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REPUBLIC OF EGYPT

The Agricultural Policy in the New Era

BY

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FORWORD

The reconstruction of the national economy on a sound and strong foundation is one of the most important tasks of the present era. It is evident that agriculture constitutes the greatest portion of the nation's wealth and is the main source of livelihood for the majority of the people. It is not a mere occupation but a way of life for the inhabitants of this valley and has a tremendous effect on the economic, social and political development of our country. Any improvement in the national economy and any rise in the standard of living will depend largely on the development of agriculture. Agricultural products not only provide food and clothing for the people but also constitute the greatest portion of our exports. It is therefore the cornerstone of our economy and the fountain of prosperity. It determines the size and magnitude of industry, trade and other services.

It is impossible for any country to develop its agriculture unless a definite and sound agricultural policy is established. For Egypt this is a must because of the pressing need for meeting the requirements of the steadily increasing population and raising the standard of living. It is imperative that this policy be based on well studied facts and have well defined targets and objectives. It should represent the spirit of the new era, namely, the revolution against waste, want and inefficiency and aim at a speedy revolution towards the full and rational development of the country's resources.

In the following pages I present my suggestions for "The Agricultural Policy in the New Era" taking into consideration the socio-economic conditions of the country. This policy aims at achieving prompt and effective improvement in the economic structure of the country through the full and rational exploitation of its human and natural resources. It depends on experiences acquired locally and abroad, research and experimentation in the field and laboratories.

To put this policy into effect, I will establish a number of committees to study its various aspects and formulate accordingly a number of agricultural development schemes. Each committee will be confined to the study of certain subjects and will be composed of specialists from the Ministry of Agriculture, the Universities and other research and educational institutions.

It gives me great pleasure to place this policy in the hands of the citizens to study, discuss and participate with constructive ideas to help realize a better future for our country.

January 1953

Dr. A. R. SIDKY,
Minister of Agriculture

The Agricultural Policy in the New Era

THE ROLE OF AGRICULTURE IN OUR NATIONAL ECONOMY

The fundamental basis of the Egyptian National Economy has always been and will continue for a long time to be agriculture. About L.E. 1,200,000,000 or two-thirds of the national wealth is invested in agricultural land, livestock, implements, etc. Approximately, 60% of the annual income is drawn from agriculture as shown by an average of the five years from 1948 to 1952 inclusive which amounts to the sum of L.E. 384,000,000. It is evident, therefore, that agriculture constitutes the greatest portion of the wealth and utilizes the major part of labour in this country.

Furthermore, agriculture plays an important role in other sectors of our economy. In foreign trade, for instance, agricultural crops and products comprise about 96% of Egypt's export. Likewise, in the domestic trade 52% of shops, firms, etc. are engaged in the handling of agricultural products and foodstuffs, employing 31% of commercial personnel. The investment in the handling of agricultural crops and products amounts to 32% of the total investment in the domestic trade. In addition 50% of the factories which employ 64% of the industrial labour utilize agricultural raw material. The investment in these industries amounts to about 50% of the total industrial capital. In other services like transportation, banking, etc. a considerable portion of their activities revolve around agriculture.

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This is the logic of figures; however, if other factors, namely, the Nile, the soil, the geographical situation, along with the inherited traditions are taken into consideration, it becomes very obvious that agriculture occupies a position beyond any estimate.

PRESENT STATE OF AGRICULTURAL PRODUCTION

Despite the potentialities of success envisaged in this bright picture, the productive efficiency is comparatively below the prospective standard both in labour and land unit.

Egypt is still behind many other countries in yield per unit for most crops. The yield of wheat per feddan (acre) in Egypt is only 50% and 67% of that of a comparable area in Holland and in the United Kingdom respectively. The yield of rice is 76% of that in Spain or Italy. In addition, the yield per feddan in Egypt has recently considerably declined with a consequent drop of agricultural production in general.

Table (1) below shows the average yield of major crops per feddan and index numbers for the five years preceding the second World War compared with that of the period 1940-1944 and the three following years (1945-1947) a period of postwar stability as well as that of the following five years (1948-1952).

In addition to the conspicuous drop in production, there is still a substantial loss in the aggregate output of agricultural production caused by some major insects and pests attacking the crops.

Table No. (2) below indicates that the total loss due to these pests alone is estimated at L.E. 40,000,000 per year.

As to our livestock industry, it is still below the required standard. The farmer's average production of milk ranges from 1,500 to 2,000 pounds per year while this average in dairy farms adopting modern practices goes up to 4,000 pounds; and rises to 6,000 or 7,000 pounds in countries where more care has been given to animal industry. Judged by the maturity and productive capacity of our animals, it is clear that our breeds are far below the standard known in advanced countries. This is primarily due to their being mainly kept for draught purposes. Malnutrition and diseases such as Rinderpest liver-fluke,

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TABLE No. 1.—THE AVERAGE YIELD OF MAJOR CROPS PER FEDDAN AND INDEX NUMBERS

Crops	Unit	Average yield							
		1935-1939		1940-1944		1945-1947		1948-1952	
		Amount	%	Amount	%	Amount	%	Amount	%
Cotton lint...	Kintar	5.21	100	5.35	103	5.12	98	4.87	93
Wheat...	Ardeb	5.90	100	4.89	83	4.65	79	5.15	87
Maize Late Summer (Neely)	Ardeb	7.45	100	5.80	78	6.29	84	6.26	84
Millet ...	Ardeb	10.46	100	8.46	81	7.66	73	8.53	82
Barley...	Ardeb	7.29	100	6.63	91	6.03	83	6.72	92
Rice ...	Dariba	1.66	100	1.36	82	1.62	98	1.70	102
Sugar-Cane	Kintar	760	100	637	84	622	82	681	90
Index Number			100		90		89		91

