PROFITABILITY AND ECONOMIC, EFFECTIVENESS OF WHEAT PRODUCTION IN SOME AREAS OF BULGARIA*

M. Serajul Islam**

ABSTRACT

This paper attempts to explain briefly how profit is determined in a socialist country like Bulgaria in Agro-Industrial Complexes and how economic effectiveness of agricultural production is measured by profitability. Profitability of wheat production in North-East Bulgaria during the period 1976-1979 has been analysed for illustrative purpose. It was observed that the level of economic effectiveness in the studied area measured by indices profitability and productivity of labour was high but it varied in different stages. Among the factor cost, per unit cost of fertilizer and mechanization produced more product than any other factor.

I. INTRODUCTION

Profitability is one of the most important and popular index to measuring economic effectiveness of agricultural production in socialist countries. Profit is a component of net income which is the basic source of capital accumulated and used mainly for extended reproduction. Quantitatively profit is the difference between the proceeds of an enterprise from its sold output and its outlays on production and realisation of products.

The source and method of estimation of profit in socialist production are different from those of capitalist production. The profit of a socialist enterprise reflects the relations of social ownership, comradely cooperation and mutual aid of production workers freed from exploitation and it differs from capitalist profit which .is based on ever increas-

**Assistant Professor in the Department of Agricultural Economics, Bangladesh Agricultural University, Mymensingh.

exploitation of labour in the production process. In capitalist enterprises profit is formed spontaneously, as a result of fierce competition among entrepreneurs and monopolies, but on the other hand, the profit of socialist enterprises is formed on the basis of planned process of production and realisation of products. Differences in the level of profit between enterprises and industries come about primarily through the action of planning factors, while capitalist profit is redistributed in bitter struggle among capitalists according to their capital. Here it may be noted that the economic laws of socialism require that an enterprise's use of its profit will not contradict the social interest but will stimulate the enterprises' better performance in the interest of society as a whole. It is applicable both in industrial and agricultural sectors.

In the present stud y an attempt has been made to explain shortly how profit is determined in a socialist country like Bulgraria in Agro-Industrial Complex (AIC) and how economic effectiveness of agricultural production is measured by profitability. Profitability of wheat production in North-East Bulgraria has been analysed for illustrative purposes. Three districts in North-East Bulgaria—Tolbuheen, Varna and Rajgrad were selected where 370944 hectares of agricultural land have been divided into 18 Agro-Industrical Complexes. Annual data from 1976-1979 were used in estimation.

This paper is organized as follows : Section II discusses briefly some fundamental concepts to measuring economic effectiveness of agricultural crop production. Section III analyses profitability of wheat productiion and causes of its variation. Some conclusions on the basis of findings have been presented in Section IV.

II. FUNDAMENTAL CONCEPTS TO MEASURE
ECONOMIC EFFECTIVENESS

There is no single opinion about the criteria and index to determine the economic effectiveness of agricultural production. Different economists forwarded their opinions in different ways. But most of the economists (Buzdalov 1965, Cheatneaskee 1967 and others) accepted that profitability is the most synthetic and general index to measure the economic effectiveness of production. Again, some other economists (Anachkov 1969 and Tanov et al. 1978) pointed out that, to measure the economic effectiveness there should be one main index supported by some other additional indices. Accordingly in this study rate of profit has been taken as the basic index to measure the level of economic effectiveness of wheat production in above mentioned three districts and their Agro-Industrial Complexes (AICs).

Enterprise profit for the product is the difference between the enterprise's wholesale price and the actual prime cost of the product. Wholesale price consists of the prime

cost of the product and the profit of the enterprise. On the other hand, prime cost includes the material and labour cost in the production process. For calculation, the rate of profit means the relation between net income (M) received in particular time and prime cost (C+V) spent to have the finished product and is expressed in percentage. Following is the formula :

$$R_p = \frac{M}{C+V} \times 100$$

where, R_p = rate of profit of produced product,

      M = net income obtained in particular period,

      C = material cost invested in production process,

      V = labour cost invested in production process.

