



RESEARCH ARTICLE.....

Funding sources and financial constraints of scientists and extensionists for research and extension activities in Veterinary and Animal Science Universities

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ABSTRACT..... The present study has made an attempt to identify the funding sources for universities to conduct research and extension activities, satisfaction level towards the receipt of these funds and has also highlighted different financial constraints in carrying out research and extension activities in four universities of North India. The study concluded that university or institute fund was the major funding source followed by funding bodies like ICAR, DST, DBT etc. for research and extension activities in the universities. Further, the scientists and extensionists were satisfied with the university and central government funds, while they were partly satisfied with the funding support from patent and copyrights, loans and credits and non-competitive grants for conducting research and extension activities in the universities. The study also revealed that, lack of public private partnership and irregular/untimely budget receipt were the major constraints, followed by paucity of budget and lack of incentives for the research and extension activities. Hence, there is an urgent need to reorient the research and extension system, so that funds can be procured and utilized effectively for the benefit of farming community in livestock sector. Further, to strengthen research and extension of livestock technologies, there is a need to find suitable solutions for the constraints faced by the professionals and simplify the procedure so that they can opt for need based appropriate research and extension activities.

KEY WORDS..... Funding sources, Financial constraints, Research, Extension, Veterinary universities, Animal science universities

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INTRODUCTION.....

India has the largest agricultural research and development (R and D) system with Indian Council of Agricultural Research (ICAR) which directly oversees 100 agencies, which includes four deemed universities,

54 research institutes, 14 national research centers, 6 national bureaus, and 22 project directorates. Further, State Agricultural and Veterinary/Animal Science Universities have also greatly expanded in number with funding support from state governments but their

Universities under study (for scientists and extensionists)	States	Scientists	Extensionists
Indian Veterinary Research Institute (IVRI), Izatnagar (http://ivri.nic.in/)	Uttar Pradesh	20	10
G.B. Pant University of Agriculture and Technology (GBPUA andT), Pantnagar (http://www.gbpuat.ac.in/)	Uttarakhand	20	10
National Dairy Research Institute (NDRI), Karnal (http://www.ndri.res.in/ndri/Design/Index.html)	Haryana	20	10
Guru Angad Dev Veterinary and Animal Sciences University (GADVASU), Ludhiana (http://www.gadvasu.in/)	Punjab	20	10

research capacity has weakened (Pal *et al.*, 2012). There has been no parallel increase in the number of scientists implying lower research staff at the universities and increased overhead costs due to the proportionally larger administrative burden of more institutes. However, the agricultural R and D financial spending by ICAR institutes have major share (53.7%) followed by state universities (34.2%). Further, the investments for commodity-wise public R and D indicates that crop science got highest focus followed by animal science and fisheries in India. It can be noted that, livestock technologies are generated and transferred with heavy investments from public and private sources (Moreddu, 2013; Beintema and Stads, 2008 and Dev, 2012). Various studies (Thirtle *et al.*, 2003; Alston *et al.*, 2010 and Alston *et al.*, 2011) have depicted a higher benefit-cost ratio from investing in public agricultural research and extension which must be realized by developing countries to invest more in agricultural research and extension for profitable returns and effective innovation systems. In this context, it is very essential to know different funding sources and financial constraints of the universities so that effective research and extension activities can be undertaken. With this theoretical background, an attempt was made to identify the funding sources for universities to conduct research and extension activities and the satisfaction level towards the receipt of these funds. Further, the study also highlighted different financial constraints in carrying out research and extension activities in the universities.

RESEARCH METHODS.....

Four Veterinary/Animal Science Universities and Institutes, which are at the forefront of research in livestock sector, were selected. All the selected Universities/ Institutes have carried out various research and extension activities in livestock sector. The scientists or teaching faculty of the universities were randomly selected considering the fact that they were involved in

teaching, research and extension activities of the university. During the selection of respondents, care was taken that among 30 scientists selected, 10 were extensionists from universities or allied Krishi Vigyan Kendras (KVKs) and remaining 20 were involved in research activities of the university (Table A).

The data was collected from the respondents at their offices using questionnaire and discussion during November 2013 to June 2014 to know the different funding agencies for conducting research and extension activities in the universities. To study the different funding agencies for research and extension in universities, direct questioning in closed schedule was followed to get a response of whether the university had funding support from particular agencies or not. Further, the schedule also attempted to know the satisfaction level of the respondents with the funds received from those particular agencies in the form of categories *viz.*, 'satisfied', 'partially satisfied' and 'not satisfied'. The study also highlighted the different financial constraints in generation and transfer of livestock technologies. The data collected from sample respondents were coded, tabulated, analyzed and presented in the form of tables. The statistical tools *viz.*, frequency and percentage were used for analysis of the data. The inferences were drawn in light of the results obtained, keeping in view the objectives laid in the study.

