EIGHTH ECONOMICS POLICY WORKSHOP
"LIVESTOCK ECONOMICS IN EGYPTIAN AGRICULTURE"

March 3, 1983
9:30 am - 4:00 pm

Foreign Relations Building
Nadi El-Said Street Ministry of Agriculture Cairo, Egypt

Agricultural Development Systems Project is a joint project of the Egyptian Ministry of Agriculture and Food Security and the University of California sponsored by US AID.

ADS EGYPT-CALIFORNIA PROJECT
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The ADS Egypt-California Project is a joint effort of the Egyptian Ministry of Agriculture and the University of California promoting policy-relevant research on problems of the concerning livestock economics in Egyptian Agriculture. Papers and discussion will focus on the impact of meat, milk, and feeds policies on meat, milk and feeds policies on meat and milk production, food security and nutrition, and the development of the agricultural sector in Egypt.
ABSTRACT

Livestock production accounts for about a third of Egypt agricultural output. In the 1970's, increases in the consumption of livestock products outstripped increases in production. Livestock prices rose rapidly, even faster than crop prices, and it was necessary for the country to increase imports sharply. In contrast to crop production, livestock production enjoys substantial economic protection: domestic prices are higher than their international equivalents, and inputs are subsidized.

In developing a comprehensive strategy for livestock development, more emphasis should be placed on the traditional farm sector, which is the predominant livestock production sector. Small farms specialize more in livestock production than larger farms and they are relatively efficient in doing so. While traditional sector livestock serve many functions, including providing draft power and manure for crop production, they are primarily milk animals. In this system, red meat is a by-product.

Egypt appears to have a comparative advantage in producing milk and poultry meat, but not in producing red meat. There is a variety of opportunities for increasing productivity in milk and poultry as well as in red meat production. Given these improvements, Egypt can expect to become self-sufficient in milk and poultry meats. Expanded production of these two items also makes sense because they are relatively inexpensive sources of protein. Expansion of milk production from traditional herds would have the added benefit of making more inexpensive protein available to the rural poor, where it is critically needed.

There are several types of potential improvements in feeding, including the introduction of new green summer forages and the enhancement of crop by-products and wastes. Current feed subsidy policies hinder the development of new feeds, however, and current feed allocation policies, are irrational in the sense that they serve to distribute disproportionate amounts of feeds to farms which have lower productivity.

Farm mechanization is often cited as a means of improving livestock production. Studies show, however, that some 80 percent of livestock work is for transportation which current modes of mechanization seem unlikely to affect greatly. Further mechanization of ploughing should increase milk production.

Although Egypt has an appreciable pool of genetically improved milk animals, no workable system has been devised to use this pool to upgrade the traditional farm herd. Artificial insemination has not worked well to date.
Furthermore, no viable system has been devised for delivering other veterinary services and medicine’s to Egypt's large number of small scale livestock producers. It is necessary that such systems be developed if Egypt is to take full advantage of the vast amount of resources which reside in this sector.

POLICY RECOMMENDATIONS:

Based on the studies presented and the discussion at the workshop, it is possible to distill a number of policy recommendations.

(1) Egypt should work toward a more clearly defined strategy for livestock production. Such would recognize the dominant role which the small, traditional farmers plays in livestock production, and it would expand and improve the technical which meant to improve his product. Foremost among these would be improved artificial insemination services, services and medicines organized to reach the village level and feed inputs. Improved Availability of feeds during the summer months is also essential.

(2) A second element of the livestock strategy would be to place more emphasis on milk production. Milk is a good source of relatively inexpensive animal protein which is badly needed in rural areas. This would include improved, more sanitary village processing technology for handling milk, separating cream, churning butter, and making cheese. Improved marketing facilities are also required.

(3) Finally, the government should rethink and recognize its system for processing and allocation of feed concentrates. On the one hand distribution of these feeds at such subsidized prices discourages the development of new domestic feed sources. On the other hand, the current allocation and quota system tends to favor less efficient procedures.

