PROCEEDINGS OF THE 11th WORLD RABBIT CONGRESS
Qingdao (China) - June 15-18, 2016
ISSN 2308-1910

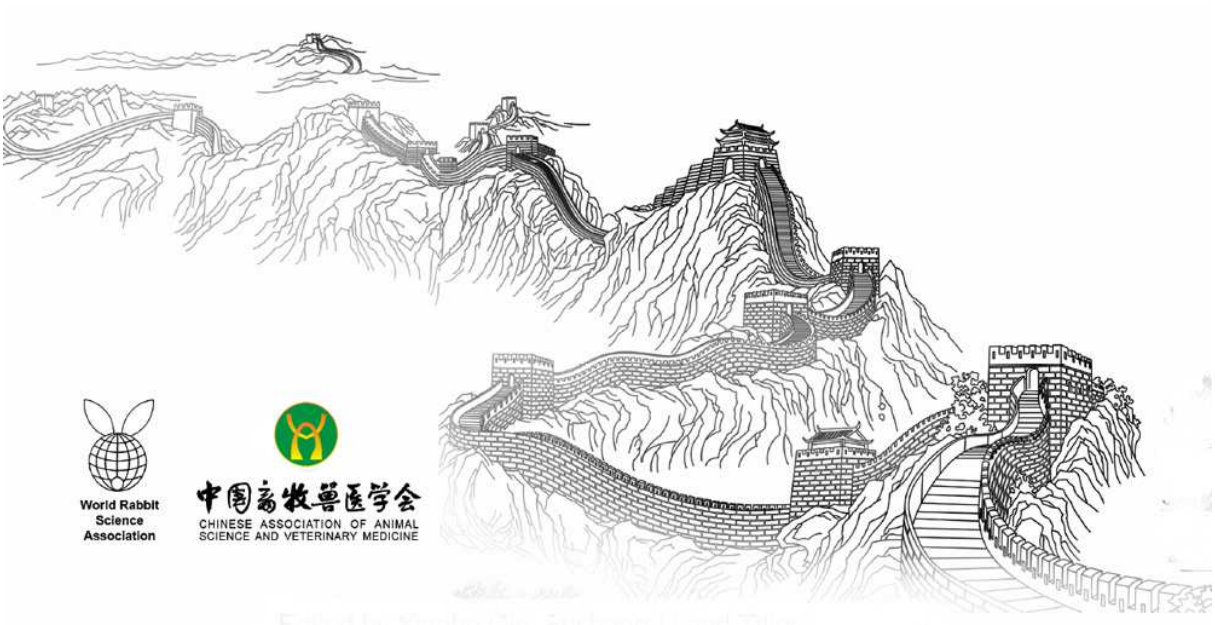
Session
Management & Economy

Oseni S.O., Lukefahr S.D.

CRITICAL REQUIREMENTS FOR UNDERGRADUATE TRAINING CURRICULUM IN RABBIT PRODUCTION IN LESS DEVELOPED COUNTRIES.

Full text of the communication

How to cite this paper :
Oseni S.O., Lukefahr S.D., 2016 - Critical requirements for undergraduate training curriculum in rabbit production in less developed countries. *Proceedings 11th World Rabbit Congress - June 15-18, 2016 - Qingdao - China, 1005-1008..*



CRITICAL REQUIREMENTS FOR UNDERGRADUATE TRAINING CURRICULUM IN RABBIT PRODUCTION IN LESS DEVELOPED COUNTRIES

Oseni S.O.[1], Lukefahr S.D.[2]

[1]Dept. of Animal Sciences, Obafemi Awolowo University, 220005, Ile-Ife, Nigeria
[2]Dept. of Animal, Rangeland and Wildlife Sciences, Texas A&M University, 78363, Kingsville, TX, USA
[*]Corresponding author: soseni2@yahoo.com

ABSTRACT

A study was undertaken with a 162-member Part IV class of ANS 405 (Rabbit Production course) in a Bachelor's degree programme in agriculture at the Obafemi Awolowo University, Nigeria. The objective was to assess their knowledge and perception of curriculum contents that contribute to core competence in rabbit production with entrepreneurial drive. A questionnaire was designed to ascertain the level of knowledge and understanding of these afore-mentioned topics in the teaching curriculum. Analysis of the data was done via principal component analysis procedure. Results indicated that five Principal Components (PCs) explained 61.28% of total variation in the attributes evaluated. These components were tagged "robust training", "depth of training", "contemporary and emerging issues", "well-rounded training" and "technical aspects". In all, these components emphasize the need to re-assess current curriculum of rabbit production courses in order to build core competence that combine technical topics in addition to entrepreneurship, income generation and sustainability - all geared towards self-employment and poverty alleviation.

