ASSESSMENT OF PROBLEMS ASSOCIATED WITH TRACTOR HIRING SERVICES IN KURA AND GARUN-MALLAM LOCAL GOVERNMENT, KANO RIVER IRRIGATION PROJECT

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ABSTRACT

A study was undertaken to assess the tractor hiring services in Kura and Garun-Mallam local government areas of Kano state. The criteria used were fleet of equipment, personnel, workshop facilities, tractors/implement (make and model) and its impact to farming populace. The study adopted the use of questionnaire and personal interviews. Amongst the information requested from the respondents were maintenance problems, common breakdown, level of experience of operator/mechanics, annual expenses on maintenance, annual gains from hiring, cost of operation, availability of the tractors, problems encountered and other expenses made by the farmer apart from operational charges. Recommendations were presented towards achieving this goal which include; adoption of regular maintenance culture, staff recruitment, and retraining and motivation of operators as ways of improving the success of the peasant farmers, private and public sectors respectively.

KEYWORDS: Tractor hiring services, irrigation, agricultural mechanization.

1. INTRODUCTION

Farm power may be described as any source of energy that makes power available for farming operations, tools and implements and powered machinery for agricultural production. Odigbo (2000) defined mechanization as use of machinery, any machine to accomplish a task or an operation involved in agricultural production. This differentiates mechanization from tractorization which according to Azogu (2009), simply means the use of tractors to provide farm power for carrying out farm work. The farm operation in Kura and Garun-Malam basically includes; tillage activities such as ploughing, harrowing, ridging and dyke making. Tractorization therefore forms an integral part of mechanization. Farm power makes power available to farming operation while farm machinery is a collection of machines for farm operation and includes all types of implements and devices such as plough, harrow, tractors etc. Tractor is the most expensive item of all farm machineries. As a result of high cost of tractors and implements, ownership which is mainly by the government through the ministries of agriculture and lately by the departments and parastatals whose mandate make service available to the farming populace who are not economically strong to acquire equipment, tractors and implements. Special units were established and referred to as Tractor Hiring Unit (Mijinyawa and Kisaiku, 2006).

Tractor ownership is the process by which an organization which is mainly government owned through ministry of agriculture, departments and private sectors own tractors, implements and equipments for the purpose of agricultural production render service to faming populace who cannot afford to buy tractors, implements and equipments and also to make business for profit.

The Community Cooperative Tractor Services (CCTS) through PPP was initiated in 2008. As a test case and in line with the 2008 budgetary provision a total of 1,950 units of tractors and implements were provided to 16 principal supervisor officers (PSOs) under PPP, as incentive and to assist the PSOs to jumpstart the exercise, the Federal Government released 25% grant to them upon submission of advance payment guaranteed from their bankers. Unfortunately however, 6 months after the expiration of the delivery period, only about 30% success could be recorded and based on complains received from the PSOs and field observations by the NFRA staff, the list of the PSOs was reviewed and alternative strategy adopted (Elesa, 2010).

Tractor Hiring Services (THS) can be define as service which evolved as a result of high cost of tractors, implements, equipments ownership which is mainly by the government through the Ministry of Agriculture and lately by departments and private sectors so as to make service available to the farming populace who are not economically strong to acquire the tractors, implements and equipment (Mijinyawa and Kisaiku, 2006).

The Major Stakeholders of the Tractor Hiring Service through the PPP include:

i. The Federal Government represented by the Federal Ministry of Agriculture and Water Resources. Hadejia Jama'are River Basic Development Authority, Federal Ministry of Agriculture, The Federal Government has its outlets for Kura and Garun-Mallam.
ii. The State and/or Local Government who opt to participate have their outlets in Kano State Ministry of Agriculture, Kano State Agricultural and Rural Development Authority
iii. The Local Government has its outlet in the Departments of Agriculture in the Local Governments (Elesa 2010).

The agreement involved in tractor hiring services includes the following:

i) Payment for the service delivery
ii) Charges involved in tractor transportation to the field of operation by the public sectors.
iii) Minor repairs
iv) Fueling of the tractors

Agricultural development in many states of Nigeria depends on how successful these tractor hiring services are. It is therefore important to assess how the services are fairing in order to identify problems and proffer solutions. The objective of this work was to assess the performance of tractor hiring services in Kura and Garun-Mallam Local Government Areas of Kano State, Nigeria.

2. METHODOLOGY

2.1 Study Area

Kura is located 40 km from Kano city at longitude 8^0 51' and latitude 11^0 98' (Kano Census, 2006).

2.2 Data Collection

Data was collected from both private and public establishments using a questionnaire and personal interviews.

2.2.1 Questionnaire Design and Administration

Sixty questionnaires were administered to the farmers, tractor operators, mechanics, private and public sectors for the purpose of information collection in the study area.

2.2.2 Personal Interview

Additional information was equally gathered through personal interviews with the private tractor owners, public sectors such as Ministries and Zonal Offices, and staff of the tractor hiring units.

3. RESULT AND DISCUSSION

3.1 Source of Capital to Purchase Tractors by the Private Sector Operators

Figure 1 indicates that 53.33% of the respondents source their capital through personal savings, while 40% of the respondents obtained their own through PPP, and 3.33% through bank loans and others.

Therefore, this shows that the Federal Government intervention through PPP and support from banks by giving loans is still very negligible.