Livestock production currently accounts for about one third of Egypt's total agricultural output when the value of animal and manure are included. Animal products provide 10 percent of the energy and 15 percent of the protein in Egyptian diets. Pushed by growth in population and in consumer incomes, as well as by migration from rural to urban areas, total and per capita consumption of red meats and white meats increased dramatically during the past decade, and milk consumption also increased, but at a lower rate (Table 1). Nevertheless, per. capita consumption of livestock products is still low comparison with other countries, and there is a particular shortage of animal protein among Egypt's rural poor.
Increased demand caused prices for livestock products to rise an average 12-14 percent per year during the 1970's higher than the 11 percent increases which were registered for crop prices. Expansion of production did not match increases in consumption, and as a result imports rose sharply. During the country's level of self- sufficiency declined for all three of the major livestock product groups (Table 2).

The workshop sought to examine the problems of livestock production from an economic point of view but also dealt with, related technology and with analysis of government policies which influence the performance of the livestock sector.

The objective of the Workshop was to reach some concepts and indicators which would help Egypt to develop a more comprehensive strategy for livestock development.

The livestock sector has enjoyed substantial economic in recent years. This protection has two aspects: high prices for livestock products and subsidized inputs. Prevailing domestic prices for livestock products are higher than world prices. One study shows that in 1981, for example the cost of imported meat at retail was L.E. 1.46 per kilogram whereas the cost of locally produced beef at the retail level was more than L.E. 2.50. The situation is similar for milk and the second aspect of protection derives from subsidized on feed and other livestock analysis based on a survey of 32 broiler farms conducted in 1981, subsidies averaged L.E. 12,653 per farm which accounted for almost 80 percent of their profits.

**Policies and Programs which affect Livestock Production.**

In an effort to deal with livestock production problems and run-way the government has developed a number of programs and policies. Several of the papers presented at the workshop dealt with analysis of these.

The government is involved in feed production and distribution in several ways. Feeds produced by publicly owned companies are normally sold at subsidized prices.

Credit for livestock-related activities is provided at about half the market rate of interest.

The government has attempted to impose price controls for some livestock products, particularly red Meat price controls are applied at the retail and wholesale levels but not at the farms.

The ministry of Supply imports meats and dairy products to bridge the gap between consumption and production, and most of the imported commodities are delivered to the market at subsidized prices.
Various public sector companies have been established over the past two decades to produce meat, milk, and poultry. Currently, these companies account for about 25 percent broiler productions and less than 1 percent of production. Meat production from government herds is estimated to constitute no more than 2 to 3 percent of total domestic output.

The government provides free veterinary and artificial insemination services, on a limited scale.

There is a livestock research program within the Ministry Agriculture and other scientific bodies.

While numerous efforts are being made to stimulate livestock production, participants in the workshop generally agreed that these programs operate on a piecemeal basis and that Egypt has no clearly-defined livestock development strategy. Such a strategy is badly needed.

**LIVESTOCK IN THE EGYPTIAN FARMING SYSTEM.**

In Egypt, livestock production is closely integrated with crop production. It is estimated that about 90 percent of the animals are held in the traditional farming sector where they rely not only on berseem clover but also on substantial amounts of crop residues and by-products, particularly wheat and rice straws. Livestock, in turn, provide significant inputs to crop production in the form of power and manure. Farm surveys show that animal work accounts for 27 percent of the total value of livestock output and manure for 13 percent.

Small farms are much more intensive in their livestock production than large farms, and farm surveys indicate that smaller farms are more efficient at raising livestock than larger farms. Utilization of family labor, which is relatively abundant on small farms, helps to explain why small farms specialize in livestock. Surveys show that, on average, farms devote some 44 percent of their labor to livestock production, but that on farms of one feddan and smaller 73 percent of labor is for Livestock Women play a predominant role, particularly in milking and milk processing.

**MILK.** The surveys show that milk and milk products account for 35 percent of the value of livestock products at the farm level. The primary role of large animals in the Egyptian farming system is for milk production. The water buffalo is the main milk animal, yielding an estimated 65 percent of all milk produced. Traditional farms account for an estimated 82 percent of all the milk which is produced, whereas commercial buffalo herds located near
large cities produce 17 percent. Public sector dairy herds account for only about one percent.

