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Content analysis and readability assessment of Indian Farmers Digest

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ABSTRACT: Effective communication is all about making the receiver/audience understand the sender's intended meaning of the message. As a part of the efforts to reach the farmers, students, agriculture scientists as well as the rural community, G.B. Pant University of Agriculture and Technology publishes two monthly farm magazines, one of them is Indian Farmers Digest. To analyze the content and to measure the readability of the content published this study was conducted. The study was undertaken by random selection of the five issues of Indian farmers digest from each year of 2020 and 2021. Findings revealed that, agriculture articles and illustrations have the highest publishing frequency, followed by animal sciences, home science and other related areas. The readability score was calculated and analyzed through using readability measuring formula, SMOG Index. It was found that the level of reading of the articles is from high school above to undergraduate level.

Keywords: Content, frequency, magazines, readability

Mass communication plays a vital role in social and economic progress of a developing country. Print media, television and radio are important constituents of the mass communication and thus are the powerful tools in social, economic as well as cultural transformation of a society. The use of print media as compared to other media is more beneficial in the field of agriculture and other allied fields. The reason is, reliable and scientific information on a specific topic, in simple language and illustrated form can reach large number of readers quickly and simultaneously. In any field of agriculture, a breakthrough is not possible without an effective communication support to disseminate the research findings. Speedy dissemination of agricultural information and technological knowhow to the farmers is essential for bridging the gap between the agricultural scientists and thus, farming community. Various forms of print media such as newspapers, magazines, journals and books require predictions of readability of their printed text prior to publication in order to make their audiences understand the printed materials easily. Readability research became one of the most important and valuable considerations in mass communication process, i.e., in the printed sector. The readability of a document is the ease with which text can be read and understood (Aravinda *et al.*, 2013). It is an

indirect measure of the quality of written communication. High readability makes it easy to understand the meaning of the text and induces further reading. Easy reading helps in easy learning, hence written content should be easy to understand. Farm magazine plays an important role in timely dissemination of technologies in right form to right farmers is necessary to get the derived benefit. Indian farmers digest provides an excellent opportunity to scientists to convey precise and timely information to a larger section of farming community. In this era of information revolution Indian farmers digest has been maintaining its own special identity and continuously disseminating agriculture information among the farmers of different states of the country.

The farm magazines could be made more effective through need-based content, proper writing and suitable usage of cover page, illustrations and contents of format (Archana *et al.*, 2017). Berelson (1952) stated that content analysis is a method of studying and analyzing communications in a systematic, objective and quantitative manner to measure variables. Keeping this in view of the importance of farm magazine, the present study was undertaken with the objective to identify the content; trends, extent of coverage and readability of articles on different subjects published in Indian farmers

digest Magazine (IFD).

MATERIALS AND METHODS

Indian farmers digest is a monthly farm magazine published by G.B. Pant University of Agriculture and Technology, Pantnagar was selected for the study. This magazine is published in English language. Total ten issues, five from each year published during the years 2020 and 2021 were randomly selected and considered as a sample for the study. Around 173 articles were published in the selected magazine, 59 in magazines selected from year 2020 and 62 in magazines selected from year 2021. In this study, both quantitative and qualitative content analysis was done. Quantitative content analysis was studied in terms of trend in the coverage of content as well the readability of the content. Trend deals with the frequency of information on selected categories, appeared in 10 farm magazines for the years 2020 and 2021. The measurement of readability by using readability formulas was quantitative approach. They focus solely on linguistic factors such as words and sentences, i.e., number of words and sentences, word complexity, word and sentence length which can be easily measured and quantified.

Content of farm information published during the reference period was studied with respect to its presentation under 6 major categories. All the articles in the magazine were categorized into six major categories; Agriculture, Animal science, Home science, Fisheries, Agriculture Engineering and others. Different categories of formats were found to be used to present the information to the readers in the farm magazine.

Trend and format of presentation

Trend: It was the actual distribution of articles and illustrations under different categories. It was expressed in terms of frequency and per centages.

Category: On thorough reading of selected issues, the available information was categorized under six major categories; Agriculture, Animal Science, Home Science, Fisheries, Agriculture Engineering and others. The articles published under the respective categories were tabulated as frequencies.

The frequencies of articles and illustrations distributed under a category in all volumes of a farm magazine were summed up and the per centage was worked out.

Readability Measurement

The most widely used readability formulas for measuring text difficulty i.e., SMOG (acronym for Simple Measure of Gobbledygook) Index is used to calculate the readability score of the articles text. The readability formula when applied to the written text produces a numerical score based on certain textual variables such as word and sentence length, number of syllables, etc.

SMOG Index

$$\text{Grade level} = 1.0430 \sqrt{\left(\frac{\text{Number of polysyllabic words}}{30} \times \frac{\text{Number of sentences}}{1} \right) + 3.1291}$$

three or more syllables per 30 sentences.

The formula produces a score representing the number of education grade required to be able to read the written information. SMOG Index assesses the readability level of text ranging from grade 4 to collegiate level. The ideal score is 7- 8 th grade level (Asem, 2012).