With certain limits, the ratio of the profit of Agro-Industrial Complexes to their assets expresses how effective their productions are or how profitable they are, while its ratio to the prime cost of product shows the degree of effectiveness of current expenditure. This method, in one hand, expresses the economy of labour use and on the other hand it shows importance of changing the quantity and quality of product, productivity of labour, intensification of production and step of using basic and circulating means of production. The lower the prime cost of production of a given product higher will be the net income and vice versa.

At the present conditions of scientific and technological progress, the efficiency of agricultural farm depends largely on the intensity at which different agricultural tools and equipment are used and accordingly the definition of profitability has been introduced as the ratio of profit to fixed production assets and circulating assets. This method has some drawbacks. With this method it is difficult to determine the circulating assets due to having different range of cycle and speed. Secondly, it does not reflect fully the effectiveness of the use of living labour. Considering these difficulties, the ratio of profit to the prime cost of product has been used here to determine the profitability of individual crop production.

Practically, the level and dynamics of profitability is, in general, determined from prime cost of production and realising price of product. Accordingly, these two indices were used to estimate the rate of profit in the production of wheat.

Some additional indices were used for better characterization of effectiveness of crop production. They are : productivity of labour and average yield per decare (1 decare = 0.10 hectare).

III. PROFITABILITY OF WHEAT PRODUCTION AND CAUSES OF ITS VARIATION

Average level of profit in the production of wheat in North-East Bulgaria was very high for the period 1976-1979. However, differences among the districts were also high. In Tolbuheen district the rate of profit was higher in comparison with Rajgrad and Varna district by 44 percent and 66 percent respectively.

Differences among the districts were caused by different factors and these causes will be explained in the process of analysis. This section will explain only the impact of most complex factors which have direct effect on the rate of profit of wheat production—prime cost of production and realising price of wheat.

Average realising price was highest in Rajgrad district by Lv 1.6[1] per ton in comparison with Tolbuheen district and Lv 9.4 per ton in comparison with Varna district. Average prime cost of production was also high in Rajgrad district by Lv 1.1. and Lv 11.7 per ton in comparison with Varna and Tolbuheen district respectively.

Table 1 clearly shows the differences in the level of profit among the districts depending on prime cost of production and realisiing price of the product. Low realising price in Varna district was the main cause for having lower rate of profit in comparison with Rajgrad district. As evident from Table 1, absolute cost of production of wheat in these districts and their AICs were comparatively low which ensured significantly higher rate of profit for the average period of 1976-1979. The data shows that there were unused resources and possibilities to reduce the cost of production tò gain still higher profit from these three districts and their individual AIC in the production of wheat.

For the average period of 1976-1979, the level of profit also differed among the Agro-Industrial Complexes within the same district and also among the three districts due to differences of prime cost of production and realising price.

Many specified and interesting differences were present among the Agro-Industrial complexes in the three districts. It may be noted that those AICs which have earned

