improvement of pluvial (rain-watered) rice towards a concentration on irrigated and flood rice. The reasons for this reorientation of the program become clear as we discuss evolution of the program below.

Since 90 per cent of the area under cultivation in rice (67 per cent of production) is in pluvial rice,¹⁴ the short-run strategy for increasing domestic production would appear to be to improve the yields of the mass of farmers already growing the crop. This involves providing them with the selected seeds, fertilizer, and improved cultural practices which do not require a revolution in their way of farming. The longer-run solutions may involve mechanization of pluvial rice, development of flood rice, and investment in irrigation canals to permit control of the water level. Irrigated and flood rice offer several advantages: first, with water control yields are not subject to the vagaries of the weather; second, yields are increased and in some parts of the country double cropping is made possible; and third, the stabilization of production on irrigated lowlands means that valuable forest cover is not destroyed by the shifting cultivation of pluvial rice. Although there are many advantages for the country in irrigated production, it may be difficult to encourage the peasants to switch from pluvial rice. Table 3 gives the Planning Ministry's estimates of net returns (after deducting intermediate inputs) per hectare and per manday in irrigated and improved pluvial rice under SATMACI supervision:

Table 3

Net Returns per Hectare and Net Receipts
per Man-Day in Irrigated and Pluvial Rice

	Irrigated: Yield 2.5 metric tons/ha.	Irrigated: yield 4.0 metric tons/ha.	Pluvial: yield 1.8 metric tons/ha.
Net Returns* per hectare	36,000 FCFA	62,700 FCFA	28,460 FCFA
Man-days of work per hectare	308	388	199
Net Receipts per man-day of work	117 FCFA	162 FCFA	143 FCFA

* at 1967 price of 18 FCFA/kg of paddy

Source: Ministère du Plan, *Première Esquisse*, p. 142

It can be seen that the return to a day's labour in irrigated rice is not necessarily greater than in pluvial rice, and, even if greater, may not compensate for the added discomfort of working in water and the associated dangers of disease and parasites.

Under SATMACI, the rice program was directed from six regional offices specialized in the type of cultivation most appropriate for the given area. In the "dense zone" around Korhogo, a zone of high population density resulting from the Samory invasion, the Bandama-Solomougou project financed by West Germany emphasizes irrigated production. Under traditional methods of cultivation, rice did not yield a return to a man-day's labor as high as that of yams or maize,¹⁵ consequently, the production of rice was usually left to the women. With SATMACI's seeds and encadrement irrigated rice became more attractive than these other crops, in part due to its greater ease of marketing. For people in this zone, even if a second crop of rice is not possible, the farmer can plant groundnuts after the first crop with very little extra preparation of the field. For other less densely populated regions of savanna, the cost of establishing complete control over the water supply would not be justified. In other areas experiments have been made: with water-retention barrages (which retain run-off but do not give control over water levels); with mechanized swamp rice on flood plains near the Upper Bandama; and with mechanized pluvial rice in selected areas.

SATMACI runs its own schools for encadreurs giving them a very specific training; those who will be working in the dense zone learn the techniques of irrigated production; those working in other regions of savanna learn only the techniques specific to the area, i.e., improved cultivation of pluvial rice through sowing in rows, pure culture, use of fertilizer, proper weeding, and use of selected seeds. The specific nature of the training given was largely determined by the lack of well-educated candidates, the cost of employing them, and the need to get encadreurs into the field quickly.

The encadreurs who attend these schools are chosen from candidates holding the CEPE (Certificat d'Etudes Primaires). There is no dearth of candidates, given the number of primary school graduates looking for government-related jobs. A pre-selection competition eliminates those without the basic literacy required for the job. The remaining candidates are then put into a selection program to judge them on their mental and physical suitability for the job of encadreur. The candidate is examined on his ability to express himself, his ease of understanding, and his taste for and ability to do hard work in the fields. Those who are selected for training receive an eight-month course which alternates between the classroom and the village every two weeks. The emphasis on practical experience does not permit the encadreur to develop illusions that he will sit in an office and dispense his knowledge to the peasants. His job is to work in the villages, create a demonstration field of his own, and visit the peasants on their plots. Often the villagers will offer only very poor land for the demonstration plot, and yet the encadreur must show good results.

An important thing to note is that in spite of careful selection and relatively high salaries (20,000 FCFA/mo.), SATMACI experienced a quit rate of 10 per cent among its encadreurs. To supervise the encadreurs, it attempted to train assistants from among secondary-school leavers but found it very difficult to attract such people to the rural areas. Some success has been made with upgrading the best encadreurs.

The supervision of the peasants by encadreurs is very close. In irrigated rice, each encadreur was supposed to begin with the supervision of 10 hectares and after three years reach a maximum of 25 hectares. In very few areas was it possible to reduce the degree of closeness of the encadrement that much or that quickly. Since there is no attempt on the part of the encadreur to teach the peasants more than imitation of a technique, the peasant must have close supervision until the technique is an irreversible habit -- he is not being trained to make independent decisions.

One indication of the importance of the rice program is the rapid growth in the use of improved inputs supplied by SATMACI as shown in Table 4:

Table 4

USE OF NEW INPUTS SUPPLIED BY SATMACI

	1965	1966	1967	1968	1969	1970
No. of <u>Encadreurs</u>	80	193	666	694	n.a.	550
No. of <u>Assistants</u>	0	12	49	88	n.a.	93
Seed Distributed (tons)	99.5	259.2	595.2	1162.2	n.a.	n.a.
Fertilizer (tons)	182.2	544.6	662.8	1125.8	1463.0	1643.0

Sources: SATMACI, *Rapport Annuel: Operation Riz*, 1966, 1967, 1968.
Ministere du Plan, *Deuxieme Esquisse*, pp. 96-98.

It can be from Table 4 that the early years of the program were very successful in distributing the improved package of inputs and the technical advice necessary to increase the domestic production of paddy already noted in Table 2. In its first draft of the 1971-75 development plan, the government hoped that domestic production would reach 395,000 tons by 1970 and that the country would be free of imports by 1975.¹⁶ However, the disappointing results experienced by the program in the last years of the decade and the high imports in the first years of the 1970's led to a re-examination of the strategy and a re-orientation of the program. The drought has had its impact on the program but there existed problems in the design of the program itself.