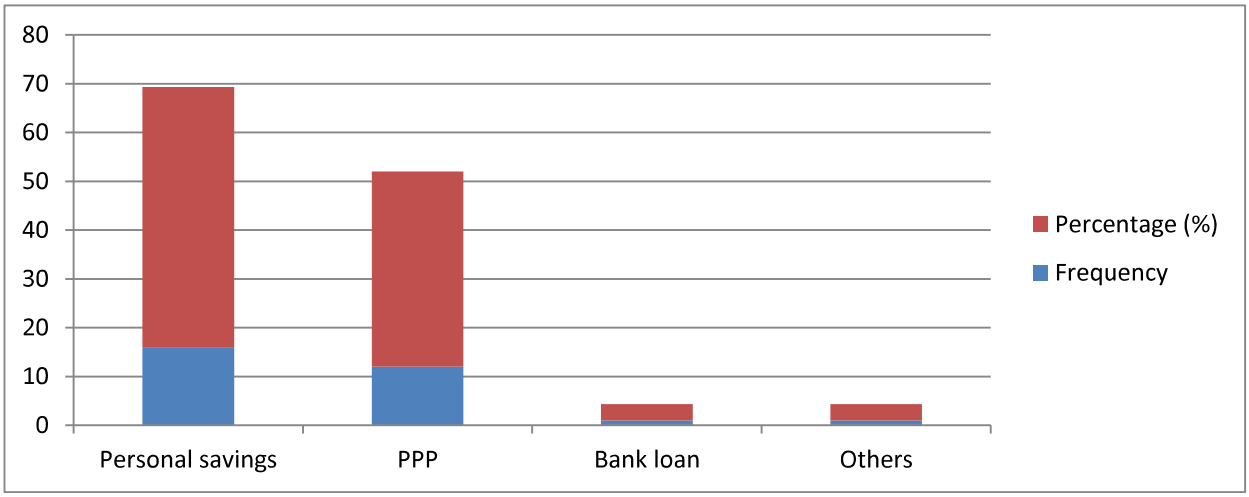

Figure 1: Sources of Capital

3.2 Functionality of the Tractors

Figure 2 shows the results obtained for the number of tractors that are functional, have minor repairs, major repairs or scrap(s), 33.33% of the tractors in Kura and Garun-Mallam Local Government are functional, 16.67% have minor repairs, 21.67% have major repairs and lastly 28.33% of the tractors are scrap. Therefore, this shows that majority of the tractors in the study area are not functional.

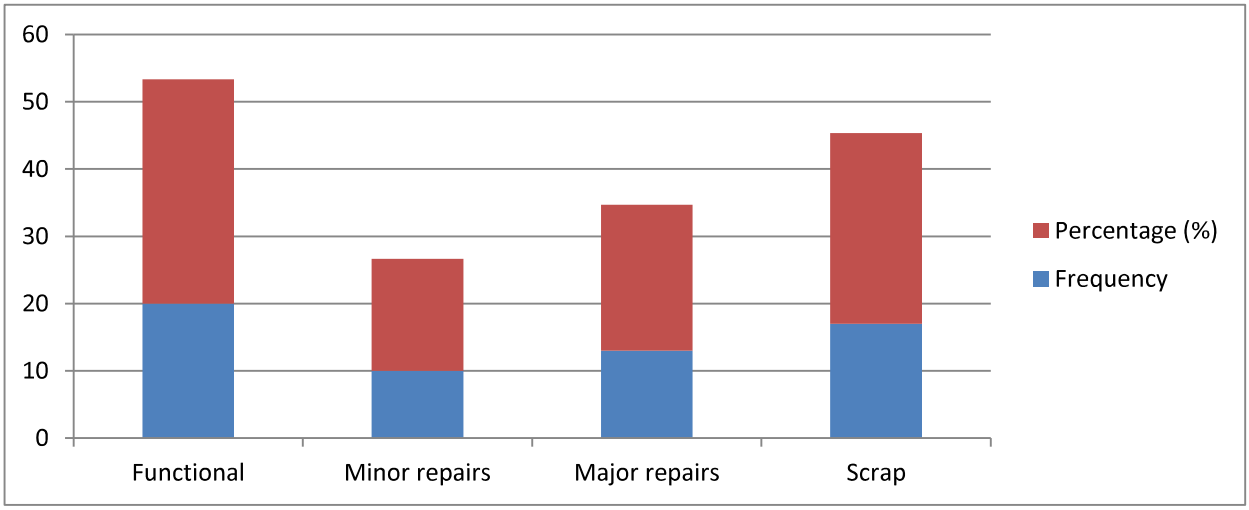

Figure 2: Functionality of Tractors

3.3 Tractor Service Schedule

Figure 3 shows that 20% of the tractors and implements in the study area are serviced every month, 13.33% are serviced every six months, 23.33% in a year, 1.67% in two years no matter the hours spent in the field. 41.67% of the tractors undergo maintenance in a variable time. This revealed that there is no form of regular maintenance schedule usually followed by the stake holders in the study area.

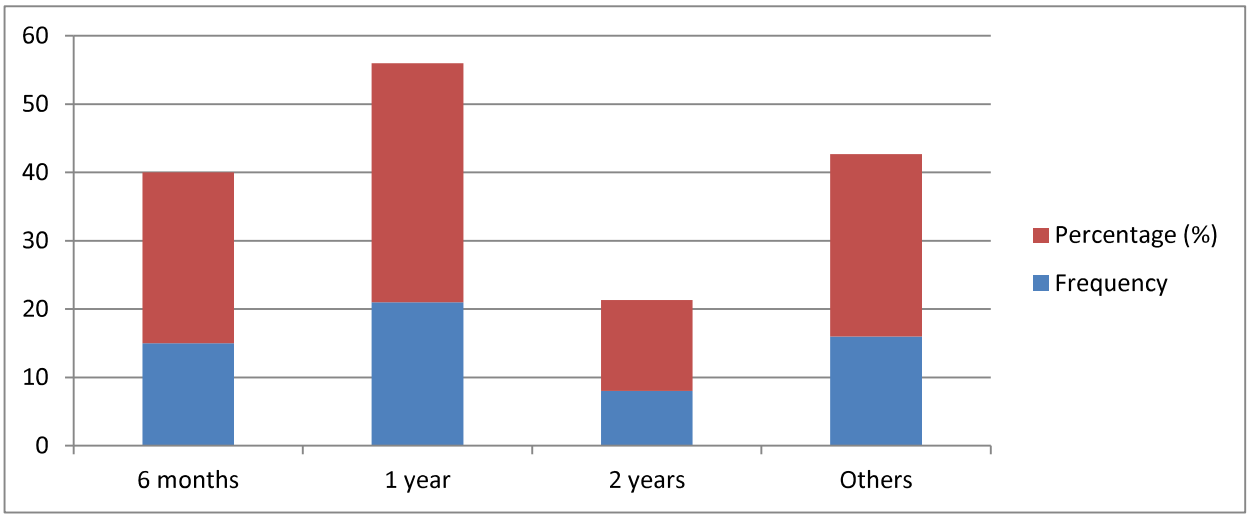

Figure 3: Tractor Service Schedule

3.4 Tractor Overhauling Schedule

Figure 4 shows that 25% of the tractors are overhauled every 6 months, 35% in one year, and 13.33% in two years. 26.66% of the tractors are overhauled in variable time. Therefore, this revealed that there is gross misuse of the tractors in the study area as up to 25% usually require overhauling in less than a year.

