

AN ANALYSIS OF THE CONTENTS OF WEBSITES OF INDIAN AGRICULTURAL UNIVERSITIES FOR THEIR CONFORMITY WITH ICAR STANDARDS

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Abstract: Indian Council of Agricultural Research (ICAR) is anchoring Agricultural Research, Education and Extension in the country every since it has been established in the year 1929. However, during its earlier days the mandate was restricted to research. The education has been added to its mandate with the establishment of first agricultural university in the country in the year 1960 popularly known as GB Pant University of Agriculture and Technology, Pantnagar, Uttarakhand. The agricultural universities and institutions in India are playing an important role in ensuring food. In the endeavours of ascertaining food security a lots of information flows from one section of the society to another. Websites have become a very good source of information exchanges. Therefore, all agricultural universities and institutions have kept lots on information for its clients/stakeholders. Considering the importance of websites in the exchange of information ICAR had formulated guidelines for the uniformity of websites of Indian agricultural institutions. In view of this a study has been conducted entitled “An Analysis of the contents of websites of Indian Agricultural Universities for their conformity with ICAR Standards” for analyzing status of websites of Indian agricultural Universities. Study suggests that there are only two websites, which contain more than 50% contents / features suggested by ICAR, while all other institutional websites contain less than 50% contents / features. The average contents / features of deemed-to-be universities is highest with 38.28% features, followed by Agricultural universities (state and central together) with 36.39 % features, horticultural universities 25.94 % contents, veterinary and animal science universities with only 24.74 % contents.

Keywords: ICAR Standards, Indian Agriculture University, Deemed-to-be University, Website, Web Contents

Introduction

Agriculture in India is not just a source of livelihood and but a culture, which affects all spheres of the lives of its people. Indian agriculture massively contributes to Indian economy with a share of about 18.3% [1] and engages about 45.76% [2] of its workforce. Government of India and state governments have given due emphasis on agricultural education and therefore a maximum number of agricultural universities and institutions have been established in India with three major objectives: i) preparing skilled human resources to address the growing environmental and geopolitical challenges, ii) to conduct research for addressing the farm and

farming issues, and iii) to disseminate the knowledge amongst the farmers so that technologies developed in the laboratories could be taken to stakeholders.

The websites as resources to communicate with the clients/stakeholders are used by Agricultural Universities and Institutions. There are two types of users “internal” and “external”. Internal users are usually students and faculty members, while external users are mostly farmers and all other who are interested in gardening or farming. ICAR [3] has given comprehensive guidelines as to what kinds of contents should be kept on website for different types of the users, which have been emphasized by ICAR many times [4]. ICAR has given due weightage to academics, research and extension components.

Considering above facts in mind a study entitled “Analyzing the contents of websites of Indian Agricultural Universities for their conformity with ICAR Standards” has been formulated to analyze the contents of the websites of Indian agricultural universities/ institutions as to how close these websites are with the standards given by ICAR [3].

Materials and Methods

Materials

The websites of all Indian Agricultural Institutions including state agricultural universities, central agricultural universities, state horticultural universities, state veterinary universities, and deemed-to-be universities have been considered in the present study. Hereafter, the phrase “Agricultural Institutions” has been used to represent all types of universities and deemed-to-be universities. The deemed to be Universities include Indian Agricultural Research Institute (IARI), Pusa, New Delhi, National Dairy Research Institute (NDRI), Karnal, Haryana, Indian Veterinary Research Institute, Izzatnagar, Bareilly, Uttar Pradesh, Central Institute of Fisheries Education, Mumbai, Maharashtra and Allahabad, Agricultural Institute, Allahabad, Uttar Pradesh.