TABLE No. 2.—THE LOSS IN CROPS

Crops	Pests	Loss in Crop	
		Percentage	Average
Cotton	Boll worms	10	1,000,000 kintars
	Leaf worm	3	500,000 "
Wheat	Smut and Rust	4-8	500,000 ardebs
	Storage insects	3	500,000 "
Maize	Borers	10	1,000,000 "
	Stored products insects	3	500,000 "
Rice	Rice weevil storage insect	3	500,000 Daribas
Onions	Onion fly, thrips and mites	33	2,000,000 kintars
Sugar cane	Borers and bugs	10	5,000,000 "
Potatoes	Potato worm, mole and cotton worm	10	800,000 "
Fruit trees	Scale insects, bugs and fruit fly...	L. E. 10 per feddan	L. E. 900,000

tuberculosis and others cause a considerable loss in our animal industry each year. The annual loss due to disease attacks and undernourishment of our livestock is estimated at not less than L.E. 30,000,000.

The aforementioned resumé of the agricultural situation in Egypt to-day reveals a very unhappy state of affairs especially when one considers the steadily increasing pressure of the population in this country. An increase of approximately 96% of our population has been reached since the close of last century. The quick increase in our population unaccompanied by an appreciable expansion in the area under cultivation, or an increase in the yield per unit area, has caused a drop of 31% in the per capita share of the cultivated land. Consequently, there has been a decline in the standard of living in general and a progressive state of undernourishment in particular. While the per capita consumption was 393 kilograms of foodstuffs in 1929, it dropped in 1951-52 to 345 kgs, which shows a decrease of 48 kgs or 12.2%. Moreover, in 1929 91.6% of the consumed foods were locally produced, whereas in 1951-52 they constituted 85.5% of the total amount of food consumed. The diet pattern has shown a noticeable decrease in both protein and fat contents.

This led the country to become more dependent on imports from abroad to meet the deficit in local production. The average of our annual imports during the last five years was about 1,000,000 ardebs of wheat and 1,000,000 ardebs of maize, excluding our large imports of vegetables, fruits, meat and dairy products.

To sum up, it is clear that although the population is steadily increasing, our overall agricultural production has failed to rise proportionately.

With such situation it would hardly be possible for this country to prosper unless a new approach is made according to a definite stable agricultural policy. It is imperative that such a policy be based on well established facts and be directed to

attain well defined targets and objectives. This policy must take into consideration that agriculture is not a mere occupation but a way of life for the majority of the inhabitants of this valley and has a tremendous bearing on the economic, social and political development of the country.

The new policy should be inspired by the spirit of the new era, namely, the revolution against waste, want and inefficiency. It should aim at a speedy evolution towards the full and rational development of the country's resources.

The promulgation of the Agrarian Reform Law which sets a maximum size for landownerships, organizes relationship between landowners and tenants and fixes minimum wages for agricultural labour, has emancipated the farmers from the strong hold of the previous landowners and thus is helping to build up a new generation of better farmers. Likewise, it has resulted in increasing the number of people who will benefit from any improvement that accrues from the agricultural development programs.

A STABLE AGRICULTURAL POLICY

The formulation of a sound policy is an essential requisite for the agricultural development of any country. For Egypt, however, it is vital in view of the pressing need for meeting the nutritional requirements of the steadily increasing population and raising their standard of living.

Never in the past have the reclamation of new land and the increase in the productivity per unit area been kept in proportion with the rising number of our population. The formulation and implementation of projects for the maximum expansion of cultivable land and the full exploitation of water resources is of paramount importance, so much so that it could not be over-emphasized. In undertaking such projects, priority ought to be granted to the easiest, less expensive and closest to realisation. In this way, we shall proceed gradually within the limits of our potentialities to meet the requirements of the over-increasing population and achieve the required standard of living.

It goes without saying that the implementation of irrigation projects designed for the utilization of water resources is an essential pre-requisite for the expansion in the cultivated land. This requires time, money and efforts. Therefore, along with the horizontal expansion of the cultivated land, a vertical one should immediately be effected through enhancing the productive capacity of the land. This vertical expansion is distinguished by its prompt effect and comparatively lower costs. In fact, such a move for "skyscrapers in agriculture" is indispensable for Egypt with its limited cultivated area and rapidly increasing population. It cannot be over-emphasized that such expansion must be applied immediately to the lands newly brought under cultivation through the execution of the horizontal expansion program.

As Egypt is entering a new era it is imperative to formulate a stable agricultural policy which would organize and harmonize all activities in the agricultural campus. Its ultimate goal should be to secure a prosperous and more dignified life for the people in general and the farmers in particular.

This policy is divided into two parts : Productive and Organizational.

The Productive part is founded on the following principles :—

1. Increasing efficiency of production.
2. Improving nutritional standards.
3. Diversifying agricultural production and stimulating export crops.
4. Improving marketing facilities.
5. Promoting agricultural industrialization.

The Organisational part is founded on the following principles :—

1. Administration and Organization of development program.
2. Promotion of scientific research.
3. Decentralization in agricultural services.
4. Promotion of Extension Service.
5. Mobilization of campaigns.

THE PRODUCTIVE ASPECT

1.—Increasing Efficiency of Production

In increase of productive efficiency in agriculture, either in crops or in farm animals, should be based on four technical pillars :—

(1) *Production of Selected Seeds*

The main basis for increasing the efficiency of production per unit is the seed which carries in its genetical constitution the potentialities of high productivity as well as the required qualities. The seed must possess immunity or resistance against diseases. It is therefore necessary to select for each area the most suitable germplasms in order to obtain the highest performance. The average production of big farms which have utilized certified seeds has been remarkably high, thus justifying the implementation of a nation-wide program for the distribution of such seeds.