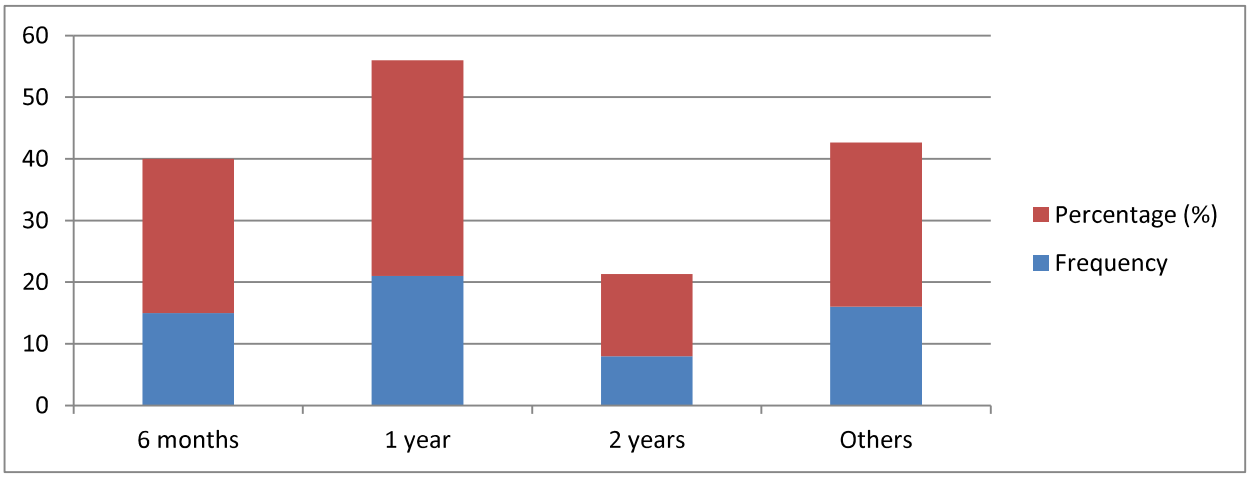

Figure 4: Tractor Overhauling Schedule

3.5 Annual Cost of Tractor Maintenance

Figure 5 shows that 26.67% of the respondents spent below ₦70,000.00, 48.33% of the respondents spent within the range of ₦70,000.00 – ₦500,000.00, 15% of the respondents spent in the range of ₦500,000.00 – ₦1000,000.00 while 10% respondents spent above ₦1,000,000.00.

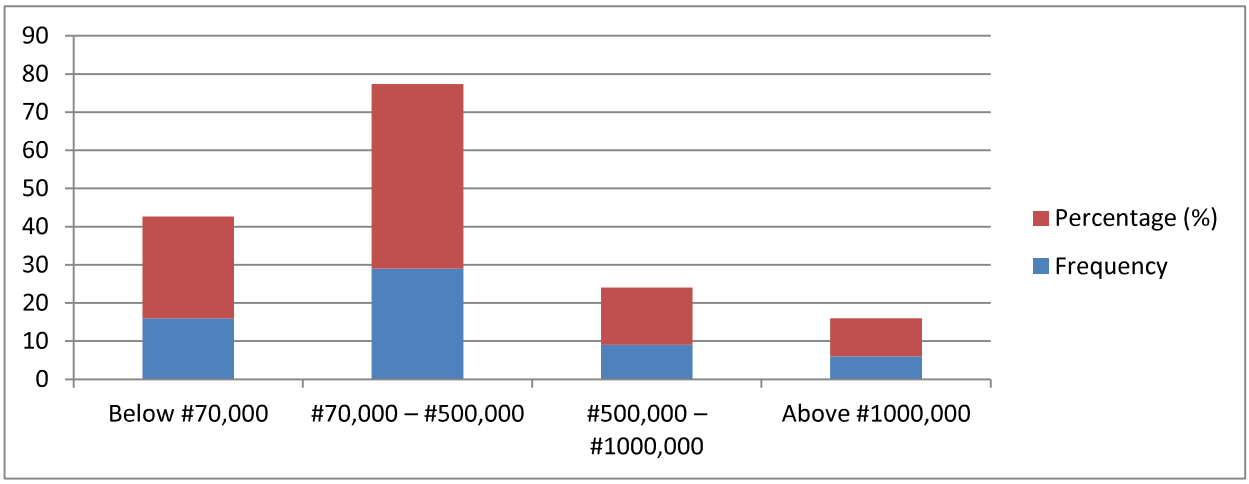

Figure 5: Cost of Tractor Maintenance

3.6 Annual Gains of the Tractor Hiring Service

Figure 6 shows that 13.33% of the respondents gained below ₦100,000.00, 30% of the respondents gained in the range of ₦100,000.00 to ₦500,000.00, 33.33% of the respondents gained in the range ₦500,000.00 to ₦1000,000.00 and 23.33% of the respondents gained above ₦1,000,000.00. Therefore, this shows that an average respondent gained within the range of ₦500, 000.00 – ₦1, 000,000.00.

