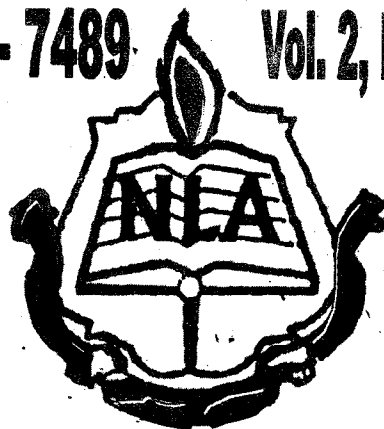


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**NIGERIAN LIBRARY**

**AND**

**INFORMATION SCIENCE TRENDS**

**Journal Of The Nigerian Library Association  
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**JOURNAL AVAILABILITY AND USE BY UNDERGRADUATE  
STUDENTS OF THE SCHOOL OF AGRICULTURE AND  
AGRICULTURAL TECHNOLOGY, FEDERAL UNIVERSITY OF  
TECHNOLOGY OWERRI, NIGERIA**

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*The Library  
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**Abstract**

*Journal citations in 120 of the 443 undergraduate projects written between 1987 and 1999 in the School of Agriculture and Agricultural Technology, Federal University of Technology Owerri (FUTO) and deposited with the University Library were collated and analyzed. This was to identify the availability and use of scientific journals in the field of agriculture. The highest number of citations occurred in 1990 while 1998 and 1999 had the least. The most cited journal was Journal of Food Science (n=83). This was followed by Journal of Animal Science (n=38). The 10 most cited journals accounted for 40.74% of the total citations, with their highest citation occurring in 1997. Of the 197 journal titles cited, 23 were available in FUTO Library. Except the Departments of Agricultural Economics /- Extension, the other three Departments had at least two of the ten most cited journals availability during the study period. Of the 23 titles available in the Library, ten showed inverse relationship between the year of most current issue and that of last citation, suggesting a need for journal title review in the area of agriculture.*

## Introduction

Knowledge is expanding and diversifying, while increased research has brought about information explosion. The global information village, a consequence of advanced information and communication technologies (ICTs), has made paperless society a seeming reality. However university libraries have not deviated from their traditional mission of supporting teaching and research; and at the same time being repositories of resources for archival purposes, rather these developments have made their functions more complex. These complexities have however, made it difficult for developing countries to freely join the global village through networking. Furthermore, inadequate financial resources have militated against libraries providing materials even in the traditional format.

Journals are very important research materials but rank among the most likely materials to suffer from the inadequacies highlighted above. This assertion is made based on the uncontrolled increase in the price of this important material posed by the following factors: foreign currency exchange rates; page increases; volume expansion; increases in postage and handling costs; subscription cancellations and basic inflation. (EBSCO 2001). University Libraries have to contend with these problems in order to perform their functions of providing materials for research. To do this in the present circumstance, Ibem (2001) emphasizes that libraries should take appropriate decision to ameliorate the situation since most of them have not been able to meet their obligation of providing all the required journals for research. He therefore suggested cooperative acquisition of journals and resource sharing. His view was upheld by Aina (2001) who reiterated that users needs should be assessed through bibliometric and citation studies. On the effective functioning of libraries Gupta (1991) informed that data and information provided by bibliometric studies has gone a long way in helping to solve some practical problems in the library and information science centres. One of such major problems is the selection and cancellation of journals used by university researchers.

On the selection of journals, Wiberley (1982) emphasized that "any attempt to determine for a given field the journals that are important for an academic library is suspect unless it includes analysis of citation. 'This was applied by Ilonah (1988) in his effort to identify the journals heavily used by zoology students at the University of Jos in order to decide those to be cancelled. Singleton (1976) also affirmed that librarians should study the use of periodicals by researchers using their theses and dissertations.

This method had earlier been applied by Combell (1974) when he discovered that only 15 out of the 412 titles held in the library were cited by researchers at Wolverhampton Polytechnic Library. Oduwole (2000), in his own study of the use of information sources by medical officers in Nigerian University Teaching Hospitals found that medical officers used scientific and technical journals, *Index Medicus*, *Excerpta Medica*, CD-ROM (*MEDLINE*) databases and foreign journals widely.

