

## Effect of Native Agricultural Mechanized Services Companies on National Mechanization Development

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**Abstract:** Agricultural sector as an economic activity is very important, because that is an original source of income of most countries. Also this sector has a considerable potential in development. Agricultural activities depends on requirements such as: Procurement of farm power and machineries. In new systems of agriculture must be more attention to relation of nature, man and machine and also preferred to put emphasis on agricultural mechanization. In this case agricultural mechanized services companies can in the figure of rural cooperatives and governmental sectors, help to get of agricultural mechanization aims. In order to evaluation of companies productivity and efficiency in Khorasan province a study was performed over 73 agricultural mechanized services companies and 222 farmers. After specifying the companies, the required data were obtained by questionnaire, interviewing with the farmers and members of companies and related managers. Then, for evaluation of the effects different variables on success and un success companies. Data was analyzed by using regression analysis. The obtained results showed that: 1) Most problems of the companies were, lack of capital, some special kinds of farm machinery, combine harvester, skillful technician and driver of tractor and farm machinery, also spare parts, size and condition of lands, mechanization policies. 2) All farmers use than services of the companies and farmers who were members of the companies were in preference. 3) Rate of cultivation and delivery of production was base of services rate to farmers. 4) Membership of new farmers in the companies was increased. 5) About 30% of machineries were junk that only about 12% of them were replaced. 6) Number of farm machineries were insufficient and kinds of them were sufficient. 7) Employment of specialists of farm machineries in the companies was less than 1%. 8) Maximum and minimum of relation of the companies was with organizations and research centers, respectively. 9) Productivity of the companies was about medium and low. Finally, some suggestion are made to solve problems such as: Giving farm machineries to the companies based of facilities of payments, creation of sufficient motivation for investment for those who are ready to invest, imports or production of small farm machineries by manufacturers of domestic and promotion and distribution of them by the companies, employment of specialists of farm machineries and establishment of sectors of research and development and promotion and also, encouragement of farmers to membership in the companies, establishment of regional centers in order to training of proficiencies of tractors and farm machineries driving, maintenance and adjustment training of farm machineries and also, training of cooperating and companies management principles, obviate of difficulty for new companies by facilities payments and equipping them with requirement machineries and doing of commitments of other organizations against these companies.

**Key words:** agricultural mechanization, agricultural mechanized society, agricultural mechanized services companies.

### INTRODUCTION

Technology is sum of plans on the basis of completed recognition to nature laws that use for change of its position until be for aims of man. Therefore while in agriculture talk about technology, is not only use of a machine with new force resources in farm machinery, but also it is sum of scientific and technical plans for production of agricultural crops. This plans is dividing two sections. First plans that are related to procedures, such as:

tillage or planting procedure and second plans that are related to machinery and equipments selection. In agriculture activities, if this plans take timely and proper, they will cause for collection of capitals, and not waste them. As agricultural mechanized companies are centers that can use resting and little capitals of farmers, land reclamation, doing work and going to direction of agricultural development and sustainable agriculture. Thus it need evaluate causes

of limitations of companies activities and their problems and then remove them. Therefore with recognition of this problems can perform optimum programming and policies for increase support of this sector of agriculture activities.

In a research by *Azadi and et. al.(1998)* the societies are successful that have more income for their members and also have more communion of members. *Darvishinia and et. al.(2000)* say cause of un success of rural cooperative corporation is has not communion of members in company activities. *Alimorad and et. al.(2000)* after evaluation of mechanized societies get that very important problems for these societies are structural problems about distribution of farm machinery in national level, also administrative and financial problems, deferment in accomplishment of commitments in native level, not giving loan to applicants from banks, raunchy spare parts of machinery, not exist of skilful technician and finally payments of high taxes from companies are other problems. *Amini (1995)* tells un success of some of cooperatives is unreal them. Because some of them establish by government and are not actual qualifications of a cooperative . and company. *Najafi (1981)* tells fundamental problems of rural cooperative are have not confidence and interest of members relation to your companies. *Mohajerani and et. al.(1997)* say lawful limitations ,have not support of related organizations and existence of deficiencies cultural problems in societies are development obstacles of agricultural mechanized cooperatives. *Nafisifar and et. al.(1997)* tell major problems of cooperatives are dividing of fields between members because of have not compatibility between them and economic , social and cultural structures of members.

## MATERIAL and METHODS

In order to evaluation of companies productivity and efficiency in Khorasan province a study was performed over 73 agricultural mechanized services companies and 222 farmers. After specifying the companies, the required data and information was obtained by questionnaire, interviewing with the farmers and members of companies and related managers. Then for evaluation of the effects different variables on success and un success companies. Data

was analyzed by using regression analysis, chi-square statistic ( $\chi^2$ ), Kolmogorov-Smirnov (k-s) statistic and percent and frequency description statistic.

## CONCLUSION and DISCUSSION

In this section has told specifications of studied agricultural mechanized services companies and locale of their operation from different aspects.

### Adequate of companies equipments for services

Mechanized services companies for achieve their purposes must had been proper and adequate machinery and equipments for locale crops. For achieve to this aim must performs studies about kinds of different crops and their area. Ownership of agricultural self propelled and other mounted equipments by companies and existence of suitable and proper machinery, increase capability of companies. In this case, they can be respondent against all of applicants. About adequate of companies machinery had said a question from companies managers that its results is in table 1. As shown more than 70% of managers is talking is not adequate their companies equipments for doing of their duties. Value of  $\chi^2$  indicate significance between answers.

