

**NSAP****47th Annual
Conference
(JOS 2022)****CONFERENCE
PROCEEDINGS**THEME
**SECURING ANIMAL
AGRICULTURE AMIDST
GLOBAL CHALLENGES****AWARENESS AND UTILIZATION OF DUCK WEED (LEMNA SPP) AS POTENTIAL
FEED FOR LIVESTOCK**

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Corresponding author: lollyb2020@yahoo.com[08068238166](tel:08068238166)**Abstract**

Availability of feed and feedstuff for livestock is a perennial challenge to livestock productivity in Nigeria. Similarly, the high cost and competition between Man and animals for conventional feed ingredients necessitated the search for alternative feed resources. Therefore, this study was conducted to access the potential of lemna plant (Duckweed) and the perception of fish pond owners in Ibadan /Ibarapa zone of Oyo state. A structured questionnaire was administered to elicit information on socioeconomic characteristics of fish pond with overgrowth of lemna plant on the fish pond. The study revealed that 93.75% of all the ponds visited have lemna growing in them. 81.25% of farmers were using earthen and concrete ponds, 100% of the pond owners regarded lemna as a nuisance. 56.25% disagree that lemna can be used as feed for livestock, while 43.75% agree. 100% of respondents affirmed they have never used lemna plant to feed livestock. It was concluded that Lemna plant is available in virtually all ponds in Ibadan /Ibarapa zone of Oyo state and can be used as a good source of supplement for fish and livestock feed during the dry season.

Keywords: feed resources, fish ponds, livestock, Lemna plant, respondents.

INTRODUCTION

The scarcity of feed and feedstuff for animals in the dry season and the high price of feed and feedstuff have motivated researchers to start looking for an alternative feed. *Lemna* has demonstrated potential to meet the population need for a more sustainable feed supply,

specifically for quick growth and protein. *Lemna* is a genus of free-floating aquatic plants referred to by the common name "duckweed" They are morphologically divergent members of the arum family *Araceae*. They are the fastest-growing angiosperms (Sree *et al.*, 2015; Ziegler *et al.*, 2015) and may cover ponds or lakes in a few days under favourable growth conditions. *Lemna* contains protein with a better composition of essential amino acids, thus covering nutritional requirements to a larger extent than many other plant proteins (Iqbal, 1999, Leng *et al.*, 1995); it has a high growth rate and can tolerate extreme weather conditions (Goopy and Murray, 2003, Hassan and Edwards, 1992, Iqbal, 1999, Leng *et al.*, 1995). *Lemna* can be cultivated in a basin on non-arable land, thereby avoiding the use of farming land (Ziegler, 2015). However, *Lemna* production and its uses are limited in Nigeria by several factors including, little or no awareness about its potential, collection method, quantity needed in the production industries, production locations, as well as its production know-how. Therefore, this study is aimed to provide information on *Lemna plant* availability in a fish pond and it's Suitability as a feed resource in sustainable livestock production

Materials and methods



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The study was carried out at Eruwa, Igboora, Lanlate, Idere, Tapa, Ayete, Igangan, Erunmu, and Olodo in Ibadan/Ibarapa area of Oyo state. Sixteen structured questionnaire was used to elicit information and to determine the demographic status of fish farmers which was analysed using descriptive analysis.

Results and discussion

Presented in table 1 is the demographic status of the fish farmers in Ibadan/Ibarapa area of Oyo state. 6.3% of the correspondents were between the ages of 21-30, 18.8% were between the ages of 31-40 years, 62.5% were between the ages of 41-50, while 12.5% were above 50 years of age. 93.8% were males while 6.3% were females. 6.3% were singles while 93.8% were married. 62.5% were Christians while 37.5% were Muslims. 37.5% had secondary education while 62.5% of the respondents had tertiary education. The results showed that majority (62.5%) of the respondents were still in the active age group (≤ 50 years) required for effective management and optimum production in fishery business. This result is consistent with the previous studies which corroborates the findings of Olaoeye et al., 2013 and Sanusi et al., 2016 who reported that majority of those in fish business are in their early and late 50s. However, the higher percentage of male might be due to the nature of the business and the activities involved may not encourage more female especially when it comes to earthen pond management.