The first problem faced was that of capturing a marketable surplus of paddy. The goal of reducing imports of rice is not necessarily met by increasing the domestic production of paddy on rain-watered fields. Large increases in output of pluvial rice were achieved by the distribution of improved seeds, fertilizer, and cultural techniques, however, the increased production was largely consumed on the farm or diverted to traditional market circuits where it did little to increase supplies of domestic milled rice to urban areas where it could substitute for imports. Without a satisfactory supply of paddy the expensive rice mills built by SATMACI cannot operate at a break-even point. To the peasants of many regions, the presence of a factory is the symbol of modernization, and the promise of a factory had been held out as an incentive to produce rice. This led to such an overbuilding of factories that SATMACI was competing with itself for a limited supply of paddy. For example, new factories at Bongouanou and Yamoussoukro divert paddy from the factory at Bouake which, even before the opening of the new factories received only 8,000 of the 12,000 tons of paddy required for profitable operation. Such excess capacity can be an expensive incentive especially when private traders are also competing for

the paddy. The government tried to discourage the Dioula merchants who buy paddy and process it in small hullers by imposing licensing restrictions and by stopping the importation of small hullers and spare parts. Nevertheless, SATMACI estimates that it gets only one kilo of paddy for every two kilos bought by the Dioula.¹⁷ One reason may be that the Dioula provide services that SATMACI does not: the Dioula lend money to the peasants at the beginning of the school year when money is needed for fees and books and the peasant is committed to sell his crop to them in return. The provision of this type of credit is a valuable service which SATMACI was not able to provide and which the BNDA (Banque Nationale du Développement Agricole) had not yet begun to provide. Consequently, the Dioula were able to exact usurious interest rates on crop and famine loans while SATMACI was unable to ensure repayment of the loans it had made to the peasants because it did not control the market for paddy. In 1968, the repayment of SATMACI loans at a time with most of the harvest completed was only 23.7 per cent while in 1967 it was only 12.6 per cent.¹⁸ Figures supplied by SODERIZ for the year 1967 indicate that 45 per cent of fertilizer loans and 37 per cent of seed loans were not repaid although there was a higher rate of repayment in the savanna areas than in the forest.¹⁹ In order to get a larger share of the paddy, SATMACI began offering more of the services than the Dioula did; for example, it installed threshing machines at some of its purchase points so that it could buy rice brought to it on the stalks as the Dioula did. The BNDA has moved into the area of short-term school loans and between-crop loans which were formerly made by the Dioula against purchase of the crop.

Another problem in capturing the marketable surplus was the increasing amount of paddy consumed on the farm or processed for traditional markets rather than the urban market. SATMACI finally realized that it could not compete with the Dioula in supplying these circuits since the women with mortars or the Dioula with artisanal hullers could produce the "riz cargo" (hulled but not bleached rice) for this market at a price at which SATMACI could not compete. Moreover, at any realistic producer price that SATMACI could pay there would be little diversion of paddy from this circuit to the rice mills. A farmer producing only a small surplus would not be likely to sell his paddy at 20 FCFA per kilo when, with a little effort from his wife, it would be worth 50 FCFA in the market. Nor would the women easily give up this value added.

One aspect of the program which has caused concern is that in all areas of the country, it has attracted mainly immigrants of Northern origin. The Dioula (northern Moslems from Mali) and the Mossi from Upper Volta are the most enthusiastic and most numerous adherents to the program. Usually working as laborers on Ivoirian farms in the forest zones, they welcomed the opportunity to produce their own commercial crop. One good example of their performance can be shown in Table 5 giving yields for rice growers on the mechanized bloc of Kouakoussekro in the heart of Baoule country.

Table 5

YIELDS ACHIEVED BY RICE GROWERS: KOUAKOUSSERKRO 1968-69

Ethnic Origin	Average Yield (kg. per ha.)	Number of Growers
Mossi	1498	9
Dioula	1534	15
Baoule	1102	5
Agni	1420	1

Source: SATMACI, "Bloc Kouakousserkro", 21/8/69.

It can be seen in Table 5 the Baoulé do not represent a majority of growers on a bloc in their own territory and that their yields are significantly lower than those of the immigrants. These differences exist in spite of the fact that the land was cleared by SATMACI tractors free of charge and presumably the preparation was uniform for all farmers. An hypothesis which might be advanced to explain the differences in yields between immigrants and locals is that the Northerners are traditional consumers of rice and therefore put more effort into its cultivation. Perhaps a better hypothesis is that the Northerner is producing rice commercially and, consequently, takes it more seriously than the Baoule who probably owns a coffee plantation. Since SATMACI undertakes the hardest part of the job (for a subsidized flat-rate fee), a coffee farmer could join the program, put little effort into weeding, and even with low yields make a sufficient return on a day's labor at the margin to induce him to stay in the program. The immigrant, on the other hand, is cash-cropping; he puts more effort into his weeding and spraying; and he earns a return to his labour which is higher than his alternative which is what he would get if he remained a labourer on a coffee farm. Another example of the foreigner's conspicuousness in the rice program is the irrigated bloc at Baviart which is taken largely by Dioula merchants who direct the working plots by hired labourers. This arrangement has SATMACI worried because the local tribes are not willing to see their lands granted to foreigners and, as long as the danger of forceful reclamation of the land exists, SATMACI is reluctant to undertake large investments in dams and canals which, given the lack of interest by local farmers, would go unused if the foreigners were expelled. (This danger exists in spite of the declaration of the Bureau Politique that "the rights to a piece of land belong to him who puts it into production to the exclusion of all other holders of traditional rights").²⁰

The SATMACI experience has several important lessons. First, the successful vulgarisation of a crop is possible where the government fixes a relatively high price for the producer,²¹ which in the case of rice can be paid because the

government government taxes imported rice and uses the receipts to subsidize domestic production. Such a policy attracts the potential cash-cropper as evidenced by the success of irrigated production in the North where incomes are low and rice is now a major commercial cash crop. In other parts of the country, where immigrants produce most of the rice, it offers them a daily return competitive with their wages as agricultural laborers. Second, the early years of the program demonstrated that close supervision of the peasants, reliable supplies of the necessary inputs, and a guaranteed market can be provided quickly by a specialized sectoral agency and can achieve rapid increases in outputs. However, the later years of the program pointed out certain disadvantages of the method. First, the sectoral method of production runs into a production ceiling once the new areas have accepted the crop, when the marginal acceptor has been converted, and the increased production of this new crop competes with other traditional crops. Further increases will require more intensive efforts to improve yields and to fit rice into rotations with other crops or to locate it on irrigated fields. Second, increases in paddy production do not necessarily produce increases in marketed rice.

With the creation of SODERIZ in 1970, the goal of the rice program became that of producing paddy for the government mills and therefore rice for the modern commercial networks. This represents a change from the previous goal of producing more paddy which could substitute for on-farm consumption of traditional foodstuffs or be siphoned off to traditional market networks. This meant that production and extension would henceforth be concentrated on irrigated rice, which produces a large marketable surplus and groups farmers in easily-accessible areas for extension services. Such farmers will be under contract to the rice mills near which they are located for the sale of their paddy. Since SODERIZ will be on the market for the paddy it will not only be assured of getting back the advances it makes to the farmers but it will also be more willing to make investments in land preparation. Farmers will now be granted plots on mechanized blocks or irrigated fields created by SODERIZ with a right of hereditary usufruct contingent upon proper use of the land. The concentration implied in the new program is a move back from the policy of general vulgarization.