---

1. Lv means Leva—Bulgarian currency. $ 1.00 — Lv 0.90 approx.

TABLE 1   AVERAGE LEVEL OF PROFIT OF WHEAT PRODUCTION IN THE
THREE DISTRICES AND THEIR AICs IN BULGARIA, 1976-1979

Indices Districts and AICs	Realising Price Lv/Ton 1	Prime cost of production Lv/Ton 2	Net income Lv/Ton $3=1-2$	Rate of profit % $4=\frac{3}{2}\times100$
Tolbuheen district	119.6	54.6	65.0	119.0
1. Tolbuheen East	118.7	51.1	67.7	132.5
2. Tolbuheen West	126.7	65.2	61.6	94.5
3. Tearbel	114.8	55.9	58.9	105.3
4. Krusharee	114.8	59.8	55.0	92.0
5. General Toshebo	117.3	51.4	66.0	128.4
6. Balcheek	121.2	59.1	62.1	105.2
7. Kabarna	119.8	51.2	68.6	133.9
8. Shapla	122.7	49.6	73.1	147.4
Varna district	111.8	65.2	46.6	71.5
1. G. Traikor	113.2	71.5	41.8	58.4
2. Varna	117.5	81.9	35.6	43.5
3. Dalgopol	117.4	135.7	-18.3	-13.5
4. Probadiah	92.4	46.5	45.9	98.6
5. Balchidol	121.7	60.6	61.1	100.9
Rajgrad district	121.2	66.3	54.9	83.9
1. Ispeerik	122.5	62.2	60.3	96.8
2. Kubrat	117.0	61.8	55.2	89.4
3. Logeanecha	122.1	67.2	54.9	81.4
4. Rajgrad	116.3	68.7	47.6	69.3
5. Senobo	130.4	69.4	61.0	87.9

significantly higher rate of profit have applied economical approach regarding organiza-
tion of production and realising the product to get the maximum profit from the farm.
Secondly, these complexes have comparatively higher realising price and lower prime cost
of production. Again, Agro-Industrial complexes which earned comparatively lower
rate of profit had higher cost of production and lower realising price. It was found that
these complexes had enough unused possibilities in the way of organization of production
and realising the product through improving the quality and quantity of product.

6—

Among the three districts only AIC Dalgopol in Varna district had negative rate of profit due to very high prime cost of production. Secondly, in this district it was found that relation between the two complex factors which determine the level of profit, did not follow economic law. Those who organized production in best way, realised the product with low price and on the other hand, those who organized production poorly tried to neutralise their deficiency through the market.

Looking at yearly data (Table 2) only at the district level, it is revealed that there are general as well as special features of tendency to changing the effectiveness of wheat production in respect to rate of profit in all the three districts. The general or common feature is the tendency of decreasing the effectiveness in the last year (1979) due to bad weather but the decreasing tendency differs in different steps and range.

TABLE 2 DISTRICTWISE LEVEL OF PROFIT OF WHEAT PRODUCTION

Indices Districts	Realising price Lv/Ton 1	Prime cost of production Lv/Ton 2	Net income Lv/Ton $3 = 1\text{-}2$	Rate of profit % $4 = \frac{3}{2} \times 100$
		1976		
Tolbuheen	121.7	50.0	69.8	134.2
Varna	118.8	66.6	52.2	78.3
Rajgrad	120.5	63.7	56.8	89.2
		1977		
Tolbuheen	123.3	48.2	75.1	155.8
Varna	94.0	52.0	42.0	80.0
Rajgrad	121.4	54.2	67.2	124.0
		1978		
Tolbuheen	119.9	52.0	67.9	130.5
Varna	121.1	67.2	53.9	80.3
Rajgrad	115.8	72.0	43.8	61.0
		1979		
Tolbuheen	111.2	70.4	40.8	58.0
Varna	118.6	76.9	41.7	52.3
Rajgrad	126.9	74.6	52.3	70.0

The least amount of change has occured in Varna district upto 1979. Almost same rate of profit prevailed during the first three years of study period in this district.

In Tolbuheen district, the absolute level of effectiveness of wheat production was comparatively stable due to good quality of land. Soils in this district are in first grade. In addition to this, most scientific techniques and modern technology have been introduced in this district to raise the productivity of wheat.

In Rajgrad district, the rate of profit increased about 35 percent between 1976 and 1977 but in the last two years again it decreased.

Structural Composition of Cost of Production

Analysis of level and dynamics of profitability of wheat production, revealed that cost of production is the main determining factor to earn more farm profit and/or effectiveness of production. Considering its importance the present study gave emphasis on the structure of cost of production and its impact upon farm profit.

It is very useful to study the structure of cost of production from two points of view :

(a)   to study the relation between the material and labour cost and

(b)   to study the relation among the material costs which are more than 75 percent of total cost.

Table 3 shows the relative importance of material and labour cost of production. It is observed that material cost exceeded labour cost in all the three districts. This shows the higher step of development of techniques and technology which had been adopted to level up the effectiveness of wheat production. The process of technological development is very rapid in Tolbuheen district and comparatively slow in Rajgrad district.

