

PRECISION LIVESTOCK FARMING TECHNOLOGIES ON WORK FORCE SKILLS AND EMPLOYABILITY IN POULTRY HUSBANDRY SECTOR IN OYO METROPOLIS

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ABSTRACT

This study was aimed at investigating the impact of precision livestock farming technologies (PLFT) on workforce skills and employability in poultry husbandry sector in Oyo metropolis. A sample of twelve (12) farms was selected through simple random sampling techniques from Afijio, Atiba, Oyo East and Oyo West Local Government Areas was used for the study. A questionnaire instrument developed by the researcher was used for data collection on familiarity, training and education, impact on workforce skills and employability, efficiency and productivity and challenges and barriers in adoption of PLFT. The findings revealed that farmers were familiar, trained and educated on the uses of PLFT periodically and impact PLFT was felt of workforce skill with increase in employability of personnel that enhanced efficiency and productivity of the poultry sub-sector. However, challenges and barriers were also documented. Based on the results, the following recommendations were made: the adoption of PLFT should be more for increment in workforce skill, employability, efficiency and productivity of poultry products particularly when most of the challenges were overcome.

Keywords: Precision Livestock Farming, Workforce skill, Employability, Poultry Husbandry, Oyo Metropolis

INTRODUCTION

Livestock farming plays a crucial role in global food production and economy. However, traditional farming practices often face challenges related to inefficiency, resource wastage, and limited control over animal health and production. These challenges have prompted the development of PLF, which aims to address these issues through the application of cutting-edge technologies (Liu *et al.*, 2023). Precision Livestock Farming (PLF) is an emerging field that combines scientific advancements and commercial considerations to revolutionize livestock management practices. It integrates advanced technologies, data analytics, and automation systems into traditional farming methods, enabling farmers to make informed decisions and optimize productivity. This introduction provides an overview of the scientific and commercial aspects of PLF, highlighting its significance, potential benefits, and the need for its adoption in the livestock industry (Bahlo *et al.*, 2022).

The approach of Precision Livestock Farming (PLF) for a sustainable farming system refers to the continuous capacity of agriculture to contribute to overall human and animal welfare by using available information more effectively on farms. In turn, the better utilization of information enables farmers to provide sufficient goods and services in ways that are economically efficient and socially and environmentally responsible (Banhazi *et al.*, 2022). The aim of the study was therefore examined the effect of Precision Livestock Farming Technologies (PLFT) on the work force skills and employability in poultry husbandry sector in Oyo metropolis.

MATERIALS AND METHODS

The study was conducted on-farm in Oyo metropolis which comprises of Afijio, Atiba, Oyo East and Oyo West local government areas of Oyo State, Nigeria. Oyo lies on the longitudes 3° 57' east of the Greenwich meridian and latitude 7° 5' North of the equator, it is about 55 kilometers north eastwards from Ibadan, the capital of Oyo state. The altitude is between 300 and 600 meters above sea level. The mean annual temperature is about 27°C while that of rainfall is 1165mm. The vegetation of the area is Guinea savanna zone (Amao and Ogunjinmi, 2023).

A total of twelve (12) farms were used for this study, three farms at each local government due to very limited number of farms that involved in precision livestock farming technologies were visited in this study area. On-farm visit was paid to these farmers, and each farm was visited three times. One hundred and twenty structural questionnaires were randomly distributed at forty questionnaires per local government area with ten questionnaires per farm and used in collecting data on impact of precision livestock farming technologies on workforce skills and employability. The questionnaire has four sections. Section A displays some items such as familiarity, training and education. Section B was evaluated impact of PLF on workforce skills and employability, changes in job roles, responsibilities, efficiency and productivity while Section C was on the perceptions, attitudes, challenges and

barriers. The data generated from this study were subjected to a descriptive statistical analysis that involved the use of statistical tool like frequency distribution, percentage, means and standard deviation with the benchmark for accepting any of the items was 2.50 and items whose mean was below 2.50 were rejected.

RESULTS AND DISCUSSION

Table 1 revealed the familiarity, training and education of the users of PLF. The results indicated that all the participants agreed that familiarity with PLF technologies was through training. Many of PLF technologies that were the operate was first learnt through training, such that formal training on PLF technologies were received before any operation, Quality of training received on PLF technologies were better, Participation on training sessions or workshops related to PLF technologies were often, Training methods find most effectives are hands-on and online courses. The current finding was aligned with earlier reports of Makinde, (2020); Mapiye *et al.*, (2021) and Neftissov *et al.*, (2024) that the users of PLF were exposed to numbers of training that assisted them in day to day activities.