The Horticultural Universities namely Dr Yashwant Singh Parmar University of Horticulture & Forestry, Nauni, Solan, Himachal Pradesh, University of Horticultural Sciences, Bagalkot, Karnatka, Andhra Pradesh and Horticultural University, West Godavari District, Andhra Pradesh; and Veterinary Universities like Guru Angad Dev Veterinary and Animal Science University, Ludhiana, Punjab, Maharashtra Animal Science & Fishery University, Nagpur, Maharashtra, Sri Venkateswara Veterinary University, Tirupati, Andhra Pradesh, Tamil Nadu Veterinary & Animal Science University, Chennai, Tamilnadu, UP Pandit Deen Dayal Upadhaya Pashu Chikitsa Vigyan Vishwa Vidhyalaya Evam Go Anusandhan Sansthan, Mathura, Uttar Pradesh, West Bengal University of Animal & Fishery Sciences, Kolkata, West

Bengal, Karnataka Veterinary, Animal and Fisheries Sciences University, Bidar, Karnataka, Rajasthan University of Veterinary and Animal Sciences, Bikaner, Rajasthan, and Kerala Veterinary and Animal Sciences University, Thiruvananthapuram, Kerala have been included in the study. Overall, 35 state agricultural universities, one central agricultural university, three horticultural universities, nine veterinary and animal science universities, and five deemed-to-be universities were considered. The complete list of the all Indian Agricultural Universities including horticulture and veterinary university was acquired from ICAR website [5].

Methods

Analysis of the contents / features of the websites of Indian agricultural universities for compliance of ICAR standards: ICAR [3] has prepared the guidelines for the websites of the Agricultural institutions in the country for maintaining the homogeneity and to exploit new generation Web 2.0 technologies. Though, the guidelines were prepared mainly for the ICAR affiliated research institutions in the country, but these guidelines hold good even for the agricultural, horticultural and veterinary universities / deemed-to-be universities. The guidelines were prepared considering the three major activities of the ICAR research institutions namely research, extension and education. The higher education is imparted by some of the ICAR research institutions, which have been granted the deemed-to-be university status. All three major activities are also an integral part of agricultural / horticultural / veterinary universities; thereby the contents / features of the websites of agricultural / horticultural / veterinary university were evaluated for the compliance with ICAR standards. ICAR has suggested three tier contents / features; however, the comparison up to third tier is not possible because of complexity and the variation in the websites and the large number of sample size. Hence, ICAR standards up to second tier were considered in the present study. The complete list of the features / contents and their code values has been given in Table 1. Considering the equation – 1, the average contents / features were computed for each university. Also the frequency of individual content / feature was calculated and arranged in descending order to get the idea of most featured content on the websites of Indian Agricultural universities.

Table 1. The content features of the Indian Agricultural Universities as per guidelines issued by ICAR (2009) with their code values.

Sr. No.	Features / Contents	Sr. No.	Sub-features / sub-Contents	Code Values
1	About University			Absent = 0, Present = 1
		1.1	How to reach	Absent = 0, Present = 1

		1.2	Organizational setup chart	Absent = 0, Present = 1
		1.3	cadre strength	Absent = 0, Present = 1
		1.4	Department / college / institute	Absent = 0, Present = 1
		1.5	Research Centre	Absent = 0, Present = 1
		1.6	AICRP	Absent = 0, Present = 1
		1.7	Professional societies	Absent = 0, Present = 1
		1.8	Faculty contact	Absent = 0, Present = 1
2	Former Directors/ Officers			Absent = 0, Present = 1
3	Research			Absent = 0, Present = 1
		3.1	Projects	Absent = 0, Present = 1
		3.2	Achievements	Absent = 0, Present = 1
		3.3	Verities developed	Absent = 0, Present = 1
		3.4	Link and collaboration	Absent = 0, Present = 1
		3.5	Publication	Absent = 0, Present = 1
		3.6	Award Winning Projects	Absent = 0, Present = 1
		3.7	Awards and Achievements	Absent = 0, Present = 1
		3.8	Patent	Absent = 0, Present = 1
4	Services			Absent = 0, Present = 1
		4.1	Consultancy	Absent = 0, Present = 1
		4.2	Analytical labs	Absent = 0, Present = 1
		4.3	Library	Absent = 0, Present = 1
		4.4	Training /Lecture / Meetings	Absent = 0, Present = 1
5	Extension			Absent = 0, Present = 1
		5.1	ATIC	Absent = 0, Present = 1
		5.2	KVK Location	Absent = 0, Present = 1
		5.3	Farmers Fair	Absent = 0, Present = 1
6	University Publication			Absent = 0, Present = 1
		6.1	Extension Bulletin	Absent = 0, Present = 1
		6.2	Leaflets	Absent = 0, Present = 1
		6.3	others	Absent = 0, Present = 1
7	Academics			Absent = 0, Present = 1
		7.1	Course / Degree / Diploma programme	Absent = 0, Present = 1