III.2 Cotton

The cotton program is seen primarily as a partial solution to the large disparities in income found between the North and the other regions of the country. The North is the region best-suited to this crop and it is in the North that it has known the greatest success. Some cotton has been grown traditionally in the country, but the history of attempts to introduce cotton on a large scale is not one propitious for the success of a government-sponsored program. Under the title of "new effort", the colonial administration used its personnel to force the growing of cotton while at the same time it established a very low official price for the output. The regional study of Bouaie shows that while administrative coercion did not produce the desired output, it certainly did force the necessary input. The number of hectares of cotton sown in pure culture of 1963, if harvested from current yields, would have produced approximately of the 1970 plan target for the whole country. However, the

failure of the Agricultural Service to help the peasants win the battle against parasites and the low official price were sufficient causes for failure.⁴² For many peasants the attempt to reintroduce cotton revives the memory of forced labour and in some areas cotton is still called the "travail du commandant".

In the early 1950's the IACT (Institut de Recherches sur le Coton et les Textiles), a research institute with branches in most of the francophone African countries, found that "Mono" cotton from Dahomey represented a major improvement over local varieties: it was resistant to parasites, could be grown in association with other crops, and gave a higher yield at ginning than local cotton. The change to Mono from local varieties brought an immediate increase in productivity of 15 per cent. Meanwhile, research was continuing on adapting "Allen" cottons to African conditions. (Allen cotton is an American upland variety.) The major problem, the control of parasites, required the discovery of the best insecticide to protect this more sensitive but higher yielding variety. In 1959, the CFDT (Compagnie Française pour le Développement des Fibres Textiles) carried out tests in pilot villages with five sprayings of Endrin and obtained an average yield of 850 kg/ha in manual cultivation. Further trials produced yields as high as 1,299 kg/ha around Bamako in the North. In 1963 the government signed a contract with the CFDT for the vulgarization of Allen cotton, fixing a target of 50,000 metric tons of seed-cotton in the year 1972-73. Following their success in the first few years (mostly in the North), the government and the CFDT moved the target area ahead to 1970 for the 50,000 metric tons and established a new target of 105,000 metric tons for the year 1972-73. This ambitious target was modified by the 1971-75 development plan to 95,000 tons in 1975 and 143,000 tons by 1980.⁴³ Table 6 traces the development of Allen cotton to the present.

Table 6

COTTON YIELDS, AREA, AND PRODUCTION

<u>Year</u>	<u>Area Planted (ha)</u>	<u>Production (tons)</u>	<u>Yield (kg/ha)</u>	<u>Official Price</u>
1960-61	137	69	503	30
1961-62	272	260	625	30
1962-63	1,270	765	600	30
1963-64	2,528	2,024	615	33.5
1964-65	6,608	5,527	863	33.5
1965-66	11,768	9,125	775	33.5
1966-67	23,620	22,067	925	33.5
1967-68	39,000	32,286	828	33.5
1968-69	68,000	62,000	917	33.5
1969-70	83,000	72,000	870	35 = 30*
1970-71	90,000	79,000	877	40 = 30
1971-72	90 000.	84,527	---	40 = 30
1972-73	90 000.	92,000	---	40 = 30
1973-74	90 000.	90 000.	---	45 = 35

* The price differential was introduced for pure white cotton versus yellow and unsorted cotton.

Sources: CFDT, Annual Reports, 1968-71; Marchés Tropicaux et Méditerranéens, various issues.

The impressive increases in cotton production up to crop year 1968-69 reflects in part substitution of one variety of cotton for another. In 1960 there were about 80,000 hectares of Mono cotton interplanted with a variety of other crops in mixed cultivation and yielding therefore only 100 kg per hectare. Total production of Mono might have reached 7,000 tons in 1960 and since has fallen to about 2,000 tons. However, the fact that farmers are substituting one type of cotton for another rather than adopting a completely new crop does not detract from the achievement; farmers have accepted a considerable change in techniques, particularly the giving up of mixing crops in the same field. Although two bad years (late rains delayed the planting of food crops and therefore delayed or prevented the planting of cotton) in 1969-70 and 1970-71 set back the program, the CDDF achieved its original target of 50,000 tons by 1972-73, appears to be back on schedule with its 1971-72 plantings, and predicts 60,000-70,000 tons by 1975. It is important to note that yields have been consistently increasing and it is fluctuations in area planted which produce the variation in annual output. The competition from food crops will become a critical factor in the future expansion of the program.

The farmers who grow Allen cotton in the Ivory Coast receive seed and anti-parasite treatment free of charge from the Stabilization Fund through the intermediary of the CDDF. In addition, the CDDF will make loans to the farmers for the purchase of fertilizer knowing that its monopoly of purchase precludes any problem of non-payment. The critical factors in the program's success have been the strictness of the encadrement and the organization of the anti-parasite treatments.

The supervision which the CDDF provides is very strict. The encadreur (or moniteur as he is called by the CDDF) is not required to prepare a demonstration field on the grounds that this would only occupy his time and detract from his effectiveness in supervising the peasants. He makes weekly visits to his clients. Each moniteur is responsible for about 80 hectares (up from 65 in 1968) while the goal for 1970 was 100 hectares. As with SAVAC, the CDDF is having difficulty reaching the stage of "light" (less strict) encadrement except in certain areas of the North where consolidation of fields has enabled them to attain a ratio of 200 hectares per moniteur. In addition to providing the improved package of inputs, the moniteur has an important role in increasing yields through requiring farmers to observe the crop calendar. For each region there is a fifteen-day period during which sowing must take place if the maximum yield is to be gained. If a peasant delays the planting until the rains have come, rather than planting in anticipation of the normal season, the delay may cost him up to a 30 per cent reduction in yields.²⁶ The moniteur who can ensure proper sowing and timely planting and spraying of the crops is directly responsible for the high yields obtained. The addition of fertilizer is always profitable, and consequently the peasant willingly buys it himself.

The second (and perhaps more important factor) is the organization of the anti-parasite spraying. Other countries in Africa have seeds which yield as well as the Kenyan varieties on the station but they do not achieve the same high yields from their farmers. The difference lies in the fact that high yields are dependent upon proper insecticide treatments several times throughout the crop year and rather than leave this crucial operation to the farmer's discretion, the CDDF provides free insecticide and equipment under close supervision the moment the plant protection service receives information on the cost

plots located throughout the cotton zone. Even in countries where insecticide is heavily subsidized, peasants tend to spray their crops too little and too late. In fact, too little spraying may be worse than none at all since it also destroys the natural enemies of the cotton parasites permitting a later reinfestation by the faster breeding cotton parasites. Because complete and regular spraying is so crucial the government does not require the farmers to make an outlay for it. With a monopoly of purchase, the CFDT could get its outlay back through an administered producer price; but because the producer price is set at a high level to attract farmers the spraying is subsidized by the Stabilization Fund using surpluses earned on coffee and cocoa.

