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CONTRACT POULTRY FARMING IN SENEGAL  
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by

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## PREFACE

This Working Paper is part of a larger research project on Contract Farming in sub-Saharan Africa conducted by the Clark University/Institute for Development Anthropology Cooperative Agreement on Settlement and Resource Systems Analysis (SARSA) for the Africa Bureau of the US Agency for International Development (AID).

For purposes of this study, contract farming is defined by three fundamental characteristics: (i) a futures or forward market in which a buyer or processor commits in advance to purchase a crop acreage or volume; (ii) the linkage of product and factor markets insofar as purchase rests on specific grower practices or production routines and input and/or service provision by buyer-processors; and (iii) the differential allocation of production and marketing risk embodied in the contract itself. Contract farming includes, therefore, the large-scale nucleus-estate/outgrower schemes associated with, for example, palm oil in West Africa and sugar production in Kenya; the parastatal, export-oriented smallholder schemes associated with tea, tobacco, and coffee in Central and East Africa; and a plethora of private schemes producing fresh fruits and vegetables for canning, drying, and direct export to international markets.

Contract farming in a variety of institutional forms has been present in North America since the 1930s, but it has more recently become of increasing importance in Third World states, particularly throughout much of Africa. The objective of this study is to assess the form, organization, and impact of a diversity of contracting arrangements in sub-Saharan Africa, based on both secondary literature and field research in seven countries (Gambia, Nigeria, Ivory Coast, Ghana, Kenya, Malawi, and Senegal). The case studies have been carefully selected to represent the primary commodities and diversity of institutional forms of contract farming. A final report, based in part on the representative case studies, will indicate the conditions under which contract farming emerges; assess the distribution of costs and benefits to the principal actors, including growers; and evaluate the role of contract farming with respect to donor and host-government policies, technology transfer, and institutional development.

Michael Watts and Peter Little

## Table of Contents

I.	Summary and Findings.....	1
II.	Purpose of the Study.....	2
	A. Justification and objective.....	2
	B. Methodology and sources.....	3
III.	A Contemporary View of the Sector.....	4
	A. From 1960 to 1980.....	4
	B. Development and role of cooperatives: AVICAP.....	7
	C. The trend toward concentration.....	7
	D. Propensity toward vertical integration.....	8
	E. Summary.....	9
IV.	Contract Poultry Farming: Present Status.....	9
	A. Contract farming, an overview.....	9
	B. Who contracts and why?.....	11
	C. The tendency toward opportunistic behavior.....	11
	D. The modal contract farmer.....	13
	E. The role of contract intermediaries - AVICAP.....	14
	F. Summary.....	15
V.	Contracts: Terms and Provisions.....	15
	A. Oral versus written.....	16
	B. Duration.....	16
	C. Terms.....	16
	D. Price agreement.....	16
	E. Allocation of risk.....	17
	F. Summary.....	17
VI.	Contracts: Effects - Benefits and Costs.....	17
	A. Effect on product quality.....	18
	B. Effect on production decisions.....	18
	C. Effect on input supply and suppliers.....	19
	D. Effect on distribution of risk.....	19
	E. Effect on new investment decisions.....	20
	F. Effect on producers of differing ethnicity.....	20
	G. Spatial effects.....	20
	H. Effect on income.....	20
	I. Summary - net benefits and costs.....	21
VII.	Conclusions.....	21

## APPENDIXES

Appendix A: The Quality of Husbandry.....	25
1. The underlying biology and importance of stock....	25
2. The technology of commercial poultry production...	26
3. The economics of commercial poultry production....	27
Appendix B: A Special Case in Contract Farming.....	31
Appendix C: Survey Findings .....	33
Appendix D: Sources.....	35
Appendix E: Farmer Questionnaire.....	37
Appendix F: Example of a Contract.....	43

## CONTRACT POULTRY FARMING IN SENEGAL

### I. Summary and Findings

Producers and buyers of commercial poultry products make extensive use of marketing contracts in present day Senegal. Contracts are usually oral rather than written and have little or no effect on choice of technology, supply of inputs, or quality of product. The agreements tend to accept the market prices current at the time of the transfer of goods. The principal purpose served by contracts is to give producers of poultry products the right of first refusal with respect to a price offering and buyers the opportunity to make an offer to a known supplier.

Contract relationships may be divided into three groups. (1) Contracts between a few large producers and institutions (hotels, large restaurants, hospitals, schools, and ship suppliers). They tend to be the most durable contracts, having already persisted for several years, and are likely to include some written agreement regarding an annually renegotiated price, and some quality specifications. (2) Oral agreements between producers and wholesalers, restaurants and even individuals. These are commonplace, and may also be longstanding informal arrangements. Price is almost always the prevailing market price. (3) All other contracts, which might best be described as simple business arrangements. A good example is an agreement to deliver a large quantity of live birds at a particular date for the going price. In all of the above cases the burden of delivery is upon the seller.

Although Senegal apparently satisfies many of the conditions for a more advanced level of contract farming (CF), there seems to be only limited need for CF at the present time. The market and production areas are identical and small, and transaction costs fairly low. While the market is relatively stable with respect to demand, it is indiscriminating as regards quality. Contract farming will not proliferate until the final market for poultry products grows. This growth must await (1) further economic improvement, (2) a change in consumption habits especially with respect to eggs, and (3) the possible development of an export market. The conditions that inhibit the growth of contract farming seem stable, and it is unlikely that its role will change significantly at any time in the foreseeable future.

## II. Purpose of the Study

### A. Justification and objective

The inquiry into contract farming as it is practiced among poultry farmers in Senegal is part of a wider AID-financed study into contract farming in sub-Saharan Africa. Poultry was selected in Senegal because the country is known to possess (by African standards) a large commercial sector and because it contains a well-established poultry industry. Poultry is one of the first agro-industries developed on a large scale by the private sector in most developing countries. There are several reasons for this. First, the capital investment required is typically within reach of the local investor: a few thousand US dollars will establish a basic flock of 500 layers or broilers housed in an acceptable lodging and provide the feed required to rear to the point of sale.<sup>1</sup> Second, many people have the illusion that poultry technology is simple. Poultry-raising is, in fact, a high risk activity since, in addition to having a good grasp of the technology, the successful operator also must be an accomplished manager and businessman.

Because the industry appears simple and entry costs are relatively low, amateur poultrymen often flood the market at the outset, driving down prices. A number of years may pass before the amateurs are discouraged, leaving only a core of experienced producers. In the meantime, the ability to secure reliable market outlets amidst the flood of undifferentiated products becomes vital to survival. Intense market competition marks the early history of all poultry industries, although the inherent economies of scale of the business often encourage the ultimate emergence of a few very efficient producers. This struggle has only recently begun in present-day Senegal, where there are an estimated 300 poultry operations (down somewhat from 1983, but with new recruits continuing to enter). Competition for contracts is correspondingly intense.

Whether the future industry is to be dominated by a half-dozen producers or several score hinges in large measure on the success with which farmers find contracts. This presents a number of fundamental questions. Who contracts? Is contract success important to the future structure of the industry, and how will contracting affect its growth? To what extent is the use of contracts a function of technology? What is the potential for vertical integration in Senegalese poultry-raising? What are the equity implications?

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<sup>1</sup>The broiler producer must wait 8-10 weeks and the egg producer up to 50 weeks to break even.

The identity of the successful operation is important and raises several additional queries. Will it be native Senegalese, or settlers (Lebanese), or a combination of both (and if so in what proportions)? Do the successful operators work at it full-time or part-time? What is the role played by retirees? What is the source of investment capital, and is there a need for additional sources of capital? Where do producers learn their skills? Is contract success affected by skills learned on the job, learned elsewhere, or intuitive to the person? To what extent does success depend on access to publicly supplied training? Contracts may affect the location of producers, the distribution of dependent employment, the need for borrowed investment, and finally the direction of future public policies.

The paper will examine whether the typical conditions that promote contract farming are in fact operative in Senegal. These include (a) novelty or complexity of poultry husbandry from the point of view of producers, who may require contract-supplied technical assistance; (b) whether the technology includes strong propensities toward economies of scale (which attract and promote contract linkages); (c) whether the technology requires costly or highly specialized inputs (likely to be high in import content and thus perhaps requiring the firm to attract external support); and (d) the perishability of the product--meat and eggs--which affects the urgency felt by producers to sell and buyers to store. Contract farming in the commercial poultry sector and its outlook will be examined, summarized, and explained in this context.