Key words: Rabbit production, Entrepreneurship, Core-competence, Curriculum, Development

INTRODUCTION

Rabbit production has been promoted as part of the solutions to poverty alleviation (Lukefahr, 2000; Owen *et al.*, 2005), gender empowerment (Lukefahr, 2000) and entrepreneurial skills development (Kaplan-Pasternak, 2011). Questions however arise concerning the extent to which the curriculum contents of rabit production courses under a Bachelor's degree programmes in Animal Sciences address or inspire students to engage in rabbit production as a vocation or as a source of employment, income and livelihood. For instance, a review of undergraduate curricula on courses taught in rabbit science and production (e.g., Department of Animal Sciences Handbook for Obafemi Awolowo University, Nigeria, 2010) showed a focus on technical topics including breeds and breeding, nutrition, healthcare, management and processing of rabbit products. While these topics are very relevant, they may not inspire nor motivate students in the direction of rabbit production entrepreneurship, income generation and sustainable livelihoods.

A summary of scientific literature on the merits or appropriateness of curricula for rabbit and livestock science showed the following: (a) course content modifies students' attitudes and enhances critical thinking and problem-solving abilities and communication skills (Lukefahr, 1999), (b) Animal Science instruction foster a more agreeable attitude towards livestock farming (Bobeck *et al.*, 2013). Further, Casey (2010) suggested that undergraduate education in Animal Sciences must be designed to meet the objectives of a sustained career development and argued that investments in intellectual capital to sustain the livestock industry must not only be technical of an animal science nature but should include external constituencies. Lemma (2014) noted that issues underlying livestock entrepreneurship are not fully addressed in the light of a complex set of challenges including lack of institutional arrangements to realize the potentials of self-employment in the livestock sector. This author argued that embedding livestock entrepreneurship in the curriculum is one of the opportunities to recognize, promote and build an entrepreneurial culture among young people and in turn improve their career choices.
From the foregoing, the following pertinent questions can be raised**:** (a) How is rabbit production entrepreneurship understood by students in their penultimate and final years of a Bachelor's degree

programme in Animal Sciences? (b) What is the knowledge and perception of curriculum contents that contribute to core competence in rabbit production and self-employment? (c) What is the response of students to a curiculum that combines technical (e.g., rabbit breeds, nutrition, healthcare, etc), contemporary (e.g., socio-economics, agribusiness, value chains and networking) and emerging issues (e.g., gender, globalization and ICT)? A study was designed to assess the knowledge and perception of curriculum contents in a rabbit production course in a Bachelor of Agriculture degree programme (Animal Sciences) that contribute to core competence in rabbit production, entrepreneurship and income generation.

MATERIALS AND METHODS

Investigational Units

ANS 405 (Rabbit Management Practices) and ANS 523 (Rabbit Production) are 1 and 3-unit courses taught in the Department of Animal Sciences, Obafemi Awolowo University, Ile-Ife in the penultimate and final year classes in the B. Agric. (Animal Sciences) Programme, respectively. The focus of our study is ANS 405 for which there was a total of 202 students in the Harmattan Semester of 2014/2015 academic session. All students were drawn from five academic Departments including majors in Agricultural Economics (30%), Animal Sciences (19%), Agricultural Extension (19%), Crop Production (15%), and Soil Science (17%). Age range of students covered 19-21 years (32%), 22-24 years (51%), 25-27 years (12%), and greater than 27 years (3%). The distribution of the students across gender indicated that males and females were 56 and 44%, respectively.