Table 1: The Familiarity, Training and Education of the users of PLF

S/N	Items	Mean	Std. D	Decision
1	Familiarity with PLF technologies was through training	3.45	0.08	Accepted
2	Many of PLF technologies can the operate	4.78	0.11	Accepted
3	First learnt about PLF technologies through training	3.51	0.34	Accepted
4	Formal training on PLF technologies were received before any operation	3.08	0.12	Accepted
5	Quality of training received on PLF technologies were better	3.87	0.23	Accepted
6	Participation on training sessions or workshops related to PLF technologies were often	2.99	0.45	Accepted
7	Training methods find most effectives are hands-on and online courses	3.56	0.59	Accepted

Std. D = Standard Deviation

Table 2: The Impact of PLF on Workforce skills and employability

S/N	Items	Mean	Std. D	Decision
1	Does the PLF technologies affect the technical skill required in the operations	3.89	0.18	Accepted
2	Many skills were learnt and improve due to PLF technologies	4.23	0.38	Accepted
3	Confidences in using PLF technologies were great on daily bases	3.89	0.75	Accepted
4	PLF technologies have changed the way of approaching problem-solving in the farm operation	3.11	0.56	Accepted
5	PLF technologies have affected ability to make data-driven decisions	3.87	0.29	Accepted
6	PLF technologies improved IT skills as compared to before the PLF technologies were introduced	3.44	0.90	Accepted
7	PLF technologies had a great impact on the understanding of animal health and welfare	3.77	0.78	Accepted
8	PLF technologies have enhanced the ability to monitor and manage poultry production	3.22	0.71	Accepted
9	PLF technologies have increased employability in the poultry industries	3.50	0.89	Accepted
10	PLF technologies have increased job opportunities within organization	3.78	0.31	Accepted
11	PLF technologies have enhanced demand for employees skilled in the job market	4.09	0.43	Accepted
12	PLF technologies have influenced job security positively	2.67	0.41	Accepted
13	PLF technologies will influence future career opportunities	3.63	0.23	Accepted

Std. D = Standard Deviation

The impact of PLF on workforce skills and employability is presented in Table 2. The results indicated that most of the respondents agreed that the PLF technologies affect the technical skill required in the operations, many skills were learn and improve due to PLF technologies, confidences in using PLF technologies were great on daily bases, changed the way of approaching problem-solving in the farm operation, affected ability to make data-driven decisions, improved IT skills as compared to before the PLF technologies were introduced, had a great impact on

the understanding of animal health and welfare, enhanced the ability to monitor and manage poultry production, have increased employability in the poultry industries, increased job opportunities within organization, enhanced demand for employees skilled in the job market, influenced job security positively and will influence future career opportunities. This observation corroborated the findings of Walter *et al.*, (2017); Pivoto *et al.*, (2018); Rowe *et al.*, (2019) who reported that workforce skills and employability improved when PLF technologies are involved. The job responsibilities, efficiency and productivities of PLF currently shows that using the PLF technologies in poultry sector will definitely improve efficiency and productivities of the poultry sector.

Table 3 shows the job responsibilities, efficiency and productivities of PLF. The results depicted that all the participants accepted the PLF technologies have changed the daily job responsibilities, led to many skill role shifts within the team, greatly changed the interaction with colleagues, increased the workload with easy operations, enhanced the efficiency at work, increased the overall productivity of the farm, changed the quality of poultry production and the accuracy of the work on the farm. This finding was in line with the studies of Werkheiser and (2018) and Werkheiser, (2020) who reported how PLF enhanced efficiency and productivities of the animal industries. The perception, attitudes, challenges and barrier of PLF is presented in Table 4. The results revealed that all the participants accepted that good perception of PLF technologies on poultry industry, PLF technologies have shaped the future of poultry production, greatly potential benefits on career, challenges of PLF technologies such as power and faults were common while using these PLF, shortcomings were overcomes by proper monitoring and skill maintenance, increased the overall productivity of the farm, uses were superb compared with before introduction of PLF and resources availabilities enhances the using of PLF technologies. This result agreed with the Werkheiser, (2020) on technology and responsibility: a discussion of underexamined risks and concerns in PLF.

Table 3: The Job responsibilities, efficiency and productivities of PLF

S/N	Items	Mean	Std. D	Decision
1	PLF technologies have changed the daily job responsibilities	3.88	0.56	Accepted
2	PLF technologies have led to many skill role shifts within the team	4.22	0.52	Accepted
3	PLF technologies have greatly changed the interaction with colleagues	3.08	0.10	Accepted
4	PLF technologies have increased the workload with easy operations	3.56	0.78	Accepted
5	PLF technologies have enhanced the efficiency at work	3.99	0.31	Accepted
6	PLF technologies have increased the overall productivity of the farm	4.86	0.45	Accepted
7	PLF technologies have changed the quality of poultry production	4.36	0.90	Accepted
8	PLF technologies have influenced the accuracy of the work on the farm	4.78	0.55	Accepted

Std. D = Standard Deviation

Table 4: The perception, attitudes, challenges and barrier of PLF

S/N	Items	Mean	Std. D	Decision
1	Good perception of PLF technologies on poultry industry	3.71	0.34	Accepted
2	PLF technologies have shaped the future of poultry production	3.78	0.99	Accepted
3	PLF technologies have greatly potential benefits on career	3.48	0.17	Accepted
4	Challenges of PLF technologies such as power and faults were common while using these PLF	3.33	0.56	Accepted
5	PLF technologies shortcomings were overcomes by proper monitoring and skill maintenance	3.45	0.66	Accepted
6	PLF technologies have increased the overall productivity of the farm	4.22	0.33	Accepted
7	PLF technologies uses were superb compared with before introduction of PLF	4.90	0.11	Accepted
8	Resources availabilities enhances the using of PLF technologies	4.78	0.55	Accepted

Std. D = Standard Deviation

CONCLUSION

It was concluded that if PLFT is proper monitored coupled with reductions in the challenges hindering its utilization, these technologies will enhance the workforce skill and increasing employability in the poultry sub-sector and PLFT will serve as a data-driven decision making and production efficiency.

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