## B. Methodology and sources

There is at present little published material on the Senegalese poultry industry. Apart from the documentation for one donor project (AID 1974-78), which could not be found during the visit, no public document seems to exist prior to 1980, when the Government of Senegal was first considering a follow-up project, and feasibility studies were undertaken.<sup>2</sup> Official statistics are only marginally better. Available statistics only include day-old-chick imports, which are not a reliable barometer of the total level of activity but render an exaggerated picture, because mortality reduces the net flock at least 10 percent. Further, they are not a reliable indicator of the relative size

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<sup>2</sup>See Appendix D, Sources. Almost all the underlying technical background that appears in the report derives from Etude de factibilité sur le développement de l'aviculture au Sénégal, 1980. In fact, the later official documents noted in the the appendix depend in equal measure upon this report.

of the layer and broiler operations.<sup>3</sup> A poultry co-op--AVICAP--exists; it has records of membership and locations of farms. The millers have annual feed production figures, but beyond this very little secondary data are available.

The information used in this paper was secured during a four-week visit to Senegal, in July-August 1986. The principal investigator was assisted by one Senegalese agricultural economist, Ibrahima N'diaye. In addition to the government bureaus associated with animal husbandry and statistics, the chamber of commerce, the president of AVICAP, a leading miller, hotels, restaurants, stores, and the largest ship chandlery were visited. Fifteen farmers were surveyed as well.<sup>4</sup>

### III. A Contemporary View of the Sector

#### A. From 1960 to 1980

At the time of its independence, in 1960, Senegal satisfied almost all of its demand for poultry products with imported eggs and meat.<sup>5</sup> After independence the government began to encourage the growth of an indigenous industry as one part of its overall goal of increasing national self-sufficiency. A small number of producers gradually came into being; it included both Lebanese (permanent residents) and wealthy Senegalese.<sup>6</sup>

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<sup>3</sup>All of the imported chicks are sexed, and most are white leghorn. We are led to believe that both specializations--layers and broilers--use the same stock, a belief fortified by actual visits to farms. The use of an egg-specialist bird by broiler operators seems widespread and is unexplained. It is an important inefficiency.

<sup>4</sup>A list of farmers likely to have contracts was prepared from the membership list of the farmers' co-op, AVICAP. The co-op list provided only the address of the poultry farm. A questionnaire (see appendix E) was used in the actual interviews.

<sup>5</sup>A distinction must be made at the outset between poultry grown under commercial conditions, which is to say confinement, and traditional free-ranging bush fowl. Virtually all African poultry needs were, and still largely are, satisfied from this latter source. The commercial market has always been essentially urban, and consequently a European-Lebanese dominated one.

<sup>6</sup>Even a small poultryman, who has invested upwards of a thousand dollars in a 500-bird unit, is very well-off by local standards.

Domestic production slowly increased. Perhaps the best measure of growth can be found in the annual imports of day-old chicks--an input which remains entirely foreign in origin--for both egg and broiler production. In 1960 no day-old chicks were imported; by 1976 imports were 420,000. In the meantime, events in the early 1970s gave the government renewed interest in the sector.

Drought became a persistent problem, affecting the whole supply of meat in Senegal in the 1970s. Poultry came to be seen as an appealing (and relatively simple) alternative protein source, largely independent of rainfall and not needing substantial quantities of water and feed. The government took advantage of the abundant external resources that became available under the Sahel program to upgrade its ability to support poultry.

The Centre National d'Aviculture had been established at M'bao (25 miles north of Dakar) in 1962. A decade later the center became the focus of a USAID-supported project to promote poultry production. This four-year project was directed mainly at upgrading the quality of poultry management, which hitherto had been essentially self-taught. A network of ten regional training centers was set up, centered on M'bao, which gave courses directly to poultrymen and was supplemented by a cadre of extension agents. In addition, a small hatchery was established at M'bao (this is currently defunct, as vital parts are now unavailable). Since the formal end of the project in 1978, the government of Senegal has been unable to provide the recurrent budget necessary to support the program and it has gradually run down. Today the whole extension-training network as regards poultry is essentially moribund. Nevertheless, a great deal of technical information was provided, and many poultrymen interviewed trace the beginning of their commitment to this program.

Although it is committed to aggressive intervention in other parts of the economy, directly affecting prices and marketing in many particular instances, the government has never interfered with the essentially free market in poultry. Input subsidies, for example, have not been granted. From 1960 to the present, the government has left input production and supply, the production and sale of meat and eggs, and even the supply of veterinary support and materials to the private sector. To promote domestic production, public policy shifted in 1980: a total ban was imposed on the import of poultry products. This action has produced the desired effect. Following the imposition of the ban, prices for both meat and eggs, which had been stable for some time, increased 40 percent within three years. During the same period, day-old chick imports rose 50 percent (from

1,100,000 to 1,700,000 annually<sup>7</sup> Since 1983 (the last full year for available data), imports have remained high and are reported to be gradually climbing. The industry today (1986) includes some 300 producers, the majority in broiler production, with the largest tending as many as 25,000 layers, or selling upwards of 1,000 broilers weekly.

Substantial levels of production notwithstanding, the industry has not yet become fully mature. Although input suppliers can benefit from investment codes that give tax concessions on both income and the import of supplies, little impact has been registered. No domestic hatchery capacity, for example, has developed. Neither has a public animal health service been established--unlike the case in some other African countries--capable of supplying mass vaccinations to poultry. The country is, however, self-sufficient in maize for chicken feed: in only two years in the past decade have millers had to import the needed maize. And only selective additives are imported to produce a variety of specialized feeds. The level of poultry husbandry is improving and is probably equal to any in sub-Saharan Africa.

Perhaps the most serious constraint to growth remains the limited extent of the consuming market, which is located almost entirely within the city of Dakar. Consumption tends to be concentrated among expatriates (including Lebanese) in the case of eggs, and includes better-off Senegalese with respect to meat. Consumption of poultry products is currently estimated to be approximately 360,000 dozen eggs and nearly 1,000 tons of meat annually. By African standards these products are expensive. Although Senegalese consumption studies are lacking, those pertaining to other cities in West Africa (in particular Freetown) suggest that poultry products (for native Africans) are superior goods, having high income and price elasticities. These elasticities are higher for eggs than for meat, a difference that explains in part the dominance of broiler production and the large consumption of meat (relative to eggs). It also is an indication of the potentially large impact on sectoral income of any event that affects the price for poultry products.

Commercial poultry is, therefore, in the difficult position of an industry whose relevant supply and demand functions are

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<sup>7</sup>Among imported day-old chicks whose economic destinations were noted at the time, the proportions destined to become layers indicate that egg producers are in a shrinking minority: a third of the imports in 1980 were slated to become layers, while in 1984 the corresponding proportion was only a fifth. Annual imports for all day-old chicks, sexed, were: 1976, 420,000; 1977, 800,000; 1978, 880,000; 1979, 970,000; 1980, 1,100,000; 1981, 1,160,000; 1982, 1,100,000; and 1983, 1,700,000.

both elastic, but supply probably more so than demand. Because the domestic market is limited, it is comparatively easy for investors to enter or expand. The likelihood therefore exists of a widely fluctuating supply interacting with a relatively rigid demand. Prices can move more than proportionately in response to changes in supply, beckoning new and unwary investors while discouraging serious long-term growth in the industry. However, prices have not in fact fluctuated markedly in recent years, perhaps reflecting a decline in speculative entry; nevertheless, many small and marginal operations remain. Still, growth in the final market remains slow, and the major producers remain important, but reluctant to invest further.

The Fifth National Development Plan (1985-1990) calls for intensified poultry production, a doubling of the level of production by 1990. No direct actions affecting the sector appear to be included in the actual plan.

#### B. Development and role of cooperatives: AVICAP

The government initiated the first cooperatives directed at poultrymen. In 1981 several regional co-ops were set up, of which only one, AVICAP, is of any significance. It claims 60 percent of all poultrymen; they represent 80 percent of the national capacity. AVICAP was given the monopoly of importing day-old chicks into the country, although nonmembers may buy from the co-op.<sup>a</sup> The co-op was originally intended to play an important role in the marketing of poultry products, and a network of 150 outlets was envisaged. Operations on this scale have remained chimerical; lack of capital has allowed the co-op to open no more than one kiosk in Dakar.

#### C. The trend toward concentration

Poultry is an industry that is usually marked by rapid concentration of production among a very few efficient producers, a process that has not yet begun in Senegal. At the time of writing there are an estimated 300 active producers, 80 percent of them concentrated in the arrondissement of Cape Vert, supplying the only important market, Dakar. This is up from 160 in 1980. They are about evenly divided between broiler and layer operations. Most operators were small: only 6 broiler operators produced upwards of 1,000 birds weekly, and only 20 egg producers had more than 5,000 layers. Their continued presence has a profound effect upon the maturation process. A small number of large firms function and profit, but the evidence suggests that the rate of return to investment in the sector is low. This is

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<sup>a</sup>This monopoly has been relaxed in recent months.

due in part to the pattern of entry by small operators, who set up 500-bird units, and later sell them off, collectively serving to depress the market for all. An example of this can be cited from the early eighties, when the chef d'élevage, in an announcement made on public radio, stated that anyone could make 300 CFA per broiler. This is believed to have encouraged some 400 persons eventually to enter production, causing such a glut on the broiler market that many birds had to be dumped into the sea. The financial effect on normally profitable firms must have been ruinous.

