



A CONTENT ANALYSIS OF MASTERS DISSERTATIONS SUBMITTED TO THE DEPARTMENT OF AGRICULTURAL EXTENSION, UNIVERSITY OF AGRICULTURE, FAISALABAD, PAKISTAN

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ABSTRACT

A study was conducted at the Institute of Agricultural Extension and Rural Development, University of Agriculture, Faisalabad, Pakistan during the year 2014 to unleash the most commonly focussed research sectors and study areas selected in Masters dissertations submitted to the Department of Agricultural Extension from 2000-2009 (10 years). These dissertations were studied in Departmental Library and analyzed carefully. About 79 dissertations were submitted to the Department in Departmental library during said period which were taken under consideration for analysis and interpretation of results and conclusions. The results concluded that public sector was most frequently focussed in these research studies whereas major crops were also given high preference. Major agronomic crops were considered more whereas vegetables, pulses and fodder crops were not focussed during the selection of research sector. Central mixed zone was highly focussed for selection as study area and this zone was mostly considered for data collection. No proper rules were observed to be followed in selection of study zones. Increasing trend was also found in number of dissertations submitted from 2000 to 2009. About 75% of research studies were addressed on public sector extension. Out of all crops, majority (30.4%) of the research studies were conducted on agronomic crops. Most (33%) of the research studies were conducted on major agronomic crops of Pakistan. Central mixed zone was mostly (51.90%) studied zone of Punjab. In cotton zone, Bahawalpur was mostly (5.1%) focussed. In rice zone, Narowal and Sialkot districts were studied most (2.5% each). From central mixed zone, Faisalabad district was studied most (36.4%) frequently. In semi irrigated zone, Muzaffargarh was mostly (6.5%) studied while in barani zone, Rawalpindi was mostly (3.9%) studied.

KEYWORDS: Dissertation; Master degrees; coverage; cropping zones; crops; sectors; sub-sectors; districts; Pakistan.

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INTRODUCTION

Agricultural extension now-a-days is being considered as a very prime organizational component for transferring research based latest agricultural skills and practices end beneficiaries. Therefore, frontline extension field agents interact their clientele i.e. farmers alongwith a particular message. The research studies available on extension clearly prove without any ambiguity that an extension message with method of contacting farmers may be a great contributing factor regarding success or failure of any technique. Applied research institutions need strong extension services to work in a field problems-oriented mode, and the extension services need the backstopping of strong applied agricultural research institutions to effectively serve the farming communities. Countries like United States of America, Canada, Australia and Denmark, with very advanced agriculture, have always enjoyed strong extension services, first public, and now public and/or private (Davidson *et al.*, 2001). Agricultural extension is amongst very primary means which acts

to help the rural people for enhancing their field related capacities (Bajwa, *et al.*, 2010). Public and private extension advisory activities since independence of Pakistan, have played a very vital part in agricultural development (Ali *et al.*, 2011).

The Department of Agricultural Extension of University of Agriculture, Faisalabad, Pakistan is organizationally under the Division of Education and Extension. This Department was established in 1962 and has been imparting education and training to the students and field officers of various nation-building departments since its existence. The Agri. Extension Department is conducting valuable research in addition to its prime responsibility of imparting training in teaching methodologies and communication techniques to the future extension workers. For last 49 years, 544 agricultural graduates have been produced. In addition, 287 agrarians till 2009 have fulfilled all the requirements of their master's degree and 22 scholars have completed their doctoral degrees in Agricultural Extension discipline. The Department has a leading

and significant position for conducting research in the field of agricultural extension in the country. Research at M.Sc. (Hons.) level has also been conducted on diversified topics of agricultural extension to appease the plight of farmers by giving suggestions based upon empirical evidences. In addition to the usual educational and research activities, the faculty of this Department provides short duration training to the pre-release army personnels, officers of various governmental departments such as agriculture, forestry, livestock and non-governmental organizations. The faculty members undertake research on various aspects of agricultural extension like training need assessments of extension clientele, and competencies of extension field staff, identification of problems in extension administration, adoption of agricultural innovations, and evaluation of various extension projects (Riaz, 2010).

The value of research can be maximized when reviewed and analyzed for the purpose of shedding lights on implications and field trends for proposing directions and suggestions guidelines for advancing both the field and profession (Al-Saleh, 2000). Department of Agri. Extension has conducted extensive research in the field of agri. extension but so far no study has investigated and analyzed the dissertations submitted to the Department since its establishment. Hence, there is a dire need to review and analyze the research trends in agricultural extension for further suggestions. The present study was designed to obtain valuable information related to the research trends in the field of agri. extension.