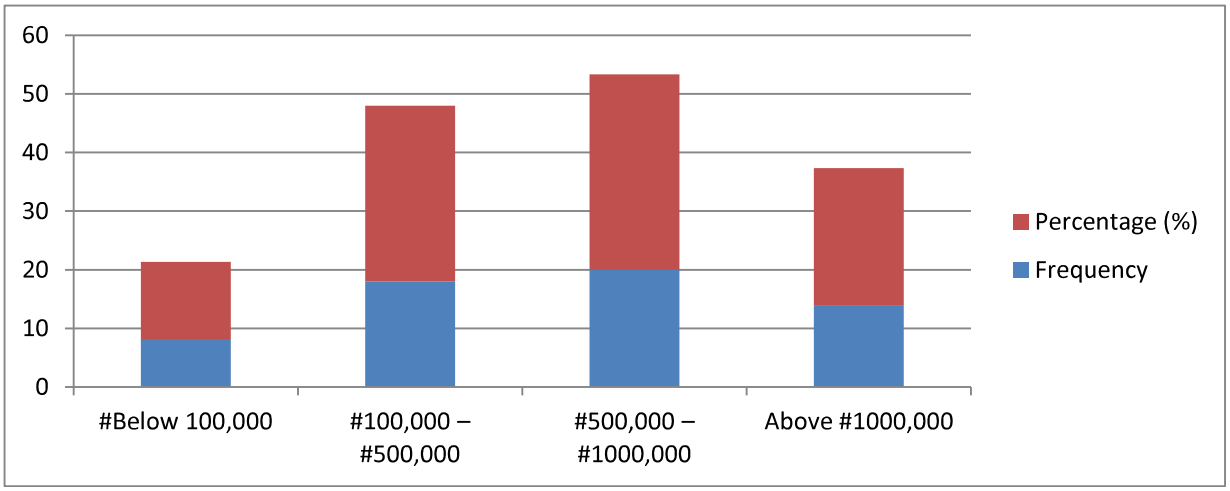

Figure 6: Annual Gain of Tractor Hiring Service

3.7 Age of Tractors

Figure 7 shows the range of year(s) of the tractors in the study area. It shows that 10% of the tractors have age below one year, 26.67% of the tractors fall in the range between 1 to 5 year(s), 50% of the tractors fall in the range between 5 – 10 years, while 13.33% of the tractors are in the range above 10 years. This indicated that on the average the tractors in the study area are within the range of 5 to 10 years.

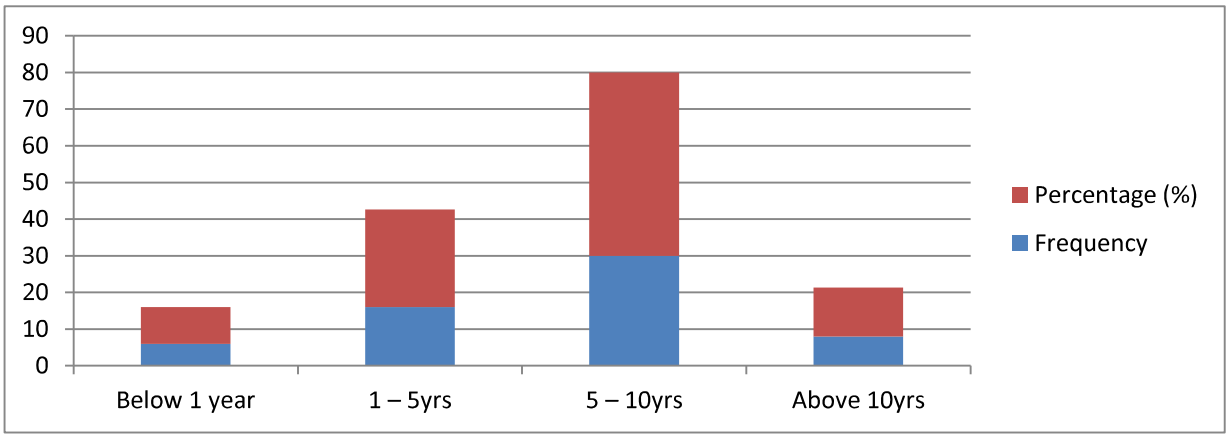

Figure 7: Age of the Tractors

3.8 Level of Formal Education of the Tractor Operators

Figure 8 indicates the findings on the educational status of the operators. As reported by Shitu (2011), formal education is one of the factors that affect the capability of tractor operators. Therefore, it is one of the keys in assessing his management ability of the machine/implements due to his direct contact with the machine/implement. The level of formal education status of a farm operator will influence his understanding the instruction on the study manual of the tractor/implement. As it is stated that illiterates are limited in their understanding of the manufacturer manual (Shitu, 2011).

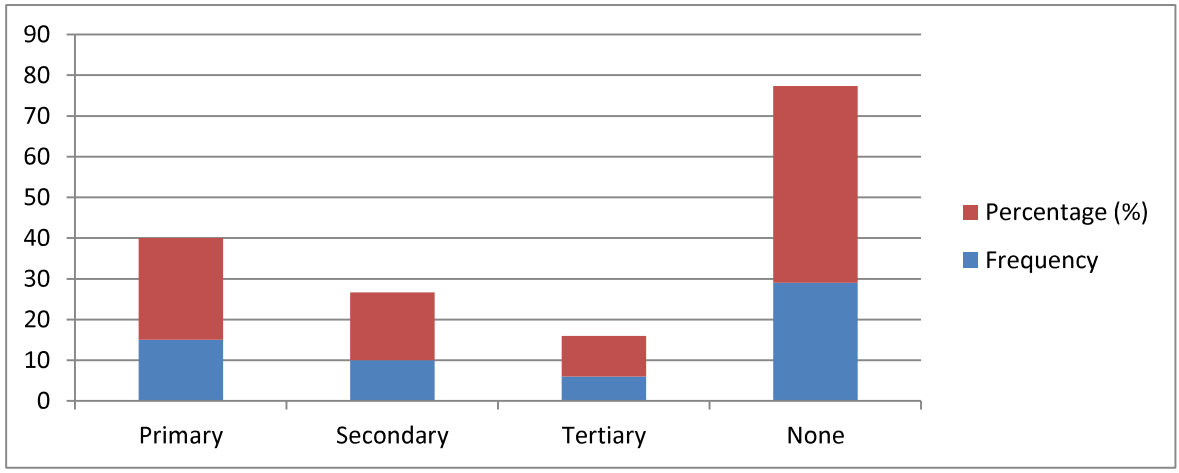

Figure 8: Level of Formal Education of the Operators

From the result obtained, it was observed that 25% of the operators have primary certificate, 16.67% of the operators are with secondary certificate, 10% of the operators obtained tertiary certificate and up to 48.33% of the operators have not attended any form of formal education. This revealed that the most of the operators in the study area have low level of western education.