In the past, the use of selected seeds was confined only to those who were able to find their way to the main distribution centres and consequently their utilization was kept in narrow limits. Now, it has become imperative to make available these better germplasms of plants and animals to all farmers throughout the country. This can only be achieved by increasing considerably the production of the improved germplasms from the present low level which ranges from 0.1 to 10% of the required amounts.

(2) *Availability of Favourable Environment*

In order to allow the genetical constitution of the germplasm to manifest its full capacity of production, optimum environmental conditions should be provided. This could be achieved through the following :—

(a) The land itself comes to the frontline as regards furnishing good environment for the plant. The lands of Egypt have

not yet been properly studied to determine their fitness for utmost production. The soil has still to be thoroughly surveyed particularly in low productive areas, in order to determine reasons of soil poverty and the necessary measures for building and maintaining high levels of fertility. Within the cultivated land of Egypt certain plots are often found where production falls short of the required standard. This may be due to the nature of the soil itself or to the presence of undesirable salts. Analyses will reveal the elements lacking either in quality or in quantity and appropriate remedies may be administered accordingly.

(b) In the light of such analyses a fertilization program will be outlined in accordance with the nature of the soil and the nutritional requirements of the growing plants. The proper Fertilizers must be made available in the required amounts.

(c) One of the most important elements of production is the availability of an adequate water supply for the crops. Water must be available to crops at the most suitable time and in the required amounts to ensure the optimum growing conditions and help attain the highest production. Proper drainage is no less important to the crops than irrigation. Good drainage saves the roots from choking and thus helps to increase production. This can be realised through the following :—

(i) The Ministry of Agriculture has to undertake a detailed study of the water requirements of each crop. In the light of these studies, the quantity of water allowed to each cultivator shall be determined so that each gets the required quantity at the proper time. This will remedy the present drastic situation where one cultivator is extravagantly irrigating his land while the other can scarcely find water to meet his desperate needs.

(ii) The Ministry has also to undertake a comprehensive study of underground water with the object of investigating its effect on the growth and yield of crops. This will help in finding out the effect of the different systems of drainage on the crops.

(d) The Ministry must study the different methods of cultivation with the object of replacing the primitive techniques still used by modern ones. Such a study will include methods of ploughing, sowing and harrowing as well as the improvement of agricultural implements. Various farm machinery must be tested in order to determine the most suitable types under local conditions. Introduction of new machinery or modification of the present in use must be made in order to fulfil the required purposes.

(e) Research result should be utilized to the utmost in the eradication of weeds in order to avoid the estimated 20% loss of production attributed to their harmful effects.

(f) Suitable environment is essential for animals to ensure the manifestation of their inherent potentialities. The development of livestock industry must be based on a comprehensive study of the various areas of Egypt from all aspects including the availability of fresh fodder, all the year round, edible refuse of various crops, freedom from parasites and serious disease. A comprehensive study of the suitability and adaptability of the different breeds or strains of high productive capacity under different local climatic conditions is also most essential.

(g) The profound effect of climate on plant and animal production must be recognized. The Ministry of Agriculture has therefore to initiate an exclusive study of this matter. Results may lead to dividing the country into different climatic zones according to which particular breeds and varieties may be limited to the localities most suitable for their growth and production. A system of weather forecasting should be devised. This will help the farmers to be informed of climatic changes which have direct effects on the growth, production and maturity of plants and animals, and indirect effect on agricultural production according to the degree of pest infestation.

(3) *Prevention of Loss caused by pests*

It is most essential to trace the causes of loss in animal and plant production and determine the best methods for their control. Some diseases and pests can be controlled through the development of immune strains and varieties of plants and animals. However, in combating animal and land pests the rule should be absolute extermination and not merely partial control, whenever such eradication is possible. Through investigations has to be undertaken to find out the centre of distribution of diseases and the sources of infection. Prompt and active campaigns for eradication must be organised to achieve these purposes within a limited time by an all-out effort beginning with the localities that are most infested. The latest techniques and most effective measures should be applied on a national scale for combating the diseases and pests as well as for the protection of plants and animals.

(4) *Reduction of Production Costs*

It is known that all means for increasing production and decreasing loss ultimately lead to the reduction of production costs. Further reduction has, however, to be achieved by some positive measures among which is the expanded utilization of farm machinery. This will also relieve the farm animals from labour, thus saving them for milk and meat production. Private interests such as companies or cooperatives may be set up under Government control for renting machinery to small farmers, or undertaking farm operations according to terms determined by the Government. The expansion in the use of farm machinery should go hand in hand with the promotion of industries and development of business which can absorb the surplus of labour resulting from such expansion.

Locally produced as well as imported fertilizers have to be studied with respect to production costs and import prices to protect farmers against adulterated ingredients or excessively high prices.

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Another element in reducing production cost is the provision of suitable transportation facilities for agricultural supplies and produces so that production centres may be connected with markets by a good transportation network.

II.—Improving Nutritional Standards

Although Egypt enjoys all the elements necessary for a progressive agricultural economy, yet the standard of nutrition of the majority of the people is very low. If the individual intake of food is calculated on the assumption of absolute parity in consumption among all categories of the people, it will be seen that during the period 1948-52 the per capita intake was 347 kgs producing 2353 calories daily which is below the required standard. The considerable increase in number of under-nourished people proves that even this low standard of nutrition is not maintained by all the people including peasants who shoulder the heavy burden of producing foodstuffs for the nation.

It is believed that the farmer's calorie intake is 20% less than the average although he requires more in his daily work. However, the fulfilment of the individual's calorie requirements cannot in itself be taken as an indication of good nutrition. Nutritive elements such as protein, vitamins and minerals have to be present in sufficient quantities in the diet. The diet of the poorer classes in Egypt lacks much in quality and in nutritive elements necessary for building the human body. The Egyptian farmer's is almost completely devoid of foods of animal origin such as meat, eggs and milk. His intake of vegetables and fruits is likewise very low as compared with that of farmers in other more developed countries.

