CHAPTER — VI

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SUMMARY, CONCLUSION AND SUGGESTIONS

The present study deals with the variations in foodgrains production and productivity in the countries of Syria and Egypt. It is an agrographic investigation which carried-out in a comparative methodological framework. It deals with the characteristics of agriculture in both the countries. Syria occupies a significant position in terms of area and production in comparison with Egypt, though it is not a self-sufficient country in terms of foodgrains production. About 13 per cent of the total requirement is being met by the imported foodgrains. But as compared with Egypt, Syria is least dependent on imported foodgrain.

Syrian agriculture is having a most complex environmental framework, and is divided into two

agro-climatological regions, (i) the western narrow strip consisting of numerous valleys occupy 8 per cent of the total geographical area. Fertility is much higher resulting an intensive cultivation. (ii) Secondly the vast plain sloping towards the east with a vide valley of Euphrates where extensive cultivation is very common which is largely prone to frequent occurences of draughts and erratic rainfall.

Egyptian agriculture has the same common characteristics with Syria. The main factor affecting agriculture in Egypt is the vast arid and treeless desert except of the extremely fertile Nile valley and delta. As compared with Syria, Egypt is located in a more disadvantageous situation in terms of agricultural ecology.

The agricultural situation of both the countries is being discussed in terms of year wise fluctuations in area production and yield because the area and yield affect the total production. The following main observations can be deduced :

(i) In Syria, more than 80 per cent area is devoted to the cereal crops, because the cereals are the

dominating crops in all the states of the country. It is because of the higher yield of the cereal crops than the pulses, cereals are contributing more than 90 per cent of the total foodgrain production. In Egypt, about 95 per cent area is devoted to cereal crops and 5 per cent to the pulse crops. It is because of the higher yield of cereal crops, cereals are contributing more than 95 per cent of the total foodgrain production.

(ii) in Syria the rate of fluctuations is very high in comparison with Egypt. During the period under study (1974 to 1986) there is a high fluctuation in area and production of foodgrain. Out of thirteen years, six years have recorded negative fluctuations in both area production and yield. The negative fluctuations has gone up to 14 per cent in area 46 per cent in production by the year 1984. A high positive fluctuation is recorded by 17 per cent in area, 73 per cent in production and 180 per cent in yield. In the case of Egypt the fluctuation is not so high as compared to Syria. During 1974 to 1986 the negative fluctuation has not gone upto 6 per cent in area,

7 per cent in production and 3 per cent in yield. A high positive fluctuation is not recorded to the level of more than 9 per cent in area production and yield.

(iii) The productivity level of foodgrains in Syria during 1984-86 is much higher in comparison to the year 1974-76 i.e. 1440 kg./hectare and 934 kg./hectare respectively. In case of Egypt. during this period the country recorded a very high productivity per hectare i.e. 4338 kg./hectare which is much higher as compared to the period 1974-76 i.e. 3782 kg./hectare. It is obvious that the productivity of Egypt is 3 times higher than the productivity level of Syria.

(iv) In Syria, the crop-wise growth in area, production and yield have been analysed and it is observed that during 1984-86 the area, production and yield have decreased in comparison to the period 1974-76 except of two cereal crops i.e. barley and maize. During 1974-76 the area recorded by these crops are 9.60 and 16 thousand hectares respectively which has been increased upto 1404 and

39 thousands hectare respectively. But it has been observed that if the area has decreased the production has also decreased and if the area has increased the production and yield has also decreased. But in the case of Egypt the situation is more or less reverse. It has been observed through the cropwise analysis that there is a very minor variation in the increase or decrease in area, production yield. While the decrease or increase in area does not affect the high or low situation of productivity.

However, it can be understood with the average productivity of both the countries (878 and 3950 kg./hectare) that such a marked difference of four times variations in productivity is due to the intensive use of agricultural technology and control over the environmental factors, though the environmental constraints in Egypt are more as compared to Syria. In Egypt all the cultivated area is irrigated, hence the productivity variation is very less except in few pockets wherever the variations in cropping pattern is noted, i.e. the dominance of high yield and low yield crops. In Syria the variation in productivity is very high ranging between 444 to 1475 kg./hectare because of the contribution of the factors such

as environmental and technological. But the technological investments are concentrated only in those areas where the environmental hazards are lesser as compared to the areas of higher environmental hazards. So the technology is dependent on environment because it helps in the introduction of various technologies to obtain the higher level of output than the input.