		7.2	Admission	Absent = 0, Present = 1
		7.3	Course outline / Syllabus	Absent = 0, Present = 1
		7.4	Academic rules & regulations	Absent = 0, Present = 1
		7.5	Fee Structure	Absent = 0, Present = 1
		7.6	Fellowship	Absent = 0, Present = 1
		7.7	Student Welfare	Absent = 0, Present = 1
		7.8	Alumni	Absent = 0, Present = 1
		7.9	Placement	Absent = 0, Present = 1
		7.10.	Advisory and Training services	Absent = 0, Present = 1
		7.11	Events Academic calendar etc	Absent = 0, Present = 1
		7.12	Student union act	Absent = 0, Present = 1
		7.13	Student aid funding	Absent = 0, Present = 1
		7.14	Sports	Absent = 0, Present = 1
		7.15	Management of Bandwidth	Absent = 0, Present = 1
		7.16	Database of Alumni	Absent = 0, Present = 1
		7.17	Donation to institute	Absent = 0, Present = 1
8	Facility			Absent = 0, Present = 1
		8.1	Labs	Absent = 0, Present = 1
		8.2	Special equipments	Absent = 0, Present = 1
		8.3	Guest House	Absent = 0, Present = 1
		8.4	Conference / Seminar hall / Auditorium	Absent = 0, Present = 1
9	Farmers			Absent = 0, Present = 1
		9.1	Farmers' List	Absent = 0, Present = 1
		9.2	Success story	Absent = 0, Present = 1
		9.3	Agricultural Operation of month / Crop-weather calendar	Absent = 0, Present = 1
		9.4	Contingency Plan	Absent = 0, Present = 1
		9.5	Help line + Advice detail	Absent = 0, Present = 1
10	Downloads			Absent = 0, Present = 1
		10.1	Tender	Absent = 0, Present = 1
		10.2	Photo gallery	Absent = 0, Present = 1
		10.3	Form and Performa	Absent = 0, Present = 1

		10.4	News letter	Absent = 0, Present = 1
11	Announcement			Absent = 0, Present = 1
		11.1	Press release	Absent = 0, Present = 1
		11.2	Employment / Job Opening in University	Absent = 0, Present = 1
		11.3	Farmers Field Day	Absent = 0, Present = 1
		11.4	Training /Lectures / Meetings	Absent = 0, Present = 1
		11.5	Seminar / Symposium / Workshop	Absent = 0, Present = 1
12	Market intelligence			Absent = 0, Present = 1
		12.1	Address of Buyer / Seller	Absent = 0, Present = 1
		12.2	Inputs (quantity, prices, sources)	Absent = 0, Present = 1
		12.3	Address of Commodity Boards / Organizational Association	Absent = 0, Present = 1
13	Events			Absent = 0, Present = 1
14	FAQS			Absent = 0, Present = 1
15	Contact us			Absent = 0, Present = 1
16	Important Links			Absent = 0, Present = 1
17	Feed Back			Absent = 0, Present = 1
18	Search Option			Absent = 0, Present = 1
19	Date of last update			Absent = 0, Present = 1
20	Visitors Counter			Absent = 0, Present = 1
21	Bi-Lingual			Absent = 0, Present = 1
22	RTI Link			Absent = 0, Present = 1
23	Sitemap			Absent = 0, Present = 1
24	Disclaimer Statement			Absent = 0, Present = 1

Statistical Analysis: The ANOVA technique has been deployed for statistical analysis to evaluate the hypothesis 'Ho: $\mu_1 = \mu_2 = \dots \mu_n$ '. In the analysis, the different types of universities such as 'Agricultural University', 'Horticultural University', and 'Veterinary University' were taken as treatments and the Universities in a group has been considered as replications. The hypothesis has been tested on the average / mean content / feature of the University listed in Table 1. The analysis was carried out separately for different groups of parameters.