As with SAIMACI and its rice program, the CFDT may soon run into the ceiling set by competition between food crops and cash crops and by pressures on the available labour at peak periods. Consequently, new arrangements are being worked out to prevent duplication of effort and wasteful competition among the extension agencies. The CFDT is now given the job of supervising rice production in areas where cotton is the predominant cash crop and the task of putting rice and cotton together in a rational system of crop rotation. By 1973 the CFDT plans to have 10,000 hectares of rice in rotation with cotton. Increasing attention will be given to breaking the labor bottleneck through the introduction of tractors and animal traction. Each year 200 pairs of oxen will be trained and made available to farmers, while three new mechanized groups will be established each year with rotations of maize, rice and cotton.²³ Clearly, new formulas are being sought to progress from the sectoral competition of programs to an integration of development efforts. It is the success of the sectoral programs that makes farmers receptive to these further efforts.

III.3 The Social Profitability of "Vulgarization"

The popularity of rice and cotton is only partly explained by the close technical support and the provision of many services obtained at great cost (or not at all) through normal market channels. The profitability of the crop to the farmer is ensured by high guaranteed producer prices and subsidies of inputs by the government. The government raised the producer price of paddy from 18 to 20 FCFA/kg as an inducement to farmers even though a price of 18 FCFA was well above the import parity price. As the world price of rice has risen the price paid to farmers for their paddy has also risen to 28 FCFA/kg for first quality and 23 FCFA/kg for second quality in 1973-74. Similarly, the prices paid to farmers for Ivorian seed cotton have been the highest in the Franc Zone. For example, the 33.5 FCFA/kg paid by the Ivory Coast in 1969 may be contrasted with the 28 FCFA paid in Senegal, the 30 FCFA paid in the Central African Republic, and 28 FCFA paid in Chad.²⁴ The fact that the greatest effort to produce rice and cotton in the North reflects the low opportunity cost of producing these crops in the region. There are no other crops which have organized markets and offer the same return per man-day as do rice and cotton. In the center, where coffee and some cocoa can be grown, the local populations are not as interested in rice and cotton. The reason is apparent in Table 7 where we compare the returns per man-day of labour for the various crops (after deducting all purchases of other inputs).

Table 7

RETURNS PER MAN-DAY, SELECTED CROPS

	<u>FCFA Per Man-day*</u>
cocoa: selected variety, intensive care	603
cocoa: traditional with spraying	447
coffee: selected variety, intensive care	517
coffee: traditional, with spraying	303
pluvial rice: SATMAGI seeds and <u>encadrement</u>	143
irrigated rice: SATMAGI	162
Allen cotton: CFDT	191

Source: "Première Esquisse du Plan, p. 134.

*at 1967 producer prices

Neither cotton nor rice can offer the local planters a return which compares with that of coffee and cocoa. Immigrants from the North, however, can earn more by participating in the rice and cotton programs than they could earn as agricultural labourers.²⁷ They are effectively excluded from planting coffee and cocoa by the local population, but the government will always make sure they have access to the land to grow cotton and rice even over the objections of the local population. A similar situation is found in the West and Center-West where the Dioula and other northern immigrants grow the rice and cotton.

Having found a crop which is demonstrably profitable for the farmers, the government acts as the innovating entrepreneur and brings knowledge, techniques, and packages of inputs to the farmers. Implicitly, the method argues that it is not necessary to embody the decision-making, the technical skills, and the entrepreneurship in individual farmers; the government makes a decision to promote a given crop; a network of encadrement provides the skills and supervises the work of the peasants; and the farmers follow demonstrated techniques. Such an approach requires close encadrement, which can be expensive. It is important to note, however, that the encadreur is only a primary school graduate with specialized training in only one crop; he is not a highly trained agricultural assistant with secondary education and post-secondary agricultural training. Consequently, it is possible to place four of these encadreurs in the field for what it would cost to keep one agricultural assistant in a conventional rural extension program. Since at this stage of development the closeness of the supervision and the number of contact hours with individual peasants is more important to growing cotton than having an extension worker who is capable of discussing many crops but comes less frequently, the system of indigenization which is being followed is quite appropriate at the early stages of development of new crops.

One of the great weaknesses of the sectoral method as practiced by SATMAGI and the CFDT is the creation of parallel structures of encadrement, with the duplication of bureaucracies and the lack of coordination between the agencies leading to conflicting efforts to teach the same peasants. SATMAGI, therefore, created its mechanized blocs in areas not suitable for the growing of cotton to avoid conflict with the CFDT and the possible loss of its rice-growing clients to the CFDT. Secondly, the exclusive concern of the agencies with one crop

means that the improved techniques used for rice and cotton are not carried over to the other crops grown by the peasants. Moreover, the lack of attention to the farmer's other crops, especially food crops, may lead to resistance such as the farmer's refusal to plant cotton on time because late rains had delayed the planting of his food crops which always claim first priority. If traditional foodstuffs conflict with the cotton calendar, some attention must be given to substituting other crops such as hybrid maize, groundnuts, or some variety of rice which does fit the calendar. Finally, because there is no attempt to teach the peasants more than imitation of a technique, most officials feel that it will be necessary to maintain close encadrement for many years before the peasants will have assimilated enough knowledge to work independently.

Nevertheless, the sectoral method is an effective quick way of increasing production. Because the encadreur has only one crop to handle he has no excuses if his job is not done. Moreover, the present method avoids the manpower bottleneck: secondary school graduates are not available for work in the rural areas, and by using primary school certificate holders, who have received enough training to repeat what they have learned, the sociétés d'état are able to reach large numbers of farmers at low cost.

IV. The Role of "Animation Rurale" in Agricultural Development

The sectoral method of vulgarisation brings new techniques and new outputs to farmers while requiring an increased labor input from them. Even where the new methods offer an increase in the return to a day's labor it is not certain that farmers will embrace the offered services. The association of cotton with forced labor implied a residual hostility from the war towards this crop. Animation rurale may play an important role where there exists a traditional hostility to new programs. It is instructive to compare briefly two approaches tried in the Ivory Coast: the official program run by the Ministry of Agriculture and a private program operated by the Maisons Familiales d'Apprentissage Rural up to January 1969.

In the official program, five or six peasants are selected from each of seven or eight villages to come to a two-week training session designed to prepare them to become the intermediaries between the technical services and the other farmers in the village. The following description of animation is a composite of what many officials have had to say about the program.²⁸

.. Animation is a psychological and technical action aimed at the peasants and designed to overcome the human and sociological problems of development.

...The Service de l'Animation should be seen as a service in the service of the other services which bring technical assistance to the peasants. The job of animation is to prepare the peasants to accept the intervention of the other services; to accompany this technical action; and to prolong that action. It is not designed to train the peasants but rather to sensitize them to a number of different themes of government intervention.

...Because the government has adopted the principle of bringing development to the peasants from the "exterior," animation must explain to the peasants the options chosen by the government and gain their adherence to them so that they evolve along the lines laid out by the government.