MATERIALS AND METHODS

This study was conducted at the Institute of Agricultural Extension and Rural Development, University of Agriculture, Faisalabad, Pakistan during the year 2014. The study used content analysis methodology. This technique has been used in a number of studies to trace themes and issues in the field (Al-Saleh, 2000). The library of the Department contained more than 360 M.Sc. (Hons.) dissertations on various topics and issues. In this study dissertations submitted to the Department of Agricultural Extension from 2000-2009 (10 years) were studied and analyzed carefully. Researchers faced many problems to get access to the dissertations collection in the Department. From 2000 to 2009 about 79 dissertations were submitted to the Department of Agricultural Extension, which were taken under consideration for analysis and interpretation of results and conclusions. So, 79 dissertations were the population of study which were analyzed according to the criteria set in the content analysis sheet.

RESULTS AND DISCUSSION

Major sectors of study

The data (Table 1) show that the research conducted in the Department mainly focussed on public sector as majority (74.7%) of studies were conducted in this sector. The studies on private sector were much low (11.4%) in spite of the fact that its share in agricultural extension services is about 80% (Riaz, 2010). So, it needs that more emphasis should be given to private sector to address its issues.

Table 1. Distribution of dissertations according to the research focus on Major Sectors of Agri. Extension Services.

Sector	Frequency	Percentage
Public sector	59	74.7
Private sector	9	11.4
Public-private sector	1	1.3
NGO's sector	10	12.6
Total	79	100.0

In last ten years research, only single dissertation was submitted to the Department of Agricultural Extension relating to public-private partnership (PPP). It reflects that the least agricultural extension services were provided by this sector. Only 12.6% of the dissertations were written on NGO's while not a single research has been conducted on different welfare societies e.g. community development organizations and other farmer's welfare organizations, etc. So while planning future research studies, PPPs, NGO's and other social and local organizations must be given proper attention. Agricultural extension in the country remained purely public funded advisory package for approximately 40 years i.e. from 1947 to 1988. In 1988, the private sector was directly involved in the process of agricultural development through private input control (Riaz, 2010). Currently public, private, public-private and NGOs sectors are engaged in providing agri. extension services to the farmers. From 1947 to 1988, agri. extension activities were the mandate of public sector. In 1988, on the recommendation of National Commission on Agriculture, private sector was allowed to perform activities about agri. extension. Similarly public-private and NGOs sectors are also involved in delivering agri. extension services.

Public-private partnerships have been adopted by different countries round the globe for using it as a tool for successful technology transfer. These types of public-private partnerships also allow the public sector for minimizing their major expenditures and transforming the infrastructure expenses into inexpensive operational expenses. In addition, PPPs facilitate all the partners to closely select the activities select that are best suitable to their skills (PPP, 2007).

NGOs can play a very effective role in all the major components of development. Rural people including those involved in policy making agree on a very common point that NGOs play a very significant role in development. Role of NGOs keep on fluctuating as the government policies change (Jabeen, 2009).

Major sub-sectors of agri. extension services

Dissertations were distributed according to various sub-sectors keeping in view the focus of research in the Department. While distributing the dissertations significance of various sub-sectors and their importance regarding agri. extension services were given due consideration. These sub-sectors were forestry, fisheries, livestock, poultry, pesticides, sugar mills, crops and fruits.

Table 2. Distribution of dissertations according to research focus on major sub - sectors of agri. Extension services.

Name of major subsector	Frequency	Percent
Forestry	4	5.1
Fisheries	0	0.0
Livestock	5	6.3
Poultry	3	3.8
Pesticides	5	6.3
Sugar mills	3	3.8
Crops	27	34.1
Fruits	6	7.6
Total	50	67.0

Out of 79 dissertations 50 dissertations (63.3%) covered major sub-sectors of extension services whereas remaining 29 (36.7%) were related to general extension system extension or related to NGOs sectors, etc. Crop sub-sector was the main research focus of the Department during last 10 years as about 30% dissertations were written on crop sub-sector (Table 2).

Livestock is the equally important sector of the agriculture. Since last ten years negligible (6.3%) attention has been given to livestock sector (6.3%) and fisheries (0.%) only 5% dissertations were written on forestry in the Department. While no study has been conducted on Fisheries. Keeping in view the importance and share in agriculture, both these sectors should be included for future studies.

