

## WEEDS RELATED PROFESSIONAL COMPETENCY OF AGRICULTURAL EXTENSION AGENTS IN NWFP, PAKISTAN

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### ABSTRACT

*Agricultural extension agents play an important role in educating the farming community and solving the weed related problem. In the present study an attempt has been made to investigate the weeds related professional competency of agricultural extension agents of North West Frontier Province (NWFP), Pakistan. This study was initiated during September, 2006 where 50 questionnaires were distributed among the agricultural extension agents in the various districts of NWFP. Thirty four extension agents returned the questionnaire after filling and the data were analyzed as per design. Data showed that all the officers have preliminary knowledge of weed science however, very few were able to show competency in weeds related knowledge. Many of the agents were unable to identify the weeds of major and minor crops. Similarly, there was a lack of farmers' guidance in herbicide application. Above 70% of the agents rated weed science related knowledge as very important. Hence, the present study suggests that the agricultural professionals should be well trained in the subject of weed science so that they can recommend the weed management techniques to the farming community which will ultimately increase the quality and quantity of agricultural commodities and raise the socio-economic status of rural folks.*

**Keywords.** Agricultural extension agents, weeds, professional competency

### Introduction

Agricultural Extension was once known as the application of scientific research and new knowledge through agricultural practices to farmers' education. The field of extension now encompasses a wider range of communication and learning activities organised for rural people by professionals from different disciplines, including agriculture, health, and business studies. Extension practitioners can be found throughout the world, usually working for government agencies and are represented by several professional organizations. Men and women have been growing crops and raising livestock for approximately 10,000 years. Throughout this period, farmers have continually adopted their technology, assessed the results, and shared what they have learned with other members of the community. Most of this communication has taken the form of verbal explanations and practical demonstrations, but some information took a more durable form as soon as systems of writing were developed. Details of agricultural practices have been found in records from ancient Egypt, Mesopotamia and China going back more than 3,000 years (Anonymous, 2007a).

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In NWFP, the agriculture extension department has been organized to convey the latest information of agriculture to the farming community so that the farmers can take advantage of the latest research. It is not known where or when the first extension activities took place. It is known, however, that Chinese officials were creating agricultural policies, documenting practical knowledge and disseminating advice to farmers at least 2,000 years ago. For example, in approximately 800 BC, the minister responsible for agriculture under one of the Zhou dynasty emperors organized the teaching of crop rotation and drainage to farmers. The minister also leased equipment to farmers, built grain stores and supplied free food during times of famine (Trager, 1996). The birth of the modern extension service has been attributed to events that took place in Ireland in the middle of the 19th Century (Jones and Garforth, 1997). Between 1845-51 the Irish potato crop was destroyed by fungal diseases and a severe famine occurred. The British Government arranged for 'practical instructors' to travel to rural areas and teach small farmer how to cultivate alternative crops. This scheme attracted the attention of government officials in Germany, who organized their own system of traveling instructors. By the end of the 19th century, the idea had spread to Denmark, Netherlands, Italy, and France (Anonymous, 2007a)

Weeds are a serious problem in all agricultural lands throughout NWFP specially in irrigated belts. It decrease crop yield in a variety of ways. According to estimated data weeds cause Rs. 100 billion per annum in NWFP (Anonymous, 2007b). As the farmers in Pakistan and especially in NWFP majority are illiterate and have no access to newspapers, research articles and other agriculture related magazines therefore, the farming community is totally dependent on the agricultural extension agents.

Keeping in view the importance of weeds, this study was conducted to judge the level of professional competencies of agricultural extension agents in NWFP. The specific objectives of the present study were;

1. To examine existing level of professional and technical competencies of agricultural extension agents in NWFP, Pakistan.
2. To determine the importance of weeds related problems.

## **MATERIALS AND METHODS**

Agricultural Officers of Agricultural Extension Department were the universe of the study. Number of Agricultural extension agents in various administrative districts widely varies across the province (NWFP) ranging from one to eleven depending upon intensity of agricultural activities. District D.I. Khan has the highest number of Agricultural Officers (11) while district Shangla and Kohistan have the lowest number (1).

### **Data Source**

The study was based on both primary and secondary data. Primary data were obtained through a carefully prepared and pre-tested questionnaire. Secondary data were obtained through published sources. A copy of the questionnaire along with instructions/explanatory sheet was mailed to all respondents through the Director General Agricultural Extension, NWFP, who is the overall incharge of agricultural extension service. Focus of questions was on professional competencies of Agricultural Extension agents pertaining to program planning, participatory extension methodology, computer skills, supervision and administration, human behavior, public relation

professionalism, agro-economic practices, plant protection activities, horticultural crops and farm machinery.