Table No. 3 shows the extent of deficiency in the individual's intake of vegetables and fruits in Egypt as well as the low rate of consumption of, foods of animal origin, including meat, eggs and milk,

TABLE No. 3.— THE INDIVIDUAL RATION OF FOODSTUFFS IN EGYPT AND OTHER COUNTRIES IN KGHS. (948-949)

Countries	Grains & Tubers	Fruits	Legumes & Pulses	Meat	Eggs	Fish	Dairy Products	Sugar & Sugar Products	Oil & Fats	Total
Egypt	197	36	70	9	1	3	53	16	3	388
U.S.A.	127	90	120	74	21	5	190	47	21	695
U.K.	228	40	69	42	10	13	159	40	19	620
Denmark	245	49	90	64	9	17	191	33	15	713

In considering foods of vegetable origin produced in Egypt for human and animal consumption, it is noticed that cereals occupy the widest area in comparison with other crops, while the area under vegetables and fruits is comparatively small as shown in table No. 4 :

TABLE No. 4.—THE PERCENTAGE OF CULTIVATED ARED

Product	Percentage Cultivated area
Cereals for human consumption	46
Fodder	23
Cotton	19
Vegetables	3
Fruits	1
Other foods and industrial products	8
Total	100

It appears from the above table that a high proportion of the total area is under cereals, a practice which is inconsistent with sound economic principles for the maximum exploitation of our lands. However, this situation cannot be remedied before finding a source of cereals at reasonable prices in the neighbouring countries.

Table No. 5 shows the nutritive value of the average yield per feddan of the various crops in Egypt during the period 1948-52. In considering the calories produced per feddan, it

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can be noticed that rice and potatoes are the highest among all other crops. Cultivation of these two crops should be expanded in the most suitable areas in order to make them available to the poorer classes. However, in following such approach due attention should be given to economic considerations.

TABLE NO. 5.—THE NUTRITIVE VALUE OF THE AVERAGE YIELD PER FEDDAN IN EGYPT OF THE VARIOUS CROPS IN 1948-1952.

Product	Protein in kgrs	Fats in kgrs.	Calories in million
Wheat	84	11	2.5
Maize	72	31	2.8
Millet	106	35	3.6
Barley	67	14	2.0
Rice	71	7	3.8
Potatoes	101	6	4.3
Beans	154	15	2.4
Lentils	140	13	2.2
Sesame	60	170	1.9
Peanuts	135	229	2.9
Onions	86	13	2.5
Vegetables	76	11	1.2
Bananas	59	20	4.4
Citrons	56	19	2.9
Dates	116	30	6.9
Grapes	31	18	2.7
Olives	14	222	2.3

Such important problems of production and consumption require recourse to the following measures :—

(1) Immediate and effective increase in the productive capacity of per unit labour, land and animal. This is indeed the first field where efforts should be exerted along the lines previously mentioned in connection with increasing the efficiency of production in agriculture.

(2) Consideration of the redistribution of cultivable land among the different crops and modification of the agriculture rotation in accordance with our food requirements. The nutritive value of the output per feddan must be taken into consideration in orienting our agricultural production provided that considerable attention is given to the terms of our balance of trade.

(3) Increase the area under vegetables and fruits in order to make such protective foods available at a lower cost to a greater number of people.

(4) Utilization of the present area under fodder in the production of milk and meat rather than work. This will require the development of better animals which in turn will be an economic incentive for farmers to grow more fodder both in winter and summer.

The number of draught animals amounting to 25% of the total number of livestock should be reduced to a practical minimum through the increased utilization of mechanical means of transportation.

(5) Orientation of the agricultural production with the object of achieving partial self-sufficiency in food crops that could be increased to the maximum potential in case of war. However, our policy in this connection should be flexible in order to correspond to supply and demand conditions in the international markets.

Table No. 6 below shows the average intake of food calculated in terms of calories and to what extent they were supplied through locally produced food during 1951—52.

TABLE NO. 6.—THE AVERAGE INDIVIDUAL'S SHARE OF FOOD CALCULATED IN CALORIES

Commodities	Total daily consumption in calories	Local production in calories per day	Percentage of local production on consumption
Cereals	1,643	1,314	80
Animal Products... ..	187	170	91
Legumes	107	88	82
Vegetables and Fruits	152	136	89
Other Foods	239	184	77
Total... ..	2,328	1,892	81

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It is evident that we have not yet realised self-sufficiency in any item of the major foodstuffs. Therefore, we have to orient our production policy in a way that can supply the population with their food requirements.

(6) The Ministry of Agriculture has to consider the relationship between agricultural production and nutritional requirements. This should include the study of the best diet for man and animal; methods of their preparation and amelioration.

III.—Diversifying agricultural production and Stimulating export crops

Egyptian economy has always been dependent on one crop, namely, cotton. In spite of its being subject to violent fluctuations both in yield and in price this state of affairs has resulted in a considerable instability in the national income and unsteadiness in the balance of trade.

It is now high time to remedy this state of uncertainty through directing Egyptian agriculture towards intensive and diversified farming.

Along with cotton, Egypt must produce other profitable cash crops in large quantities for export. In selecting such crops demand and supply conditions in the international markets should be taken into consideration. They should have a competitive price with cotton which will not, then be our sole source of foreign currency nor the only medium of payment for our imports.

The first exportable crop to be considered specially is fruit for the European markets. Table No. 7 below shows the amounts of world exports to Europe during the post war period from various kinds of fruits which grow particularly well in Egypt.