#### D. Propensity toward vertical integration

Commercial poultry is an industry usually marked by a strong propensity toward vertical integration. The commonest pattern of integration is for feed producers to begin to take over poultry production. This process is encouraged when the industry is dispersed and the miller attempts economies in the distribution of a bulky, low-value product. In the case of Senegal, the economic geography is quite different: millers, poultrymen, and consumers are spatially concentrated in Cap Vert. Millers show no present interest in becoming poultrymen.

Poultrymen are beginning to internalize several activities within their own businesses, for example, slaughter and dressing of broilers, and distribution to dealers.

Kassak (located in St. Louis, 150 miles north of Dakar) is an excellent example. Large, well-established, and widely respected, the firm is able to trade poor location for efficient management and good service. Kassak supplies the well-known supermarket Score, with whom it has a written contract for 6,000 eggs and 100 dressed chickens weekly, at a negotiated price. The firm seems to be a large-scale example of typical well-run poultry firms: they negotiate for outlets, but the relationship seems to go no further.

Two more vigorous instances of vertical integration can be demonstrated. A major buyer of poultry products, Demel, is the largest ship chandlery in Dakar, supplying food (among other things) to ships. A major contract client is the Russian South Atlantic fishing fleet, which is based in Dakar. Demel has a contract to provide the fleet with all of its poultry needs. The contract provides that Demel supply a given number of frozen birds and eggs, but with little specification as regards quality. Demel would not divulge the volume of demand, but it is evidently sufficiently large that the firm set up its own poultry farm and processing plant.

A second example is the Lebanese agrobusiness firm, Filfili. A long-established family in Senegal, Filfili has created a

modern irrigated farm on 700 hectares of former sand dunes, bought 15 years ago. The farm supports a prosperous multi-enterprise agrobusiness (AGROCAP), which includes four supermarkets. Poultry is among the enterprises. In addition to eggs, chickens are reared, slaughtered, dressed--a portion are frozen--and sold through the system. Filfili mill and mix their own feed, and they are now importing their own chicks, thanks to a special concession from the government. The poultry operation is not expanding, however. Filfili feels the returns are insufficient, as the market is saturated much of the time.

#### E. Summary

The Senegalese commercial poultry industry appears to be well established. A core of profitable larger-scale operations exists; these firms effectively use modern husbandry techniques. Although good layer stock is used, broiler operators are seriously hindered by their continued use of ill-suited stock. While there is market that is sizable by African standards, it is one easily saturated with the commodity. Only gradual growth is foreseen. Little propensity can be detected at the present time for the sector to begin to integrate forward or backward. A common source of vertical integration, the feed industry, finds poultry the least remunerative line open to it. Similarly, large-scale poultrymen see little scope for further investment. There is little present evidence of concentration of production among a few producers. Market opportunities for individual firms can be elusive, thus many suppliers seek enduring links with their market outlets. It is to this dimension that we now turn.

### IV. Contract Poultry Farming: Present Status

#### A. Contract farming, an overview

Senegalese poultrymen have been actively arranging contracts between themselves and buyers for a long period. It is probable that formalized arrangements between seller and buyer date back to the beginning of the industry, or as soon as the convenience of the practice became evident. Three examples of long-lived contracts illustrate this longevity.

One of the country's largest producers, Kassak, has maintained permanent oral contracts, supplemented with annual written ones,<sup>9</sup> with two of Dakar's major hotels, Teranga and Novotel, for a decade. The contracts commit Kassak to supply the Teranga 1,080 eggs and 120 chickens weekly. Eggs are to be large in size and brown in color; chickens, cleaned, dressed, and

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<sup>9</sup>In these, the following year's price is agreed.

chilled. Essentially the same contract is in effect with the Novotel, calling for 30-80 birds weekly and 700-2,000 eggs. A similar contract, which has been in effect between the Hotel Independence and M. Abdoulaye Sow since 1976, is oral and has committed him to supplying 300 eggs and 20 chickens weekly to the hotel. These long-term contracts are marked by annual price negotiations, which give the producer a price that typically is slightly lower than the current market price, the seller trading short-term price advantage for long-term market stability.

A number of larger producers have negotiated and sustained contracts with various institutions, including hotels, army, and schools, which appear to follow much the same terms as Sow has made with the Independence Hotel. Most appear to be oral. An additional example is provided by the Pasha restaurant, which has bought 20 chickens and 300 eggs every week for the past ten years, following the terms of what is described as a "loose" oral agreement with a former minister, M. Sidebe, which is updated annually.

A written contract is exceptional, and copies, where they exist, are difficult if not impossible to obtain. Poultrymen, however, are not hesitant to talk about their contracts, if only in general terms. In addition to being typically oral, other aspects stand out.

There are no recognized official standards in the trade. When quality is desired the guidelines are expressed loosely. Eggs must be "large," chickens "clean." Color, in the case of eggs, and weight are often specified.<sup>10</sup> Candling is never done, and the market is indifferent to blood in the yolks.

No case has been found to suggest that conventional buyers, hotels, etc., involve themselves in any way in the production process. Inputs are not provided. Production requirements or guidelines are unheard of (with the exception that some hotels require producers to maintain clean facilities, verified by a note from the chef d'élevage). One exception is the case of the Marika poultry farm, operated by M. Lefevre, of CARITAS. His operation sells birds directly to individuals with whom he has written contracts to provide a weekly supply. Lefevre employs salesmen who function rather along the lines of an Amway agent, actively selling purchase agreements almost on a door-to-door basis (see appendix B for details). The volume of business is

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<sup>10</sup>The color specification was reported with considerable consistency. Consumers, and therefore stores selling directly to consumers, seem to prefer white eggs. Hotels, or more to the point, cooks, specify brown eggs, arguing that the shell is stronger or that these are, for some unspecified reason, better for baking.

sufficient that Marika needs production in excess of its own, and to meet this need has arranged subcontracts with six poultrymen to function as out-growers. The company helped them get into production, provided credit and technical and hygiene advice, and agreed to buy their output.<sup>11</sup>

#### B. Who contracts and why?

The poultry industry today is a buyers' market; sellers contest limited turf. In such circumstances, from the point of view of the seller, a contract makes sense. No one knows how many (or what proportion) of the committed poultry operations engage in contract marketing. The evidence suggests that many producers want to arrange contracts, indeed there may be more poultrymen in search of a partner than potential partners.

There are relatively few institutions--hotels, restaurants, and the like--relative to the number of eager producers, who must turn to public markets, small stores, or traders, or attempt to sell from the farm gate. These options are not mutually exclusive: some try all, some, or one. As noted above, one exceptionally enterprising firm, Marika, has taken contracts to the ultimate consumer.

M. Aboubacar N'gom, an important Senegalese farmer, argues that a direct oral contract with one or a few 'banis-banis' (wholesale traders) is best. He is a full-time poultryman with 4,000 layers, who has carefully cultivated his links to a few important wholesalers to the point where he is now their principal supplier. One advantage of this is that he can quickly arrange small loans from them against future deliveries. N'gom also finds the personal links a great help; when the market is down, he can count upon an outlet. These advantages notwithstanding, this sort of link was not favored by most producers as a first choice. What is desired is a firm contract with an institution. The principal reason given is 'security'.

#### C. The tendency toward opportunistic behavior

There is no particular tradition in Senegal regarding the sanctity of the contract, whether oral or written, and with the present value placed on money being high, contracts are likely to

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<sup>11</sup>Lefevre sees himself as something of a philanthropist. Apart from being the only poultryman interviewed who not only insists upon written contracts but claims he is willing to go into court to enforce them (as a last resort), he also sees himself as having a duty to uplift where it is possible and profitable. Helping young poultrymen is one way.

be broken even at the cost of a longer-term relationship.<sup>12</sup> Among Senegalese, there exists a strong, and certainly widely reported, propensity to engage in opportunistic behavior, which includes breaking a contract whenever it appears in one's interest to do so. When both partners behave in this fashion, the value of the contract degenerates into little more than a right of first refusal.

It is apparently unheard of for a contract to include a clause providing for unilateral termination contingencies, or compensation. The concept of contract enforcement is alien. Recourse to legal action following violation of contract is rare. Whether unseen actions take place, using traditional media, is unknown and certainly not talked about.<sup>13</sup> With this history in mind, and since most contracts are not binding, one wonders why buyers or sellers resort to contracts at all.