Citation analysis is useful not only to identify journals to be selected or cancelled, it is also needed to identify the type, nature and adequacy of materials cited by researchers. Omekwu and Atinmo (1998) observed that researchers in agricultural communication at the University of Ibadan cited non - Nigerian authors more than Nigerian authors. Conversely Lancaster et al (1990) suggested that scientists are likely to cite domestic sources when publishing in national, than in international journals. On the adequacy of materials cited, Price (1970) used citation analysis to classify science citation into "hard" and "soft" depending on the number of materials cited. He also observed that writers in Nigeria rely more on foreign authors' works than on indigenous ones. He recommended that scientists should make use of indigenous works when conducting research to enable them crosscheck their findings with those of other indigenous writers.

As a result of its importance in the identification of the nature and type of materials needed by library users (journals in particular), the work was designed to undertake a citation analysis in order to identify the journals mostly cited by undergraduate students of the School of Agriculture and Agricultural Technology (SAAT) of the Federal University of Technology Owerri (FUTO). The study also sought to examine the extent to which the University Library satisfied the journal needs of these students and to find the

currency of the journals housed in the library. The findings are expected to help the library to determine the journal titles the library could continue to subscribe to.

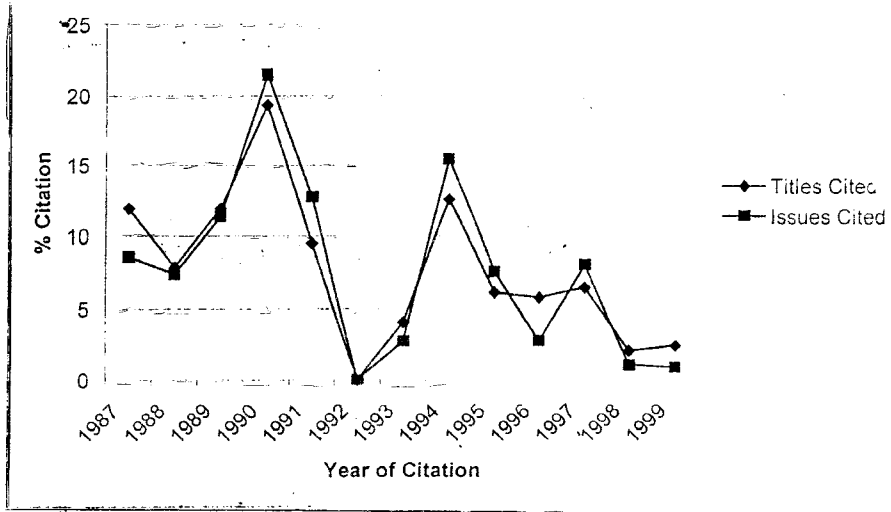
## Methodology

All the undergraduate research projects from SAAT submitted to the library from 1987 to 1999 numbering 443 constitute the population of this study. Of all the projects, ten were sampled from each year's submission with care taken to proportionately represent the four Departments in the School during the period under study. These include Departments of: Animal Science and Technology; Crop/Soil Science and Technology; Agricultural Economics and Extension; Food Science and Technology, hence the total number of projects sampled was 120. The 1992 projects of the entire School, which were yet to be submitted to the Library, were not included in the study sample. Titles of Journals cited in each of these undergraduate works were collated. Despite the interdisciplinary nature of some of the journals in the projects studied, the ten most cited journals were for convenience, grouped according to departments using them. Data was analyzed using tables, graphs and statistics.

## Results

Within the 120 undergraduate projects sampled, 197 journal titles were cited for a total of 837 times. Fig 1 shows the percentage of titles and issues cited for each of the years studied 1987 – 1999. fig. 1 also shows that there is no particular trend exhibited in the citations during the years under study. However the greatest number of titles and issues cited were made in 1990. No citation was made in 1993, and from 1998 upwards.