Results and Discussion

Analysis of the contents / features of the websites of Indian agricultural universities for compliance of ICAR standards

The responsibility of agricultural education as well as research and extension in country lies with ICAR [5] In the present era due to the advancement of computer and Internet, all the academic and research institutions are holding their own websites for wide communication. However, the contents of the websites of these institutions vary greatly. Therefore, ICAR [3] prepared the guidelines for the websites of the Agricultural institutions in the country for maintaining the homogeneity and to exploit new generation Web 2.0 technologies. First and second tier of web contents [3] together form 88 contents / features, which have been considered in the analysis. The analysis of websites of Indian Agricultural Institutions shows that no administrator of Indian agricultural university / deemed-to-be university completely follows the website standard proposed by ICAR. The contents / features of all the agricultural universities / deemed-to-be universities have been shown in the Figure 1. The Website of Junagarh Agriculture University, Junagarh, Gujarat tops the list by containing approximately 57 % features proposed by ICAR, closely followed by NDRI, Karnal with approximately 55% features. Rest other websites not even containing the 50% of the contents / features proposed by ICAR. It is noteworthy to mention here that out of four ICAR research centers (which are also deemed-to-be university), three research centers contain less than 49% of the features. The last three places were secured by KVAFSU, Karnataka, RUVAS, Bikaner and WBUAFS, Kolkata, which happen to be the state veterinary and animal science universities.

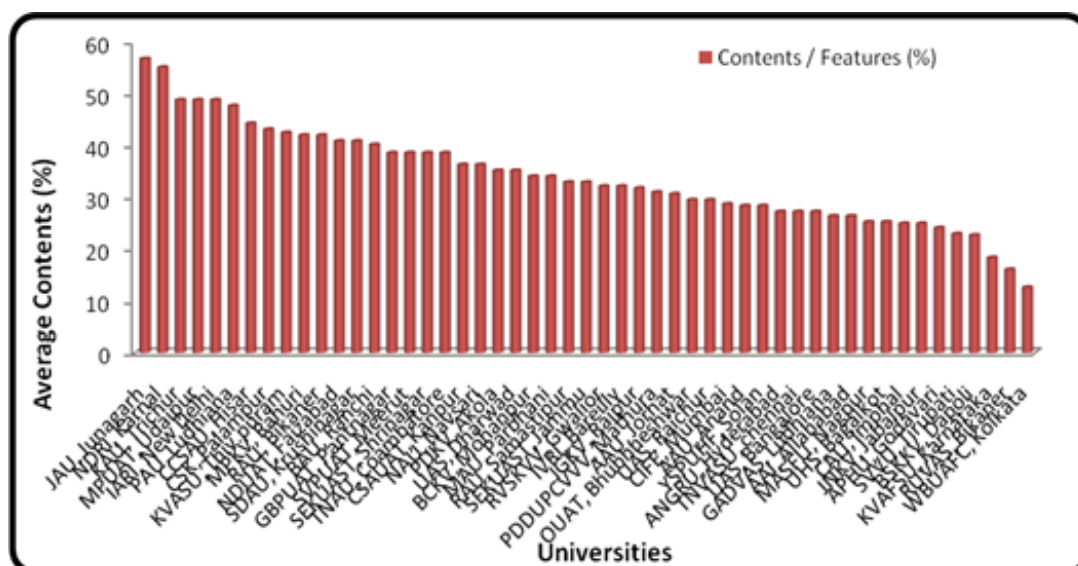


Figure 1. Contents / features of the websites of India agricultural Institutions as per standards proposed by ICAR (2009).

The group wise contents / features of the agricultural, horticultural, veterinary universities, and deemed-to-be universities have been shown in Figure 2. The figure shows that there is even large variation within the members of particular group for example the contents of agricultural universities varied from 22.72 to 56.81 %, while that of deemed-to-be universities varied from approximately 26 to 55 %, of horticultural universities varied approximately from 24 to 28 % and veterinary universities varied from approximately 13 to 43 %.