It appears, however, that poultrymen who are full-time, who have a great deal depending upon their investment, and who have been in the business long enough to know that poor years follow good years, take their contracts very seriously. And, reputation notwithstanding, no farmer or buyer was found who admitted personally to having broken a contract, although all felt it to be commonplace.

The market for poultry products today (1986) is a buyers' market. Under such circumstances it is in the sellers' interest to honor scrupulously their agreements. Producers eagerly seek long-term arrangements, even discounted below current price. But will they live up to these agreements when (and if) a sellers' market appears?

It is possible that only producers who satisfy certain criteria are likely to be in a position to engage in contract

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<sup>12</sup>This may be one reason why Lebanese poultrymen are more prone to use the written document: it fits within their tradition.

<sup>13</sup>In eastern Nigeria such a violation traditionally could have serious repercussions. On some occasions the aggrieved party was known to call supernatural forces into play through witchcraft. In other societies more direct social action has been used. No recourse to either of these options, or to any others, was detected in Senegal. Perhaps the likelihood of default is discounted at the outset. Lefevre is unique among farmers interviewed in his willingness to admit and tackle the contract problem. But his background is untypical. He is half French and had a French wife. Although a Senegalese national, he worked abroad for years in France and Martinique.

production. These include (a) access to a telephone, (b) access to a small truck, and (c) having sufficient funds to be able to wait months for repayment. In addition, poultrymen have to be fairly close to the Dakar market to remain competitive (obviously the town of Kassak is a major exception).

Farmers themselves generally confirm these criteria. One has to be a person of means to support a contract trade. A typical concern, reflected by almost every farmer, with or without contracts, is that of having to wait for payment.<sup>14</sup> The probability of late payment seems to be a major consideration in planning marketing options. Often the buyer will not pay on delivery but at a future date, which may be six months. Many cannot afford to wait and still service current accounts. Thus many producers who are potential partners have excellent grounds for suspecting that there is less to gain in contracts than meets the eye.

In practice, the criteria make the contracting farmer a member of a very exclusive club, granting that the typical poultryman is a very untypical Senegalese to begin with. Only exceptionally will a poultryman be the owner of a vehicle or have access to a phone. Tardy payment for supply makes the ability to wait perhaps the most critical and discriminating criterion. In sum, only the larger poultryman is likely able to engage in contract supply. Who then can afford to take contracts?

#### D. The modal contract poultry farmer

The modal (typical) contract farmer is a male Senegalese, in his mid-forties, with a broiler operation in five to eight poultry houses on one hectare of land, who has an oral contract with one or more outlets (possibly an institution) and has access to a small truck and phone. He sells at least 1,000 broilers every two weeks. It is likely that his primary work is with the government. He does not live at the farm site. The farm is less than 50 miles from Dakar and in all likelihood much closer. It is less likely that he has a specialized layer operation--a 20 to 30 percent chance--but if so, he has 5,000 layers. It is

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<sup>14</sup>Although the largest producers typically have--and jealously nourish--contracts, at least one exception is M. Hajjar, a Lebanese who operates a 4,000-broiler farm on the main road east of Rufisque. M. Hajjar says he does not want the bother of having to honor long-term arrangements (he is 65) and is content with a well-established clientele of individuals with whom he has established informal understandings over the years. He delivers processed birds to his clients or sells from his farm.

unlikely that the farm has both. The farmer has learned his trade either through a government training center or on his own. He keeps records, but may not know how to make best use of them.

There is a numerically small but important subgroup of poultrymen, often of Lebanese origin but usually Senegalese citizens of long standing. Whether or not they are full-time poultrymen, they are large-scale businessmen, good managers, and typically resident at their farm. These farms are most often multi-enterprise entities and poultry is only one of several important lines. With the somewhat exceptional case of the Hajjar farm, these farms have regular commercial links, based on a written contract, probably with other Lebanese-owned firms. Social pressure alone would argue for a high degree of scrupulous attention to contract terms.

#### E. The role of contract intermediaries - AVICAP.

Poultrymen who do not choose to, or cannot, engage in contract sales may use the marketing capacity of the producers co-op, AVICAP, as a sales vehicle. Almost all large producers are members. Until 1986 a strong membership incentive had been AVICAP's monopoly on chick imports: although nonmembers could order through the co-op, members felt at least they received priority attention.

In theory at least, AVICAP is able to provide technical assistance and marketing assistance, in addition to chicks. The reality is somewhat different. AVICAP has had a difficult time securing all the chicks ordered by its members. It has practically no technical assistance to offer. Moreover, its chronic undercapitalization has precluded the establishment of a network of outlets. At present only one retail outlet managed by AVICAP functions, but it does take both eggs and birds.

Nevertheless, some poultrymen--an estimated 20 percent of the membership--use the co-op as their primary outlet. The cooperative reports that it is the middle-scale producer who tends to use its service. Mme Arame Diop (1,000 broilers), one of the few female operators, prefers the co-op because she feels more secure with it.<sup>15</sup> Payment is relatively quick, and in principle should be, at least in part, on delivery to the co-op. The co-op charges a fee for its service: 100 CFA per tray of 30 eggs (about 10 percent of the market value) and 50 CFA/kg for broilers.

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<sup>15</sup>However, she supplements this with arrangements with one or more traders.

## F. Summary

The Senegalese market for poultry products is typically saturated with a large volume of undifferentiated eggs and broilers that supply a slowly growing and undemanding body of consumers. This sort of market can function effectively so long as (i) demand remains relatively homogeneous, (ii) production cycles are short (and the potential rate of response, high), (iii) there is little concern with the precise timing of deliveries, and (iv) the market remains stable and well understood by all participants. Buyers in such circumstances find that the spot market is able to satisfy their needs and there is no reason for them to tempt producers with offers of credit, inputs, technical assistance, or whatever. Buyers also are under no pressure to attempt contract relationships that involve much more than the promise of first option. In consequence, it is the exceptional producer who is able to build long-term linkages with buyers; the rest scramble for markets, which can be difficult to find and service.

To be successful, producers must be able to compete on grounds of service, respond quickly to demands, deliver the goods, and then wait for payment. The realities of the situation give great advantage to poultrymen who have access to means of communication and transportation and who can wait for payment. This group is almost certainly a minority of the AVICAP membership--which includes all of the potential contract farms--and likely no more than 100 can hope to compete. Of this group, fewer than 50 are in the above 10,000 layer or 5,000 broiler bi-weekly class. The others must either supply very local markets or take their chances on the spot market.

## V. Contracts: Terms and Provisions

With one exception,<sup>16</sup> none of the persons interviewed for the study was prepared to produce a copy of his/her contract, completed or blank, which implied that the details were too private. Poultrymen and buyers were ready to talk about their contracts' provisions, however, at least in general terms. In the event, what was found conformed in large measure to what had been reported as common practice. Contracts between poultrymen and buyers appear to be very similar and reflect one underlying truth: the advantage in the trade lies on the side of the buyer. Unless a buyer has a particular need, such as an institution that must count on a reliable inflow of supply, it is in his/her interest to keep the contractual relationships loose. Contracts

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<sup>16</sup>The contract drawn up between Lefevre and his customers, which is included in annex F and discussed in detail in Annex B.

faithfully reflect the comparative strength of the actors; in this case, the relative weakness of the producer of poultry products is clearly revealed.

#### A. Oral versus written

It is likely that in excess of 90 percent of all contracts agreed to by Senegalese poultrymen and their market contacts are oral, at least at some stage in their relationship. Cases were found, such as Kassak and Sow, where the original contract had been oral and subsequently was supplemented by annual written contracts in which the current agreed price was spelled out.

It is believed, if not demonstrated, that Lebanese are more prone to insisting on basic written agreements, but at least one exception was found (that of Hajjar, noted above).

#### B. Duration

Information is rather vague on this point. It seems that written contracts may cover up to a year or across a perceived price cycle. Oral contracts appear to be indefinite arrangements whereby the buyer agrees to give first option to the seller at a price to be agreed at the time of exchange. Only the larger, and possibly more sophisticated, producers follow the two-tiered plan of Kassak: a long-term oral agreement, possibly open-ended, supplemented by annual renegotiation.

#### C. Terms

The typical contract, for either eggs or meat, includes subjective quality guidelines, and specifies that particular quantities be delivered at a certain time by the producer; it may or may not include a price formula. With the exception of health, no contract arrangement has been found where the buyer specifies conditions of production or provides inputs, credit, or technical assistance.<sup>17</sup>

#### D. Price agreement

The typical contract states that the price will be that prevailing at the time of delivery of the product, in other

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<sup>17</sup>The unusual case where a producer (Lefevre) provided technical help to subcontractors (which included production guidelines) is so limited (6 small producers out of 300) as to be statistically insignificant.

words, the spot price. Only the exceptional contract specifies a particular price (or price formula) for a given period of time. Participants were not willing to explain the details of the formula used in their particular case. Arrangements appear, however, to be based on a projection of the average performance of the recent past, and this calculation typically yielded a price slightly below the spot price at time of delivery.

