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Implementation of European technical experiences to farm development in Uzbekistan

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Abstract
The article describes European experience in the use of technical services in farming. The diversity of land areas of the farmers of the Republic, the technique used in them, in most cases, is outdated, and the fact that the use of modern techniques can yield some better results.

Keywords: Agricultural enterprises, agricultural service providers, technical services, technical experiences to farm development

Introduction
Agricultural production exists in almost all countries of the world, while farms with small lands exist in many countries. The small size of farms always causes them some problems, such as problems with the use of fixed assets. Excessively high prices for machinery do not allow farms to buy them, but there is a constant demand for machinery. The use of modern technology can give high efficiency in tillage, production, cost savings [1]. The fact that farms do not have access to machinery, but the constant demand for it, forces small-scale farms to cooperate and use agricultural services. Such agro-services include mainly technical services in the example of the European Union. It is also important to know exactly what technique is needed.

Farming has different stage of history in Uzbekistan. First farms were created even Soviet period in 1990. In 1998 the Uzbek government introduced law "About farm activity". Farm quantity were more than 6,178 until 2000. After adopting new law, DE collectivization process ran from 1998 to 2003. In 2003, all collective farms ended and reformulated to farm with average 10 ha size. In 2008, farms quantity reached to 25,010 and began process for optimization land resources. Uzbek government always pays attention to the development of farms and this has already provided results. Today farms play a significant role in agricultural production in Uzbekistan. Farms were produced 8050 thousand tons of grain, 3450 thousand tons of cotton, 8 million 400 thousand tons of vegetables, as well as over in 2015. Agriculture still dominates the Uzbekistan economy. More than 27% of the country's labor force works in Agriculture [3].

Data and Methods
This article is based on of Agricultural service provision results in Samarkand province of the Republic of Uzbekistan. We use materials of research, scientific works of national and foreign researchers, also statistical materials of Ministry of Agriculture and Water resources, Ministry of Economics, State Committee of Statistics and web sites of government (www.press-service.uz, www.agro.uz), FADN (Farm Accountancy Data Network) in article. We use quantitive and qualitive methods, Excel software during analysis. All scientific conclusions are bases on results of research.

Main results and Discussion.
Market economy conditions, when the growth of agricultural production is associated with difficulties when there is fierce competition among agricultural producers, both within the country and between countries, when there is a massive ruin of farmers working inefficiently, a special role is assigned to technical services. Tasks of service - help to

address rural producers through the integration of technical service, agricultural science in the production, to interact with the technical organizations that influence the development of the agricultural sector.

One of the major problems of the agro-industrial complex of the Republic is to create an efficient, flexible and responsive to new developments social market economic system. One must consider the principal features of modern agriculture, among them - the small size of production, which does not allow a particular commodity producers conduct research with internal resources, implement research and development, as it can be done in large industrial plants. Hence the need to create a special system providing communicating scientific and technical developments, and any other information to agricultural producers. If we consider that the main factor ensuring that effective management solutions in the market environment, both at the head of the company, and at the level of regional and national authorities agribusiness in general, is timely and accurate information, the actual is the rational organization of information and technical services in the production management system.

Undoubtedly, one of the most commonly used types of maintenance is the combined service in this grain harvest. The German company CLAAS Vertriebsgesellschaft mbH is engaged in the supply of previously used agricultural machinery around the world, as well as maintenance with efficient use of machinery, and in 2014 the CLAAS TUCANO 430 combine harvester was valued at 180,880 euros [5]. Not only Uzbek farmers, but also many European farmers will not be able to buy this expensive equipment. As early as 2007, it was concluded that farms engaged in the cultivation of grain, oilseeds, protein crops in the European Union should either expand or cooperate, at least use the technical services of agro-service enterprises. The application of this conclusion was observed on many farms in Germany, Greece, Poland, Spain, Sweden, and Italy. In Portugal and France, however, this was not the case because they did not believe that farm expansion would be highly effective.

While large farms can use large machinery for large areas, it is important that small farms use such machinery on a cooperative basis.