Data Collection

A study was designed via a structured questionnaire, to assess the knowledge and perception of curriculum content in relation to core competence in practical rabbit management and production, local values, entrepreneurship, agribusiness, and income generation. The questionnaire had two sections: (a) Basic data about the respondent including age, gender, previous experience in rabbit production, etc., and (b) Questions that require responses based on a Likert scale of (1) Strongly disagree, (2) Moderately disagree, (3) Slightly disagree, (4) Slightly agree, (5) Moderately agree, and (6) Strongly agree. In all, a total of 162 questionnaires were collated. All the questions were fully filled by the students.

Data Analysis

Data analysis involved two steps. The first was to establish descriptive statistics of the characteristics of the respondents. The main analysis was based on Principal Component Analysis (PCA) using SAS statistical software (SAS, 1998). The PCA is a data reduction technique that draws uncorrelated components from a multi-variate dataset (Johnson and Wichern, 2001).

RESULTS AND DISCUSSION

Figure 1 shows the Scree Plot of principal components (PC) and their correspondng eigenvalues. The plot displays the cut-off point for eigenvalues to determine the number of PCs to retain, following the Kaiser-Gultman rule which states that PCs with eigenvalues greater than 1.00 are retained (Johnson and Wichern, 2001). Five out of the 17 PCs met this criterion and were thus retained.

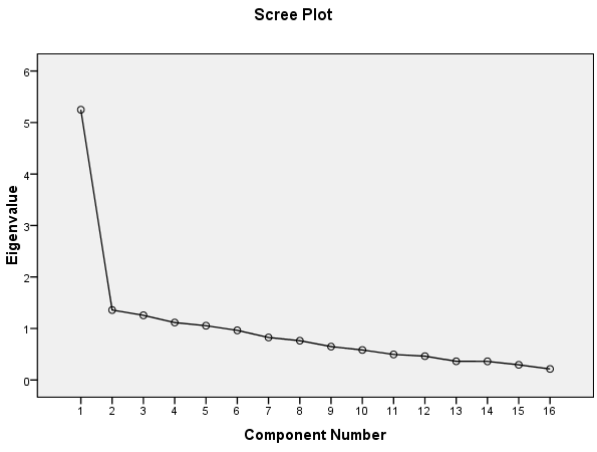


Figure 1: Scree Plot of principal components and their corresponding eigenvalues

Kaiser-Meyer-Olkin measure of sampling adequacy	0.822
Bartlett's Test of Sphericity	
Approximate Chi-Square	973.582
df	171
Sig.	0.001

[a]Based on correlations.

Table 1: Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity
KMO and Bartlett's Test[a]

Table 1 shows the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Bartlett's test of sphericity. The KMO measures the suitability of the data for principal component analysis and KMO values > 0.60 are considered adequate (Johnson and Wichern, 2001). Barlett's test showed significance (P<0.001), rejecting the null hypothesis that the correlation matrix is an identity matrix. Thus, the KMO measure and the Bartlett's test point to the suitability of the dataset to principal component analysis. Table 2 shows the PCs, their eigenvalues, and percentage of variance explained by each PC. Of the 5 PCs retained, the 1st, 2nd, 3rd, 4th and 5th PCs explained 33.002, 8.317, 7.732, 6.555, and 6.084% of total variance, respectively, accounting for a total of 61.279% of total variation in the attributes relating to core competence in the curriculum for rabbit production.

Table 2: Eigenvalues, share of total variance, factor loadings and communalities of likely attributes relating to core competence in the rabbit production courses

	Component					**Communalities**
	1	**2**	**3**	**4**	**5**	
Knowledge of local rabbit value chains	**.827**	.119	.122	.050	-.095	.724
Smallholder rabbit development	**.782**	.164	.159	.058	-.089	.675
Quality training	**.742**	.097	.221	.057	.109	.625
Income generation	**.727**	.273	-.023	.181	.141	.656
Entrepreneurship	**.716**	.284	.019	.174	105	.635
Depth of training	.053	**.729**	.729	.355	.189	.697
Core competence	.365	**.725**	725	.048	.028	.679
ICT and social networks	.250	**.605**	.605	.032	-.248	.539
STI	.325	.554	.008	-.189	-.298	.538
Gender role	.026	-.152	**.709**	.056	.335	.641
Global experience						
Socio-business	.092	.328	**.687**	-.206	-.127	.647
Well-rounded training	.470	.138	**.548**	.090	-.229	.602
Internships						
Technical topics	.127	.016	.016	**.814**	-.178	.712
	.406	.293	.177	**.476**	.057	.510
	-.005	-.041	-.067	-.149	**.851**	.753
Eigenvalue	5.610	1.414	1.244	1.114	1.034	
% total variance	33.002	8.317	7.732	6.555	6.084	