Table 1, Adequate of companies equipments

Equipment adequate	Frequency	Percent	$\chi^2$
Yes	20	27.4	14.22*
No	52	71.2	
Not reply	1	1.4	
Total	73	100	

\* Significance level 1%

Reference: Evaluated data

### Getting sources of budget and requirements appropriation for machinery buying

Because of high price of farm machinery special tractor and combine harvesting, often agricultural mechanized services companies can not get them. Thus can not doing their duties and recede from purposes. One of development indices of agricultural mechanization is use of specific mechanical power in field or garden area (hp/ha). This case unfortunately has not getting development national programs, that one of causes is low and inappropriate number of

tractors because of high price them. Therefore must help to companies for buying tractor and other farm machinery by payment suitable banks loans with long annuities suitable with farm machinery price. This case is effective on cost decrease of companies services for farmers. For advice of financial resources of companies for buying necessary farm machineries has asked a question from managers of companies. Results of this question is in table 2. Value of  $\chi^2$  indicate significance between of replies. Therefore can distribute these results to all of statistical population.

Table 2. Getting sources of budget and requirements appropriations for machinery buying

Sources of getting budget	Frequency	Percent	$\chi^2$
Members communion	36	49.3	86.38*
Personnel communion	4	5.5	
Bank loans	58	79.5	
Company incomes	50	68.5	
Governmental supports	22	30.1	
Others	6	8.2	

\* Significance level 1%  
Reference: Evaluated data

### Companies problems

Each company that establish in start and continuance of their works and activities encounter with the problems. Table 3 is results related to problems of agricultural mechanized services companies that are for two times. Establishment time and at the present (time of research performance). According to results of this table as shown, five problems such as: budget, machinery buying, adjustment and operation of machinery, preparation spare parts and farmers who are members of companies, are very important, in two told times and are initial problems of companies. As results of table indicate told problems had been more acute in companies establishment time.

Table 3. Companies problems

Problems	Establishment time		At the present	
	Frequency	Percent	Frequency	Percent
Budget	61	83.6	55	75.3
Machinery getting	61	83.6	58	79.5
Member farmers	40	54.8	20	27.4
Climate	14	19.2	13	17.8
Fuel getting	35	48	4	5.5
Spare parts	43	59	50	68.5
Machinery adjustment and operation	44	60.3	22	30.1
Machinery warranty	8	11	5	6.8
Laws and policies	25	34.2	20	27.4
Has not support of organizations	24	32.9	17	23.2
Low capital	2	2.7	2	2.7
Drought	-	-	1	1.4
Heavy tractor lack	1	1.4	2	2.7
Special equipments lack	1	1.4	2	2.7
Skillful driver Lack	1	1.4	-	-
Machinery depreciation	1	1.4	-	-
Unread managers	1	1.4	-	-

Reference: Evaluated data

### Adequate of kind and numbers of farm machinery

Existence of farm machinery related to locale crops can complete programming for services by companies. In this case activities for cultivation is doing timely and prevent production wastes. According to got data from studied companies, kind of machinery are adequate but numbers of them are not adequate with requirements. Lack of machinery specially tractor are fundamental factors for decrease of power use in field or garden area. This position has

negative effects on predicted programs for mechanization development

**Table 4. Adequate of kind and numbers of farm machinery for locale crops**

Position	Adequate of machinery kind		Adequate of machinery numbers	
	Frequency	Percent	Frequency	Percent
Yes	63	86.3	22	30.1
No	7	9.6	51	69.9
Not reply	4	4.1	-	-
Total	73	100	73	100

Reference: Evaluated data

#### Adequate of tractor power with mounted equipments

Adequate of tractor power with mounted equipments that operate by hydraulic power, power take off, drawbar and three point hitch of tractors is very important. Because the tractors can operate the equipments in different positions of crops growth period and also had been optimum depreciation and life. According to collected data in table 5 related to a question about adequate of tractors power with mounted equipments, as shown, replies are rational according to fields area and tractors power.

**Table 5. Adequate of tractors power with mounted equipments**

Position	Frequency	Percent
Yes	61	83.6
No	7	9.6
Not reply	5	6.8
Total	73	100

Reference: Evaluated data

#### Companies efficiency

Efficiency indices from managers viewpoints of companies are: timely services to farmers, perform their requirements and getting of their satisfaction, having adequate and proper farm machinery, high efficiency in crops harvesting, economic justification of activities, adequate capital, specialist employee, spare parts getting, use value of power per hectare, leading and encouragement of farmers to fields unity and mechanized agriculture, increase of members knowledge by continuous training, continuous control on mechanized activities process, capable

management, activity value in period of crops growth, giving loan to member farmers for buying machinery from company incomes, giving related responsibility from government to companies, and distribution of agricultural requirements. On this basis efficiency value of companies is in table 6.

**Table 6. Efficiency value of company**

Efficiency	Frequency	percent
Low	10	13.7
Medium	40	54.8
High	22	30.1
Very high	1	1.4
Total	73	100

#### Problems and limitations relation to operation of farm machinery

Farm machinery are fundamental equipments for modern agriculture. But for use of those need necessities that if they prepare or improve, productivity of farm machinery will increase. In this case can use from capable maximum of companies. Thus operation of farm machinery will be economic for their owners and with lower cost for applicants. Sometimes agricultural mechanized services companies as one of native executors of mechanization projects and mechanized services centers, encounter with problems for doing of their duties and achieve to their purposes. Numbers of this limitations are shown in table 7.

**Table 7. Numbers of limitations and problems for machinery operation**

Problem	Position				k-s'
	Yes		No		
	Freq.	Percent	Freq.	Percent	
Field unity	58	79.5	14	19.2	4.18
Policies	37	50.7	33	45.2	2.96
Machine migrate	34	46.6	38	52.1	3.00
Climate	31	42.5	40	54.8	3.13
Soil kind	39	53.4	32	43.8	3.07
Field area	58	79.5	13	17.8	4.19

+ Significance level 1%

Reference: Evaluated data

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