

On some Correlations in Bulgarian Agriculture

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Several very interesting studies have recently been published on the subject of the structure of Bulgarian agriculture. Most of them give a fairly satisfactory description of the general situation. In particular, the Enquete of 1933/34 has thrown much light on certain problems connected with agricultural development. In one respect, however, there exists a definite lack of information, or rather of study. This regards the problem of geographical analysis and geographical correlations, which is usually not carried beyond the differentiation between Northern and Southern Bulgaria. With only a few exceptions*, research workers have paid little or no attention to the valuable data by eounties given in the publications of the General Board of Statistics. On the other hand, there undoubtedly exist very important differences in the structure, size and other farming characteristics from one district to another. These differences offer a wide field for detailed investigations and may as well shed new light on certain general agricultural problems of the country.

The following pages represent an attempt to elucidate some of the geographical relationships. However, no attempt will be made to offer a detailed study of the problem. The object is rather to suggest certain methods of presentation and investigation, which could be usefully applied to the study of the forthcoming publication of the results of the 1934 Census. The statistical material here used has been placed at the disposal of the author through the courtesy of the General Board of Statistics. It relates to the year 1926 and is based in parts on unpublished data. The material is not deemed very safe in all respects (data for the value of crops and the harvest of cereals for one year only!), but it may well serve the purpose as an illustration.

The following charts are given to illustrate the geographical aspects of the density of agricultural population per 100 ha. of cultivated land (excluding the area under natural meadows), the average area of the farms, the number of draft animals per 100 ha. of cultivated land, the percentage of fields sown to cereals, the percentage of industrial plants from total sowings, the production of cereals per head of agricultural

population, and the total value of harvests per head of agricultural population.

The method used in preparing the above charts from the data given in the Appendix and referring only to agricultural communities (towns excluded) is extremely simple: in all cases the districts have been divided into three equal groups — with a low, an average, and a high value of the corresponding attribute. Without engaging into a detailed analysis of each separate chart (which is left to the reader), it becomes immediately apparent that there exist certain correlations among the different charts. Thus, for instance, considerable similarity is observed in the case of the charts relating to the density of agricultural population and to the total production of cereals per head, the colours being only reversed. Again, there is a close similarity between the density of population chart and that relating to the density of draft animals per 100 ha. of cultivated land. A close reverse relationship seems to exist between the size of the farm and the density of the population. Other similarities of this type may be easily discovered.

The method of correlation gives a numerical answer to these relationships. The following correlation coefficients have been established —

1. The density of agricultural population per 100 ha. of cultivated land and the density of draft animals: $r = +0.76$;

2. The density of agricultural population per 100 ha. of cultivated land and the value of harvest per head of agricultural population: $r = -0.58$;

3. The density of agricultural population and the average size of the farm: $r = -0.65$;

4. The average size of the farm and the density of draft animals per 100 ha. of exploited land: $r = -0.69$;

5. The value of the harvest per head of agricultural population and the density of draft animals: $r = -0.60$;

6. The value of the harvest per head of agricultural population and the average size of the farm: $r = +0.54$;

7. The density of agricultural population and production of cereals per head: $r = -0.70$;

8. The percentage of the area under cereal foods from the total of fields and the production of cereals per head: $r = +0.34$;

9. The size of the farm and the percentage of industrial plants from total sowings: $r = -0.64$;

10. The density of agricultural population and the percentage of industrial plants from total sowings: $r = +0.36$;

11. The density of agricultural population and the percentage of cereals from the total of fields: $r = -0.12$.

* In this respect the most important work is that carried out under the supervision of Professor Y. S. Molloff — of the Faculty of Agriculture and Forestry in the University of Sofia. The following special publications are of particular interest: Y. S. Molloff & Ath. Ouzounoff — „Types of Farming in the Plovdiv County“, Sofia, 1932; Y. S. Molloff & Clayton Whipple — „Types of Farming in Lovetch County“, Sofia, 1935; Dancheff and Babeff — „Types of Farming in Doupnitsa County“, Sofia, 1935 and Gospodinoff — „Types of Farming in Targovishte County“, Sofia, 1938.