3.9 Experience of Tractor Operators

Figure 9 shows that 40% of the tractor operators have experience of range between 1 to 10 years, 30% have experience between 10 – 20 years, 20% have experience in the range of 20 – 40 years, while 10% have experience of 40 years and above.

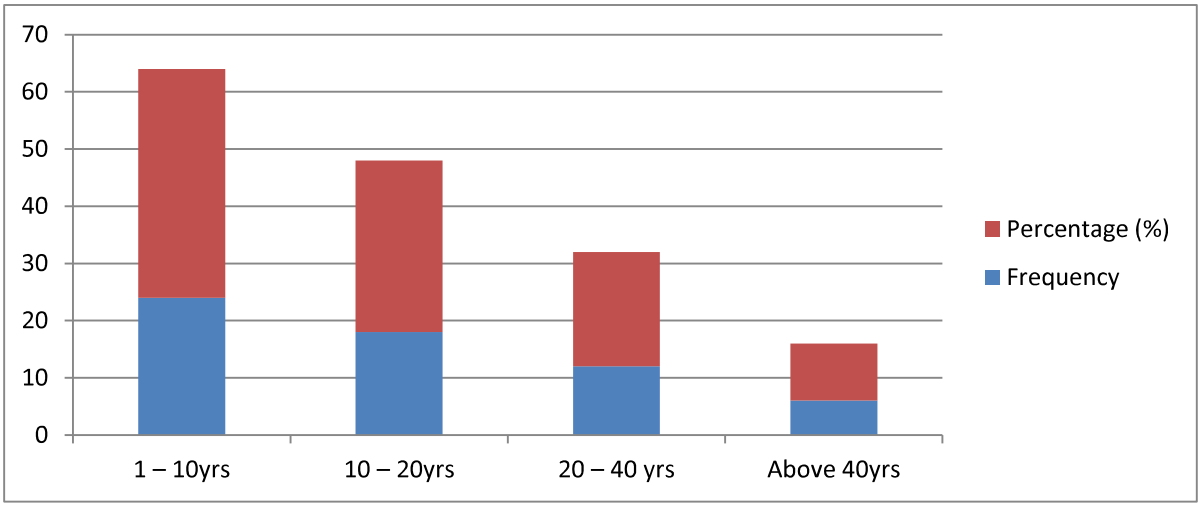

Figure 9: Tractor Operators Experience

3.10 Hours Spent During Field Operation Per Day

Figure 10 shows that 3.33% of the respondents claimed that they spent below 5 hours per day, 60% of the respondents spent 5 – 8 hours, 30% of the respondents spent 8 – 10 hours, and while 6.67% of the respondents spent above 10 years.

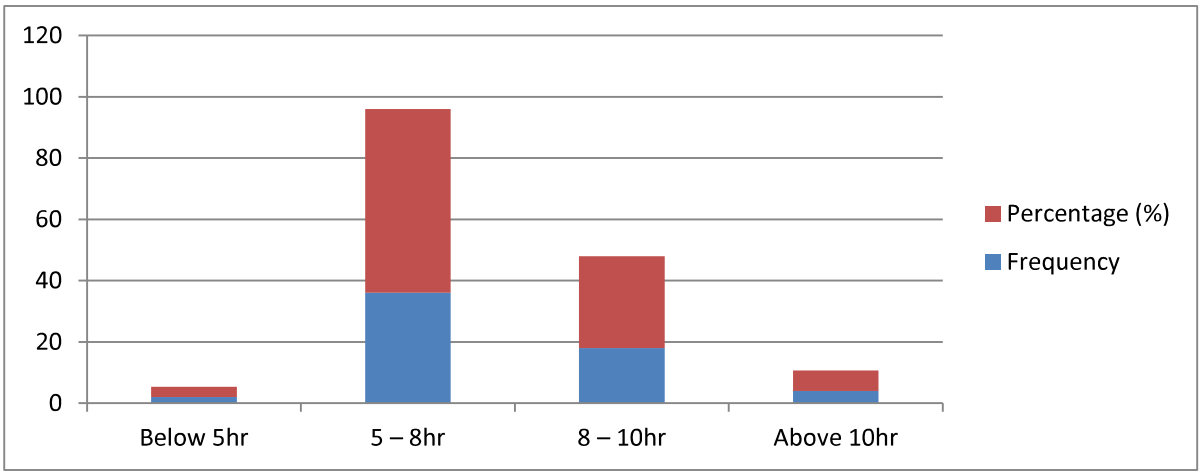

Figure 10: Hours Spent in the Field

3.11 Rate of Tractor Breakdown

Figure 11 shows the frequency of breakdown of the tractors in the study area. Results revealed that 28.33% of tractors usually breakdown in 1 – 6 months, 25% of the tractors breakdown in 6 months to 1 year and 46.67% of tractor brake down in variable occurrence.