The questionnaire comprised of the following questions. However, in the present article only weeds related parameters have been included.

1. Identify the weeds of major field crops
2. Identify the weeds of minor field crops
3. Guide farmers regarding use of herbicides against the weeds.

Two main categories were used as Level possessed and level of importance and there were five choices of each category. The choices in each category were; VL = Very low, L = Low, M =Medium, H = High and VH = Very High. Thus the respondents encircled one each in the level possessed and level of importance.

### Sampling procedure and Sample Size

As per information provided by office of the Director General Agricultural Extension, NWFP, total number of Agricultural Officers in the NWFP is 112, posted in 24 administrative districts across the province. In first instance 50 questionnaires were delivered.

### Instrumentation

The selected competencies areas were identified based on the job description of Agriculture Officers. This approach has been followed by several authors in the past [see for example, (Ali, 1991; Randavay and Vaughn, 1991; Najjingo and McCasline, 1991; Easter, 1985)].

### Analysis

The data were analyzed statistically using computer software Statistical Package for Social Sciences (SPSS) and the percentages of the respondents were calculated.

## Results and Discussion

### Identification of weeds of major crops

Number of respondents (Fig. 1) showed that majority of the extension agents know the basic concepts about the weeds and reported that they recognize the weeds and its related problems. Thus, they possess the basic knowledge however, due to changing scenarios of weeds related problem, these agricultural professionals need to be properly trained. Regarding the level of importance agricultural extension agents rate the weed science activity a vital component for extension agents (Fig 1). They reported that they know about the weeds of major crops. However, the weed flora of different geographical areas is different from one another and their shift to another zone is a problem in identifying the new weeds. Regarding the level possessed, 2.9, 11.8, 23.5, 35.3 and 70.6% respondents rated weed identification as very low, low, medium, high and very high, respectively (Fig. 1&2). While for level of importance the respective frequencies were 2.9 (very low), 0 (low), 5.9 (medium), 20.6 (high) and 70.6% (very high) {Fig. 1&2}. Extension education has been employed in agriculture for focusing on its roles as an instrument for promoting change among the farming community for securing and providing information base for planners and policy makers to make accurate decisions

and providing information and knowledge system. Extension is a non-formal education, which provides advisory services using the educational process to help clients in acquiring knowledge and skills to cope effectively with needs and problem facing them in their own socio-economic contexts (Boone, 1989; Carter, 1993; Rahim, 1995; Swanson *et al.*, 1998). All the agricultural agents consider the weed identification as an important factor for satisfying the farmers' needs. As weeds related problems have been increased due to changing cropping systems and excessive use of fertilizer and irrigation, therefore extension agents should be trained in weed identification which is a prerequisite for successful weed management program.

### **Identification of weeds of minor crops**

The data in Fig. 2 indicate that majority of the extension agents do not identify the weeds of minor crops. The response regarding level possessed, 2.9% was very low, 23.5% low, 17.6% medium, 35.3% high and 20.6% very high. Similarly, in case of level of importance, 2.9% considered the identification of weeds in minor crops as low, 8.8% as medium, 7.6% high and most importantly 70.6% showed great interest and considered weed identification as an important aspect. These results show that the extension agents of NWFP are not properly trained in the weed related problems as shown by the level possessed. In light of the present study it can be concluded that proper training of the extension agents is needed in the subject of weed science so that they can effectively communicate with the farming community. As the changes in weed composition occur overtime, which further complicate the weed identification. Therefore, frequent trainings will solve this problem. According to Alonge and Martin (1995), the first step towards the adoption of new ideas by farmers is to provide information on sustainable practices. What has emerged, however, is bipolar evidence from proponents among Extension agents on this subject. Agencies and institutions engaged in information dissemination and educational activities often have personnel specifically charged with informational and educational responsibilities whom themselves have information and education needs (Rollins & Golden, 1994).

Fast changes in society, technological developments, complex roles and responsibilities of professionals require continuing education, life learning, in-service training and in most cases, graduate education (Merriam and Caffarella, (1991). Darkenwald and Marriam (1982) emphasized the importance of staff development to stimulate intellect, to increase knowledge, to keep abreast of new advances and developments and for organizational effectiveness.