Cost of production in relative terms sometimes does not represent the actual structural composition of production cost. That is why, the present study also included the analysis of absolute cost of production, specially the major items involved in production (Table 4).

From Table 4 it is observed that, for the average study period cost of production per decare is lowest in Tolbuheen district—Lv 20.9 and highest in Rajgrad district Lv 32.4. In Varna district it is Lv 29.4. It is interesting that material cost of production per decare

TABLE 3   STRUCTURE OF COST OF PRODUCTION IN TOLBUHEEN, VARNA AND RAJGRAD DISTRICTS, 1976-1979

Indices	Percentage of total cost by district		
	Tolbuheen	Varna	Rajgrad
(a) Labour cost	19.9	21.5	28.6
(b) Material cost	80.1	78.5	71.4
1. Seed	12.3	12.9	9.6
2. Fertilizer	30.2	28.7	29.0
3. Manure	0.1	0.2	0.1
4. Plant protection	1.5	1.4	1.4
5. Amortization	2.1	1.2	1.3
6. Agricultural machineries	27.1	25.5	22.3
7. Auto-transport	1.2	2.9	1.5
8. Working animals	0.1	0.1	0.1
9. Repairing	0.1	.04	0.1
10. Mechnization and other works hired from other organization	1.6	1.0	0.6
11. Other related cost	3.6	4.2	5.4
Total (a+b)	100.0	100.0	100.0

is also lowest in Tolbuheen disttrict Lv 16.7 but in Varna and Rajgrad district it is one and same i.e., Lv2 3.1 per decare. From this results it may be concluded that higher technical structure of production cost in Tolbuheen district is not the result of higher investment but mainly due to right and proper combination of inputs based on modern techniques. In this regard, data shows that labour cost per decare in Tolbuheen district was 50 percent less than in Varna district and more than 2 times less than that of Rajgrad district.

It may be also noted from Table 4 that, relation between material and labour cost differ in different ways among the three districts and their AICs within the same district and/or in different districts. Difference between Tolbuheen and Rajgrad district arises due to differences in the intensity of use of land which affects the level of economic effectiveness of production. Rajgrad district has obtained the highest average yield but the cost of production per decare also is highest and on the other hand, rate of profit is lower in comparison with Tolbuheen district. This district has spent more for material cost specially for fertilizer and agricultural machinaries and again, labour cost is also highest. It should be pointed out here that the agro-climatic condition in Tolbuheen district is better than that of Rajgrad district. In relation to this we may conclude that Rajgrad district in practice did not strictly maintain the maximum limitation of effectiveness of

TABLE 4 AVERAGE PRODUCTION COST AND YIELD OF WHEAT PER DECARE IN TOBLBUHEEN, VARNA AND RAJGRAD DISTRICT AND THEIR AICs, 1976-1979