**Fig 1: Percentage Titles and Issues of Journals cited from 1987 to 1999. Journals most cited by student researchers.**



The ten most cited journals in the projects occurred 341 times representing 40.74% of the total citation. Fig: 2 shows the relative frequency of citation of the ten most cited journals during the years under study. It reveals that 71.68% of the journals cited in 1997 belong to this top ten. About 50% of the journals cited in 1988, 1990, 1991 and 1995 also belong to this group. However, none of these journals was cited in 1998 and 1999.

**Fig. 2: Relative frequency of citation of the ten most cited journals**

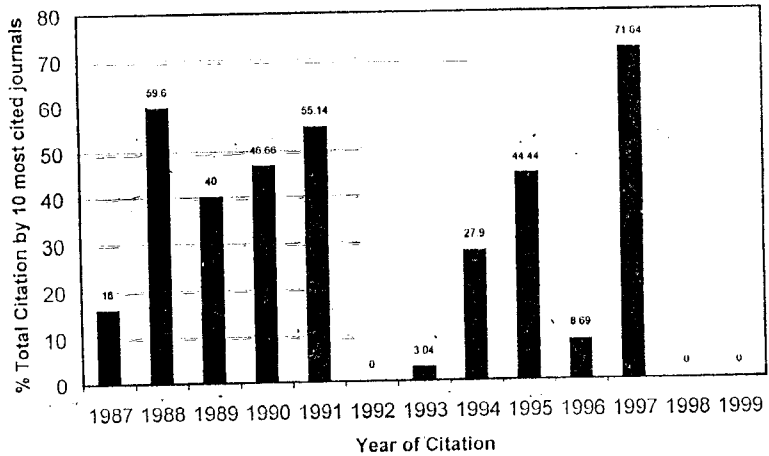


Table 1 reveals that the journal – *Poultry Science*, which occupies the 6<sup>th</sup> position in the journals rankings, is the oldest published among the journals cited having been first published in 1980. Only the *Journal of the American Oil Chemical Society* and *Journal of the Science of Food and Agriculture* were cited in 1987. Majority of the titles were cited between 1988 and 1991. Three journals showed good representation between 1994 and 1997 these include the *Journal of Animal Science*, and *Nigerian Journal of Animal Production and Poultry Science*.

**Table 1: Journal titles and years of citation of the 10 most cited journals during the study period**

TITLES										
YEAR/NO OF CITATION	JFS	JAS	FTC	NJAP	JAACS	PSCI	JSFA	CCHEM	SOSCI	NFJ
Year first published	1936	1942	1947	1974	na	1908	1950	1924	1916	na
Commenced in FUTO	1983	1989	1988	1985	na	na	1982	1989	1916	1983
Total Citation	83	38	37	32	31	30	27	23	22	18
No (%) Citation per year										
1987	-	-	-	-	11(35.48)	-	1(3.70)	-	-	-
1988	20(24.00)	-	10(27.02)	-	3(9.60)	-	1(3.70)	-	-	-
1989	-	-	11(29.72)	-	-	-	-	-	-	1(1.55)
1990	42(50.62)	-	4(10.81)	6(18.75)	5(16.12)	-	10(37.03)	5(21.73)	-	9(50.00)
1991	21(25.30)	-	10(27.02)	1(3.12)	12(38.78)	-	11(40.74)	7(30.43)	-	8(44.44)
1993	-	-	-	3(9.37)	-	-	4(14.80)	11(47.82)	-	-
1994	-	9(23.68)	-	5(15.62)	-	-	-	-	-	-
1995	-	2(5.26)	2(5.40)	3(9.37)	-	21(70.00)	-	-	22(100.00)	-
1996	-	-	-	2(6.25)	-	9(30.00)	-	-	-	-
1997	-	27(71.05)	-	12(37.50)	-	-	-	-	-	-

JFS = Journal of Food Science; JAS = Journal of Animal Science; FTC = Food Technology; NJAP = Nigerian Journal of Animal Production; JAACS = Journal of American Oil Chemical Society; PSCI = Poultry Science; JSFA = Journal of the Science of Food and Agriculture; CCHEM = Cereal Chemistry; SOSCI = Soil Science; NFJ = Nigerian Food Journal

\*\* Values in parentheses are percentages

Though the *Journal of the Science of Food and Agriculture* seemed very useful to the students between 1987 and 1993, it was not cited by the students who carried out their research during the subsequent years. *The Nigerian Journal of Animal Production*, one of the two local journals most cited, enjoyed a good measure of usefulness in the nineties.