TABLE No. 7.—GRAPE & CITRUS EXPORTS OF THE MEDITERRANEAN COUNTRIES

(in percentage of the total world export in 19.0-51)

Country	Oranges	Lemons	Grapes	Raisins
Egypt ... ..	.02	.04	—	—
Lybia	—	—	1.70	—
Tunisia ... ..	.90	.60	.50	—
Morocco	8.50	.80	.10	—
Algiers	10.50	1.70	3.10	—
Spain... ..	26.80	8.60	10.10	.30
France	1.70	1.50	15.30	.10
Italy... ..	12.40	78.30	17.80	—
Greece ... ..	.20	—	3.80	6.90
Turkey ... ..	.10	—	.85	6.30
Syria ... ..	.20	.20	.10	—
Lebanon ... ..	.60	1.00	.10	—
Israel	8.90	.30	—	—
Cyprus ... ..	.90	.90	1.00	.40
TOTAL	71.72	93.94	53.10	14.00

It appears from the above table that the world fruit exports have increased continuously since the end of the second world war and that European demand for fruit has continued to rise year after year.

In spite of the increasing demand for fruit in the European markets, Egypt, out of all the Mediterranean countries, does not participate in an appreciable proportion in the exportation of fruit to these markets as shown in the following table No. 8.

TABLE No. 8.—WORLD EXPORTS TO EUROPEAN COUNTRIES
FROM THE MAIN KINDS OF FRUITS
(in thousands of metric tons)

Year	Oranges	Lemons	Bananas	Grapes	Raisins	Index number of world exports as ratio to
1947	900	106	300	55	136	70
1948	1050	155	470	85	233	83
1949	1130	189	550	120	226	85
1950	1360	190	640	150	246	89
1951	1580	185	690	140	163	94

Opportunities for the export of Egyptian vegetables to European markets are by no means less promising than those of fruit. Table No. 9 below shows the amounts of vegetable imports of some European countries during the pre-war period as well as in 1950-1951.

TABLE No. 9.—VEGETABLE IMPORTS OF THE MOST EUROPEAN COUNTRIES
(in thousands of metric tons)

Importing Country	Average 1934-1936	1950	1951
United Kingdom	416.2	473.3	490.3
Germany	281.5	279.0	296.2
France... ..	152.6	227.3	160.0
Switzerland... ..	52.6	63.4	67.3
Belgium & Luxemburg	44.1	54.5	54.7
Austria... ..	35.9	29.6	23.4
Netherlands	13.5	15.7	13.9
Other Countries	8.9	6.4	8.1
TOTAL	1035.3	1149.2	1113.9

The above mentioned figures indicate the importance of these markets and the potentialities awaiting Egyptian vegetables therein. Mediterranean countries contribute large exports to these important markets while Egypt alone stays out of this field in spite of its favourable agricultural and climatic conditions which would enable her to compete with other countries such as Italy, Spain, France and Greece. Outlets are equally open for the exportation of other products besides vegetables and fruit such as cut flowers, aromatic and medicinal plants and other processed products which would bring about great profits to the growers as well as exporters.

To solve the above-mentioned problems the following measures should be taken :—

(a) Investigation of such markets which are likely to form an outlet for our agricultural products. This investigation should aim at exploring the extent and periods of extensive demand on our products and the specifications required in these markets. It could be undertaken by our commercial and agricultural attachés or by special trade missions as the case may call for.

(b) Processing centres should be established in the most important areas of production. They must be provided with modern facilities of storage and packing to prepare the products in a form fit for export. These centres should be operated under State control and guidance to ensure the establishment and maintenance of a good trade reputation for our products and consequently stimulate demand thereon.

(c) Establishment of receiving stations for our products in foreign markets to advertise them and push up their sales. Such organizations will act as liaison agencies between the growers in Egypt and the importers abroad. They will also organize the flow of exports according to demand conditions.

(d) Orientation of the local production so as to be in keeping with the requirements of the new export policy.

(e) Provision of adequate facilities for rapid transportation between the centres of production and the centres of consumption. This entails the construction of good roads ; the establishment of a modern truck service ; the improvement of transportation by railroad ; and the building up of a commercial fleet.

IV.—Improving of Marketing Facilities

Our efforts to increase agricultural production should be accompanied by a good system for the distribution of different agricultural commodities. The standard of living of the rural population does not only depend on the quality and quantity of their products but also on the revenue they derive from agriculture. One of the most important factors in raising the farmer income is the availability of a good marketing system. Unfortunately, our farmers still use very primitive methods in marketing their products. There is also a wide margin between the prices received by the farmers for their crops and the retail prices paid by the consumers. Small farmers with their small-size production are always in a weak position when negotiating with wholesale dealers. Therefore, it is essential to organize cooperatives for the small farmers to compile, process, pack and market their products.

It is also necessary to organize an efficient marketing system which aims at the realization of the following :—

- (1) Reducing the number of middlemen between the producer and the consumer.
- (2) Reducing the costs of marketing at the different stages.
- (3) Preventing all forms of waste in agricultural products before marketing.
- (4) Organizing rural and central markets under State control in order to ensure an even flow of commodities to the markets and minimize fluctuation in prices and prevent dumping.

The means to achieve these objectives are :—

- (1) Compiling small units of agricultural produces in large lots in the production centres and marketing them collectively through cooperatives and unions.

(2) Entrusting the aforementioned agencies with the performance of the services now carried out by middlemen.

(3) Improving means of transportation used in marketing agricultural products to ensure the speedy and safe delivery of such products to their market destination at the lowest possible cost.

(4) Establishing units of weight and measurements for agricultural products which must be used when they move in the internal trade.

(5) Administering state control markets which should be provided with modern facilities of storage, processing and packing.