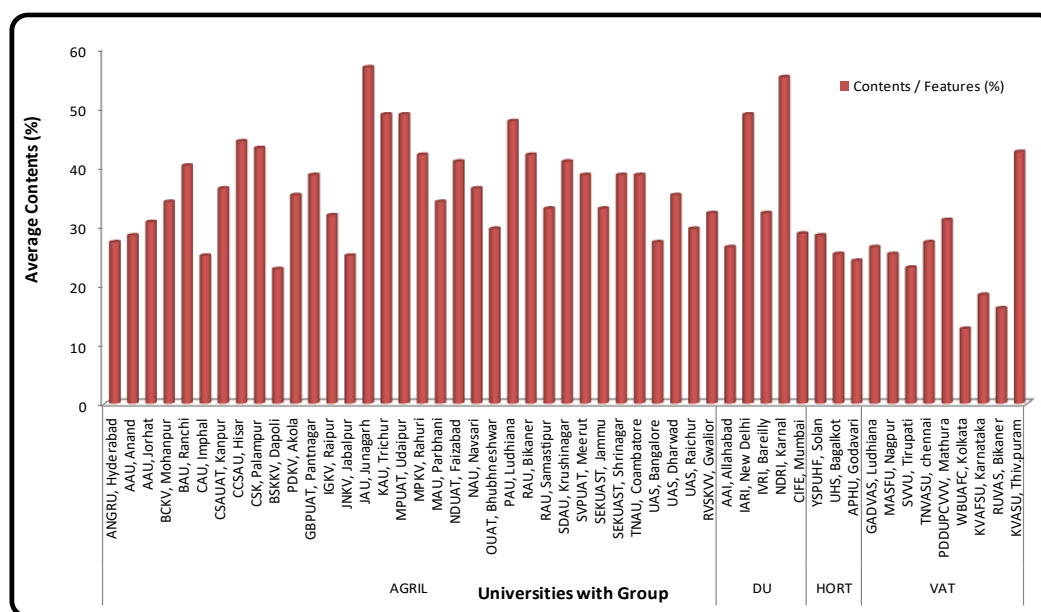


Figure 2. Group wise Contents / features of the websites of India agricultural Institutions as per standards proposed by ICAR [3].

The average contents / features of the different groups were also computed and have been shown in Figure 3. Figure shows that the average of contents / features of deemed-to-be universities is highest with 38.28% features, followed by Agricultural universities (state and central together) with 36.39 % features and by horticultural universities 25.94 % contents. The veterinary and animal science group was last in the list with only 24.74 % contents. The difference in the means of the groups was analyzed in SPSS software using one way ANOVA for testing the significance. The results show that the means of the different groups are significantly different from one another ($F = 5.96$, $P, 0.002$). Therefore, it can be concluded that variation with group in the websites contents is smaller than the variation in means of different groups. Further, the critical difference analysis shows that the mean of deemed-to-be universities is significantly higher in comparison to the means of Agricultural, Horticultural and Veterinary universities at 0.05 % probability level. Also the mean of Agricultural universities is significantly higher than the means of Horticultural and Veterinary universities at

0.05 % probability level, however the mean of Horticultural universities is not significantly higher than the mean of Veterinary universities.

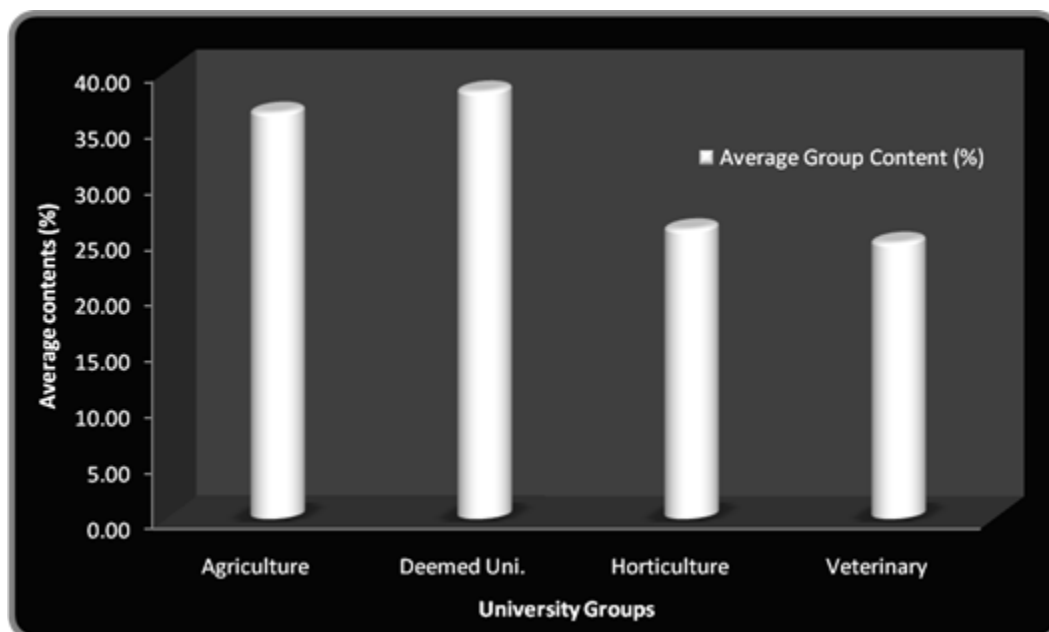
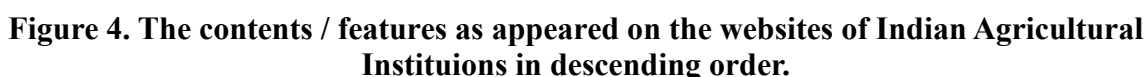