However, it was not cited before 1990. Its greatest citation (37.5%) occurred in 1997. Unfortunately, none of these ten journals was cited in the 1998 and 1999 research reports. Absence of some of these journals in the 1995 through 1999 project reports reveal their probable reduced usefulness. *Journal of Animal Science* shows evidence of popularity in the late nineties with its greatest citation being in 1997.

### **Departmental Disposition of the Journals**

At the time of this study, there were four departments in the School of Agriculture and Agricultural Technology, namely: Animal Science Technology, Crop/Soil Science Technology, Agricultural Economics and Extension and Food Science and Technology. Seven of the journals (*Journals of Food Science and Technology, Cereal / Chemistry, Journal of the Science of Food and Agriculture, Journal of American Oil Chemical Society and Nigerian Food Journal*) belong to the Food science and Technology Department. The Department of Animal Science and Technology has three Journals of Animal Science, Nigerian Journal of Animal Production and Poultry Science. Only Soil Science Journal belongs to Crop/Soil Science and Technology. No journal was observed for the Department of Agricultural Economics and Extension among the most cited ones.

### **Availability of the Journals in the Library**

Of the 197 titles cited by these research students, only 23 were available in the Library representing 11.67% of the cited titles (Table 2). Of these, 20 titles were cited between 1990 and 1999. Two of the journals – Ultimate Water Technology and Environment and Nigerian Agricultural Journal have their articles used in 1999. Both of them, which are locally published, had their 1997 issues in the Library respectively. Three of the 23 journals were cited last in 1987 in spite of their 1994, 1995 and 1996 issues being available during the period. Meanwhile, the latest citation year for these journals ranged between 1990 and 1991. Ten of the 23 journals had inverse relationship in the year last cited and the year of most current issue in the Library. On the other hand, 13 of the titles had positive relationship in the year last cited and the year of current issues in the Library, an indication that the materials were being used whether they were available in the Library or not.



Table 2: Cited Journal Titles Available in TheLibrary

S/N	JOURNAL	CURRENT VOL AVAILABLE IN THE LIBRARY	YEAR CITED	LAST	DIFF. B/W YR. F LAST CITATION CURRENT SSUE AVAILABLE
1	Agricultural Systems	Vol. 5, 1996	1994		-2
2	Agronomy Journal	Vol. 88, 1996	1994		-2
3	Cereal Chemistry	Vol. 61, 1984	1991		7
4	Experimental Agriculture	Vol. 32, 1996	1987		-9
5	Ife Journal of Agriculture	Vol. 17, 1997	1998		1
6	Journal of Agriculture & Food Chemistry	Vol. 44, 1996	1991		-5
7	Journal of Agricultural Economic Research	Vol. 43, 1991	1994		3
8	Journal of Agricultural Science & Technology	Vol. 1992	1998		6
9	Journal of Animal Science	Vol. 74, 1996	1997		1
10	Journal of Food & Agriculture	Vol. 1, 1987	1990		3
11	Journal of Food Science	Vol. 54, 1989	1991		2
12	Journal of Food Technology	Vol. 19, 1984	1990		6
13	Journal of Soil Science	Vol. 44, 1993	1994		1
14	Journal of Stored product Research	Vol. 20, 1984	1990		6
15	Nature				-6
15.	Nigerian Agricultural Journal	Vol. 381, 1996	1990		-1
16.	The Nigerian Journal of Agricultural Extension	Vol. 30, 1999	1999		1
17.	Pesticide Science	Vol. 8, 1993	1994		-8
18.	The Planter	Vol. 45, 1995	1987		-7
19.	The Rice J.	Vol. 60 1994	1987		8
20.	Soil Science Society of American Proceedings	Vol. 85 1982	1990		-2
21.	Tropical Agriculture	Vol. 60. 1996	1994		-6
22.	Ultimate Water Technology & Environment	Vol. 73, 1996	1990		2
23.		Vol.1No3 1997	1999		