| Districts and AICs | Labour cost (Leva) 1 | Material cost (Leva) 2=4+5 +6+7 | Total cost (Leva) 3=1+2 | Major elements of material cost | | | | Yield (Kg.) 8 |
				Fertilizer (Leva) 4	Agril. Machineries (Leva) 5	Seed (Leva) 6	Others (Leva) 7	
Tolbuheen district	4.2	16.7	20.9	6.3	5.6	2.6	2.2	420
1. Tolbuheen East	4.8	16.6	21.4	6.6	5.8	2.8	1.4	475
2. Tolbuheen West	4.0	18.0	22.0	6.9	5.7	2.8	2.6	407
3. Tearbel	4.2	18.8	23.1	6.6	5.7	2.8	3.7	419
4. Krusharce	3.2	18.0	21.2	6.8	6.8	2.5	1.9	384
5. G. Toshebo	4.3	16.3	20.7	5.6	6.1	2.4	2.2	421
6. Balcheck	4.0	16.3	20.4	5.8	5.3	2.6	2.6	412
7. Kabarna	4.5	16.3	21.6	6.6	5.4	2.4	1.9	421
8. Shapla	3.6	15.9	19.5	6.8	4.4	2.2	2.5	455
Varna district	6.3	23.1	29.4	8.4	7.5	3.8	3.4	411
1. G. Traikor	9.0	31.7	40.7	10.9	10.4	5.0	5.4	390
2. Varna	12.3	37.4	49.7	12.1	11.5	6.4	7.4	405
3. Dalgopol	5.6	18.7	24.4	5.2	6.1	3.7	3.7	219
4. Probadiah	6.5	19.0	24.6	7.5	6.2	3.1	2.2	466
5. Balchidol	5.4	19.6	25.0	7.9	5.9	3.4	2.4	458
Rajgrad district	9.3	23.1	32.4	9.4	7.3	3.1	3.3	443
1. Isperik	11.5	22.6	34.2	9.6	7.2	2.5	3.3	518
2. Kubrat	10.1	25.0	35.2	10.1	7.8	3.8	3.3	512
3. Logeanccha	4.4	18.5	22.9	7.7	4.9	2.8	3.1	424
4. Rajgrad	8.0	21.2	29.2	8.5	5.9	3.0	3.8	214
5. Senobo	9.1	26.0	35.2	8.9	9.2	6.0	1.9	522

investment. On the other hand, Tolbuheen district has directed her attention mainly to increase the effectiveness without using the land resource in its maximum as a means of production, although agro-climatic condition in this district is more favourable than other two districts.

Productivity of Labour

Productivity of labour is another main factor for variation of farm profit. In this study the productivity of labour is explained in terms of quantity and value of product.

From Table 5 it is observed that all the districts and their AICs earned comparatively higher absolute level of productivity of labour in terms of quantity as well as in value. The level of productivity of labour is highest in Tolbuheen and lowest in Varna district. The result is the same if we line up the districts in respect to rate of profit. Dependency between productivity of labour and farm profit are lawful and directly related to each other.

Productivity of labour is a basic criteria for effectiveness of production because higher productivity of labour makes higher level profit. The higher productivity of labour in Rajgrad district was due to spending more both for labour and material per unit of land which made the total cost of production highest. This means that higher investment for labour with proper combination with other factors determine the trend of rapid increase of yield per unit of land. In Tolbuheen district cost of production was significantly low but yield per unit of land was high which ensured highest productivity of labour for the average study period. On the other hand, Rajgrad district after having highest yield per decare, earned low rate of profit because cost of production was high. However, data shows that combination of factors with higher cost of labour has positive results in some cases while negative effect on others. In general, to develop the production and to improve the effectiveness, more higher investment for labour may have negative effect after certain limits.

Productivity of labour measured by different indices is not similar among the districts. Productivity of labour in Tolbuheen district was higher in comparison with Rajgrad and Varna district by 38 percent and 49 percent taking wheat per day (Kg) as the index and by 69 percent and 37 percent respectively taking net produt(per day) as the index. Above differences shows that productivity of labour in Varna district is lowest.

Dynamics of the Productivity of Labour

Productivity of labour changes year to year. Here we can observe what changes have occured in the study period only in the district level. Dynamics of the productivity

of labour have been characterized with different tendency in different districts (Table 6). In Tolbuheen district, productivity of labour has increased by 13 percent in 1977 in comparison with 1976 and by 31 percent measured by net product per unit of labour as the index. From the data it appears that changes in the productivity of labour in Tolbuheen district was stable (except in 1979) and was characterized by high productivity of labour measured by two indices.