#### E. Allocation of risk

As presently constituted, contracts in the poultry sector shift little or no burden from producers. In the context of the normal buyers' market, wherein producers compete for a limited number of reliable outlets, buyers are under little compulsion to assume any risk. The cost of market search is borne entirely by the producer. Even where an institution such as a hotel was prepared to offer a year-long price, it retained the option to buy substantial quantities outside of the contract. An exclusive contract appears to be very exceptional.

Contracts do not have any provision that would share flock losses with buyers. Farmers, therefore, cannot shift production risk forward onto buyers by means of contracts even when the flock is entirely destined for a particular buyer.

Contingency clauses seem to be unknown, and contracts do not provide any compensation for early unilateral termination of a contract.

#### F. Summary

Senegalese poultry farmers are widely familiar with the use of contracts even when they do not contract themselves. Indeed, certain groups appear to make extensive use of contracts. The typical contract involves the delivery of a shipment of live birds or trays of eggs by the seller, subject to subjective standards that hinge on acceptance by the buyer, at the spot-market price.

Contracts are limited almost solely to the terms of exchange and do not at present serve to reallocate risk, promote integration, or significantly influence the quality of product or mode of production.

### VI. Contracts: Effects - Benefits and Costs

Contract farming in Senegal, however widespread as a practice, appears to operate in a more limited range than might

have been expected in a country that is in many ways highly commercialized. Senegal has a rich history of commercial exchange; trading is an accepted and widely practiced activity. Commercial production and sale for profit has been known in western Senegal for at least a century. In the city of Dakar, Senegal possesses one of the most developed urban centers in Africa, and a large consumer population. Yet, an examination of the role of contracts in commercial poultry strongly suggests that the mechanism has had little effect beyond regularizing the marketing of a hundred or so well-located and better-off producers. This limitation is thrown into relief when considered in various particulars.

#### A. Effect on product quality

Contracts do not at the present time appear to have any appreciable effect upon quality. Grading of eggs, for example, consists of little more than supplying the hotel trade with above-average size brown eggs. A shopkeeper will ask for white eggs of "at least average" size. Concerns of North American consumers, in particular blood in the yolk, are not reflected in Senegal. Broilers must simply be clean and nicely dressed.

The expatriate trade apart, at present little discrimination is expressed, through prices, as to quality in poultry. It is probably fair to say that the African market looks upon chicken as simply a relatively cheap meat commonly used in stew. In such circumstances there is limited scope for the development of a discriminating market that can express itself through contract requirements on producers.

At the present time the Senegalese market is not so broad that special needs must be met. A beginning has been made where a market exists for frozen birds (for the trawler fleet), which Demel has met through full vertical integration. The standards set forth by hotels are essentially subjective--large, clean, nicely packaged. In such circumstances the essential technology to produce is available to all, so that even the newest, least experienced producer can put out an acceptable offering.

#### B. Effect on production decisions

There seems to be little interest on the part of buyers to use contracts to influence production methods, with the exception of the Marika operation. No other instance was reported where a buyer attempted to influence the method of production or the type or quantity of an input used. Inasmuch as levels of input purchased are a function of scale of operation, contracts can be said to have an indirect effect upon costs of production. The phasing of costs and the ability to plan long term are important

arguments advanced in favor of the contract. Contracts may, moreover, affect scale of production and thus have an impact on economies of scale and profit.

#### C. Effect on input supply and suppliers

There is no way of estimating whether contracts have affected the total volume of poultry products supplied in Senegal. It is likely that the assuredness of a market provided by a contract has influenced the decision of some individuals to produce and their choice of quantity (but not the actual technology selected), which in turn has affected the magnitude and timing of input purchases.

Perhaps the most significant commentary in this regard concerns what has not happened: although annual imports of poultry stock may now approach 2,000,000 day-old chicks, no domestic hatchery has grown up. Were there an indigenous Senegalese hatchery sensitive to particular needs of the poultrymen--a better broiler stock for example--it is possible that contracts might reinforce farmers' natural desires to increase incomes through the use of specialized stock.

The effect of the industry on maize producers, almost all concentrated in the upper Casamance, appears to be minimal. No contracts have been let out by the millers, who can buy all of their needs (1,000 tons) in the market.

#### D. Effect on distribution of risk

Contracts cannot be said to have had any appreciable effect on the distribution of risk or its reduction. The concept of allocation of risk between contract partners proportionate to individual exposure resulting from their agreement remains unknown. Even written contracts between those most involved with formal contracting modes, hotels and the Lebanese, do not appear to include any provision for compensation in the event of a contract's being broken by either partner. Neither are contingency features included. Simply put, the farmer bears the full burden.

Risk can, however, be looked at another way, namely, with respect to the effect of a contract on the variation in income as a function of a fixed price. A fixed price can be risky to the producer in an upward-moving market: if there is an increase in the demand for eggs, the market price will rise if supply is not perfectly elastic. But producers who have contracts specifying a fixed price will lose out on this increase (as they would if the market price rose because a decrease in supply raised the price). Of course the converse is also true: the fixed-price contractor

is better off if a decline in the demand for, or an increase in the supply of, eggs causes the market price to fall; his contract would insulate him from the risk of a decrease in income. The fact that there are comparatively few fixed-price contracts suggests that this risk has been little affected one way or the other by contracts.

#### E. Effect on new investment decisions

The same argument applies as in the case of input supply. The presence of a long-term contract may encourage the holder to increase his scale of operation if the projected volume of sales justifies it. And it is possible, but not demonstrated, that the likelihood of a contract may encourage a person to enter the industry.

#### F. Effect on producers of differing ethnicity

The bulk of producers are Senegalese (and apparently Wolof), although many important producers are Lebanese. The latter group certainly is more likely to seek out formalized contracts. But Senegalese, too, have sought contracts, even though these are likely to be less formal and binding. A number of Senegalese are being introduced into modern commercial relationships and production by poultry, and possibly by the obvious advantage of having established markets.

#### G. Spatial effects

The presence of the Dakar market shapes the economic geography of commercial poultry in Senegal. The spatial concentration of millers, growers, distributors, and consumers may discourage the trend towards vertical integration. Few producers located beyond Thies can compete with those closer to the city; an exception is Kassak of St. Louis, which combines large scale with what is apparently very good management. It is unlikely that the market access made possible by a contract could of itself offset basic advantages of location.

#### H. Effect on income

Producers argue that contracts have favorable effects on market access and production planning. They rarely argue that prices received are higher than would be otherwise received on the spot market, but they appear to believe that a stable income is better than a higher but more risky--that is, more volatile--one.

For those producers who have obtained and kept long-term contracts that include a formula to compute the price, regardless of short-term shifts, it is possible that long-term average income is greater. Producers consistently reported a willingness to trade off income for some security, and it is arguable that a producer who has a contract that results in variable income but reliable access may be better off in the long run.

Income is also the product of job creation. Poultry production does not demand large quantities of labor, however, a characteristic that constitutes an important source of the sector's remarkable tendency toward economies of scale. Furthermore, the labor that is required can be unskilled if properly supervised by the owner.

Nothing can be said of the impact of contracts on new jobs except to the extent that they encourage new entry and larger operations. In the latter case, the impact has been minimal. Only when the poultry enterprise adds slaughter as an activity will actual demand for labor rise.

#### I. Summary - net benefits and costs

It seems fair to say that contract farming, restricted as it is to the marketing of poultry products, has had very limited effect on any dimension of the sector or the wider economy. Perhaps it is premature to expect much impact, given the sector's recent creation: indeed, it has been only six years since government granted the industry full scope to grow by the imposition of the import ban.

Thus, a list of benefits and costs presents meager reading. The sector exhibits no visible cost impact deriving from the use of contracts to date. The negative side, therefore, may be close to zero. What of benefits? It can perhaps be argued that contracts are introducing some additional, and badly needed, modern dimensions to producers just entering the commercial sector, and that some marketing uncertainty may have been reduced.

### VII. Conclusions

If contract farming is taken to mean production carried out according to an agreement between producer and buyer that places conditions on the production and marketing of the commodity, then contract farming has not developed very far in the Senegalese poultry industry. Neither is it likely to grow much in the foreseeable future: the factors responsible for the present situation seem stable. No important degree of buyers' influence

on production can be found. Additionally, conditions on marketing imposed by contracts are typically so unrestrictive as to represent only a short step beyond simple spot marketing. Furthermore, producer behavior is affected so little by contract terms, and the degree of reported opportunistic behavior is so great, that the practical effect of the contract is very limited.

