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# **The Human Factor in Agricultural Management**

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## The Farm Manager's Influence upon the Utilization of the Means of Production

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"The task of managerial work is to bring manual and non-manual labour into reasonable cooperation, so as to attain intended purposes \*." Hence, managerial work as a skill in the management of an enterprise can be evaluated by analysing the effectiveness with which the means at a manager's disposal are used. Such analysis is not difficult in itself, using such indices as soil productivity, labour productivity, enterprise and, for instance, index of profitability. In any given case the difficulty of appraisal is due to the fact that in agriculture there is no infallible way of separating the influence of human activity from that of other factors on the results of an enterprise.

Being conscious of this, and taking into consideration that some inaccuracies can creep in, we carried out an investigation in an area of one of the

*Table 1. Characteristics of the Farms Investigated*

Element compared	Rszew	Average for the region
Amount of farms	1	95
Mean size, ha.	214	224
Equipment in capital production means, thous. zlotys	69.0	69.9
including machines	9.1	11.6
Employment per 100 ha.	30.1	20.3

provinces of our country, using the comparative method. In this investigation the results of one of the selected farms was compared with the mean result of the farms in the same region. The farm selected for the com-

\* Manteuffel R., *Ekonomika i organizacja pracy w rolnictwie* (Economics and Organization of Labour in Agriculture). Warsaw (1963).

parison was one on which the conditions were similar to the average for the region (for the whole population), except that it differed to a high degree so far as the effectiveness of its utilization of the means of production at its disposal was concerned.

### CHARACTERISTICS OF THE FARMS COMPARED

A comparison of the selected farm with the "average for the region", is given in Tables 1-3. It shows that the Rszew state farm, selected from the whole population, approximates to the average for the whole region so far as concerns production conditions, such as size, natural conditions, climatic region and soil type. Some difference may be noticed in the per-

*Table 2. Structure of Lands*

Kind of land	State farm of Rszew %	Other state farms %
Arable lands	88.5	82.2
Grasslands	5.3	12.7
Permanent crops	5.7	4.2
Other	0.5	0.9
Total	100.0	100.0

centage of grassland, though it is doubtful whether this could exert any decisive influence upon the utilization of the means of production, particularly when considering the general layout of the land. The farm differs to some extent from the average with regard to its distance from the market (14 km from the town of Łódź). This must be kept in mind when

*Table 3. Structure of Cropping*

Crop kind	State farm of Rszew, %	Other state farms, %
Cereals	45.8	43.9
Root crops	20.9	20.8
Fodder crops within crop rotation	23.0	27.8
Oil and fibrous crops	5.2	3.8
Other crops	5.1	4.6
Total	100.0	100.0

examining the figures quoted below; nevertheless one should not attach much importance to it, seeing that its distance from the town did not significantly affect the production structure of the farm, nor did the fact of selling all its produce through the state or cooperative trade network influence the prices received at all significantly.

Similarly, the total value of capital and equipment in machines per ha. was somewhat lower than the average for the region. These values can be regarded in some cases as a factor which depends on the farm manager; however, in the case in question, with a centralized investment system, it should be considered to be independent of the farm manager or to depend on him only in certain conditions.

#### DIFFERENCES IN THE EFFECTIVE USE OF THE MEANS OF PRODUCTION

In consequence we have to study the material as it is affected by the farming conditions. This points to the conclusion that the changes which occur in farm organization and the results obtained may be ascribed to the people working on the farm and primarily to the farm manager and his skill in utilizing the forces and means at his disposal.

Let us begin by analysing the use of one of the basic means of production, i.e. soil. In Table 3 a comparison is given of the cropping of the farm Rszew with that of the average for the region. In spite of expectations no significant differences can be noticed there. The somewhat higher percentage of cereals on the Rszew farm cannot have exerted any distinct influence upon its results: it might be justified by a higher demand for

Table 4. Soil Utilization

Element compared	State farm of Rszew				Other state farms			
	1960/61	1961/62	1962/63	1960/63	1960/61	1961/62	1962/63	1960/63
Four cereals, 100 kg per ha.	33.4	33.0	35.4	33.9	24.2	25.7	25.0	24.6
Potatoes, 100 kg per ha.	250	303	270	274	181	210	174	188
Sugar beet	—	447	266	356	239	265	190	231
Mineral fer- tilizers utilization, zlotys per ha.	690	530	870	697	526	563	645	580

litter for livestock. More significant differences are to be seen in the item: fodder crops cultivated within the crop rotation. This is more remarkable in that the Rszew farm, while cultivating less fodder crops in the field had less grassland, in spite of distinctly higher livestock numbers. In consequence, as will be discussed in detail later, at the Rszew farm there was

much less fodder crop area per head of livestock, while its productivity was higher. This, as illustrated by the yield differences in Table 4, proves a better utilization of the soil. The figures quoted in that table are rather characteristics, particularly when considering that there is no distinct difference in soil type between the Rszew farm and the average for the