RESEARCH FINDINGS AND ANALYSIS.....

The results obtained from the present investigation as well as relevant discussion have been summarized under the following heads :

Funding sources for the research and extension activities as perceived by scientists :

The funding sources for conducting research and extension activities are presented in Table 1. Although scientists had various funding sources like central government, state government, funding bodies like ICAR, DST etc., as presented in the Table 1, but only very few

of the sources were commonly used for funding of research and extension activities. Among the pooled data, it was indicated that majority of the scientists responded that university or institute fund was the major funding source followed by funding bodies like ICAR, DST, DBT etc. Across the universities, it was noted that majority of the scientists in IVRI and NDRI responded that funding bodies like ICAR, DST, DBT etc., were the major funding sources followed by central government funds.

A cursory look at the Table 1 indicates that university funds and collaborative contracts were the major funding sources for the scientists of GBPUA and T, while university was the major funding source followed by state government and funding bodies like ICAR, DST, DBT etc., for majority of the scientists in GADVASU, Ludhiana. However, the study revealed that G.B. Pant University of Agriculture and Technology was poorly supported by the funds for research and extension

Table 1 : Funding sources for the research and extension activities of the universities as perceived by scientists

Sr. No.	Funding sources	'Yes' response by universities scientists				
		IVRI (20)	NDRI (20)	GBPUAT (20)	GADVASU (20)	Pooled (n=80)
1.	From central government	15 (75.0)	18(90.0)	08(40.0)	15 (75.0)	56(70.0)
2.	Funding bodies like ICAR, DST etc.	18(90.0)	19 (95.0)	04(20.0)	17(85.0)	58(72.5)
3.	University/Institute funds	15 (75.0)	17(85.0)	16 (80.0)	19 (95.0)	67(83.75)
4.	Collaborative contracts	10(50.0)	18(90.0)	12(60.0)	13(65.0)	53(66.25)
5.	Competitive grants	07(35.0)	18(90.0)	08(40.0)	13(65.0)	46(57.5)
6.	Non-competitive grants	05(25.0)	13(65.0)	04(20.0)	07(35.0)	29(36.25)
7.	Industry levies	02(10.0)	06(30.0)	05(25.0)	04(20.0)	17(21.25)
8.	Patents and copy rights	06(30.0)	14(70.0)	05(25.0)	09(45.00)	34(42.5)
9.	Awards	06(30.0)	15 (75.0)	07(35.0)	07(35.0)	35(43.75)
10.	Own resources	03(15.0)	04(20.0)	08(40.0)	08(40.0)	23(28.75)
11.	From state government	07(35.0)	05(25.0)	07(35.0)	17(85.0)	36(45.0)
12.	From state level funding bodies	06(30.0)	07(35.0)	07(35.0)	13(65.0)	33(41.25)
13.	International donor assistance	05(25.0)	06(30.0)	04(20.0)	09(45.00)	24(30.0)
14.	Loans and credits	02(10.0)	03(15.0)	03(15.0)	07(35.0)	15(18.75)

(Figures in the parenthesis indicate percentage)

Table 2 : Satisfaction level of scientists towards funding for the research and extension activities of the universities

Sr. No.	Funding sources	Pooled (n=80)		
		Satisfied	Partly satisfied	Not satisfied
1.	From central government	34(60.72)	16(28.57)	06(10.71)
2.	Funding bodies like ICAR, DST etc.	35(60.35)	18(31.03)	05(8.62)
3.	University/institute funds	45(67.17)	16(23.88)	06(8.95)
4.	Collaborative contracts	29(54.72)	19(35.85)	05(9.43)
5.	Competitive grants	26(56.53)	17(36.95)	03(6.52)
6.	Non-competitive grants	15(51.73)	08(27.59)	06(20.68)
7.	Industry levies	07(41.18)	07(41.18)	03(17.64)
8.	Patents and copy rights	13(38.24)	16(47.06)	05(14.70)
9.	Awards	20(57.15)	12(34.28)	03(8.57)
10.	Own resources	07(30.44)	11(47.83)	05(21.73)
11.	From state government	17(47.23)	12(33.33)	07(19.44)
12.	From state level funding bodies	14(42.23)	11(33.33)	08(24.24)
13.	International donor assistance	08(33.33)	07(29.17)	09(37.5)
14.	Loans and credits	06(40.0)	03(20.0)	06(40.0)

(Figures in the parenthesis indicate percentage)

activities as compared to other universities in the study.