Data are lacking to provide a definitive answer as to why contracting has not evolved more in Senegal, but some possible explanations can be advanced. Certain economic and other conditions promote the use of contracts, but it must be underscored that there is little economic incentive in the Senegalese economy to produce poultry products under contract as long as there remain no serious limitation on market information, no lack of supply of inputs, and no more demanding final market. Finally, the economic geography of the matter--the close proximity of all actors in the Cap Vert area--acts to discourage the growth of contract farming.

When a technology is new or complex, producers are likely to seek contracts with buyers who are in a position to offer technical assistance, usually through private extension agents. Are there buyers or suppliers in Senegal capable of, and interested in, promoting this sort of contract relationship? On the demand side the answer is clear: few buyers of eggs and chickens are able to offer technical assistance. Lefevre does, but on a very modest scale. It can be argued that Demel and Filfili might be able to engage in this sort of contract, but they have chosen to integrate vertically rather than depend on contract links. On the supply side, millers, elsewhere frequent leaders in vertical integration, are completely disinterested. Poultry simply does not pay well enough to make the effort.

When a technology displays powerful tendencies toward economies of scale, with the accompanying flood of output, there is a strong propensity for producers to seek reliable contract links. Poultry is certainly an industry with strong, and usually early, tendencies to economies of scale. Good managers are able to spread basic inputs--labor, housing, management skill, other capital goods--over a very large number of birds without having materially to increase their basic investment. Such a level of production sends a substantial volume of product onto the market. Unless the market is very much larger than is the case in Senegal, the large-scale producers must seek reliable market outlets. Firm, long-term contracts are the only feasible choice for these producers, and they have indeed taken the lead in establishing outlets that are as reliable as possible under the circumstances.

When a technology demands large quantities of costly or highly specialized inputs, producers may seek these inputs on a reliable basis, often through contracts linked with delivery of

the product. Poultry has no less than three such inputs-- veterinary support, feed, and chicks. Once again, no Senegalese buyer of poultry products is so needy of the product(s) as to have to supply inputs to satisfy its requirements; the only known exception is Marika's establishment of a small out-grower system. Similarly, millers do not find the sector sufficiently profitable to attempt forward links with producers.

Poultry products are perishable. Broiler producers cope by delivering live birds, but the situation is more complicated in the case of eggs. In periods of large deliveries of eggs and low prices, the dealers' demand for eggs is added to consumer demand; this keeps prices from falling as low as they would in the absence of purchases for storage. Dealers buy eggs on contract when they believe prices will rise in the future. Given the problems of shelf life, inventory is often better managed through contract, storage in effect being accomplished through the price mechanism. This is the pattern now found in Senegal for eggs.

If the number of producers dwindles to a handful, possibly accompanied by substantial degree of vertical integration, it will be in the long-term interest of both buyers and sellers to work out more comprehensive contracts. Alternatively, when the market grows to a point where there is a return to investments in product quality, or particular needs must be satisfied, it will also be in the buyers' interest to demand more binding contracts.

The fundamental problem that seems to underly the lack of development in the use of contracts beyond that of simply securing supplies is the limitation of the final market--both in absolute terms and in terms of the demand for quality. Senegalese poultrymen have already reached high levels of production. Producers can now swamp the market. Rates of return to investment may have fallen below opportunity cost. Still, the appearance of easy money draws investors, who set up small, short-lived operations, which effectively depress the market for the others. The ease of production leads to an average overproduction sufficient to provide little incentive for buyers to attempt more ambitious contract arrangements.

The final market is not likely to grow much beyond that dictated by urban growth and income. Incomes have been depressed in Senegal for years. Indeed, they have been falling in real terms since the late drought years. Income-sensitive commodities like poultry products are the first to feel the pinch. African consumers make little use of eggs, which are consumed almost entirely by expatriates or Lebanese. The egg market is therefore closely linked to the prosperity of the tourist industry and the presence of foreign residents.

The market for broilers is directly affected by the parallel supply of African bush chickens. In addition, there are close

substitutes, such as fish. The African market is not discriminating in terms of quality. Only the comparatively small elite sector, which demands frozen chicken parts or dressed and chilled broilers, places any quality demands on producers, and these are easily satisfied. There seem to be few grounds, therefore, for the growth of contract farming beyond its present state in Senegal. Such growth is unlikely until the market is both larger and more sophisticated in its demand for quality.

The government of Senegal has followed a policy of benign neglect with respect to poultry as compared to other food production sectors. Inasmuch as consumption is in large measure dependent on income and poultry products are superior goods, governmental intervention is limited to the promotion of these products under the rubric of nutrition and health. Changing public attitudes toward egg consumption, for example (see appendix A, 3.), could greatly increase African consumption of the product, especially among the young.

Significant development of contract farming will not occur until a larger and more discriminating final market comes into being. This can come into existence as the consequence (jointly or separately) of (1) economic growth, (2) a change in consumption habits and, (3) the creation of an export market. Inasmuch as none of these conditions is likely to happen at any time soon, contract farming in the poultry industry cannot be expected to expand in the near future.

## APPENDIXES

### Appendix A. The Quality of Husbandry

#### 1. The underlying biology and the importance of stock

Animal husbandry involves the economic management of living creatures, which are supported up to the point in their lives when the cost of additional support exceeds the additional value of their product, which, in the case of poultry, will be meat or eggs. The birds convert feed to these products at an efficiency determined by their species and age. Profitable commercial poultry depends on the use of specialized stock. For broiler stock, the farmer can count on a breed that matures to market quality in as little as 8 to 9 weeks, producing 1 to 1.5 kg of meat, and which may require 2.5 kg of feed. If, for some reason, the farmer uses a nonspecialist bird, such as a Rhode Island Red, maturity may come as late as 12 weeks and require 3 or more kg of feed to produce 1 kg of meat.

In the case of layers, with egg specialist stock (such as white leghorn) egg production begins after 20 weeks of age, rises to a maximum rate of lay at 30 weeks, and then declines gradually to the 60th week, when farmers typically dispose of the flock.<sup>1a</sup> Feed-egg conversion mirrors the rate of lay, becoming at first more efficient, then, after the 30th week, slowly declining to a point--about the 60th week--at which the cost in feed per dozen eggs becomes excessive.

Senegalese broiler farmers do not typically appear to be using broiler stock. Rather, their operations seem largely dependent on French leghorn stock. This implies that they are using more feed than necessary per kg of meat produced, and likely having to hold the birds a week or two longer than a specialist breed would require.

The major cost in poultry production is feed, which represents 70 percent, and in some cases more, of the total cost of production. Several Senegalese farmers reported feed to be 80 percent of their total production costs. The use of improper stock could be an important source of this extra cost.

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<sup>1a</sup>All chicks imported into Senegal are sexed, which means that egg producers do not have the problem of rearing and then having to sell off male chicks (which is sometimes attempted as a secondary line of activity).

## 2. The technology of commercial poultry production

Virtually all Senegalese commercial poultry are kept under confinement on deep litter. There is no reported use of battery cages, although the technology is known. Any house can be a home to poultry so long as it is dry and well ventilated. For the most part, the houses visited in the present exercise satisfied these criteria, although many appeared excessively costly. Cost of housing is the single greatest out-of-pocket expense in entering the poultry business (in this instance CFA 300,000 is a reported minimum).

Birds kept on deep litter must be well watered and properly fed, in addition to being maintained in a healthy condition. Owners look after the vaccinations and health program for their flocks; the needed materials are imported and sold through private outlets. Unlike the situation seen in other West African countries, most notably Nigeria, the attending staff seem attentive to their charges: no empty water troughs were seen and little spilled feed was observed. This last reflects the use of good feeders, which cannot be upset.

Little evidence of cannibalism or serious pecking was observed. De-beaking is practiced. At least one producer uses 'spectacles' for his birds to discourage pecking, a fairly sophisticated practice (the eye covers are locally available, suggesting wide demand).

Birds are typically culled. This appears to have become a routine practice only in recent years. And birds are kept in flocks, uniform as to breed and age. This too appears a recently learned practice, as only six years ago it was not widespread.

The fact that the above practices are both generally known and utilized suggests that from a technical point of view the industry is growing on sound foundations. It implies that most poultrymen are aware of good practices which, when adopted, can raise the competitive capacity of the operation.