The 1st PC was dominated by the following attributes: knowledge of local rabbit value chains, smallholder rabbit development, quality training, income generation from rabbit enterprises and rabbit entrepreneurship, and was tagged as "robust training". The 2nd PC recorded high eigenvectors for depth of training, core competence (e.g., agri-business, entrepreneurship, value chains, and technical topics), ICT, and social networks and was thus labelled as "depth of training". The 3rd PC captured attributes that included gender role and global experiences (e.g., FAO, WRSA, Cuniculture, etc.) in rabbit project development, socio-economics, and agribusiness in relation to rabbit enterprises and was thus tagged as "contemporary and emerging issues". The 4th PC was dominated by attributes relating to well-rounded training (e.g., that inspires graduates to embark on rabbit production) and internships (e.g., NGOs like Heifer International R&D projects) and was tagged as "well-rounded training". The 5th PC scored high for technical topics including rabbit breeds, nutrition, health and management, and was labelled as "technical aspects" of the curriculum. In all, these components emphasize the need to re-assess current curriculum of rabbit production courses in order to build

core competence that combine technical topics in addition to entrepreneurship, income generation and sustainability - all geared towards self-employment and poverty alleviation.

CONCLUSIONS

The study focused on ways by which the teaching curriculum of taught courses in rabbit production can be enriched. Inclusion of topics related to entrepreneurship, local value chains, gender, socio-economics, and agri-business will contribute to well-rounded training in rabbit production that will inspire students towards entrepreneurship in commercial as well as small-scale rabbit enterprises.

ACKNOWLEDGEMENTS

(a) Students of ANS 405 class of 2014/2015, Faculty of Agriculture, Obafemi Awolowo University (OAU), Nigeria; (b) IFS, Sweden (Grant B3871-1) for the Rabbit Research Facility at the Teaching & Research Farm, OAU, Nigeria; (c) Student Mentorship Programme, EU-funded iLINOVA (www.ilinova.org) project.

REFERENCES

Bobeck E.A., Combs D. K., Cook M.E. 2013. Introduction to Animal Science-based instructions influences attitudes on animal agriculture issues. *J. of Anim. Sci*., doi:10.2527/jas.2013-6918.

Casey N.H. 2010. Integrated higher learning–an investment in intellectual capital for livestock production. *Livestock Sci*., 130(1-3): 83-94.

Handbook, Department of Animal Sciences, OAU, Ile-Ife, Nigeria 2010. Departmental Handbook 2010 – 2015. 24pp

Johnson R.A. and Wichern D.W. 2001. Applied multivariate statistical analysis. 4th Edition.

Kaplan-Pasternak M. 2011. Promoting entrepreneurial opportunities through rabbit production in Haiti. *Rabbit Production in Developing Countries. World Rabbit Science Association. Available at: http://world-rabbit-science.com*

Lemma H. 2014. Livestock entrepreneurship as an emerging self-employment option for University graduates in Ethiopia: overview of concerns and potentials for growth. *European J. of Business and Management*, 6(4): 2222-2839.

Lukefahr S.D. 1999. Teaching international animal agriculture. *J. Anim. Sci.*, 77:3106-3113

Lukefahr S.D. 2000. National Rabbit Project of Ghana: a genetic case study. *ICAR Technical Series 3, 307-317.*

Oseni S.O., Lukefahr S.D. 2014. Rabbit production in low-input systems in Africa: situation, knowledge and perspectives – a review. *World Rabbit Sci*., 22:147-160.

Owen E., Kitalyi A., Jayasuriya N., Smith T. 2005. Livestock and Wealth Creation. DFID, LPP. Nottingham University Press.

SAS. 1998. SAS/STAT User's Guide (Release 6.03). *SAS Inst. Inc., Cary NC, USA.*

==========