RED MEAT. Egypt's system of red meat production depends on the traditional farming sector for almost all of its animals. In this sense, meat production is really a by-product of the traditional sector dairy industry. Several hundred thousand head of calves, particularly buffalo calves, are slaughtered directly for veal each year, with little or no finishing. Larger farms feed out some animals to heavier weight, however, and there are numerous specialized feedlots which fatten animals, particularly beef cattle. Typically, these lots are not very large and would feed no more than 10 to 50 animals at a time. Current policies support this type of enterprise more than any other livestock activity.

POULTRY. Poultry production is more concentrated in larger scale production units than either milk production or beef. Currently, more than half of the broilers produced in Egypt come from modern, confined units, and almost half of the chicks produced each year come from modern hatcheries.

COMPARATIVE ADVANTAGE.

Economic analyses indicate that Egypt has a comparative advantage in producing milk and poultry, but not in red meat production. Given certain technical improvements to increase productivity, it seems quite possible for Egypt to become self-sufficient in milk and poultry. Improved productivity could also alter the prospects for red meat production.

Comparative advantage in milk production lies mainly in the buffaloes held by traditional farms. Yet, there are substantial opportunities to improve the milking productivity of the buffalo, which currently averages only about 1200 kg. of milk per lactation. The economics of producing milk from native cattle or from improved foreign milking breeds held by large scale dairies are not encouraging. In expanding traditional sector milk production and moving toward milk self-sufficiency in this manner~ Egypt would be taking advantage of a relatively cheap source of protein. Furthermore, increased supplies of milk would be available in rural areas where there is a critical need for increased protein intake among the rural poor.

Poultry is also a relatively inexpensive source of protein. Analysis of producer surveys shows, however, that Egypt's comparative advantage in this sector rests upon large scale production a until now, the subsidy system has made it attractive for smaller scale producers to operate, but these smaller firms tend to be economically inefficient and would not be profitable if they were required to pay the full international costs for inputs.
The finding that Egypt does not have a comparative advantage in red meat production is based upon analysis of costs of feeding not only domestic animals but also imported feeder animals. Indications were that there is even less advantage to finishing the imported live animals than the domestics, these findings imply that it would be cheaper for Egypt to import more red meats under current circumstances than to attempt to produce so much locally.

A series of obstacles appear to prevent more imports, however. Budget limitations often prevent the Ministry of Supply from importing more meat, particularly since most of the meats which it imports are sold at highly subsidized prices. While there are no explicit laws which prevent private meat imports, the margins which traders are permitted to earn are limited and they are required to obtain much of their foreign currency at the higher free market price. Restrictions on issuing licenses and various administrative procedures serve to limit imports in actual practice. Limited handling facilities, particularly cold storage, also hinder imports. Studies of the economic feasibility of expanding cold storage are required.

TECHNICAL CONSTRAINTS AND OPPORTUNITIES.

While there are numerous constraints to improved livestock production, there are also numerous opportunities for improvement. Feed production and feeding response were discussed in the workshop as were issues related to genetic improvement.

GREEN FORAGES. The problem with shortage of green fodder in the summer months has long been recognized. Current experiments with elephant grass and various forage sorghums are encouraging but as yet incomplete. Not only must the feasibility of producing these fodders on a wider scale be tested, but they must also be compared in terms of response in feeding trials under realistic farm conditions. Finally, the acceptability of the new crops to farmers must be examined along with economic costs-benefits and impacts on the cropping-pattern.

ENHANCEMENT OF BY-PRODUCTS AND WASTES. There are a wide range of opportunities for increased utilization of crop by-products and wastes. Two new systems were discussed at the workshop. One of these the system of treating straw with anhydrous ammonia, is still undergoing tests by the FAD Beef Project and the Animal Production Research Institute. So far,
the feeding trials for this process, which improves digestibility and nutrient availability, are quite encouraging. It appears to be economically feasible in some circumstances.