Farmers can improve their performance only when they have some standards with which to measure individual performance and some method by which flock-specific measures can be taken. This requires flock record-keeping. Here again the Senegalese farmers appear progressive. All of those spoken to kept records with which they could calculate rates of production and feed-egg and feed-meat ratios, with respect to age. What many could not do, it seems, is effectively interpret the numbers. When asked, more than a few poultrymen gave theoretical rates of production rather than their own, even after accurately describing their record

systems, which ought to have produced the necessary figures.<sup>19</sup> There is clearly much room for improved poultry management, even among the better established operations.

### 3. The economics of commercial poultry production

Commercial poultry production is a very management-intensive activity. Given this, and the industry's propensity toward economies of scale, it is not surprising that individual firm performance varies greatly with respect to the sector's average cost function; a wide scatter of individual firm observations should lie about any statistical average variable cost (AVC) that could be calculated. There are scores of significant sources of cost: for example, the loss of birds just before the point of lay or sale (the living must pay for the dead, which puts into relief the vital importance of good health support); the slow rate of growth to maturity for any cause; waste of feed for any reason; poor watering (a day's thirst can stop lay for a week).

In broilers, the inability of the firm to find an outlet for a flock at point of sale (aged, say, eight to nine weeks), means that the farmer has to support the flock. It is likely, under competitive conditions (and especially when non-specialist stock is used), that even a few extra days means net loss. If the final price is simultaneously being driven down by others dumping flocks (an important source is exhausted hens, being disposed of at 60 weeks of age; these weigh about 1.5 kg, are very suitable for the stew pot, and are sold for whatever the market will accept), his/her situation worsens. If (s)he routine cannot sell in the tenth week, the operation will go out of business.

Similarly in the case of layers. Fewer poultrymen go in for egg production: the rate of capital turnover is much slower, the risk of loss greater as flocks are kept longer, the sensitivity of layers to stress affects lay, etc. A 10 percent mortality of stock prior to lay can make the difference between profit and loss. Once in production, the flow cannot easily be controlled. Eggs can be kept unchilled only for up to a week under proper conditions and still be usable as table food. Few farmers have the capacity to hold stock; egg gluts are a commonplace occurrence in West Africa, as farmers try to unload production.

In each instance, meat and eggs, good management is vital if the farmer is to stay competitive, but even then, to survive (s)he must find timely and regular outlets for the product.

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<sup>19</sup>Poultrymen give out widely varying guesses as to the egg-laying potential of their white leghorns, to give an example. These range from 200 to an unbelievable 380 eggs per year. The accepted figure for the breed is about 220.

Poultry producers must contend with a number of factors which--if not overcome--can wipe them out. In fact, most, perhaps 90 percent, probably will not survive five years. Entry charges--house, 500 broilers, and 10 weeks of feed alone amount to several thousand dollars (estimates vary so widely and are the product of so many local factors that a number is misleading), and a layer operation is higher yet--mean that both amortization and operating costs are not insubstantial. Investment costs will rise if the farmer attempts to expand the operation to attain future lower unit costs. One large farmer says that he costed-out a full 5,000-layer scheme for bank consideration, and that the full cost to enter, not including land, was CFA 22,000,000 (above \$60,000). (This assumed top-of-the-line housing.)

Perhaps the most serious problem facing the industry--and individual poultrymen too, although they can do little about it--is the limited final market. The market consists essentially of a share of the one to two million inhabitants of the arrondissement of Cap Vert (and Thies), which includes 60,000 non-native permanent dwellers and 10,000 transient expatriates.

No systematic study has been made of Senegalese food habits or poultry consumption, but certain aggregate tendencies have been deduced.<sup>20</sup> Poultry product consumption figures can be estimated by subtracting European and expatriate consumption from the total. Expatriates (including Lebanese) eat on average 200 eggs annually and 12 kg of chicken. Africans eat mainly bush chicken and almost no eggs. Traditional Senegalese cuisine makes almost no use of eggs, which are seen as snack food, served hard-boiled and eaten as a substitute for peanuts and mangoes. There may be some change in the urban setting, where the level of egg and meat consumption may approach the European level as African conditions begin to approximate European income and education. (Obviously full equality today has been reached by only a tiny fraction.)

Consumption is growing: from 1975 to 1980 consumption of eggs more than tripled, while that of meat grew 160 percent. African consumption was estimated at that time to be 2,000,000 dozen eggs and 280 tons of chicken, or 20 eggs and 0.25 kg of (non-bush) meat per capita.<sup>21</sup> This is believed to represent 60 percent of the egg production and 30 percent of the meat,

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<sup>20</sup>Most of the consumer information derives from the Etude de factibilité (1980) previously cited.

<sup>21</sup>There are an estimated (1980) six or seven million bush chickens, virtually all of which are eventually eaten. This amounts to 4,000 tons annually for Senegal as a whole. Senegal has a population of 5.5 million, growing at 2.9 percent per year.

yielding a total of 360,000 dozen eggs and 933 tons of meat annually. (In terms of weekly delivery the equivalent figures are 50,000 dozen eggs and about 11,000 birds.)

The typical (here, the statistically average) urban African eats one egg every two weeks (a figure also found elsewhere in West Africa). Why are eggs not more popular? Their nutritional importance is not well understood; indeed, many local beliefs consider eggs injurious to health. Eggs are not filling, an important consideration for a people used to porridge. There is a concern about keeping them fresh. And the price is high compared with typical incomes (average daily income is approximately CFA 1,600; an egg costs CFA 30).<sup>22</sup>

Egg prices were stable for many years prior to 1981, as was true for broilers (while fish prices doubled). Chicken prices have not risen as much as beef or fish, and the increases in costs of production have been offset by cuts in the marketing margin.<sup>23</sup> Price has also been affected by the ease of entry into broiler production. Both egg and broiler prices have increased since 1979, however (at an average rate of about 10 percent a year through 1983):

<u>Year</u>	<u>Prices (in CFA)</u>	
	<u>Eggs (each)</u>	<u>Meat (kg)</u>
1977	31	785
1978	31	757
1979	33	749
1980	36	786
1981 (import ban)	40	855
1982	43	989
1983	49	1,093

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<sup>22</sup>West Africa in general and Senegal in particular are replete with widely told tales of the evil effect on one's character and physical well-being of egg consumption. If children are given eggs they may become thieves--a widely quoted belief from Senegal to Cameroon. Or, eggs have ill effects on pregnant women. More to the point, the thrifty note that an egg eaten is a chicken forgone. Eggs, however, are the cheapest source of protein on a weight basis (in 1979 the relative prices of protein were: eggs 30 CFA each [50 gr], or CFA 600/kg; chicken, CFA 942/kg; fish, CFA 693/kg; offal, CFA 729/kg).

<sup>23</sup>In Senegal as a whole, 77 percent of meat comes from ruminants, 12 percent from chickens, and 11 percent from fish (representing 5 kgs annually). In Cap Vert, fish is much more abundant and per capita consumption of fish is 46 kg annually.

## Appendix B. A Special Case in Contract Farming

It has been noted that contracts are, for the most part, set up to arrange for sales of particular lots of live birds or deliveries of eggs, to be sold at the spot price at the time of delivery. The conditions of longer term arrangements between institutions and producers have been remarked as well. One exception stands out, one that cannot be generalized but is interesting on its own merit and shows that variations are possible. A senior member of the local CARITAS staff, M. Lefevre, operates his own broiler business, Marika, established four years ago. The farm moves 800 broilers weekly (or over 40,000 annually). Although broilers are moved through his store in the Rufisque area (Pikmine-Taliboumak), the firm is unusual in two ways. First, it has created a network of contract buyers. Second, it, alone, has set up a small group of out-growers who supplement the Marika production.

Using a sales force of six agents, who work on commission (rather on the lines of an Amway agent), Marika has developed up to 6,000 individual monthly contracts, which commit the buyer to take an agreed number of dressed broilers monthly. The salesmen work where wage and salary earners congregate (factories and other enterprises) to sign up buyers. Payment is made at time of pickup, although tardy payment is permitted if the buyer agrees to a 2 percent monthly surcharge. If 15 birds are ordered at a time Marika will deliver, otherwise pickup occurs at the Rufisque store. The market margin is CFA 100 if the bird is picked up at the store. Delivery costs an additional CFA 100.

When demand gets beyond Marika's capacity, the company can turn to its backup system of six out-growers, with whom it has contracts. The contract specifies that 80 percent of the farms' output must go to Marika. The firm extends credit in the form of chicks, feed, and technical assistance (especially for health control). When credit is offered, the payback arrangement depends upon the amount extended. Marika charges an interest rate of 3 percent (every month?) on the outstanding loan. Marika pays the supplier about CFA 25 above the spot price for broilers. Lefevre says he will go to court to enforce contracts but has never had to. (See Appendix F for copy of a contract.)

The model apparently has not been successfully copied by other Senegalese poultry or egg producers.