Where the effort of the government is on the vulgarisation of Allen cotton and irrigated rice, animation usually gives as its justification the role it plays in encouraging adoption of these crops or lowering the cost of the rice and cotton programs through encouraging consolidation of fields. It could play an important role in the realm of social progress in the villages if the government should decide to give it that orientation.

There are four CFAR's (Centre de Formation des animateurs Ruraux) run by the Service de l'Animation Rurale each one capable of reaching about 100 villages. Each session brings about 45 peasants to the center where they learn about and are urged to accept the various technical and social services available to them. Upon returning to their villages, they are to encourage the other villagers to adopt some program of development, such as rice or cotton production, for which they will receive technical services. If the peasants in the village are not immediately receptive, the five or six animateurs are a large enough group to carry out a demonstration with the help of the technical services. There are several things to notice about the official program: rather than attempt to train the peasants at the session, the effort is to try to sensitize them to receive the encadrement and the services which the government is ready to provide. Secondly, the program relies heavily on the support of the government party (PDCI) which supplies about half of the animateurs from its local committees.

The 1971-75 development plan calls for the creation of an Office de Promotion Rurale²⁹ directed by a council with representatives from all the ministries working in rural development which would take over the program of animation from the Ministry of Agriculture. Its action would be expanded to include rural training programs, retraining of encadreurs, animation of villages participating in mechanized experiments, and rural development actions in areas not touched by the existing programs of crop development. As the animation program becomes involved in all aspects of the farmer's life, including training, it courts the danger of conflict with the technical services. The first animation program run by the CIDR (Compagnie Internationale de Développement Rural) ran into opposition from the technical services and sociétés d'Etat who felt that its form of animation encroached upon their area of competence by attempting to give technical advice to the peasants and also tended to create peasant pressure groups which could potentially make the job of the technicians more difficult.³⁰

In contrast, there existed until January of 1969 a program of animation run by the Maisons Familiales d'Apprentissage Rural which took a more global approach resembling that of community development. For them animation without solid technical training of the farmers is seen as leading only to discouragement and possibly erroneous decisions. Their program builds upon peasants who are exceptionally dynamic, who have already been "animated", and who are prepared to take responsibility for charting their own course of development.

The Maisons Familiales grew up in France more than thirty years ago in response to the failure of the French educational system to give young rural people an appreciation of their milieu and the professional training necessary for success in that environment. Their success in meeting this need in France is evidenced by their growth from 150 establishments in 1950 to 550 establishments in 1970 run by the Maisons Familiales to train agricultural technicians. For the past twelve years, they have been experimenting with adapting their method to Africa and Latin America.

They do not view themselves as an agency bringing development from the outside (a "société d'intervention") but rather as an institution based on rural families willing to put its competence in agriculture and teaching to the service of countries which request it. The three basic tenets of their action are:

1. There is no development without responsibility--the peasants are responsible for their own development, and the peasants themselves must choose the course of their development.

2. "Alternance" -- since life teaches better than the school, the training must take place in the fields as well as the classroom. It is believed that the peasant will not assimilate the technical knowledge dispensed until he has had a chance to question it, discuss it with his peers, and put it into practice in his fields.

3. All must be reached or none will be reached -- a program cannot concentrate on the elite alone or just men but must reach the women and the young as well. Therefore, each Maison Familiale has parallel organizations for the men, women and the young with a training which meets the special needs of each group.

Before the Maisons Familiales come into a village they must be assured that the peasants want them. In the case of the Maison Familiale at Assika Kayabo, where the Jeunesse Agricole Catholique had provided the initial contact, the chiefs of eight villages signed the letter requesting the Maisons Familiales to come as a means of stopping the exodus of young to the cities. Prior to the arrival of the European cadres the peasants built the meeting hall and the houses for the European cadres and the African moniteurs. The members of the Maison Familiale were required to pay 1000 FCFA per adult male and 500 FCFA per adult female towards the salaries of the African moniteurs primarily as a way of formalizing the participation and responsibility of the peasants. Careful accounts are kept of all receipts and disbursements so members know what is being done with their money. The exercise is useful in training members for similar accountability in cooperative efforts.

Each Maison Familiale has a very restricted field of action. Because their system of training peasants requires small classes and close follow-up in the fields, the Maison Familiale program will not cover more than seven or eight villages, all of which must be within thirty kilometers of the center. In the classroom, the peasants are taught basic arithmetic, some reading, geography, and a good deal of agriculture. The program has been successful among the young as well as the old. Not only did the exodus of young to the cities slow down but many young people came back to the village. The president

of the Maison Familiale at Assika Kayabo reduced his coffee farm from nine to three hectares and increased his income. Moreover, other members indicated that it was their agricultural training that kept them from being discouraged following two poor harvests of rice caused by abnormal weather conditions. (In other nearby villages the first poor harvest led to numerous defections from the rice program.)

The program was financed by UNICEF for an experimental period after which the government refused to continue it, citing the high cost relative to the restricted number of peasants it reached. An additional reason is that the movement, while non-political in its goals, does not fit into the development strategy of the country. The government has chosen to bring development to the people -- the government will choose the programs and then set up the channels of vulgarisation through which the peasants will receive assistance. Official animation is designed to gain the adherence of the peasants to programs laid out for them by the government. On the other hand, the Maisons Familiales make the peasant responsible for his own development, they create a militancy among the peasants which may lead them to question the priorities of the government -- a militancy which could be seen as potentially dangerous in a single-party state. Following the refusal of the government to continue their program, the peasants from the villages participating in the program sent a delegation to the President petitioning for a continuation of the training. Such a movement which organizes peasants so that they can demand services which the government may not be in a position to provide is unlikely to gain support of the government. The current plan of the government is to use the Maison Familiale meeting hall as a center for an extended program of official animation.

The official program has a certain advantage at an early stage of development: it reaches large numbers of people who need to be informed of and induced to accept the technical services the government is prepared to offer them. The ensuing growth may not produce a profound transformation of the rural way of life directly, but it prepares the peasants for more fundamental later change. It is in this second stage, where greater attention must be given to education of the farmer, that a program such as one offered by the Maisons Familiales becomes necessary.

V. Global Development: Pilot Sectors and Integrated Operations

Mechanization of agriculture has captured the imagination of many African planners in countries surrounding the Ivory Coast and the resulting large scale mechanized farms have consistently been disasters. Fortunately, the Ivory Coast, while not escaping the fascination with the machine, will embark on mechanized farming after a decade of experimentation on the secteurs pilotes (pilot projects in selected villages). The contrast of these mechanized experiments with the previous forms of development is instructive.

The sectoral operations carried out by SAIMACI and CFDT represent attempts to improve agriculture while working within the traditional framework. Both rice and cotton can be grown by peasants using hand tools and can be fitted into the peasant's form of semi-nomadic agriculture. The recent orientation of the government is towards what may be called the "technical" agriculture

rather than "peasant" agriculture. The Service de la Prévulgarisation et des Secteurs Pilotes is a branch of the Ministry of Agriculture responsible for a test program of agricultural transformation in several pilot villages. Their goal is to test the crops, rotations, and mechanized techniques developed at the experimental farms in a representative peasant environment before a decision is made to spread them. For this reason, their action is given the name "prévulgarisation". Each pilot village has a resident conseiller rural who performs the dual role of animation and encadrement. In the pilot villages, SATMACI and CFPDT appear only as suppliers of technical services and not as encadreurs.