Figure 3. The average contents / features of the different groups of the Indian Agricultural institutions as per ICAR standards [3].

Figure 4 shows all 88 contents / features in descending order as proposed by ICAR [3]. It can be inferred from the figure that the most featured contents of the websites of Indian Agricultural Institutions are “Announcement” and “Contact Us”, which appeared on almost 96% of the websites. In the Announcement section Latest News, News Updates were also considered. “Faculty contact, Library Academics, Course / Degree / Diploma programme, About University and Research” were other important contents / features, which appeared on the websites of more than 80% Agricultural Institutions. Out of total number of 88 contents / features, 25 appeared on the 50% websites of Agricultural Institutions. While remaining 63 could not find place on even 50% websites of Agricultural Institutions. There were atleast 7 contents / features (Award Winning Projects, Advisory and Training services, Management of Bandwidth Donation to institute, Farmers Field Day, Market intelligence, Address of Commodity Boards / Organizational Association), which were not listed even on single website.



The preceding results shows that there are only two websites, one each of Agricultural University namely JAU, Junagarh, Gujarat and NDRI, Karnal, which contain approximately 57 % and 55 % contents / features, respectively. It can be concluded that no Agricultural institution in India is completely following the standards suggested by ICAR (2009), however, deemed-to-be universities, which are administratively controlled by ICAR itself, are relatively in better position. The average contents / features of deemed-to-be universities is highest with 38.28% features, followed by Agricultural universities (state and central together) with 36.39 % features and by horticultural universities 25.94 % contents. The veterinary and animal science group was last in the list with only 24.74 % contents. The ICAR is being mainly responsible for agricultural research and extension services in India has included many contents / features addressing research and extensions. This may be the reason, why the Agricultural universities in India exhibited relatively poor performance. The performance of horticultural and Veterinary universities is even worse than agricultural universities. The reason may be attributed to the recent establishment of these universities. While the agricultural universities and deemed-to-be universities were established way back and have developed their website as per the users' need. Hence administrator of websites of Indian agricultural university should be educated to update the website in the similar manner as that of traditional universities [6]

Conclusion

The present investigation suggests that out of 51 websites there are only two websites, which contain more than 50% contents / features, while all other institutional websites contain less than 50% contents / features. The average contents / features of deemed-to-be universities is highest with 38.28% features, followed by Agricultural universities (state and central together) with 36.39 % features, horticultural universities 25.94 % contents, veterinary and animal science universities with only 24.74 % contents.

The statistical results convincingly support the variation in the different groups ($F = 5.96$, $P, 0.002$). The reason behind the poor performance of most of the websites could be the emphasis of ICAR on research and extension components. However, the present investigation can play a catalytic role in the improvement of the institutional websites. The performance of horticultural and veterinary universities can particularly be improved as these are relatively new universities and are not in full conformity with ICAR standards.

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Conflict of Interest

There is no conflict of interest among authors. All authors agree and give consent for the publication of the manuscript in the journal “International Journal of Science, Environment and Technology”.

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