### Appendix C. Survey Findings

An effort was made to add a number of contract farmers to the list of persons interviewed during this mission. The only source of persons was the membership list of AVICAP. The constraint of time limited interviews to those who had contracts, and no effort was made to develop a random sample of all producers. The President of the co-op, Amadou Dienj, identified all members who were likely to have contracts. This list was reduced by the availability of usable addresses, which were for the farm site rather than home. On our actual arrival at the farm, the owner was often found to be unavailable. In practice, rarely could more than one interview be managed daily, and only fifteen were finally interviewed. A questionnaire was used (Appendix E). Both investigators engaged in the interviews when they were conducted in French. When in Wolof, the Senegalese took the lead. A summary of the findings follows.

Of the farmers interviewed, a bit more than half raise broilers. Only three units were in both operations. One broiler producer moved 10,000 birds monthly, and only two from 500 to 1,000. The more typical have from 1,000 to 5,000 on litter; these are turned over monthly. The eight egg farms were even more skewed upwards, four having more than 10,000 birds on litter. These are not small enterprises; even the smallest represent a net worth in the highest local income deciles. Almost all of the farms were owned and operated by Senegalese, only two by Lebanese. And only two were women.

The typical interviewee looked on poultry as his secondary line of work. A half dozen had large farms, where the poultry activity was one of several, including orchards, vegetables, occasionally dairy, livestock, and even (surprisingly for a Muslim country) swine. A larger number were civil servants. A few were retired persons, supplementing pensions. Only three were men in their active years who viewed it as their principal employment.

The farms (many as small as a hectare in size) are often located on wasteland opened up to private purchase 15 years ago by the government. The land had irrigation potential, however, and the investors have drilled wells, laid out irrigation systems, and created prosperous multi-enterprise farms. The sort of investment necessary to create these farms would be impressive anywhere in Africa--a minimum investment to create a poultry enterprise, based on conversation and on-the-ground evaluation, is \$2,500 to \$3,500.

All of the operators attempt to establish regular market links, but 3 of the 15 do not presently have them. One, a woman, felt her farm was too small (500 broilers) to become involved;

she depends on AVICAP. Another has not been able to find a suitable partner, and the third, Hajjar, does not now want any. The majority currently have contracts.

Contracts were viewed as very desirable assets. The most important reason given was security, followed by improved ability to plan, and reduced risk. The undesirable aspect of contracts was widely viewed as delayed payment.

Among those who presently have or have had contracts, the majority of their contracts have been with institutions, followed by wholesalers. Contracts with individual buyers were a distant third. With only three exceptions, contracts were oral. In almost every instance the seller was promised the spot price at the time of sale.

Most contracts include some specifications as to quality and time of delivery. In the case of eggs, the date of delivery is most commonly cited, followed by size of egg, and color. Size of egg is given only as large. In practice this is taken to mean most eggs; the very small are given away as "cadeaux." Broiler producers report that weight is the most common qualification, followed by date of delivery.

Producers are usually required to deliver their product. All had access to a telephone.

## Appendix D. Sources

### 1. Government materials

Etude de factibilité sur le développement de l'aviculture au Sénégal. Dec. 1980. Société Sénégalaise d'engrais et de produits chimiques.

La production avicole au Sénégal. Jan. 1984. Directeur d'élevage, Dakar.

Demand d'aide au développement de l'aviculture au Sénégal. Jan 1, 1984. Ministry of Rural Development. Report to FAO.

Filière avicole et porcine dans les états de l'union monétaire ouest africaine (UMOA). March 1984. West African Development Bank.

### 2. Persons interviewed

#### a) Government

A. Bouna Nian, direction de l'élevage, Dakar  
M. Djiop, directeur, centre national d'aviculture

#### b) Business

Makhal Danfakha, President, Chamber of Commerce  
Amadou Dienj, President, AVICAP  
F. Dieye, marketing officer, AVICAP  
M. Diop, marketing officer, SSEPC (Soc Sénégalaise d'engrais et produits chimiques)

#### c) Farmers

Manour Filfili, business manager, ranch Filfili  
M. Lefevre, CARITAS and MARIKA  
M. Ababacar N'gom, Malika  
Nazim Kassir, Keur Daoua Sarr  
Joseph Hajjar, Rufisque  
Abdou Diop, Bayakh  
Ababcar Diagu  
Mme Arame Diop  
Fatou N'diaye  
Massy Diano  
Sengour Diop  
Amadou Borisso  
Cherif Diouf  
M. Oreng

A. Khaly Diouf  
Ibrahim Siouf (?)

d) Buyers

Teranga Hotel, Arthur Beye, food products mgr.  
Novotel, M. Abdoulaye Samb, food products mgr.  
Hotel Independence, Mme Riketi, food products mgr.  
Restaurant Rustique, Daniel Froger, manager  
Restaurant Pasha, Bernard Naldony, manager  
Demel, M. Fadia Thioune, commercial director  
Supermarché, M. Diop, purchase manager  
Score, purchase manager

e) Donors

Sarah Jane Littlefield, Mission Director, USAID  
George Carner, Deputy Director, USAID  
Clay Black, Economics Officer, US Embassy  
John Suttor, Ford Foundation  
I. Ouedraogo, food policy study, Michigan State  
University

f) Statistics

Direction statistique, ministère de l'économie et  
du finance

Appendix E. Farmer Questionnaire

QUESTIONNAIRE FOR THE FARMERS

I. GROWER DATA

- a) Do you keep your chickens in flocks segregated by race and age? \_\_\_\_\_ YES/NO
- b) In the case of layers, how many grower flocks do you usually keep, how many laying flocks do you usually keep and what were their original sizes.

	<u>Orig. Size of Flock</u>	<u>No. of Deaths</u>	<u>Race</u>
Grower	: _____	: _____	: _____
	: _____	: _____	: _____
	: _____	: _____	: _____
Layer	: _____	: _____	: _____
	: _____	: _____	: _____
	: _____	: _____	: _____
	: _____	: _____	: _____

- c) In the case of meat birds:

	<u>Orig. Size of Flock</u>	<u>No. of Deaths</u>	<u>Race</u>
1	: _____	: _____	: _____
2	: _____	: _____	: _____
3	: _____	: _____	: _____
4	: _____	: _____	: _____

- d) In the case of meat birds what age do you:
- i) Usually sell? \_\_\_\_\_.
- ii) What weight are they at sale? \_\_\_\_\_.
- iii) What is the estimated kg feed/kg weight? \_\_\_\_\_.



III. MARKETING

a) How do you usually arrange to sell your product?

	<u>Contract</u>	<u>Thru' Coop</u>	<u>Other, Explain</u>
Eggs	:	:	:
	:	:	:
Meat	:	:	:
	:	:	:

b) Which means do you prefer \_\_\_\_\_.

Why? \_\_\_\_\_  
 \_\_\_\_\_

c) In your opinion what are the good points of contracting?

- 1. \_\_\_\_\_ 2. \_\_\_\_\_
- 3. \_\_\_\_\_ 4. \_\_\_\_\_

What are the bad?

- 1. \_\_\_\_\_ 2. \_\_\_\_\_
- 3. \_\_\_\_\_ 4. \_\_\_\_\_

d) If you never contract, why? \_\_\_\_\_  
 \_\_\_\_\_

e) If you contract, with whom do you usually collaborate? (specify eggs or meat)

- i) Stores \_\_\_\_\_
- ii) Wholesaler \_\_\_\_\_
- iii) Institution (hotel, army, school, hospital etc.) \_\_\_\_\_
- iv) Cooperative \_\_\_\_\_
- v) Other \_\_\_\_\_

f) What are specifications of your typical contract?

	Meat	Eggs
Weight	: _____	: _____
Color	: _____	: _____
Size	: _____	: _____
Date of Delivery	: _____	: _____
Which inputs are provided by buyer	: _____	: _____
_____	: _____	: _____
Credit Advance	: _____	: _____
Quantity (specify)	: _____	: _____
Who delivers/picks up	: _____	: _____
Give technical help	: _____	: _____
what processing, if any	: _____	: _____
Contract, oral/written	: _____	: _____
Other	: _____	: _____

g) When do you agree on price? \_\_\_\_\_  
 At time of contract \_\_\_\_\_  
 At time of delivery \_\_\_\_\_

h) What formula do you follow to reach a price? \_\_\_\_\_  
 \_\_\_\_\_

i) In general, do you believe contracts typically work out as planned? \_\_\_\_\_  
 Explain \_\_\_\_\_

j) Are you typically prepared to trade some final price for security of sale?  
 \_\_\_\_\_

**NOTE:** If farmer does engage in contract work, and uses a written contract, try to get a blank contract form.

Appendix F: An Example of a Poultry Contract