Another system for by-product utilization described at the workshop is already in commercial production by a feed processing plant in Zagazig, Sharkia Governorate. This company has a new, highly automated mill which grinds rice husks, to which molasses and urea are added. The selling price for this new feed is L.E. 92 per ton. However, no information was presented on feeding trials or on the economic feasibility of producing or utilizing this new by-product feed.

FEED SUBSIDIES AN OBSTACLE. Feed subsidies were the factor which was most frequently cited as an obstacle to developing new feedstuffs. For example, under the current system the general purpose sold at concentrate livestock feed produced by the government is an official price of L.E. 38 per ton whereas the equivalent cost price in world trade is L.E. Thus, there was an implicit subsidy of L.E. 138 per ton in 1980. 100 per ton. The problem which this presents to expanding feed production is that it is risky for entrepreneurs to invest in non-traditional Feed processing facilities with per ton costs higher than L.E. 38. Cattle feeders would naturally continue to attempt to secure the government feed at L.E. 38 and would only use the newer, more expensive feeds as a last resort. Thus, the potential investor always faces an uncertain market for his new feed, and this serves to discourage investment.

DISTRIBUTION AND QUOTA SYSTEM. With an artificially low price on the concentrate feed, there is always more feed demanded by feeders than is available. This means that the government must utilize a priority distribution and quota system. On the one hand, this system results in a very active black market. On the other hand, it produces a seemingly irrational distribution pattern. For example, although Egypt's traditional farms produce the cottonseed and much of the bran which constitutes the major ingredient of the government concentrate, and although these farms hold more than 90 percent of the country's animals, they received only 16 percent of concentrates which were distributed in 1980. Feedlots received 73 percent. This system not only seems unfair, it is irrational in the sense that it denies resources to the most efficient producers.

Another problem with the current feed distribution system is that the availability is erratic and unreliable. Even those quotas which are due farmers are often not fully available and they frequently do not arrive on time. This can be particularly damaging in the case of milk production where the interruption of balanced feeding can cause the premature termination of a lactation. Discontinuities of feed supply in broiler production can be equally damaging.
GENETIC IMPROVEMENT. Egypt's dairy animals, in particular, could benefit from genetic improvement. There are currently a number of improved gene pools available in the country. There are experimental herds of foreign milk animals and of locally improved dairy buffaloes on several of the Ministry of Agriculture experiment stations as well as on university farms. There are also herds of good quality on state farms, joint ventures and large privately owned dairy farms. The problem is that, as yet, no viable system has been devised to upgrade the traditional farming herd with genetic stock drawn from these various pools.

The existing system for artificial insemination is fraught with technical refrigeration, problems such as poor processing, and uncertain delivery. To date unreliable artificial insemination must be considered a failure. Many farmers who were interviewed had not even herd of the artificial insemination program, and those who had heard of it or had used it did not feel that the system, as it stands, is workable.

MARKETING FACILITIES. Marketing and processing facilities for the livestock products derived from the large, traditional farming sector are quite inadequate in many respects. In the case of live animal markets, for example, there are usually not even any scales for weighing the animals. While there is net work of milk collection centers to assemble milk for the government owned Egypt milk company, these are not utilized to capacity, and some have fallen into disuse entirely. The price which is paid to farmers at these centers is often lower than the price which they can receive from private traders. Flows through private channels suffers from poor, processing and handling.

TECHNICAL SUPPORT ANP SERVICES. The problem with artificial insemination is but one aspect of a broader problem. Egypt has, at best, a very weak system of veterinary services, medicines, technical information and training available to support livestock production at the village level. Although there are some 4000 rural villages, there are only 200 specialized livestock service units to serve these. This number would appear to be woefully inadequate to meet Egypt's livestock production needs.