Causes of changes in the productivity of labour in Rajgrad district need further analysis. Except in 1978, the speed of increment of productivity of labour in terms of net product per day was significantly higher in comparison with wheat per day. That

TABLE 5   DISTRICTWISE PRODUCTIVITY OF LABOUR IN THE PRODUC-
TION OF WHEAT, 1976-1979

Years	Wheat per day (Kg)			Net product per day (Lv)		
	Tolbuheen	Varna	Rajgrad	Tolbuheen	Varna	Rajgard
1976	570.9	313.9	646.6	41.0	21.0	25.6
1977	645.0	380.6	562.1	53.8	30.1	48.9
1978	628.6	447.1	374.8	53.0	28.2	20.3
1979	449.2	395.0	474.2	28.4	23.5	33.0
Average 1976-79	571.3	382.8	413.1	43.8	25.6	31.9

TABLE 6   DISTRICTWISE DYNAMICS OF THE PRODUCTIVITY OF LABOUR
IN THE PRODUCTION OF WHEAT, 1976-1979

Years	Wheat per day (indices)			Net product per day (indics)		
	Tolbuheen	Varna	Rajgrad	Tolbuheen	Varna	Rajgrad
1976	100	100	100	100	100	100
1977	113.0	121.2	121.0	131.2	143.3	191.0
1978	110.1	142.4	80.7	129.3	134.2	79.3
1979	78.7	125.8	102.1	69.3	111.9	128.9

is why, dynamics of the increament of productivity of labour and rate of profit are in the same direction in this district.

In Varna district, in all the studied years productivity of labour was above the level of base year 1976. Beside this, rate of increment was, in general, higher. But rate of increament of net product was higher than that of crop per day in 1977 in comparison with 1976. During the next two years productivity of labour (wheat per day) had increased rapidly. Due to this dynamics, the productivity of labour and rate of profit did not move in the same direction.

IV. CONCLUSIONS

A significant level of economic effectiveness has been observed in the production of wheat in Bulgaria. The level of economic effectiveness in the studied area measured by indices profitability and productivity of labour was high but it varied in different stages. In comparison with Rajgrad district, Tolbuheen district having good agro-climatic condition obtained highest level of effectiveness but average yield was lower in comparison with Rajgrad district.

Per unit cost of fertilizer and mechanization produced more product than any other factor. In Rajgrad district, effectiveness was high and it has highest average yield. Considering the farming condition Varna District was in third position. Above mentioned and some other features indicate that one of the basic problem to increase economic effectiveness of wheat production in this area is to ensure the optimum combination of inputs and proportion between different forms of investment under the applied technology with a view to increase yield, reduce the cost of production and to increase profitability of production at the same time.

Level of economic effectiveness of wheat production in Rajgrad district shows that rapid introduction of scientific and technical progress of production is most important factor to have better and higher productive results under comparatively less suitable agro-climatic condition. But in such condition it is necessary to search for the optimum combination of all productive factors to increase the effectiveness of investment to its maximum within the limited resources and to cultivate the land more intensively.

Condition of realising price of the product has special impact upon the rate of profit as well as effectiveness of production of wheat and it has been observed that better quality products have less cost and comparatively bad quality products costs more and price is

determined according to the quality of product. From economic point of view it is very important to minimise the quality gap through better manageent and by stimulating productivity.

REFERENCES

Anachkov and Tanov 1969 B.E. Anachkov and A.T. Tanov : *Economic Effectiveness of Agricultural Production.* Sofia: 1969.

Buzdalov 1965 E. Buzsdalov : *Economic Effectiveness of Intensification of Agricultural Production.* Moscow: 1965.

Chearneaskee 1967 B. O. Chearneaskee : *Economic Effectiveness.* Moscow : 1967.

Islam 1982 M. S. Islam : "Economic Effectiveness of Wheat Production in NorthI-East Bulgaria." *Rural Economy, XIX, 3* (1982).

Kozlov 1977 G. A. Kozlov : *Political Economy : Socialism.* Moscow : Progress Publishers, 1977.

Kozlov 1977 G. A. Kozlov : *Political Economy : Capitalism.* Moscow: Progress Publishers, 1977.

Tanov, 1978 A. T. Tanov, B. Meeshav, N. Andrav, and P. Mareenov : *Economics of Socialistic Agricultural Production.* Sofia: 1978.

7—