Levels	
SCORE/ Grade	Education Level
1-4	Elementary School
5-8	Middle School
9-12	High School
13-16	Undergraduate
17+	Graduate

Fig. 1: Conversion table of SMOG Scores to Education level (Derguech *et al.* 2018)

RESULTS AND DISCUSSION

All the articles published in Indian farmer digest magazine under consideration during study period were grouped into two aspects i.e., articles and illustrations. Further, readability of the articles was also analyzed through SMOG Index. The results are presented in following tables.

Table 1: Distribution of published articles according to different categories

Year 2020					
Sl.no.	Category	No. of articles	Per centage	Page	Per centage
1	Agriculture	44	74.57	158	77.8
2	Animal Science	5	8.47	11	5.41
3	Home Science	2	3.38	5	2.46
4	Fisheries	0	0	0	0
5	Agriculture Engineering	0	0	0	0
6	Others	8	13.55	29	14.28
		59		203	
Year 2021					
1	Agriculture	42	67.74	139	68.13
2	Animal Science	15	24.19	51	25
3	Home Science	1	1.58	1	0.5
4	Fisheries	1	1.58	3	1.47
5	Agriculture Engineering	0	0	0	0
6	Others	3	4.83	10	4.9
		62		204	

Table 2: Distribution of published illustration according to different categories

Year 2020 (March, July, December)					
Sl.no.	Category	No.	Per centage	Page	Per centage
1	Agriculture	62	72.94	51	80.95
2	Animal Science	9	10.58	6	9.52
3	Home Science	9	10.58	2	3.17
4	Fisheries	0	0	0	0
5	Agriculture Engineering	0	0	0	0
6	Others	5	5.88	4	6.34
	Total	85		63	
Year 2021 (January, February, April)					
1	Agriculture	72	81.81	45	73.77
2	Animal Science	15	17.04	15	24.6
3	Home Science	0	0	0	0
4	Fisheries	1	1.13	1	1.63
5	Agriculture Engineering	0	0	0	0
6	Others	0	0	0	0
	Total	88		61	

Table 3: The readability score of the article published in year 2020 and 2021

Readability Formula	Readability Score for article published in year 2020	Readability Score for article published in year 2021	Reading level
SMOG Index	13.82	13.92	High school above to Undergraduate

Analysis in coverage of content in the Indian farmers digest magazine

Table 1 revealed that all the farm information in the magazines was categorized into six major categories during the period of the study; Agriculture, Animal Science, Home Science, Fisheries, Agriculture Engineering and others. Total number of articles under these broad categories has been computed and is presented in the following tables. Among 59

articles published in the selected issues of year 2020, majority (77.8%) of articles belonged to Agriculture area followed by others (14.28%), Animal Science (5.41%) and Home Science (2.46%). There were no articles published related to Fisheries and Agriculture Engineering during the period in the selected magazines. Among 62 articles published in the selected issues of year 2021, majority (68.13%) of articles belonged to Agriculture area followed by

Animal science (25%), others (4.9%), Fisheries (1.47%) and Home Science (1.63%). There were no articles published related to Agriculture engineering during the period in the selected magazines. So, in general, the result revealed that mostly published articles in both the years are related to agriculture field. Similar findings where maximum space was received by articles on agriculture were reported by Gaur (1988).

Table 2 revealed that distribution of illustrations published in the articles of year 2020 and 2021 under different categories. The total number of illustrations published for articles in agriculture category were 85 for year 2020 and 88 for year 2021 respectively. It was found that among 85 illustrations, the majority (80.95%) of articles belonged to Agriculture area followed by Animal Science (9.52%), others (6.34%), and Home Science (3.17%). There were no illustrations published related to Fisheries and Agriculture engineering during the period in the selected magazines. Out of 88 illustrations, majority (73.77%) belonged to Agriculture area followed by Animal science (24.6%) and Fisheries (1.63%). There were no illustrations published related to Home Science, Agriculture Engineering and others during the period in the selected magazines. So, in general, the result revealed that mostly illustrations published in both the years are related to agriculture field. The findings of the present study are in line with the results reported by Sharma (2005), that maximum space was received by illustrations on agriculture area.

The readability score of the article published

Applying the readability formula, i.e., SMOG Index on a single article published in the magazine of selected years, it was found that on an average, the articles are difficult to read. The SMOG Index, of an article of year 2020 was recorded as 13.82 and of article of 2021 was 13.92, i.e., both falls in the 13-16.9 scoring range, thus the level of reading of both the articles is from above high school to undergraduate level. This means that an intermediate and undergraduate level student as well as farmers would be easily able to understand the articles published in the Indian farmers digest.

CONCLUSION

It may be concluded that majority of the articles published in the magazine belonged to agriculture, followed by animal sciences and other related areas. Similarly, the majority of illustrations published in the magazine belonged to agriculture, followed by animal sciences and home science. All the articles published in the magazine more or less equally distributed throughout the year irrespective of season, because of variety of information in the magazine. There were also few special edition contributed to a single theme like Mushroom cultivation and farmers fair. Subjects covered ranged from crop management followed by informative/educative articles, integrated pest and disease management, sustainable farming, women entrepreneurs and empowerment, dairy animals, nutrient management. Considering the readability score of the article published in both the years, it may be concluded that on an average the articles are readable by person having education level above high school.

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