The chapter entitled "Measurements of Agricultural Productivity and its Spatio-temporal analysis" deals with the measurement of agricultural productivity. It may be defined as the ratio of the index of total agricultural output to the index of total input used in a farm production. It is, thereore, a measurement of the efficiency with which inputs are utilized in production mechanism other things are being equal. moreover, there are three types of productivity i.e. productivity of land, productivity of labour and productivity of capital. To measure these three types of productivity some of the geographers have attempted to measure these three types of productivity and had given the formula to measure - these productivity. However, the productivity is bound to vary from region to region with the variations in various physical, technological and institutional factors operating in the region.

In this chapter an attempt has been made to findout the statewise variations of agricultural productivity in Syria on the basis of Yang's (1968) crop yield formula. Productivity indices of various crops were work-out on the basis of Yang's crop yield formula for four points of times, i.e. 1974, 1978, 1982 and 1986. The crops considered for the analysis are wheat, barley, rice, maize, millet, lentills, chick peas and dry broad beans. Moreover, after calculating the productivity by this formula, the agricultural productivity areas of high, medium and low regions were demarcated.

(a) The low productivity regions in 1974 includes the states of Aleppo, Homs, Al-Hassakeh, Al-Rakka, Sweida and Dara. These states constitutes 50 per cent of cultivated area of Syria. In the year 1978 and 1982 the picture remain the same in 1986 except of the states i.e. Homs, Al-Hassakeh, Al-Rakka, Al-Sweida and Dara which fall under the low productivity regions. (b) Medium productivity region includes the states of Damascus, Hama, Lattakia, Idleb, Tartous and Quneitra but in 1986 the states of Damascus, Lattakia and Idleb has increased its position from medium to high. (c) High productivity region is located in only one state, i.e. Dier-ez-zor in 1982 but in

1986 the states of Damascus, Lattakia and Idleb fall under this category. It has been observed from the above analysis that there is a marked variation in the productivity index, and this variation in productivity is caused due to the wide variations in the environmental conditions, especially the amount of rainfall. As productivity variation has direct relationship with the rainfall conditions.

In Egypt the productivity is already very high as compared to Syria. From 1974 to 1986 the per cent increase or decrease in productivity is very low. The main cause of this high productivity is the controll over the environmental factors.

It is evident from the comparative analysis betwen Syria and Egypt that in spite of the disadvantageous agricultural ecological conditions of Egypt, the productivity level and its variations between these two countries is caused mainly by the varying input levels supported by only one major crucial factor i.e. water as water is the key factor controlling the use of various other inputs such as fertilizer and high yielding variety seeds etc. Among the major factors environment is held

responsible in various ways such as availability of cultivable area to the total geographical area in Egypt and Syria, and it was noticed that Syria is located in a better situation as compared to Egypt.

PER HECTARE PRODUCTIVITY ÷ 1986

	Syria yield kg./hectare	Egypt yield kg./hectare
Foodgrain	1375	4443
Cereals	1170	4687
Pulses	898	2077

The productivity of foodgrain in Egypt is more than three times higher and in cereals it is more than four times than the cereals productivity of Syria and about three times higher in pulses than the pulses productivity of Syria.

In the chapter entitled "Variations in levels of growth and levels of productivity" in Syria and Egypt deals with the per cent share of each crop to the total gross cultivated area and productivity level of each has also been analysed. It has been seen that in Syria, wheat and barley have occupied 40 and 50 per cent of the total gross cultivated area while as the remaining crops constitutes an insignificant share except of some pulses crops which have recorded a share of 3 to 2 per cent. Wheat and barley are grown in almost in all the states of Syria. In Dier-ez-zor wheat constitute about 37 per cent, barley 16 per cent and maize 7 per cent. High percentage of wheat and barley is noted in Aleppo and Hama (59 per cent). In Tartous and Qumeitra the percentage of wheat reached upto 79 and 68 per cent respectively.

There is a high variation in production in cereals and pulses at state level and mostly there is domination of cereal crops in total production. States like Aleppo, Al-Sweida,Homs,Al-Rakka and Dara have contributed 38 per cent in the total production of foodgrain during 1979-81 to 1984-86 and have recorded an area of about 47 per cent under cultivation. High growth level in foodgrain was

found in Damascus, Lattakia, Dier-ez-zor, Idleb, and Al-Hassakeh with the share of 49 per cent in prodcution and 41 per cent in area, while as high yield is noticed in Hama, Lattakia, Al-Hassakeh and Tartous. It is, thus, observed that there is a marked variation in all the states of Syria.

On the other hand, in case of pulses the per cent growth level is found in area and production in the states of Damascus, Homs, Hama, Dier-ez-zor, Idleb and Quneitra.