Table 5. Comparison of Animal Production Results

Element compared	State farm of Rszew				Other state farms			
	1960/61	1961/62	1962/63	1960/63	1960/61	1961/62	1962/63	1960/63
Livestock numbers adults head per 100 ha.	60.3	55.0	70.2	61.7	45.9	50.2	50.0	48.7
Fodder area, ha. per adult head								
dairy cattle productivity	5190	4807	4936	3988	3288	3230	2964	3161
Animal production value, thous. zlotys per ha. of agricultural land	8.1	10.2	11.4	9.9	3.0	3.7	4.1	3.6
Animal production value, thous. zlotys per ha. of fodder area	21.1	33.8	40.0	31.7	9.7	11.5	11.4	10.9
Value of purchased fodder, thous. zlotys of animal production value	266	350	350	322	303	337	400	346

region. Three-year average yields of the main crops in the selected farm were about 40% higher than the regional average. A characteristic fact may be stressed here, namely, that the yield differences were not accompanied by unequal application of mineral fertilizers, so the yield increments occurred in consequence of better treatment of the soil and more appropriate soil cultivation, i.e. owing to human activity.

Moreover, the better results were not due entirely to higher yields; the more effective use of the product played an important role. This is evident from the data in Table 5, in which a comparison of the animal production results is given. Let us begin the analysis of these figures by comparing the differences in livestock numbers. Bearing in mind that the Rszew farm had less grassland and cultivated less fodder in the crop rotation, nevertheless, the farm had over 25% more livestock than the regional average, the animals at the same time showing better growth. All this was going on at a time when there was a widespread opinion that animal production was unprofitable.

In consequence of these differences in livestock numbers and in the acreage of fodder grown, the fodder crop area per head of livestock on the Rszew farm was less, by nearly a half, than in the region, while the dairy cattle productivity was much higher (by 55%). There resulted a very

significant difference in animal production per ha. of agricultural land or per ha. of fodder crops in the crop rotation. In the latter case the differences were three times higher than the three-year mean, and three-and-

Table 6. Comparison of Soil and Labour Productivity and of Final Result

Element compared	State farm of Rszew				Other state farms			
	1960/61	1961/62	1962/63	1960/63	1960/61	1961/62	1962/63	1960/63
Soil productivity final production value, thous. zlotys	13.5	16.4	17.6	15.8	7.1	8.1	9.3	8.2
Labour productivity final production value, thous. zlotys per worker	53	53	55	53.7	34.0	40.0	47.0	40.3
Final result profit, thous. zlotys per ha.	3.7	4.1	3.9	3.9	1.6	1.7	0.8	1.3

a-half times higher than the results of the last year of the investigation. The value of animal production per ha. of fodder crops on the Rszew farm was almost twice as high as the value of sugar beet, which is one of the most intensive crops in our conditions. This very high value of animal production per ha. of fodder crops was obtained on the farm in question in spite of a somewhat lower percentage of purchased fodder than the

Table 7. Labour Utilization

Element compared	State farm of Obory				State farm of Rszew			
	1960/61	1961/62	1962/63	1963/64	1960/61	1961/62	1962/63	1963/64
Labour expenditure, worker-hours per ha.	46.5	927	386	381	685	735	753	875
Labour mechanization degree	39.2	43.2	44.6	49.3	26.5	26.0	26.4	23.6
Global production of grain units:								
per ha.	39.1	44.9	38.0	42.7	52.3	72.3	83.0	86.5
per worker	190	238	217	252	181	220	244	223
Energy units per grain unit	19.4	16.7	18.7	17.3	17.1	13.7	12.5	13.4
Labour cost in zlotys per grain unit	118	105	132	119	124	97	94	103

regional mean. I pay particular attention to the results of animal production because managerial skill can be judged better by the results of animal than of plant production.

Finally let us estimate the activities of the farm as a whole. We can do it on the basis of the tables, using some indices. One of these is the final production related to soil utilization. On the farm examined it was

higher than the regional mean by more 90%. This soil productivity was obtained in similar natural conditions and with the same capital, but at a much higher level of manual labour (33% more). Thus, one further index seems to be of interest, namely of manual labour productivity. In this case too, using final production per worker, it appears that labour productivity on the farm in question was better than the regional mean. Although the difference was not so great as in the previous case, nevertheless it amounted to about 33%. In this case it is important to maintain a reasonable relationship between the manual and the mechanical labour. I shall return to this question later. Consider first still another index, viz. the final result of an enterprise (profit), as an illustration of the extent to which the use of all the means at the disposal of the farm manager was effective. The profit of the farm in question was three times higher than the average for the region. Owing to this level of profit the profitability index of the farm was 24%, while the average for the region, including the food-processing industry, was 8.5%. (Notice here that the average results for the region include the income from the food-processing industry, which could not be eliminated from the calculation).

I stressed the importance of determining for a concrete situation a reasonable relationship between manual labour and non-manual labour, i.e. the selection of an appropriate level of mechanization. The farm examined remained at a high level of employment. The question can arise, therefore, whether this decision was a correct one. Looking for an answer we made a comparison of the Rszew farm with another state farm (Experimental Farm Obory), which at that time, while striving to improve its results, considerably increased its level of mechanization, together with a simultaneous reduction of employment. The results of the comparison are presented in Table 7. The table shows that the Rszew farm, with much higher expenditure on labour per hectare, was able to maintain an appropriate level of labour productivity with lower expenditure of units of energy (joint use of manual labour and animal and mechanical traction expressed in terms of units) and at lower labour cost per unit of grain.