(6) Establishing boards in large markets to supervise auctioneering transactions and settle any dispute that may arise between producers and merchants regarding grades, specifications, and weight or measurement units of the products. In grain, vegetables and fruit markets state employees should be appointed for inspecting and grading such products.

(7) Adopting units of weight and measurement that are most used in foreign markets in order to facilitate our transaction with such markets.

(8) Appointing Government officers in local and central markets to diffuse market news for agricultural products. This involves information as to price, quantities shipped, receipts at principal markets.

(9) Investigating thoroughly local and foreign markets in order to enlighten the producers about the conditions and trends in such markets to help them organize their shipments accordingly.

10. Enlightening the public about the nutritional value of the different products so that demand thereon will be motivated by its nutritional requirements.

Consequently demand for and prices of the different products will be in proportion to the nutritional value of such products.

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(11) Adjusting the marketing system in order to ensure the availability of raw materials required for agricultural industries.

(12) Undertaking an extensive propaganda campaign for Egyptian export products in foreign markets to strengthen their position in such markets and stimulate demand thereon. This should go hand in hand with a nation-wide program for educating and training those engaged in export business about the most modern technique of marketing.

V.—Promoting agricultural industrialization

Although industrial development in Egypt began some 30 years ago, more & more effort for its promotion is needed. The increase of population especially in rural areas, the meagreness of per capita income and the spread of unemployment are all strong reasons for developing industry in Egypt. However, industrial development will be the outcome of agricultural progress. Agriculture, with its inherent potentialities of progress constitutes the main factor for a developed industry and determines the dimensions of its progress. It will also help industry through providing raw materials needed for industrial expansion. Advanced agriculture also creates new types of demands which call for the establishment of certain industries such as the manufacture of fertilizers, agricultural machinery, animal medicines and feeds.

Furthermore, the expansion of industry through the promotion of agricultural industries such as dairies, tanneries, oil mills, and confectionery does not need a sizeable capital and could therefore be easily financed.

Undoubtedly, the Egyptian industry will depend for quite a long time on the local markets. In the meantime, local consumption depends largely on the purchasing power of the rural population which constitutes the majority of Egypt's population. As a matter of fact the present purchasing power of the farmers is  to support effectively industrial development on a

national scale. Any increase in the per capita income of the rural population, therefore, will naturally stimulate demand in industrial products and help industry to flourish.

For example, if each farmer can afford to buy a new garment in addition to his single worn out one, the textile industry will have to increase its productive capacity to meet such increasing demand. This will hold true for most of the consumption goods.

Meanwhile, we believe that the development of industry will determine the tempo of agriculture progress as the establishment of new industries will absorb the surplus in agricultural products; improve their prices and quality; and stimulate intensive agricultural production and the utilization of farm by-products.

That is why the promotion of agricultural industries is amongst the most fundamental objectives of this agricultural policy. This could be achieved through the expansion of the existing industries and the establishment of new ones. It is essential for Egypt to have a national industrial policy based on sound principles in order to ensure stability and progress for our industry.

To achieve this end the following measures must be taken:—

(1) The status of the existing industries should be examined with the object of finding out the degree of availability of raw materials as well as other elements necessary for their development. In the light of this study the Government should define the industries that would receive assistance from the State to ensure their proper development.

(2) A technological and scientific study of the productive capacity of the different industries should be carried out in order to distinguish between the economically promising industries and those based on speculative basis. This will help developing backward industries which lack the elements of modern technology and principles of economic production.

(3) Fragmented small industrial establishments should be consolidated into large production units using modern equipment and techniques in order to reduce production cost per unit and improve the quality of manufactured goods. Thus, industry becomes an effective instrument in raising the income of the producers of raw materials and reducing the retail prices of the finished goods to an extent that would make them available to a greater number of consumers.

(4) Industries for manufacturing agricultural production requisites such as fertilizers, insecticides, pesticides, weed killers and animal drugs and medicines, should be established and promoted. Priority should be given to those industries that have the raw materials available in the country and enjoy favourable production conditions. The establishment of such industries will help the country to fulfil its requirements of the above products which are now totally or partially imported from abroad and which would affect seriously the agricultural production should war or other circumstances cut off their supply.

(5) Cottage industries and rural handicrafts should be established and promoted throughout the country. The distribution of such industries among different provinces should be in accordance with the availability of raw material and the skills and aptitudes of the people in each province.

In selecting such industries preference should also be given to those which absorb a considerable number of people and provide reasonable income for the rural family. Rug industry, pottery work, handweaving, etc. are good examples of promising rural industries.

(6) Farm and animal by-products industries should be established in order to ensure the full and rational utilization of our agricultural resources. Also, the by-products of a good number of agricultural industries such as sugar, cottonseed, slaughterhouses, etc. provide the raw material for other industries such as paper, organic fertilizers, alcohol and several industries.

(7) Raw material should be totally or partially processed into manufactured goods. This, however, should be done in accordance with our industrial capacity and the state of demand on such products in the local and foreign markets. For example, the largest part of our cotton and flax should be transformed into exportable yarn or finished textiles instead of selling them as raw materials. This will help our industry to expand and provide new outlets for employment as well as for investing idle capital.

THE ORGANIZATIONAL ASPECT

I.—Administration and organization of development programs

To put the agricultural policy into effect a well defined plan for agricultural development should be designed to ensure the full and rational utilization of our resources. The objectives of such a plan should be clearly and accurately defined according to the philosophy and spirit of this agricultural policy.

However, one should bear in mind that this policy is more or less an agricultural constitution to be followed flexibly and not rigidly. It should also be put under constant and close supervision in order to verify its adaptability to the changing conditions of our economy.

After being adopted by the nation this policy should be immediately translated several development projects covering all the fronts of our agricultural economy.