The above data show that majority of the studies (34.1%) were conducted on agronomic crops while in about half (49.4%) of the studies, third member of the supervisory committee was selected from Agronomy Department. About 10.1% of studies were conducted on livestock and poultry sector but no collaboration was made with the Livestock and Poultry Departments in last ten years.

The results further show that 7.6% of the studies were conducted on horticultural crops while merely 2 times

(2.5%) the collaboration with Horticultural Department. It is therefore stated that collaboration should be made keeping in view the title of research studies.

Pakistan is committed to increase forest cover from existing 5.2 to 5.7% by the year 2011 and 6% by the year 2015. Livestock plays an important role in the economy of the country. Livestock sector contributed approximately 53.2% of the agriculture value added and 11.4% to national GDP during 2009-10. Poultry meat contributes 23.8% the total meat production in the country. Fisheries share in GDP although to very little but it adds substantially to the national income through export earnings (Govt. of Pakistan, 2010). So these sub-sectors should also be given due consideration while deciding sectoral allocation in dissesations studies.

Focus of research by considering various crops

There are five major crops grown in Pakistan, which include cotton, sugarcane, rice, maize and wheat. Major crops contribute 28 percent to value added in overall agriculture and 5.9 percent to GDP. The value added in major crops accounts for 31% of value added in agriculture (Govt. of Pakistan, 2011). Other major crops include bajra, jawar, chickpea and barley. These crops are grown on an area of 1920 million acres. Minor crops include oilseed crops, masoor, mung, mash, potato, onion and chilies which are grown over an area of 8736.9 million acres. Different fodder crops and vegetable and fruit crops are also grown in Pakistan. Agriculture Department focussed on these in research studies to explore the various agri. education issues related to these crops. The distribution of dissertations regarding this aspect is presented in Table 3.

The data (Table 3) show that in last ten years, 41.8% of dissertations were focussed on crops. Out of these, about 42% of studies were conducted on all crops. About 33% of studies focussed major crops. Therefore, keeping in view the data it can be stated that satisfactory research work was conducted on various issues relating to major crops. The data further depict that only 1.3% of the dissertations were written on other major crops. According to the data, no study was conducted on minor crops, fodder crops and vegetable crops.

According to Hatam *et al.* (2001), fodder crops are cultivated on about 12.5% of cropped area and more than half of animal feed is coming from fodder crops and crop residues. Onion, tomato and chillies are most common and important kitchen items in Pakistan (Mari, 2009). Fruits are also grown on large area in Pakistan. During 2009-2010, country exported 533 thousand tons of fruits earning 16,554 million rupees.

Data further reveal that few (7.6%) studies focussed on

fruit crops. Minor crops, fodder crops and vegetables have significant importance in agriculture (Table 3). So, there is need to conduct research work to explore the agri. extension issues relating to these crops.

Table 3. Distribution of dissertations according to research focus on all types of crops used in research studies.

Crop name	Frequency	Percent	
Major crops	Cotton	6	7.6
	Sugarcane	9	11.4
	Rice	4	5.1
	Maize	3	3.8
	Wheat	4	5.1
	Total	26	32.9
Other major crops	Gram	1	1.3
	Bajra	0	0.0
	Jawar	0	0.0
	Barley	0	0.0
	Total	1	1.3
Minor crops	0	0.0	
a) Oilseed crops			
	Cotton seed	0	0.0
	Rape Seed/ Mustard	0	0.0
	Sun Flower	0	0.0
	Canola	0	0.0
	Masoor	0	0.0
	Mung	0	0.0
Vegetables	Mash	0	0.0
	Potato	0	0.0
	Onion	0	0.0
	Chillies	0	0.0
Fodder crops		0	0.0
Vegbetable crops		0	0.0
Fruits			
	Citrus	1	1.3
	Mango	3	3.8
	Pomegranate	1	1.3
	Date palm	1	1.3
	Total	6	7.6
Grand Total		33	41.8

Ahmad (2003), agro-climatic conditions of Pakistan ranging from tropical to temperate allowing to grow 40 different kinds of vegetables and 21 types of fruits. Major vegetables grown include potato, onion, chillies, melons, cucumber, tomato, turnip, okra and pea, whereas citrus, dates, mango, guava, apple, banana, apricot, grapes, almonds, peach, plum, and pomegranate are the main fruit crops.

Citrus is the most important fruit as far as production parameters are concerned after that comes the mango, then dates and at the end it is guava. In vegetables, potato and onion are listed among the top vegetables (Khan *et al.*, 2006).