It is, thus, observed that there is a marked variation in levels of development as well as levels of growth among all the crops of Syria. On the other hand in case of Egypt Maize, Wheat, Rice are the major among the cereal crops with 36, 24 and 19 per cent respectively to the total gross cultivated area. Other crops are sharing very less area. Moreover, the productivity is also very high of these crops, (Maize 4995 kg./hectare, wheat 3805 kg./hectare and rice 5947 kg./hectare).

	INPUTS	SYRIA	EGYPT
1.	Irrigation	17%	100%
2.	Rainfall	100mm. - 1000 mm	0 - 200 mm
3.	Number of tractors per thousand hectare	43959	4300
4.	No. of Harvesters and Threshers	2976	2200

Due to the higher inputs used in Egypt and low in Syria resulting a high fluctuation in productivity and because of 100 per cent irrigation in Egypt which is the only major cause of high productivity.

Although the work has been carried out within the environmental, technological and institutional framework, therefore, the influence of all these variables can be studied as follows:

In Syria and Egypt the land form, soil and climate have played a vital role in affecting the land use pattern.

Relief and structure of the land have exercised a direct influence on the land use pattern and spatial diversity in crop yield. In Syria, with vast areal differences in topography, climate, soil and irrigation facilities and the agricultural attributes have also shown a marked diversity all over the country. The areas having assured rainfall and developed water supply differ from the areas, where rainfall is more or less scanty and irrigation facilities are available to some extent i.e. the coastal region lying between the mountains and the sea is mostly a higher productivity agricultural zone.

The chemical composition of the soil also plays equally an important role in determining the potentiality of land e.g. the cinnamonic soil, which is known for the barley cultivation. Soil receives rainfall from 150 to 300 mm. The soil is rich in calcium contents and mostly covers the interior plain of Syria. Alluvial soil is having a loan and clay texture. This kind of soil is found in low valleys of Euphrates river. The fertility rate is high and the soil is suitable for cereal crops. The soil receives 250 mm. of rainfall.

On the other hand Egypt is located in a different agricultural eco system, governing the land use pattern,

the cropping intensity and the spatial variation in crop productivity. The morphological constraint is either too positive or too negative in Egypt but in Syria such a situation is not prevailing. However, there are two relief zone i.e. Nile valley and the Delta region where the intensive cultivation is found. The Delta zone which is most fertile region forms the northern most part of the country is important for berseem, wheat, rice and maize cultivation. The Nile valley is suitable for barley, maize and wheat cultivation.

The soil of these regions are highly fertile and productive. The Nile valley and Delta regions are rich in calcarious alluvial soil. The soil of these regions is more fertile in contrast to many areas of the Syria. The soil type which is found in both the regions (Nile Valley and Delta) is known as Fluviosals soil. This soil group is very productive and produces all types of crops.

The diversity of rainfall in Syria governs the agricultural set up of the country. The major factor which influences the agricultural production in Syria is rainfall. It has been observed that the coastal regions

towards the Mediterranean side have an average rainfall of 600 to 1000 m.m. and the north eastern and south western parts of Syria have an average rainfall of 400 m.m. Accordingly there is a variation in the crops grown in these areas. However, the cereal crops are grown in those areas where the rainfall is above 500 m.m. and pulse crops are grown in those areas where the rainfall is below 400 m.m. But in Egypt the situation is quite different. As in the country as a whole rainfall is not sufficient for agricultural purposes. The coastal areas receiving the highest rainfall (200 m.m.) but not sufficient for any of the seasonal crops. The amount of rainfall is so low that agriculture without irrigation cannot survive. Hence, in Egypt agriculture is completely governed by the irrigated water but in Syria more than 70 per cent agriculture is dependent upon rainfall.

Moreover, in Egypt all the cultivated area is irrigated hence the productivity variation is very less. But in Syria the variation in productivity is very high because of the contribution of the factors such as environmental, technological and institutional. But the technological investments are concentrated only in those areas where the environmental hazards are lesser as compared to the areas

of higher environmental hazards. In this regard technology is dependent on environment because it helps in the introduction of various technologies to obtain the higher level of output than the input. The economy of Syria at present may not allow the technological investments in the regions of more ecologically deprived as it is evident from some of the oil rich countries, of West Asia that agricultural development is taking place by controlling the more rigorous environment even on the level of higher the input and lower the output. In Egypt also the technological investment is only concentrated in the vicinity of the availability of water. The land reclamation to extend the cultivated area is also not very successful because of the encroachment of desert over the reclamed area. Therefore, environment is a major factor in Egypt limiting the area under cultivation, i.e. 3'4 per cent of the total geographical area of the country. Along a narrow belt of Nile river the area is available for cultivation where abundance of surface water is available for cultivaton. Beyond this limit, cultivation without water is not possible. A major investment is needed to divert the Nile water for the extension of cultivated area but the environmental hazards are too rigorous to control the situation. In spite of the availability of fertile soil in some of the large oasis cultivation without water

is not possible. Ultimately such a high productive country is importing foodgrains for more than 50 per cent of its population every year.