There are the following options for establishing cooperation on the use of equipment:

- Inter-farm. In this case, the farm that purchased the equipment provides services to other farms by mutual agreement;
- Technical cooperatives. MTPs can also be an example of such cooperation or in the example of the CLAAS Vertriebsgesellschaft mbH enterprise above. This enterprise uses the equipment for the purpose of servicing the equipment during the period when the buyer is not engaged in the sale of secondary equipment.
- Private tractor owners. It is serviced by private entrepreneurs who own a tractor.

Sometimes the question arises as to whether or not there should be cooperation between farms. Research on farms has shown[1] that another problematic process is that farms are not always willing to cooperate, resulting in a decrease in the number of cooperative participants. This reduces the effectiveness of the collaboration. In addition, the operating costs associated with the partnership limit the number of participants, so when cooperative members reach a certain number, this is the best option for the operation, and an additional one farm in excess of it can turn the cooperative's income into a loss. As a result, farms that could not become members of the cooperative will now be forced to form another cooperative.

Using a cooperative service is not always effective because farms do not always want to be a member. Usually, the number of farms using cooperative services is less than the acceptable amount, and the effectiveness of cooperation between farms has to be calculated separately.

The effectiveness of the use of new techniques in cooperatives was studied. In this case, it is recommended to calculate the profit of the farm, which is a member of the cooperative, on the basis of the following formula:

$$F_i = \left(R_i^y - C_i^y\right) - \left(R_i^e - C_i^e\right)$$

Here: R_i^y – i income from new equipment for the farm, euros:

R_i^e –Income from old machinery for the farm$i$, euros.

C_i^y –Expenditures for new machinery for the farm$i$, euros.

C_i^e – Expenditures for old machinery for the farm$i$, euros.

The sum of the productivity of all farms shows the effectiveness of self-cooperation. A study of the partnerships of 5 farms with a total area of 230 ha using modern new or obsolete machinery and using the new machinery found that it could save an average of 925 (13074-12149) euros per year for 230 hectares (table 1).

Conclusions

It should be noted that the interaction of farms with the use of technical services is highly effective. FADN (Farm Accountancy Data Network) - Estimates based on data from the European Farmers Accounting System show that the use of the new modern machinery by farms with 230 hectares of land has saved 26.7% of time and at least 30% of obsolescence.

The European experience in the use of machinery can be applied in the agriculture of our country. Given the fact that farms with different land areas in the country are located in the same area, and most of them are obsolete, the existing MMTPs is nearing completion, it is possible to apply this experience. We recommend that farms abandon the use of old machinery and use the European experience in the use of modern machinery on the basis of mutual cooperation.

[1] Ibragimov G'. Analysis of economic relations between farms and agro-service enterprises // Issues of development of innovative corporate cooperation of science, education and production. - Samarkand, 2016. -263-267-p.(In Uzbek)

Table 1: The analysis of effectiveness of the use of new techniques in cooperatives

No	Indicators	Measure	Farms					
			A	B	C	D	E	All
1.	Land resources	ha	10	20	30	70	100	230
2.	Market price of old equipment	€	4000	4500	4500	6000	6000	
3.	Alternative costs for labor	€/ha	5	25	15	15	20	
4.	Depreciation costs for old equipment	€/ha	10	10	10	13	13	
5.	Period of old machinery working in the field	hours/ha	1,5	1,5	1,5	1,2	1,2	
6.	Service period of old equipment	years	20	15	12	12	12	
7.	The remaining service period of the equipment	years	5	0	3	11	3	
8.	The residual value of the old technique	€	1000	0	1125	5500	1500	
9.	Expenditures on old equipment	€/ha	60,15	86,18	63,06	48,22	54,82	13074
10.	Depreciation costs for new equipment	€/ha	7	7	7	7	7	
11.	Period of new machinery working in the field	hours/ha	1,1	1,1	1,1	0,9	0,8	
12.	Expenditures on new equipment	€/ha	54,72	76,72	65,72	46,92	48,12	12149

***Sources:** FADN (Farm accountancy data network) – Author's development based on data from the European farmers accounting data system

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