Table 1 : demographic status of the respondents in Ibadan/Ibarapa zone of Oyo state

Variable	Respondent	Percentage	Mean
Age (years)			
≤ 20	0	00	
21 – 30	1	6.3	
31 – 40	3	18.8	
41 – 50	10	62.5	
51 – 60	2	12.5	
≥ 61	0	00	
Mean			3.81 (0.750)
Gender			
Male	15	93.8	
Female	1	6.3	
Mean			1.94 (0.250)
Marital status			
Singles	1	6.3	
Married	15	93.8	
Devorced	0	00	
Widow	0	00	
Mean			1.06 (0.250)
Religion			
Christian	10	62.5	
Islam	6	37.5	
Mean			1.38 (0.500)
Educational level			
Primary	0	0.0	

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Secondary	6	37.5	
Tertiary	10	62.5	
Mean			1.38 (0.500)

Field Survey Data 2020

Table 2 shows the socio-economic status of fish farmers and *lemna* availability in Ibadan/Ibarapa area of Oyo state. 78.8% of the respondents were doing the business as a full-time job while 31.3% were part-time. 6.3% of the land used by the pond owners were acquired by Gift, 18.8% by inheritance while 75.0% were purchased. 81.3% of the farmer were using both concrete and earthen ponds while 18.8% were using earthen ponds only. 93.8% of *lemna* were available in ponds while 6.3% shows unavailability of *lemna* plants in the area. 81.3% of the correspondents were not aware of the usefulness of *lemna* plant while 18.8% of the correspondents were aware of its use as feed for fish and other livestock. 100% of the farmer in the surveyed area do not use *lemna* as feed for fish or other livestock. It is harvested when it has covered the whole pond and disposed of. This could be a result of improper information about the usefulness of *lemna* plant to fish and other livestock.

Table 2: Socioeconomic status of the fish pond owners and lemna availability

Variable	Respondent	Percentage	Mean
Business commitment			
Full time	11	68.8	
Part time	5	31.3	
Mean			1.19 (0.544)
Land aquisition			
Gift	1	6.3	
Inheritance	3	18.8	
Purchase	12	75.0	
Mean			1.31 (0.479)
Type of pond			
Concrete and earthen	13	81.3	
Earthen only	3	18.8	
Mean			1.31 (0.314)
Availability of lemna in pond			
Available	15	93.8	
Not available	1	6.3	
Mean			1.94(0.250)
Lemna usage			
Use	0		
Discard	16		
Mean		100	1.00 (0.00)
Awareness about lemna usage			



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Aware	3	18.8
Not aware	13	81.3
Mean		

1.31(0.314)

Source: field survey 2020

Presented in table 3 is the perception of respondents on the *lemna* plant and its usefulness. 93.75% of the total respondents strongly agree that the *lemna* plant is a nuisance while 6.25% were undecided. 43.75% of the respondents were undecided as to whether *lemna* plants serve as feed for fish and livestock or not while 56.25% disagree that *lemna* serve as feed. 31.25% strongly agree that *lemna* growth affects the production output, 56.25% agree while 12.50% were undecided. 18.75% of the respondents strongly agree that *lemna* constitute a threat to aquatic life, 56.25% agree while 25.00% were undecided. 75.00% of the respondents were undecided if at all *lemna* growth affects fish or not, 18.75% of the respondents disagree while 6.25% strongly disagree. 43.75% agree that *lemna* plants can be controlled, 12.50% don't know, while 43.75% disagree that *lemna* can be controlled. 6.25% of the respondents strongly agree that the cost of harvesting *lemna* is high, 43.75% agree, 37.50% were neutral undecided while 12.50% disagree that the cost of harvesting *lemna* plant is high. 68.75% of the respondents were not sure whether the *lemna* disposing method can lead to pollution or not, 25.00% disagree while 6.25% strongly disagree that the *lemna* disposing method can lead to pollution. 100% of respondents affirmed they have never used *lemna* plants to feed livestock. This implies that all farmers in the surveyed area don't know the usefulness of the *Lemna* plant as feed for livestock which can also contribute to their sources of income.

Table 3: Perception of respondents on *lemna* plant

Items	SA	A	U	D	SD
<i>Lemna</i> serve as nuisance to fish farmers	93.75	00.00	6.25	00.00	00.00
<i>Lemna</i> serve as a feed	00.00	00.00	43.75	56.25	00.00
<i>Lemna</i> growth affect the production output	31.25	56.25	12.50	00.00	00.00
<i>Lemna</i> constitutes a threat to the pond aquatic life	18.75	56.25	25.00	00.00	00.00
<i>Lemna</i> growth affect growth of fish	00.00	00.00	75.00	18.75	6.25
<i>Lemna</i> growth can be control	00.00	43.75	12.50	43.75	00.00
<i>Lemna</i> cost of harvesting is high	6.25	43.75	37.50	12.50	00.00
<i>Lemna</i> disposing method can lead to pollution	00.00	00.00	68.75	25.00	6.25
<i>Lemna</i> waste has been used to feed livestock	00.00	00.00	00.00	100.00	00.00

Field survey data, 2020.

KEY: SA- Strongly agree, A- Agree, U-Undecided, D-Disagree, SD-Strongly disagree all in percentage.

Conclusion: It was concluded that *Lemna* plant is available in virtually all ponds in Ibadan /Ibarapa zone of Oyo state and can be used as a good source of supplement for fish and livestock feed during the dry season.

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