The satisfaction level of the scientists about the prompt and regular availability of funds is presented in Table 2. The study revealed that among the pooled data, majority of the scientists were satisfied with the university and central government funds, while 47.06 per cent and 47.83 per cent scientists were partly satisfied with the funding from patent and copyrights and own resources, respectively.

On similar lines, Ramasamy (2013) also reported that ICAR institutions were better equipped in terms of infrastructure since ICAR being a central government organization, was in advantage position to get the required funding to strengthen the infrastructure. The SAUs were frequently the victims of poor funding support for infrastructural development. Budget deficits and bureaucracy caused delay in channeling the funds from the respective state governments. Further, Whittemore (2001) also reported

Table 3 : Funding sources for the research and extension activities of the universities as perceived by extension experts

Sr. No.	Funding sources	'Yes' response by extension experts				
		IVRI (10)	NDRI (10)	GBPUAT (10)	GADVASU (10)	Pooled (n=40)
1.	From central government	08 (80.0)	07 (70.0)	04 (40.0)	06 (60.0)	25 (62.5)
2.	Funding bodies like ICAR, DST etc.	08 (80.0)	08 (80.0)	08 (80.0)	07 (70.0)	31 (77.5)
3.	University/institute funds	08 (80.0)	07 (70.0)	07 (70.0)	06 (60.0)	28 (70.0)
4.	Collaborative contracts	07 (70.0)	06 (60.0)	06 (60.0)	06 (60.0)	25 (62.5)
5.	Competitive grants	07 (70.0)	06 (60.0)	04 (40.0)	05 (50.0)	22 (55.0)
6.	Non-competitive grants	05 (50.0)	05 (50.0)	03 (30.0)	05 (50.0)	18 (45.0)
7.	Industry levies	04 (40.0)	04 (40.0)	03 (30.0)	06 (60.0)	17 (42.5)
8.	Patents and copy rights	06 (60.0)	06 (60.0)	02 (20.0)	07 (70.0)	21 (52.5)
9.	Awards	05 (50.0)	06 (60.0)	05 (50.0)	07 (70.0)	23 (57.5)
10.	Own resources	05 (50.0)	05 (50.0)	04 (40.0)	05 (50.0)	19 (47.5)
11.	From state government	08 (80.0)	07 (70.0)	06 (60.0)	06 (60.0)	27 (67.5)
12.	From state level funding bodies	08 (80.0)	06 (60.0)	05 (50.0)	05 (50.0)	24 (60.0)
13.	International donor assistance	07 (70.0)	04 (40.0)	03 (30.0)	06 (60.0)	20 (50.0)
14.	Loans and credits	03 (30.0)	03 (30.0)	02 (20.0)	03 (30.0)	11 (27.5)

(Figures in the parenthesis indicate percentage)

Table 4 : Satisfaction level of extensionists towards funding for the research and extension activities of the universities

Sr. No.	Funding sources	Pooled (n=40)		
		Satisfied	Partly satisfied	Not satisfied
1.	From central government	14(56.0)	08(32.0)	03(12.0)
2.	Funding bodies like ICAR, DST etc.	17(54.8)	12(38.7)	02 (6.4)
3.	University/institute funds	17(60.7)	07(25.0)	04(14.2)
4.	Collaborative contracts	14(56.0)	08(32.0)	03(12.0)
5.	Competitive grants	11(50.0)	09(40.91)	02(9.09)
6.	Non-competitive grants	07(38.8)	10(56.5)	01(5.56)
7.	Industry levies	07(41.1)	08(47.0)	02(11.7)
8.	Patents and copy rights	11(52.3)	09(42.8)	01(4.76)
9.	Awards	10(43.4)	10(43.4)	03(13.0)
10.	Own resources	08(42.1)	09(47.3)	02(10.5)
11.	From state government	13(48.15)	11(40.7)	03(11.1)
12.	From state level funding bodies	11(45.8)	09(37.5)	05(20.8)
13.	International donor assistance	09(45.0)	10(50.0)	01(5.0)
14.	Loans and credits	03(27.2)	07(63.6)	01(9.0)

(Figures in the parenthesis indicate percentage)

that some subject areas become fashionable, and large funding allocations continued in the face of a research yield that progressively decreases; adding unnecessary detail to an already sufficient knowledge base.