In order to bring about "modern agriculture," the peasants consolidate their fields into several large blocs (up to 50 hectares) with a rotation of crops on these blocs. Because the annual clearing previously required by the shifting cultivation is eliminated a larger area per farmer can be planted. A proper rotation prevents the decline of soil fertility which made the shifting cultivation necessary. Consolidation also permits the use of tractors to eliminate the hoeing and seeding which constituted the major bottleneck to increasing the area per farmer and the double-cropping of some fields. Farmers continue to have exclusive responsibility for the upkeep of individual plots within the consolidation. A flat rate per hectare is deducted from the income from the crops sold to pay for the mechanized operations carried out by the government tractor-hire agency, MOTORAGRI (Société d'Etat pour le Développement de la Motorisation de l'Agriculture en Côte d'Ivoire). Even if the rate were not subsidized, the charging of a flat rate would still give the farmer a high marginal return to any extra effort he puts into the maintenance of his plot in the bloc and thus encourages effort.

By way of illustration, the five blocs of fifty hectares at one secteur pilote have the following rotation:

- Year 1: Yams
- Year 2: Double-Cropped: maize or groundnuts followed by cotton
- Year 3: Fallow Rice
- Year 4: Fallow: tropical alfalfa with livestock
- Year 5: Fallow: tropical alfalfa with livestock
- Year 6: Renew cycle with Yams (Year 1).

Several interesting problems have emerged from the attempt to introduce such a rotation. First, while the yield of cotton is improved when it follows a crop such as maize, the price of maize has been so low that most peasants are not interested in growing it. Consequently, the Service de la Prévulgarisation, with its contacts with the governmental and institutional markets, took upon itself the marketing of the maize at a price which encourages the farmer to produce it. However, any losses made on the maize are difficult to recoup on the other crops and this presents budgetary problems for the Service. Secondly, the fifty hectares of yams also have to be marketed without upsetting the local markets. In this respect, a strange phenomenon has been that farmers continue to grow yams for their own consumption in traditional plots nearby while lacking markets for the yams from their mechanized blocs. Thirdly, the association of livestock with agriculture is entirely new to the Baoulé and has met with only limited success. Finally, as a general finding for mechanization in

tropical countries, the risk to the farmer increases following the introduction of tractors and the corresponding increases in costs to the farmer (tractor hire fees, fertilizer to maintain soil fertility, improved seeds, and eventually even herbicides to break a labor bottleneck occurring at weeding time as the area per farmer is expanded). P. Bonnefond notes that these charges become an important element in the farmer's total costs and in years of poor weather conditions they weigh heavily on the farmer's net income. He estimates that a 10 per cent reduction in yields below "normal" levels reduces the farmer's income by 12% in traditional cultivation and as much as 30% in mechanized cultivation, depending on the number of operations that are performed by tractors.³¹

The response of the peasants to these mechanized experiments has been positive. A study of the secteur pilote of Boka Kouamekro after seven years of operation makes a number of observations paraphrased below:³²

1. The crops and techniques proposed by the experts require an increase in effort from the farmer which he is willing to provide to the extent his extra effort is rewarded (as is the case of cotton but not that of maize).

2. Increased incomes in the villages and improved housing reduced the tendency to seasonal migration.

3. The traditional land system offered little resistance to consolidation of fields (90 per cent of the fields are consolidated).

4. Collective production was unsuccessful as evidenced by the poor results of the livestock and communal rice fields. Individual gain seems to be the motivating force.

5. Mechanization captures the imagination of the peasants...all of the villagers volunteer for mechanized experiments while there was no enthusiasm for animal traction.

6. The adoption of new techniques such as pure cultivation, sowing in rows, and use of fertilizer was widespread but continuing encadrement will be necessary for several years so these new techniques become irreversible habits.

All of this suggests the existence of farmers who will respond to opportunities to improve their situation. Nevertheless, the close direction of every phase of the program required of the Service de Prévulgarisation, up to and including the marketing of the crop, points out the limitations of the method as a solution to agricultural underdevelopment. Moreover, the example of the Secteurs Pilotes has not encouraged the neighboring villages to accept modernization. On the contrary, they have become jealous of the "special treatment" of the pilot villages and have refused attempts to assist them. On more than one occasion, they have disputed the right of pilot villages to the land put into the consolidation and have forced them to give up part of the field (which part was subsequently not put into production even though it had already been cleared). Finally, the Service de Prévulgarisation is concerned about the abnormal death rate in certain pilot villages, which leads them to suspect

poisoning by the neighbors. Poison is a common weapon used both within and between villages. Within a village it may be used by the elders who see their authority challenged by young school-leavers who, flushed with confidence in their knowledge, forget their place in the hierarchy. Poison is also an occupational hazard of the animateur in certain regions, and it may be used against neighboring villages which are developing more rapidly through greater effort or through having been chosen for special programs. (The ease of poisoning a well may also explain why half of the wells dug by the government fall into disrepair and villagers continue to fetch their drinking water in streams which are parasite-infested but cannot be poisoned.)

The secteurs pilotes attempt to bring about a transformation of the villagers by effecting a profound change in the structure of production along with a modernization of housing and other aspects of life. The transformation of the people follows from the transformation of their environment through a global vulgarisation. The people receive from the Service de Prévulgarisation animation, technical encadrement, subsidized services for mechanization, and the recourse to highly-trained cadres for the solution to problems that arise. In return, much is asked of them: they must work harder than before, follow the instructions of the conseiller, and overcome any traditional hostility to progress. It is interesting to note that in some areas the crops introduced by the Europeans (e.g., cotton) are exempt from the traditional taboos against working certain days of the week. Nevertheless, the secteurs pilotes run the risk of creating a gap between the peasant and his techniques so that he is incapable of taking any initiative in the organization of his activities and becomes a passive follower of the instructions of the cadres of the Service de Prévulgarisation.

VI. The Response of the Peasant to Development Efforts

The previous sections of this paper have described a number of attempts in the Ivory Coast to promote agricultural development. A program may achieve poor results for many reasons, but the most basic one is that it is unprofitable. The success of the rice and cotton programs in the North, even in the absence of animation, suggests that the prices fixed by the government were sufficiently high to bring about ready acceptance of the encadrement provided by the CFDT and SATMACI. On the other hand, these crops have had lesser success among peasants in the Center and Center-West where coffee and cocoa compete for the farmer's time. Since the return to a day's labor in coffee and cocoa exceeds by a comfortable margin the return to rice and cotton, the local tribes do not produce very much of the latter two crops. Meanwhile, immigrants from the North, living in these areas but excluded from growing coffee and cocoa, find the return from growing rice and cotton to compare favorably with their wages as agricultural laborers. Consequently, they are the major producers of rice and cotton in such areas. Vulgarisation is a matter of prices and markets. The encadrement provided by the government agencies brings with it the essential inputs not supplied in the market and purchases the output (not already purchased at a higher price by private traders). While additional increases may be attributed to the diligence with which the encadreur's advice is heeded, the main source of the improvement is the seed, fertilizer, and insecticide.