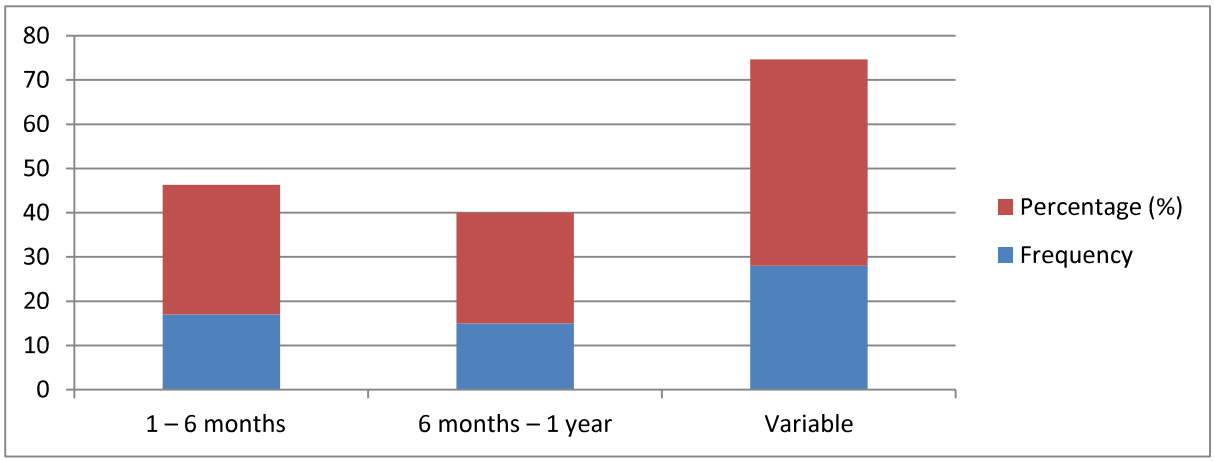

Figure 11: Rate of Tractor Breakdown

3.12 Experience of the Mechanics

Figure 12 at the appendix shows that 28.33% of the mechanics have experience of below five years, 40% have experience of between 5 5o 10 years, and 16.67% have experience of between 10 – 25 years while 15% have their level of experience above 25 years.

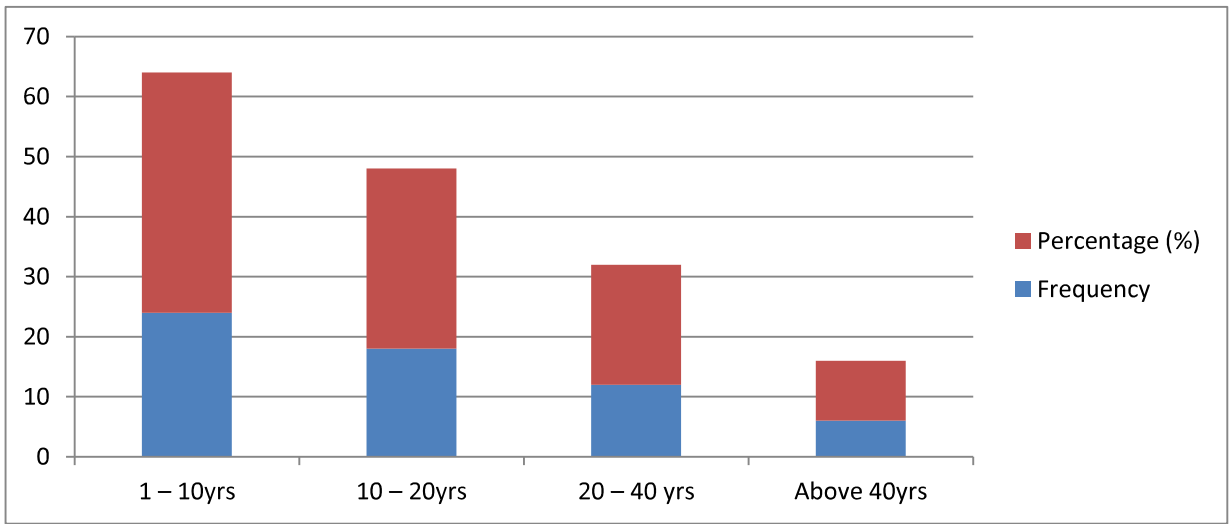

Figure 12: Experience of the Mechanics

3.13 Availability of Spare Parts

Figure 13 shows that 5% of the spare parts are obtained from public agro stores, 80% from open market and 15% from private stores. This shows that 80% of the spare parts can be obtained from open market.

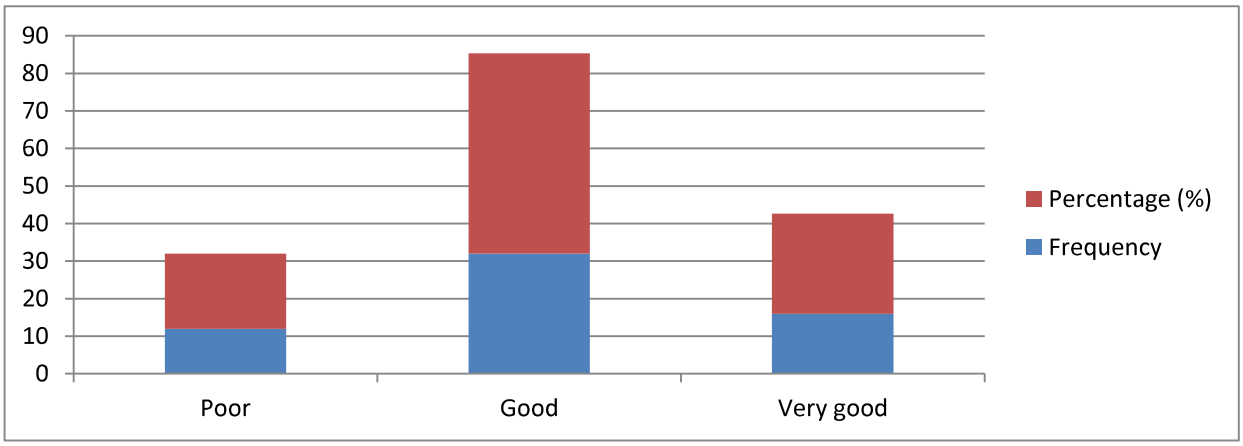

Figure 13: Availability of Spare Parts

3.14 Maintenance Practice Performed on Tractors and Implements

Figure 14 shows that 16.67% of the respondents perform daily maintenance, 50% perform corrective maintenance, 12% carryout preventive maintenance and while 13.33% carried out all the types of maintenance.