Such projects should be founded, from the organisational point of view, on four administrative elements, namely, planning, execution, coordination and evaluation, of view.

Planning is the corner stone of successful development programs. It must begin with a comprehensive exploratory survey of the natural and human resources of the country. It must be undertaken by a group of highly qualified technicians covering all fields of agricultural development. Such a survey should benefit from all experience acquired either locally or abroad, from scientific researches and discoveries. It should also rely on accurate information so that it could represent the factual status of our resources.

In conformity with this survey, development projects should be formulated and executed according to a system of priorities.

Each project should have a statement including cost and benefits, budgetary provisions, methods of financing, duration and stages of execution. To ensure the successful implementation of development schemes all instruments of high production and efficient management should be made available. As the human element is also very important, the process of execution must be inspired by a strong patriotic spirit motivated by a true and genuine desire for the common benefit.

Coordination is as important as planning. It harmonizes and integrates all efforts exerted for developing our agricultural resources. For example, the general plan for increasing agricultural production through vertical and horizontal expansion should be coordinated in a way that would reconcile between long-term and short-term projects. Meanwhile, the national production plan should be adjusted according to the relative priority of the different fields of economic exploitation.

But besides this internal coordination among the different programs and plans for agricultural development there must be an external one between such programs and other educational, social, public health, programs, since the productive capacity of agricultural labour is more or less an outcome of their health and educational standards.

A system of economic, financial and technical evaluation should be formulated and adopted in order to assess the progress of development schemes. In the light of such evaluation it will be possible to justify the continuation or discontinuation or the amendment of any of these projects so that time, efforts and money can be saved.

II.—Promotion of Scientific Research

Agricultural production cannot develop except on a concrete foundation of scientific research and accurate experimentation. This is the case all over the world, but for Egypt it is "must" because of the limited resources and over-population. Egypt in its endeavour to develop her economy and build up a new

generation on enjoying a decent standard of living should make full use of scientific research. This calls for the following measures :—

(a) A spirit of appreciation towards science and scientists should be aroused among the people to help them estimate the findings of scientific research and apply them. It will also enable them to identify their problems and find means of approaching them. Thus, in the long run, the people will be more ready to accept scientific theories and practices.

(b) The Government must provide every assistance, material or moral, to scientific research and to research workers to ascertain the security they need as a pre-requisite of a genuine scientific career. This will also enable them to devote their minds and efforts for solving the manifold problems confronting agricultural development.

(c) Scientific research should be oriented towards solving problems of major importance to the national economy with special emphasis on those which have a direct bearing on production.

(d) Research workers should not be in seclusion from the community so that they could be thoroughly acquainted with its problems and recommend the most suitable means for solving them. On the other hand, it is most essential that individuals when confronted with production problems approach research workers and institutions and seek their advice. Therefore, such institutions must be accessible to the farmers at all levels in order to provide for a continuous flow of information between research workers and the farmers.

(e) No research should be considered completed before it is applied on a wide scale and results obtained to justify its application by the farmers. Researches should not be confined to laboratories but must spread into the fields and their findings should be applied immediately as soon as they have proved valid. Agricultural researches will never achieve their end unless they are reflected on the national production and standard of living of the majority of the people.

(f) Funds and number of research workers should be in proportion to the volume and importance of the problem under consideration. All possible measures should be taken to prevent overlapping and duplication in researches undertaken by the different agencies and research workers.

(g) Close relations should be established and promoted between research institutions in Egypt and those in the scientifically advanced countries, especially such country which have similar conditions and problems. The policy of the Government educational fellowships should be oriented in a way that complies with the needs of the country. Opportunities should be offered to research workers in Egypt to participate in international and regional scientific conferences, meetings and seminars in order to keep abreast of the recent developments in agricultural sciences.

III.—Decentralization in Agricultural Services

To ensure the realization of the objectives of the agricultural policy at all levels, development schemes should be implemented in a decentralized way. The nature and scope of agriculture as an activity affected by different climatic and environmental conditions make it unsound to have agricultural programs administered by the Ministry's headquarters in Cairo. All branches and activities of the Ministry should be represented at the provincial level. It is essential, therefore, to have the following establishments set up in each province :—

(1) *A Soil Laboratory* to undertake periodical soil investigations with object of finding out causes of soil deterioration and recommend suitable remedies accordingly. The Laboratory should also investigate the different fertilizers in use ; study methods for their application, and recommend to the farmers the best methods to meet the plant and soil requirements.

(2) *A Food Analysis Laboratory* to investigate and analyze locally produced foods in order to prevent adulteration and safeguard the interests of both the consumers and producers.

(3) *A Station for the production and distribution of selected seeds among the farmers.*

(4) *A Livestock Centre for the development of better breeds, for increasing and improving the production of meat, milk, wool and eggs. To obtain prompt results such a centre should be provided with selected sires and artificial insemination equipment.*

(5) *An Animal Health Centre for the treatment and protection of livestock against pests and diseases. The Centre should be provided with facilities for undertaking the pathological investigations necessary for the diagnosis and treatment of diseases.*

(6) *A Plant Protection Centre for combating various pests and diseases.*

(7) *An Agricultural Extension Centre to act as a liaison agency between the farmers and the aforementioned institutions. This Centre should also be used for training farm youth on modern techniques of cultivation, dairy, poultry breeding and the operation and maintenance of agricultural machinery.*

To implement such a system of decentralization the country should be divided into regions either according to the present administrative system or by any other system that may prove suitable. Number and sites of agricultural centres should be determined according to the needs of each region and the nature of services to be rendered by the centre. For example, livestock improvement centres should be set up in the villages as the nature of animal production entails that the village be the centre of all activities directed towards the improvement of livestock. On the other hand, laboratories for soil and food analysis and seed stations should be established in the centre of each region or province.