## Discussion

The results show inconsistency in titles and issues cited by the undergraduate students of SAAT during the years under study. Many Factors that could have contributed to this include, relevance of the articles to the research being embarked on, ignorance on the part of the students on the importance of the Journals to research, inadequate provision of the issues needed etc. Furthermore, the readiness and the motivation of the undergraduate student is an important factor to consider. It is common knowledge that a researcher does not depend solely on his library for research, meaning that researchers should search for relevant literature wherever they may be found. The high level of citation in 1990 could therefore be attributed to the students' effort to get journal articles from all available sources. The obvious state of citations in 1998 is an issue of concern to all stakeholders whose failures in their responsibilities may have resulted in this worrisome level of citation. It should be pointed out, however, that this University Library reviewed and updated its subscriptions, using the World Bank Credit Scheme to the University in 1993.

The most cited Journals showed a great impact in 1997 (Fig.2) but a look at Table 1 reveals that only two of them were cited in that year. Based on their level of use those two titles could be selected in subsequent subscriptions. Furthermore, there is a change of interest as specialization continues to impact on knowledge. The Journal needs of today may not be those of tomorrow. Hence, Wimberley (1982) pointed out that any attempt to determine for a given field the important journals should be suspect expect after an analysis of this nature.

Thus, the journal needs of between 1987 and 1994 appear different from those of between 1995-1999. There is also evidence that except the Department of Agricultural Economic/Extension, each of the Departments has at least one representative journal title in the ten most cited Journals. This implies that the Library should reach out to the faculty members to discover the possibility of making available in the Library some journals in agriculture. The disappearance of seven titles of the Journals mostly cited between 1987 & 1999 shows the decreasing usefulness or, probably the researchers of such years did not find them relevant. The affected

journals could be considered for reselection in any review after further analysis. Decreasing citations in the 1998 and 1999 (Table 1 and 2) is a dangerous sign indicating that the Library may be losing grip of its function.

The closeness of the year of current available issue and that of year of last citation is an indication of the journals' relevance to instruction or research. This is ascertained by the application of a survey of use and analysis of citation 1 (Wibeley, 1982). The analysis in the present study shows the difference between the year of last citation and the current issues available in the Library. The increase in the negative numbers between the last year of citation and the year of most current issues in the Library associated with some titles signifies the decrease in the use and importance research students attach to the title. The former shows that the journal made available by the Library do not match the use. That means that the Library is continuing subscription of those titles while researchers are making less use of them. A consideration for deselection will focus on those with greater negative values first.

## **Conclusion and Recommendation**

From the findings it is seen that undergraduate research students of SAAT are not consistent in the titles of journals used, the needs in the 1980's varying from the needs of 1990's. Each of the four Departments except the Department of Agricultural Economics and Extension has at least two journals appearing in the ten mostly cited titles for research. The study vividly shows little or no citation and many new journal were provided for research in 1998 and 1999. The Library made four of the twenty-three cited journals available in 1998 and 1999. the four journals are indigenous. There was also inverse relationship between the journals made available by the Library and those used by these undergraduates. This is revealed by the reduced use of the journals even when they are in the Library. It is therefore evident that the available journals are not satisfying the researcher's need for materials. This underscores the need for review of these titles.

Based on the above findings and inference, it becomes necessary to perform citation analysis of the postgraduate students' journal citation in the same school with a view to compare the result with the current results for undergraduates. This is necessitated by the expectation that postgraduate students know the importance of journal citation more than undergraduate students. Input from faculty members could also be useful in making subscription for the School of Agriculture and Agricultural Technology, either in print or electronic format. The same format could be applied for other Schools in the University. Other institutions could adopt this method. All alternative method of subscription (electronic/print) should be sought to reduce the existing subscription gaps.

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