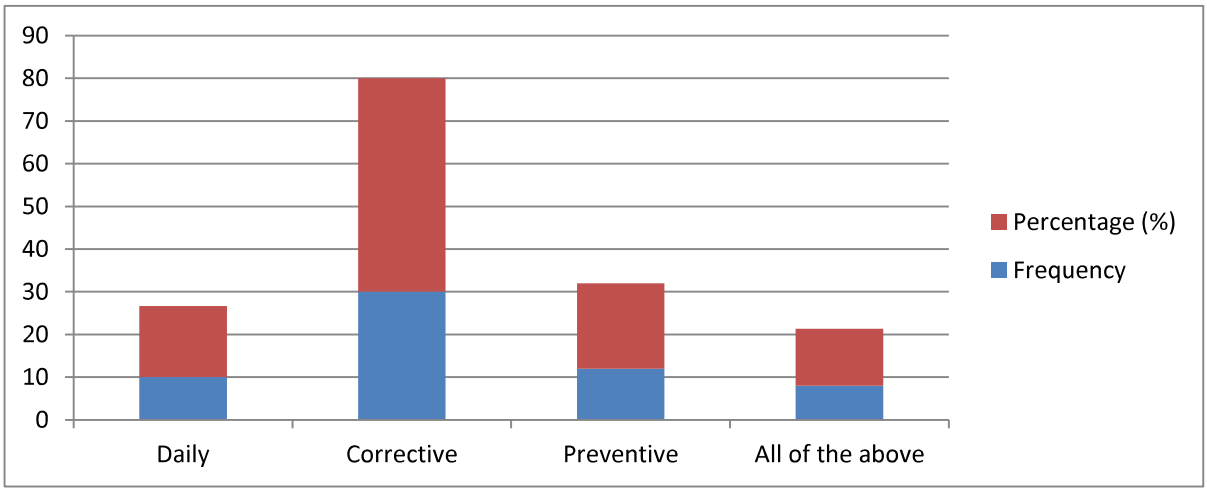

Figure 14: Maintenance System Practice

3.15 Sources of Tractors Used

Figure 15 shows that 40% of the farmers got their tractors from private organizations, 25% from the public sectors, while 35% obtained theirs from both private and public sectors.

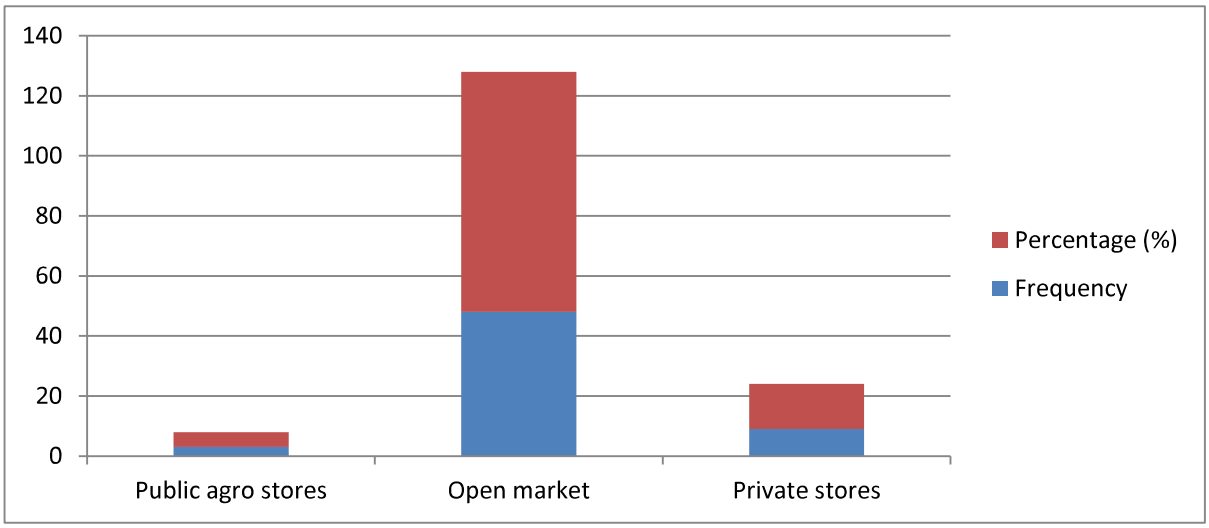

Figure 15: Sources of Tractor Used

3.16 Availability of the Tractors to the Farmers

Figure 16 shows that 10% of the respondent farmers complained of the poor availability of the tractors, 30% of the respondents claimed that the tractor availability is fairly good, 40% responded that it is good, while 20% claimed that the tractor availability is very good.