The data (Table 3) depict that only ten crops were studied as a whole in last ten years but all five major crops had been studied in total 26 dissertations.

Keeping in view the data, it can be stated that on some leading fruits like guava, apples, banana, etc. in spite of their great importance, no study had been conducted, while high percentage (33.0%) of research studies had been conducted on cotton (7.6%), sugarcane (11.4%),

rice (5.1%), maize (3.8%) and wheat (5.1%). Only single dissertation had been written on each citrus, pomegranate and dates while few (3.8%) dissertations were submitted to the department on mango. It is suggested that while planning future research studies, all major vegetables, fruits and agricultural crops should be given proper importance. A proper plan should be developed to move the agricultural extension research in proper direction.

Cropping zones

In order to understand typical cropping patterns, the province has been classified into five zones (Younis *et al.*, 1990). The data given in Table 4 show cropping zones in which the research studies were conducted.

Table 4. Distribution of dissertations according to the focus of research with respect to cropping zone.

Zone	Frequency	Percent
Barani zone	5	6.3
Rice zone	8	8.9
Central mixed zone	40	51.9
Semi-irrigated zone	10	12.7
Cotton zone	12	15.2
Others (Mansehra, Hyderabad, General. Punjab)	4	5.1
Total	79	100.0

The results (Table 4) show that research studies were conducted in all five cropping zones of Punjab which is a remarkable achievement of the department. However, central mixed zone was given more importance on which about 52% of studies were conducted. It may be due to the fact that university is located in this cropping zone. Two major cropping zones from agricultural point of view are rice zone and cotton zone but very less number of research studies were conducted on these zones. Therefore, while planning future research studies, these zones should be given proper importance.

The data further reveal that no significant research studies was conducted in any zone of Punjab except central mixed zone. Very less (13%) dissertations were submitted to the department on barani zone.

Cotton zone: The cotton zone of Punjab comprises seven districts i.e. Multan, Lodhran, Khanewal, Vehari, Bahawalpur, Bahawalnagar, and Rahim-Yar-Khan. Cotton is the most important cash crop of this area. Rahim-Yar-Khan is leading district in cotton production. Wheat is other important food crop of this zone. Other crops being grown in this zone include sugarcane, rice, rape, mustard, etc. (Younis *et al.*, 1990). The data regarding district wise research studies conducted in

this zone is given in Table 5.

The data (Table 5) reveal that majority (5.2%) of research studies in cotton zone were conducted in Bahawalpur district while in Lodhran and Bahawalnagar, no study had been conducted in last ten years. All districts of cotton zones are very important so it can be stated that all the districts of cotton zone must be given equal importance so that research study can be conducted on all districts in this zone.

Table 5. Distribution of Dissertations according to the focus of research with respect to cotton zone.

District	Frequency	Percent
Bahawalpur	4	5.2
Khanewal	2	2.5
Multan	3	3.8
R.Y.Khan	1	1.3
Vehari	2	2.5
Bahawalnagar	0	0.0
Lodhran	0	0.0
Total	12	15.2

Rice zone: The rice zone of Punjab also comprises eight districts viz-a viz Gujranwala, Hafizabad, Sialkot, Narowal, Sheikhpura, Nankana-Sahib, Lahore and Kasoor. The wheat rice based farming system exists in this zone. Rice is the most important food and cash crop of the area. Gujranwala is a leading district regarding rice production in Punjab. The other crops in this zone cultivated are fodder, sugarcane, pulses, maize, etc. (Younis *et al.*, 1990).

Table 6. Distribution of dissertations according to the focus of research with respect to rice zone.

District	Frequency	Percent
Gujranwala	0	0.0
Hafizabad	1	1.3
Sialkot	2	2.5
Narowal	2	2.5
Sheikhpura	1	1.3
Nankana Sahib	0	0.0
Lahore	1	1.3
Kasoor	1	1.3
Total	8	15.2

The results show that very less number of studies were conducted in this zone. Most (2.5%) of the studies were conducted in Sialkot and Narowal Districts, while single research study was conducted in Hafizabad, Sheikhpura, Lahore and Kasoor Districts (Table 6). No study was conducted in Gujranwala and Nankana Sahib districts.

Central mixed zone: The central mixed zone comprises nine districts namely Faisalabad, Jhang, Sargodha, Khushab, Toba-Tek-Singh, Okara, Sahiwal, Chiniot and Pakpattan. Wheat crop dominates in this zone. Jhang district has maximum area under wheat cultivation. Sugarcane, cotton, rice, and maize are also important cash crops of this zone. Other crops cultivated in this area are fodder, chickpea etc. The data regarding districts of this zone is given in (Table 7).