In Syria, the extension of irrigaed land is of vital importance. Being a large potentially fertile areas, yield is very low because rainfall is inadequate and where all the cultivable areas provide no summer crops because of the absence of rainfall from spring to autumn. It has become more imperative with the shrinkage in the area of good rainfed land, which can still be taken under cultivation. Thus irrigation is the principal means for expanding the cultivated area, increasing the yield and diversifying agricultural production, developing summer crop cultivation. It is also suggested that land under agriculture be planned under a well development perspective. A multi-dimensionally technological infra-structure is needed in order to ensure a whole sum agricultural yield. Modern agro-technological implements should be used on a wider scale. Also the introduction HYV and fertilizers has got to be introduced, so as to countervail the vagaries of nature.

However, due to the unavailability of a various types of comparable data on environmental, technological

and institutional it could not be possible to analyse the present problem in a more authentic manner. However, the following results were obtained to conclude the study.

(i) In Egypt, a high level of irrigation rate (100%) is responsible for the present high level of yield. While in Syria only 17 per cent cultivated area is irrigated and as a result, most of the area is devoted only to single crop in a year, while in Egypt most of the cultivated area is under multiple cropping.

(ii) A high level of fluctuation in foodgrain production is recorded in Syria ranging between 36 to 110 per cent because of the dependence on dry farming and erratic rainfall while in Egypt all the cultivated area is irrigated, therefore, the situation of fluctuation is insignificant.

(iii) The environmental constraints are more in Egypt as compared to Syria because cultivation in Egypt is limited to the availability of water while in Syria dry farming is a common feature and about 70 per cent of the cultivated area is dependent on rainfall.

(iv) An extensive culturable area is available in both the countries but due to the scarcity of water in Syria cultivation is limited only in the area of more than 10 inches of rainfall while in Egypt abundance of Nile water is available but its extension is not possible because of the extensive desert in both the sides of the river. The economy of Egypt is not sound enough to invest for the reclamation of land.

(v) The variations in yield level in both the countries are dependent on the availability of the irrigation water as well as the investment in other segment of inputs such as fertilizers, pesticides and HYV as they are all dependent on water.

(vi) Foodgrain yield increase or decrease is largely responsible for the decrease or increase in production in Syria. The increase or decrease in area is recorded insignificant in the increase or decrease in production. In a number of years it was observed in Syria that the area to a large extent has decreased but ptoduction could not suffer instead of it that the production has

increased very high because the cultivation was limited to the better and more productive areas. As a result the yield increase was very high and was held responsible for the increase in production.

Growth in production in most of the crops is recorded because of the increase in yield. The increase in yield is possible in Syria to a very high level if the input level is increased but there is a little possibility in Egypt because input level has reached to a saturation point. The introduction of short duration maturing crops can increase the prodcution to the level of food self-sufficiency.

Moreover, there are some other suggestions arly for Syria, that through the establishment of erative Joint Farming Society, per hectare yield essfully be increased. In this system the right of al ownership is recognised and respected, but mers possessing uneconomic holdings should pool nd for the purpose to joint cultivation viz., the ual ownership and collective farming. After

adopting this system which will provide facilities to use modern scientific agricultural equipments and will increase the production. The most important innovation need to be undertaken in the institutional sectors. Modern agricultural institutions which can provide adequate training facilities should be set up. Land reforms should be carried out so as to ensure greater involvement of the masses in agricultural sector. Land must go to the tillers. The feudal wastage should be removed. The landless agricultural labourers should get surplus land and adequate facilities so as to motivate the toiling class for producing more food.

It is thus evident that the instability in foodgrain availbility is much higher in Syria as compared to Egypt, which leads to uncertainty in import and export policies. It is largely because of the environmental abnormalities and lesser control over the natural hazards. The agricultural development of Syria can be brought to the level of Egypt if the areas of lesser ecologically deprived are controlled on first priority which is located in Syria above the rainfall of 400 m.m. The control over this region will help in solving the scarcity, shortage and fluctuation problems of foodgrains of the country.