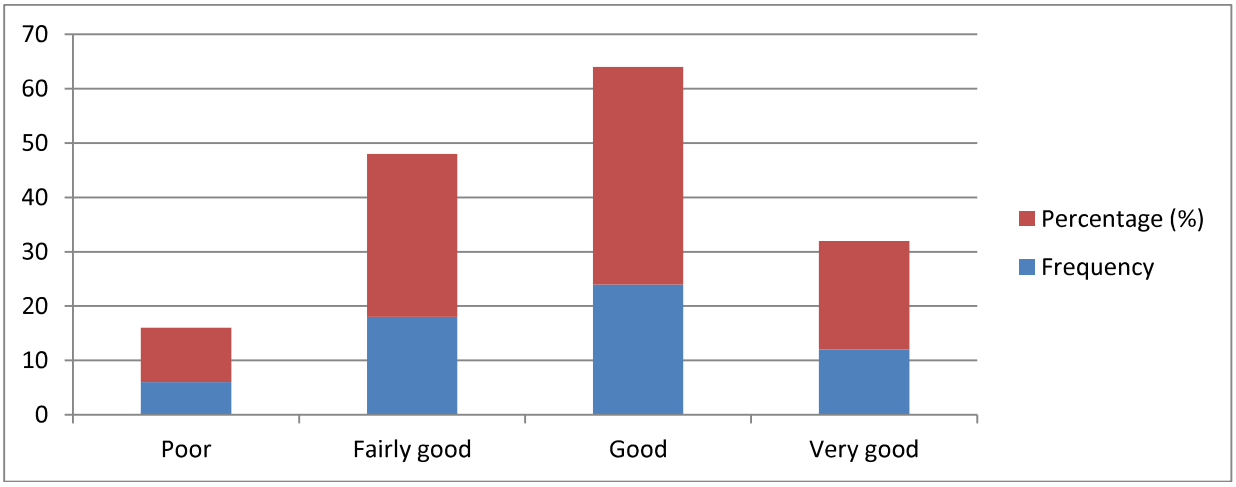

Figure 16: Availability of Tractors

3.17 Charges of Tractor Hiring Service

Table 1.0 shows the amount of money the farmers are charged per operation in an acre. From the result obtained, it can be seen that charges for the operations carried out by different stakeholders vary. By making physical analysis of the result, the State Government charges is lower than that of the Local Government charges. In Kura and Garun-Mallam Local Government Areas, the private organizations providing the services of tractor hiring charged higher than the State and Local Governments.

Table 1.0 Cost of operation the farmers are charged per acre

S/NO	Type of operation	Charges by state	Local Government charges	Private sectors charges
1	Harrow (single)	1000	1500	2000 – 3000
2	Harrow (double)	2000	3000	4000 – 6000
3	Ploughing	3500	4000	6000 and above
4	Ridging	1500	2000	2500 – 3000
5	Dyke making	1500	2000	3000
6	Trailing	3000/day	4000/day	5000/day
7	Slashing	10,000	-	-

3.18 Expenses Paid Apart from the Service Charges

The expenses paid by the peasant farmer apart from the service charges included the following based on agreements:

- **Overtime charges**
  According to the farmers, there is additional money they pay to the operators if the hours to perform the operation exceeded as the agreement were made.
- **Fueling charges**
  Fueling of the tractors is also part of the extra charges paid for transporting the tractors from their basement to the field of operation. These changes are normally collected by the public hiring units and sometimes even by the private organizations.
- **Minor repairs charges**
  This is another problem encountered during the operation which were not part of the agreement made between the farmers and the tractor operators are mostly charged for minor repair(s). The farmers stated that they pay mostly for this minor repairs to avoid time wasting that may affect the period of production and also to prevent missing opportunity of getting the tractors.

4. CONCLUSION AND RECOMMENDATIONS

4.1 Conclusion

Analysis of the result obtained from the study area revealed that 53.33% of the private sectors obtained their tractors/implements through personal saving and amongst the tractors found only 33.33% were found to be functional but the remaining percentages have problems of minor repairs, major repairs and scraps. The time duration of tractor usage is in the range of 5 – 10 years. This duration shows downtime of the tractor lifespan and its ability to likely have problem. It was also found that 40% operators/mechanics have low-level of formal education which indicates their limitations to the understanding of the tractor user's manual. 40% of the breakdowns that occur are breakage of implements and bearing from the result analyzed in the case study area. This problem occurs normally due to lack of preventive maintenance and misuse of the machine by the operators, poor knowledge of detecting problems of the machine due to illiteracy. It was also found that the farmer's profit is affected by minor repairs he paid for during operation, high charges charged by the private sectors, variability on the amount paid for overtime, transportation of the tractors to the field of operation and so on. Additional information gathered through personal interviews while administering the questionnaire revealed the problem of the use of middle men ("*Yankamisho*") which increases expences to both the farmer and the tractors owners.

4.2 Recommendations

In respect to the various findings from the information gathered, hopefully the areas of weaknesses could be addressed with adequate implementation of the following recommendations:

i. Government at all levels must provide support for both cooperative and individuals for owning tractors at subsidized rate.
ii. Governmental and non-governmental organizations (NGOs) should be organizing training workshops to sensitize tractor owners, operators, farmers and tractor mechanics on effective tractor maintenance strategy. To adopt regular maintenance culture since it is cheaper and prolongs lifespan of the tractor and implements.
iii. Proper training on tractor and implement repairs, adjustable/replacement should be provided to both tractor operators and mechanics to avoid tractor breakdown.
iv. There is need for the hiring services providers to give emphasis on proper organization, planning, utilization and management of the tractor hiring units.
v. There is need for the Government to come up with a policy that will be providing farmers with hiring services at a subsidized rate to support them.

REFERENCES

Adoga, G.A., Thomas M.T. 2013. Tractor/machinery hire service in Kaduna state: Overview, challenges and way forward. Department of Agric. Engineering service, Ministry of Agriculture Kaduna, Kaduna State.

Azogu, I.I. 2009. Promoting appropriate mechanization technologies for improved agricultural productivity in Nigeria: the role of the national center for Agricultural Mechanization – Journal of Agricultural Engineering Technology (JAET) Vol. 17, No. 2

Ahmed H.I. 2006. Predictive maintenance of tractors for higher utilization in Kano state of Nigeria. Proceedings of the Nigerian Institute of Agricultural Engineers, 28:98 – 105.

Mijinyawa, Y. and Kisaiku, O. 2006. Assessment of the Edo State of Nigerian tractor hiring services. Agricultural Engineering International: the CIGR E journal invited overview paper no.10.vol.VIII.

Odigboh, F.U. 2000. Mechanization of the Nigerian agricultural industry, Pertinent notes, pressing issues, Pragmatic options. A public lecture delivered at the Nigerian Academy of science, International Conference Center, Abuja, April 15, 2000.

Shitu A. 2011. Investigation into failure of some selected tillage implement, case study of Kano State. Unpublished B.Eng. project submitted to the Agricultural Engineering Dept., Bayero University Kano.