Animation has usually emphasized its role of preparation for, accompaniment to, and prolongation of the technical encadrement. It is useful in this respect and can lessen the cost of encadrement by encouraging consolidation of fields and organizing its demonstrations (journées rurales).³³ However, it has the potential to play a much more important role in the social development of the villagers. It can become involved in resolving the conflicts which retard development and in turn are caused by development. The elder who poisons an animateur out of fear that his new techniques will make him a wealthy and powerful challenger to established authority is making the response of a man too old to create a new farm yet wishing to maintain his authority. It is no harder to understand than the case of workers smashing machines during the Industrial Revolution. Animation may help the young primary-school graduate who is frustrated by the authority of the elders if he remains silent in the village but is in danger if he attempts to assert himself. Many of the rural young evidently see emigration as the only escape. A village with some form of animation or community development can find ways of reconciling the interests of the old and the young. The elders of Assika Kayabo created their Maison Familiale with a view to improving the prospects of their young and concentrated their action on them. The Club Avenir program of the Jeunesse Agricole Catholique is aimed at giving young people an appreciation of their milieu. It is interesting to see the pride with which a "jeune planteur" (young planter) can exhibit his farm and to hear the perjorative tone he can impart to the words "petits commis" (minor clerks) used to describe former classmates who migrated to the towns to work as messengers and file clerks in government offices. Given the similarity in approaches of the Jeunesse Agricole Catholique and the Maisons Familiales, it is not difficult to see why contact with one often leads to involvement with the other. Animation programs which can give the young an appreciation of their milieu, going beyond the clichés about "nos braves paysans" coming from politicians, will become increasingly necessary as the rural areas are required to absorb the majority of young laborers. They can be, moreover, invaluable in correcting misinformation: for example, when the Ministry of Education introduced cooperative-school gardens and elements of special rural curriculum, it was faced with angry parents who "did not send their children to school to learn to be farmers" and who protested against the "second-class education" their children would get. The parents still have the illusion that primary-school certificates are passports to government jobs, and every parent wants his children to have jobs in the city to send back money. Animation should be a means of disseminating information and correcting misinformation. Finally, if the program of vulgarisation brings increased incomes to the villages, a program of animation can help direct the increased portion towards productive investment rather than conspicuous consumption. Funerals and marriages still consume an enormous part of the peasant's monetary income.

In the case of the Maisons Familiales, we find training of the peasants with little change in the means of production. Since it was a private effort, it received only the support of the technical services available to all the peasants; it did not become an experiment in the combining of education with modern techniques. Nevertheless, it helped show what peasants can do working with the tools at their disposal. On the other hand, the secteurs pilotes brought a revolution to the peasants in the form of motorization of agriculture which, in the absence of education of the peasants, runs the risk of creating a gap between man and his machine and, therefore, only the illusion of progress.

It is clear that further development of agriculture in the areas of the savanna requires a modernization of the means of production. Early disappointments from attempts to introduce animal traction have led the government to adopt motorization of agriculture as the only way of making possible an increase in the surface cultivated by a farmer. They assert that it is possible to pass from a stage of manual agriculture with a most primitive of tools to the stage of motorized agriculture without passing through the intermediate stage of animal traction. To do so will require much attention to the education of the peasants who are to make this jump. The government places great importance on the role that animation will play in this type of operation, but unless animation goes beyond its traditional role of preparation, accompaniment, and prolongation of vulgarisation to one of true education and training the peasants will be beneficiaries, but not masters, of their own development. The option for motorization has the further disadvantage that it links development almost entirely to what the government is able to do for the peasants since few groupings of peasants will have the resources or the knowledge necessary to embark on a motorized experiment. Perhaps a slower evolution of the rural areas through a stage of animal traction merits a second consideration and financial support for further attempts to train peasants and popularize the technique. If the government were to stop making gifts to the peasants in the form of subsidized (and sometimes free) land-clearing by government machines, and if it were to stop identifying progress with motorized agriculture, perhaps the peasants would be more willing to adopt the use of draft animals.

Through all the attempts to promote agricultural development in the Ivory Coast, the peasant has shown himself to be an economic man. He reacted negatively to the coercion and low prices of the colonial regime, especially during the "war effort". The attempt to promote development through cooperatives failed because the movement was poorly managed, the peasants were not sufficiently trained (or supervised) to make it work, and because it failed to get down to the basic agricultural needs of the peasants. The programs of vulgarisation of rice and cotton have been most successful in those areas where they become the most profitable commercial crop. Animation can play an important role in introducing these crops and will play an important role in preparing the peasant for the changes in techniques coming with the "modernization" zones. Where there is new territory to bring into production (such as the hinterland of the port at San Pedro) or where there are peasants still to be reached with new seeds and improved techniques, the sectorial method followed by the government in the vulgarisation of rice and cotton offers the best chances for success. For the areas which have reached their limits of production under this system, further development requires going beyond vulgarisation to the introduction of new tools, new techniques, and training of the peasants. It is this transformation stage which the Ivory Coast is entering and for which it is experimenting with new formulas of development.

Annexes

2. *Marchés Tropicaux et Méditerranéens, Ivory Coast 1960-1970,*¹⁾ October 1971, p. 89.

Major Exports, 1960-70 by Value
(billions FCFA)

	1960	Percent of Total Exports	1970	Percent of Total Exports
Coffee	14680	48.1	43974	33.2
Rubber	8748	29.5	32763	25.2
Wool	6362	16.3	27745	21.3
Total Exports	30808		130390	

2. In spite of his strong criticism of the Ivory Coast *Marché* which shows that from 1960-1969 the rate of growth of gross agricultural product was of the order of 7-8 per cent per annum and from 1969-1970 of the order of 11-12 per cent (see *Marché*, *Le Développement de l'Agriculture en Côte d'Ivoire*, Editions Sirey, Paris, 1967, p. 7). From 1969-70 the *Marché*, p. 11, estimates that gross agricultural product grew at the rate of 5.5 per cent. The *Marchés Tropicaux* (p. 12) gives 8.2 per cent as the growth rate from 1963-70.