Table 7. Distribution of dissertations according to the focus of research with respect to central mixed zone.

District	Frequency	Percent
Faisalabad	28	36.4
Jhang	6	7.6
Sargodha	0	0.0
Khushab	0	0.0
Chiniot	0	0.0
Toba-Tek-Singh	2	2.5
Okara	2	2.5
Sahiwal	1	1.3
Pakpattan	1	1.3
Total	40	50.6

Semi-irrigated zone: The semi irrigated zone comprises six districts namely Mianwali, Bhakar, Muzaffargarh, Layyah, Dera Gazi Khan and Rajanpur. The main sources of irrigation of this zone are perennial canal, tubewell, while significant area is under rainfed cultivation. Chickpea is the most important crop of this zone. Also wheat is food and cotton is cash crop of the zone. The other crops cultivated in the zone are sugarcane, fodder, pulses, rice, etc. (Younis *et al.*, 1990). The data regarding research studies conducted in semi-irrigated zone are given in Table 8.

Table 8. Distribution of dissertations according to the focus of research with respect to semi-irrigated zone.

District	Frequency	Percent
Mianwali	0	0.0
Bhakar	0	0.0
Muzaffargarh	5	6.3
Layyah	1	1.3
D.G.Khan	2	2.5
Rajanpur	2	2.5
Total	10	12.6

The data show that most (6.3%) of studies were conducted in Muzaffargarh district while few in D.G.Khan & Rajanpur (2.5%) while no research study was conducted in Mianwali and Bhakar districts. Therefore, it can be stated that districts in which

research has not been conducted should be given proper attention.

Barani zone: The barani zone comprises six districts namely Rawalpindi, Chakwal, Jehlum, Attock, Gujrat and Mandi-Bahauddin. Wheat is an important food crop of this zone. Other crops cultivated in this zone are *Jawar*, Pulses, maize, groundnut, fodder, etc. but only five dissertations were submitted to the Department of Agricultural Extension. The data regarding districts of *barani* zone are given in Table 9.

Table 9. Distribution of dissertations according to the focus of research with respect to barani zone.

District	Frequency	Percent
Rawalpindi	3	3.8
Chakwal	0	0.0
Jehlum	0	0.0
Attock	1	1.3
Gujrat	1	1.3
Mandi-Bahauddin	0	0.0
Total	5	6.3

No significant importance was given to this zone as only five studies were conducted in this zone. Majority (3.8%) of the studies were conducted in Rawalpindi district, while no study was conducted on Chakwal, Jehlum and Mandi-Bahauddin districts.

CONCLUSION AND RECOMMENDATIONS

There was an increasing trend found in the studies submitted to the department from 1962 to 2009. Increasing trend was also found in number of dissertations submitted during the period of 2000 to 2009. About 75% of the research studies were addressed on public sector. Out of all crops, majority (34.1%) of the research studies were conducted on agronomic crops. Most (33%) of the research studies were conducted on major agronomic crops of Pakistan. Central Mixed Zone was mostly (51.9%) studied zone of Punjab. In Cotton Zone, Bahawalpur district was mostly (5.1%) studied. In Rice Zone, Narowal and Sialkot were studied most (2.5% each). From Central Mixed Zone, Faisalabad was studied most (36.4%) frequently. In Semi-Irrigated Zone, Muzaffargarh was mostly (6.5%) studied. In Barani Zone, Rawalpindi was mostly (3.9%) studied.

The study recommends that further research should focus on major sub-sectors of agriculture like livestock, poultry, fisheries and fruits. Beside major crops, other important crops like, fodder, oilseed, legume, fruits, vegetables, etc. should be included in future research topics. Most important zones like rice zone and cotton zone should also be considered more. Most important districts like Sargodha, Gujranwala, Multan, etc. from agricultural point of view should be included in the

research studies. Similar types of content analysis studies must be conducted after regular intervals in all departments related to agriculture. Proper guidelines and rules must be prepared for the researchers to facilitate them in topic selection having uniform focus on all the important areas of Punjab.

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1.	Younis Afzal	Planned and conducted the whole research	
2.	Shoukat Ali	Supervisor	
3.	Munir Ahmad	Co-Supervisor	Late
4.	Ayesha Chaudhry	Critically reviewed the manuscript	