Funding sources for the research and extension activities as perceived by extensionists :

The funding sources for research and extension activities of the universities as responded by extensionists are presented in Table 3. Among the pooled data, it can be indicated that funding bodies like ICAR, DST, DBT etc., were the major funding sources followed by university or institute funds and state government. Further, it was noted that funding from central government, funding bodies like ICAR, DST, DBT etc., university funds, state government and state level funding bodies were the funding sources for majority of the extensionists at IVRI, while funding bodies like ICAR, DST, DBT etc. and university funds were the major funding sources for extensionists of G. B. Pant University of Agriculture and Technology. Further, majority of the extensionists at NDRI responded that funding bodies like ICAR, DST, DBT etc., was the major funding source followed by central government, university funds and state government. The study also pointed out that funding bodies like ICAR, DST, DBT etc., patents and copyrights and awards were the major funding source for extensionists of GADVASU, Ludhiana.

The satisfaction level of the extensionists about the prompt and regular availability of funds is presented in Table 4. The study revealed that, majority of the extension experts were satisfied with the university funds followed by central government funds and collaborative contracts.

Further, the study also revealed that loans and credits and non-competitive grants were perceived as partially satisfactory funding sources for research and extension in universities.

On the similar lines, Arumapperuma (2008) also reported almost similar findings in Australia and Srilanka with regards funding sources. Sharma *et al.* (2013) in Rajasthan revealed that poor infrastructural facilities like vehicle, funds, staff, inputs, communication facilities etc. and lack of need based appropriate researches and lack of proper working conditions were the major problems confronted by the extension professionals.

Perceived financial constraints of scientists and extensionists in the universities :

Among the pooled data from the Table 5, it was indicated that lack of public private partnership and irregular/untimely budget receipt were the major constraints, followed by paucity of budget for the scientists of universities. Further, the study reported that lack of public private partnership and lack of incentives were the major constraints faced by extensionists of the universities. It was observed in the study that, although funds were available from various sources, the major constraint was the irregularity in getting the funds and complicated procedures which made the research and extension activities ineffective in the universities. Further, it was also observed that few scientists were not aware of the different funding agencies for getting the funds for research and extension activities which indicated that there is a need to orient the scientists to create awareness about different funding agencies in India and abroad. In a similar study, Ramasamy (2013) also reported that

Table 5 : Perceived financial constraints of scientists and extensionists in the universities

Sr. No.	Financial constraints	'Yes' response by scientists and extensionists				
		IVRI	NDRI	GBPUAT	GADVASU	Pooled
Constraints perceived by scientists (n=80)						
1.	Lack of incentives	12 (60.0)	12 (60.0)	14 (70.0)	17 (85.0)	55 (68.75)
2.	Paucity of budget	15 (75.0)	13 (65.0)	13 (65.0)	16 (80.0)	57 (71.25)
3.	Irregular/untimely budget receipt	14 (70.0)	11 (55.0)	15 (75.0)	19 (95.0)	59 (73.75)
4.	Lack of public-private partnership	16 (80.0)	15 (75.0)	14 (70.0)	15 (75.0)	60 (75.0)
Constraints perceived by extensionists (n=40)						
1.	Lack of incentives	07 (70.0)	06 (60.0)	07 (70.0)	06 (60.0)	26 (65.0)
2.	Paucity of budget	07 (70.0)	06 (60.0)	06 (60.0)	05 (50.0)	24 (60.0)
3.	Irregular/untimely budget receipt	06 (60.0)	05 (50.0)	06 (60.0)	06 (60.0)	23 (57.5)
4.	Lack of public-private partnership	08 (80.0)	06 (60.0)	07 (70.0)	07 (70.0)	28 (70.0)

(Figures in the parenthesis indicate percentage)

ICAR institutions were comparatively better equipped in terms of infrastructure since they were in advantage position to get the required funding to strengthen their infrastructure. The SAUs were frequently the victims of poor funding support for infrastructural development. A study conducted by Manjunath *et al.* (2008) in Karnataka revealed that lack of proper working conditions, poor interpersonal relationship among the scientists were the major problems confronted by the professionals followed by poor linkages, reduction in budget outlays and over burdened extension personnel.

Conclusion :

The study concluded that university or institute fund was the major funding source followed by funding bodies like ICAR, DST, DBT etc., for research and extension activities in the universities. Further, the scientists and extensionists were satisfied with the university and central government funds, while they were partly satisfied with the funding support from patent and copyrights, loans and credits and non-competitive grants for conducting research and extension activities in the universities. The study also revealed that, lack of public private partnership

and irregular/untimely budget receipt were the major constraints, followed by paucity of budget and lack of incentives for the research and extension activities. Hence, there is an urgent need to reorient the research and extension system, so that funds can be procured and utilized effectively for the benefit of farming community in livestock sector. Further, to strengthen research and extension of livestock technologies, there is a need to find suitable solutions for the constraints faced by the professionals and simplify the procedure, so that they can opt for need based appropriate research and extension activities.

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