3. *Ministère du Plan, Perspectives Economiques de l'Indépendance Economique, Societ et Années 1960-1970, (1961).*

"In order to acquire economic independence, without which political independence is not complete, the Government should define an economic policy which permits (the country) to achieve as rapid and continuous a growth as possible through the use of all available resources excluding none... For this reason an essential place has been made for private initiative, both foreign and foreign, the government has assigned itself the job of putting the economy and securing a large part of its revenues for investment..." (p. 6)

4. *Ministère du Plan, 5^{es} Plan de Développement Economique, Societ, et Cahiers pour les années 1967-1968-1969-1970.*

"It cannot be disputed that a national unity can only promote its cohesion to the extent that all its parts and especially all its regions share in the vicissitudes of collective life and also have an equal right to benefit from the progress recorded by the community in its various domains. Is this more or less the case today in economic matters? A summary analysis is sufficient to show that it is not." (p. 82)

5. *Les-Villes*, p. 61; *Revue des Sociétés*, p. 281.
6. *Revue des Sociétés*, pp. 92-118.
7. *Revue des Sociétés*, pp. 11 and 12. *Revue des Sociétés*, p. 11.
8. Guillet, Louis, 'Les Villages de la Côte d'Ivoire,' unpublished internal document, Ministère du Plan, February 1968, p. 2.
9. Ministère du Plan, *Les Villages*, p. 27; Ministère du Plan, 'Évaluation du Changement Économique à l'Échelle par Groupe d'âge et par sexe,' February 1970 (unpublished)
10. Any history of French West Africa will discuss the importance of forced labor and how the battle against forced labor brought leaders such as Houphouët-Boigny to the fore. For a discussion of the change in policy from coercion to cooperation in one region, see, 'Histoire de l'Agriculture en Côte d'Ivoire,' Document 2, *Étude Régionale de Danané, 1959-61*, Ministère du Plan.
11. Bureau International du Travail, *Rapport au Gouvernement de la République de Côte d'Ivoire sur 'Les Conditions de Développement du Mouvement Coopératif'*, Genève 1965, pp. 7-9. By 1965 the situation of the cooperatives was as follows: Of 1048 organizations registered by the ONMA only 795 carried out operations or had paid-up social capital:
 - 23 cooperatives,
 - 126 groups carrying out operations but having not paid the capital,
 - 207 groups having paid the capital but not carrying out operations,
 - 439 groupements à vocation coopérative (pre-cooperatives) carrying out operations and having paid the social capital.

795

Of these groups since 1964 were for the sole purpose of harvesting coffee and cocoa and only 27 were for the common employment of a field or livestock operation.
12. An adjoint is a peasant who has become the intermediary between the government technical services and the villagers. He is chosen for his receptivity to new ideas and his ability to get the other villagers to accept them as well. The important thing to note about the position is that he is not a paid social servant but an unpaid villager who attempts to induce his village to develop. He may often be a local party leader.

13. *Journal des Économistes*, p. 174-175.
14. *Marchés Tropicaux*, "Evony Coton 1966-1976," Octobre 30, 1971, p. 30.
15. Ministère de l'Agriculture, *Opérations de Développement de la Zone Savane-Schémongon, Situation au 3/23/67*, p. 4.
16. *Journal des Économistes*, p. 85.
17. SIBMAO, *Rapport Annuel: Opérations SA, 1966*, p. 66.
18. SIBMAO, *Rapport Annuel: Opérations SA, 1966*, p. 30.
19. Figures provided by SIBMAO officials, 1973.
20. See the government owned newspaper, *Facto-ouvrier Nord*, September 30, 1966, headline and lead article: "Les droits sur une tonne appartenant à celui qui la met en valeur à l'exclusion de tout autre détenteur de droits coutumiers." (p.1)
21. The price is "relatively high" in two respects. First, it is high relative to the opportunity cost of the peasant who would be growing yams or some other foodstuff for private consumption. Even at the former price of 18 FCFA/kg, the peasants were willing to switch to rice price production. (The statistics of the Ministry of Agriculture show, in the North, the area planted in yam fell almost 20,000 hectares over 1966-69 and the area in paddy rose about 15,000 hectares.) At 20 FCFA/kg, the peasants already growing paddy gained an economic rent. The new higher price will also attract new peasants to rice and may deter some from leaving the North to work as laborers on the plantations in the forest zone. Second, the price is also high given the quality of the paddy. By the time the paddy has been converted to rice (1,000 kg. of paddy = 620 kg. of rice) and the relevant commercial surplus are added, Ivorian rice is sold at the world price of imported rice which is of a much higher quality. This has made merchants unwilling to sell Ivorian rice, hence they have been required by law to sell it. An import-export company will be permitted to import foreign rice only after he has bought or agreed to buy an equivalent amount from the SIBMAO factories (Arrêté OMI du 23/2/67).
22. "Historique de l'Agriculture en zone savane," *Étude Régionale de Bouaké*, Document 2, p. 20 ff.
23. *Journal des Économistes*, p. 126.
24. Le Centre National de Propriété, fascicule 24, "Le Coton," published by the Ministère de l'Information, p. 7 of the pamphlet (p. 377 in the series of fascicles).

25. OPEL, *Rapport d'activités pour l'année 1971*, p. 15-16.
26. Bulletin de l'Afrique Noire, *l'Economie Industrielle*, p. 59.
27. The minimum wage for industrial labor was 156 FCFA per day. A laborer working on a family farm usually receives a little more than half as much -- 2,000 to 2,500 FCFA per month -- plus food and lodging from his employer. Often the food-and-lodging provision means that the laborer is given a piece of land and permitted to grow his own food. Under an annual contract, the laborer would receive food and lodging and a payment of 20,000 FCFA at the end of the year.

The regional study of the Bouaké gives the following breakdown of hiring and average wages:

Type of worker	Percent of Hiring	Average Wage (FCFA per day worked)
Bouaké, related to employer	46	155
Bouaké, not related to employer	28	117
Dioula	22	116
Voltaïque	32	145

Ministère du Plan, *Etude Régionale de Bouaké, 1968-69*, Vol. 2, pp. 96-102.

28. "L'Animation Rurale" a series of radio broadcasts featuring Maurice Pierre Compaore (Ministère du Plan), André Adjoua and J. Foyquet, (Ministère de l'Agriculture). Program: *Le Travail au Sahel*, 7/3/69; 14/3/69; 21/3/69; 28/3/69.
29. *Quatrième République*, p. 179.
30. De Witte, J. C., *Experiences with Agricultural Development in Tropical Africa, the Case Studies*, (Baltimore, Johns Hopkins Press, 1967) vol. 2.
31. Bonaford, Ph., "L'Introduction de la Motorisation and Agriculture Traditionnelle," *Revue ORESTA*, Vol. 4, 1970, pp. 21-33.
32. Ministère de l'Agriculture, Service de la Prédigénération, G. L. Oleson, *Service Pilote de Boko Koumasso de VII* (1966), pp. 46-47.
33. A jeunesse rurale is a good example of cooperation between the animation program and the technical services. The conseiller d'animation may call a jeunesse rurale which brings all the peasants of a village together for a demonstration of the first job to be done in growing cotton. Following the demonstration by the OPD Bouaké, the peasants are directed to commitments by the Service de l'Animation. In this way up to 300 peasants may be taught the proper techniques at the same time in an enjoyable way.

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