We believe that the adoption of decentralization will help a great deal in rendering agricultural services promptly and efficiently. It will also help serving the farmers at all levels and eliminating bureaucracy with its complexities and wastage of time and effort.

IV.—Promotion of Agriculture Extension

Our endeavours for improving agricultural production and promoting rural welfare necessitate the existence of an agricultural awakening among the farmers. This could not be achieved except through a sound system of agricultural extension.

Extension is a spiritual as well as an educational movement. It must be based on logic, conviction and mutual understanding and aim at gaining the confidence and friendship of the farmers rather than creating a sense of fear from laws and penalties.

It should be in keeping with the needs of the community; and aim helping the farmers to help themselves in understanding and solving their problems. Its mission should reach all farmers at all levels. All in all, it should enable the rural people to increase and improve their production through the utilization of better agricultural techniques.

A successful system of agriculture extension depends on three elements, namely; the extension agent, the farmer and methodology.

The aptitude and personality of the extension agent are of utmost importance. He must be sociable, dynamic and willing to serve the community. In order to convince the farmers he must have a good background in agriculture and a considerable knowledge of the agricultural conditions in the region.

The State should provide the extension agent with all facilities to help him maintain close contacts with research workers in order to organize a continuous flow of up-to-date information to the farmers in their fields. On the other hand, the extension agent must keep the research workers informed about the farmer's problems so that researches may be directly towards solving them.

The second element is the farmer himself. His response and reaction towards the advice rendered is of paramount importance. Therefore, it is essential to have him properly exposed to

extension campaigns by explaining the benefits that may accrue from adopting any measure proposed.

The methodology of extension is also very essential in establishing a successful system. The different methods used must be in harmony with the community and the people. For example, in a country like Egypt where there is a high percentage of illiteracy demonstrations and moving pictures rank first among the different mass media.

Technical advice should be coupled with material aid whenever possible. It is of no use to ask the farmers improve their production of crops and livestock without providing them with facilities such as selected seeds or sires which would help them in achieving the required improvement.

In the light of the above mentioned principles the following measures should be implemented :—

(1) Agricultural extension work must be separated from the agricultural inspection service which is entrusted with the enforcement of agricultural laws. This will help creating a sense of friendship and confidence between extension agents and the farmers.

(2) Adoption of extension methods that suit the mentality and cultural standard of the Egyptian farmer. This calls for a wider use of moving pictures and film strips which will help educating the farmer in a simple and effective way.

(3) Demonstrations should be carried out on a wide scale. They should involve some training on modern techniques and equipment.

(4) Selection of a group of individuals representing the community from the financial and cultural point of view to act as leaders. Extension agents should depend on them when propagating new ideas or recommending modern techniques to the community.

V.—Mobilization of Campaigns

The idea behind this procedure is to avoid red tape and routine whenever a prompt and effective action is needed. In certain cases special campaigns should be mobilized to do a specific job after which it could turn to another one. These may include combating animal or plant pests and diseases; road building; filling up swamps with earth and clearing canals.

However, when such action is required the following points should be taken into consideration :—

(1) All efforts and forces should be mobilized and concentrated in one direction towards the required objective.

(2) The field of work must be defined beforehand; if, for instance, the objective is to exterminate or control some plant or animal disease, zones to be covered should be marked so that there will be no waste in effort, time and equipment.

(3) Each campaign must have a deadline.

(4) Each campaign must be well organized. There must be a well staffed and equipped base from which all activities will spread.

(5) Campaigns must be specialized and periodical. For example, one to be mobilized for plant diseases, another for insects, a third for weed control, etc. They must be operating throughout the agricultural year in order to combat the different pests on all their hosts.

(6) The final objective of each campaign should be complete and not partial eradication of the pest, whenever this is physically possible.

(7) Each campaign should have after it is completed, a reflection on the techniques, equipment and methods used by the farmers.

These are the objectives of the agricultural policy and methods of achieving them. It aims at increasing the productive efficiency, diversification of agricultural production, promotion of agricultural industrialization. It takes into close consideration all opportunities availed to the nation by agriculture and benefits from the geographical situation, the favourable climatic conditions and the fertile soil that Egypt enjoys.

Undoubtedly, the projects of diversifying and intensifying agricultural production will lead to the absorption of any surplus that may accrue in manpower and a better utilization of human resources. It will also open new outlets for technically trained people, graduates from universities and other technical institutions, thus alleviating unemployment whether concealed or revealed.

In the long run the purchasing power of the entire population will rise, the national income will increase, and welfare will prevail. Then Egypt will awaken and occupy the place she deserves among the league of nations.

APPENDIX

Index for the Weights and Measurements used in Egypt

Feddan	=	{ 0.42 Hectar. 1.038 Acres.
Kentar	=	44.928 Kilograms.
Pound	=	{ 0.449 Kilograms 0.99 English Pound.
Kentar of Cotton (unginned) ...	=	141.5 Kilograms
Kentar of Cotton Lint (ginned)	=	44.928 "
Ardeb of Cotton Seed... ..	=	121.3 "
Ardeb of Wheat	=	150.0 "
Ardeb of Barley	=	120.0 "
Ardeb of Corn	=	140.0 "
Ardeb of Sorghum	=	140.0 "
Dariba of Paddy Rice	=	945.0 "
Ardeb of Rice (Decorticated) ...	=	200.0 "
Ardeb of Paddy Rice... ..	=	300.0 "
Ardeb of Horse Bean... ..	=	155.0 "
Ardeb of Lentil	=	160.0 "
Ardeb of Linseed... ..	=	122.0 "
Ardeb of Groundnuts	=	75.0 "
Ardeb of Sesame... ..	=	120.0 "
Kentar of Onions... ..	=	44.928 "
Heml of Straw	=	250.0 "