It is a basic Tact that Egypt's livestock herd is widely scattered among a large number of small farms, with one or two buffaloes or cows per farm being the norm. In developing a technical support system which will adequately serve a large number of villages and a large number of farmers with small herd sizes, Egypt is not likely to find viable examples among the relatively advanced western countries. India, on the other hand, it is a country with herd size and distribution circumstances similar to those of Egypt. India has developed a system of specialized village milk production.
IMPACTS OF MECHANIZATION. The current strategy of agricultural development assumes that spreading mechanization will liberate livestock from farm work, which in turn will either increase milk and meat production or will permit a reduction in the number of farm animals. Livestock surveys indicate, that about 80 percent of animal work is for transportation, which current-modes of mechanization seem unlikely to affect greatly. While there was no evidence that animal work used to operate sakias (pump water) reduces milk production animal draft power used for ploughing was found to have a significant negative impact. Thus, it is mainly the mechanization which will liberate animals farm ploughing that is likely to have a favorable impact on livestock production, and especially on milk output.

STATISTICAL DATA BASE.

Statistical knowledge of Egypt's livestock situation has been limited. Estimates of herd size have been based upon trend projections from surveys taken in 1968 and 1970. Slaughter statistics have been incomplete because they cover only those animals slaughtered in government supervised slaughter houses. This situation is expected to change with the up-to-date information which will be available from the 1982 Census of Agriculture and with current statistics that will derive from the Ministry's new statistical data project.

In the past, given the lack of good data base, it has really not been possible to accurately monitor or predict livestock Production. In particular, there has been no system of following or predicting the effects of livestock population cycles on meat production. Decisions to import meat and livestock products have operated independently of the production situation. Without doubt this factor contributed to the meat crisis in the summer of 1980 when prices rose unexpectedly and the government decided to implement a temporary ban on the slaughter of livestock, so as to insure adequate supplies for the Courban Bairam Feast.

It is possible with available econometric procedures, operating from an improved statistical data base, to monitor and predict livestock production with a fair degree of accuracy. An example of such estimation procedures was presented at the workshop. The Ministry of Agriculture would do well to implement some form of econometric modeling of livestock herd growth and meat and milk production on a continuing basis, not only to permit better import planning but also to help generate a better understanding of the forces which drive Egypt's dynamic livestock economy.
Table 1: Changes in Total and Per Capita Consumption of Principal Livestock Products.

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<tr>
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<th>Red Meat Consumption</th>
<th>White Meat Consumption</th>
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<tbody>
<tr>
<td></td>
<td>Total Cons. (1000 tons)</td>
<td>Per Capita (kg/year)</td>
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<tr>
<td>1969-71 average</td>
<td>294.4</td>
<td>8.92</td>
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<tr>
<td>1969-81 average</td>
<td>531.6</td>
<td>12.71</td>
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<tr>
<td>Av. annual rt. of change</td>
<td>6.1%</td>
<td>3.6%</td>
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<thead>
<tr>
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<th>Milk and Milk Products Consumption</th>
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<tbody>
<tr>
<td></td>
<td>Total (1000 tons)</td>
</tr>
<tr>
<td>1970</td>
<td>1634.3</td>
</tr>
<tr>
<td>1979</td>
<td>2095.9</td>
</tr>
<tr>
<td>Annual rate of change</td>
<td>2.8%</td>
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Table 2: Consumption, Production and Imports of Principal Livestock Products.

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<thead>
<tr>
<th></th>
<th>Red Meats</th>
<th>White Meats</th>
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<tr>
<td></td>
<td>Prod. 1000's of tons</td>
<td>Imports</td>
</tr>
<tr>
<td>1966-71 average</td>
<td>270.9</td>
<td>23.5</td>
</tr>
<tr>
<td>1979-81 average</td>
<td>370.0</td>
<td>161.6</td>
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<tr>
<td>Annual rate of change</td>
<td>+3.2%</td>
<td>+21%</td>
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<tr>
<th></th>
<th>Milk and Dairy Products</th>
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<tbody>
<tr>
<td></td>
<td>Production</td>
</tr>
<tr>
<td>1970</td>
<td>1583</td>
</tr>
<tr>
<td>1979</td>
<td>1881</td>
</tr>
<tr>
<td>Annual rate of change</td>
<td>+1.9%</td>
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