### **Guidance of farmers in weeds related problems**

Farmers' guidance is the ultimate goal of agricultural extension agents. However, without proper training extension agents cannot address the weed related issues. The data (Fig. 3) show that the number of respondents in the level possessed was 5.9% (very low), 5.9 % (low), 23.5 % (medium), 38.2% (high) and 26.5% (very high). These values indicate that a large number of extension agents do not guide the farmers in addressing the weed related issues in different crops. Similarly, in the category of importance level, 2.9 % regarded farmers guidance as low, 5.9 % as medium, 14.7% high and 76.5% very high. Very few extension agents considered weed problem as minor issue. However, a large portion of agents (76.5%) considered weeds problem as important. This difference may be due to the fact that few extension agents are working in arid zones and the crops are totally dependent on rainfall. Therefore, weeds are not a big problem in those regions, rather weeds always are a problem in irrigated and fertile zones. Agunga (1995)

noted that Extension agents need to be trained in sustainable agriculture in order to develop their understanding, competence, and ability to teach and communicate the concepts to farmers and others. As farmers are the end users of weed management campaign therefore, Agricultural Extension Agents should be trained and motivated to transfer the knowledge to the end users. Proper weed identification and selection of weed control method can result in higher crop yield and economic returns, which will ultimately make the farmers and country more prosperous.

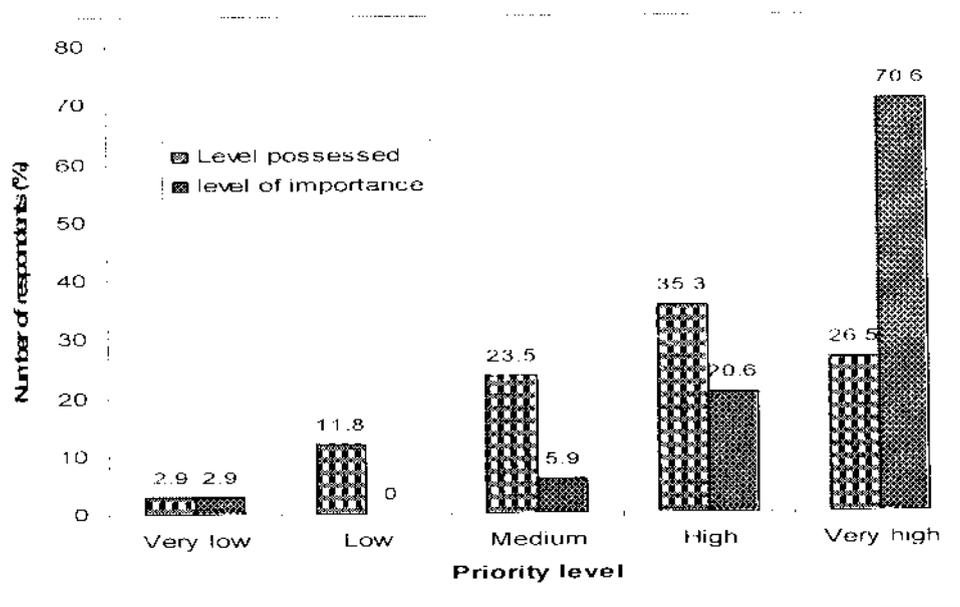


Fig. 1. Identification of weeds of major field crops.

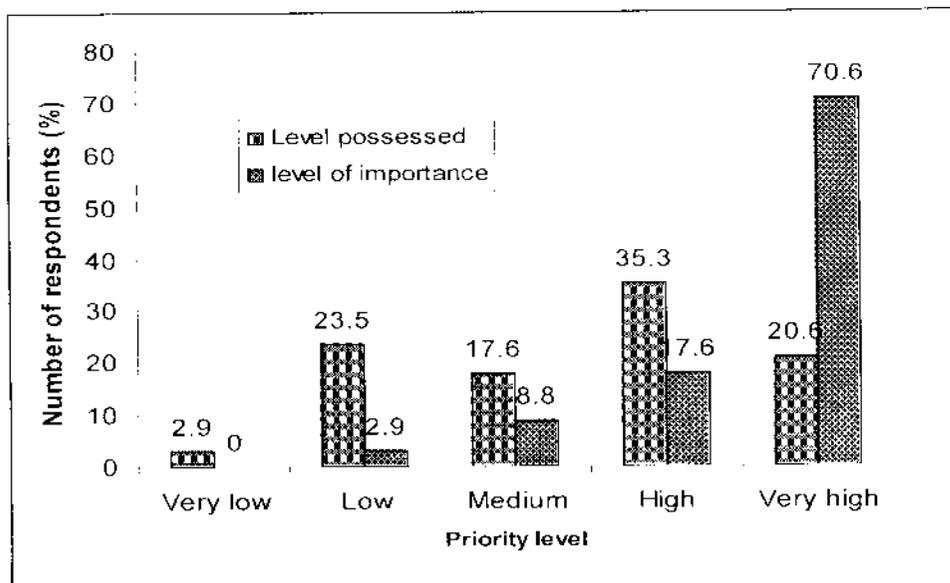


Fig. 2. Identification of weeds of minor field crops

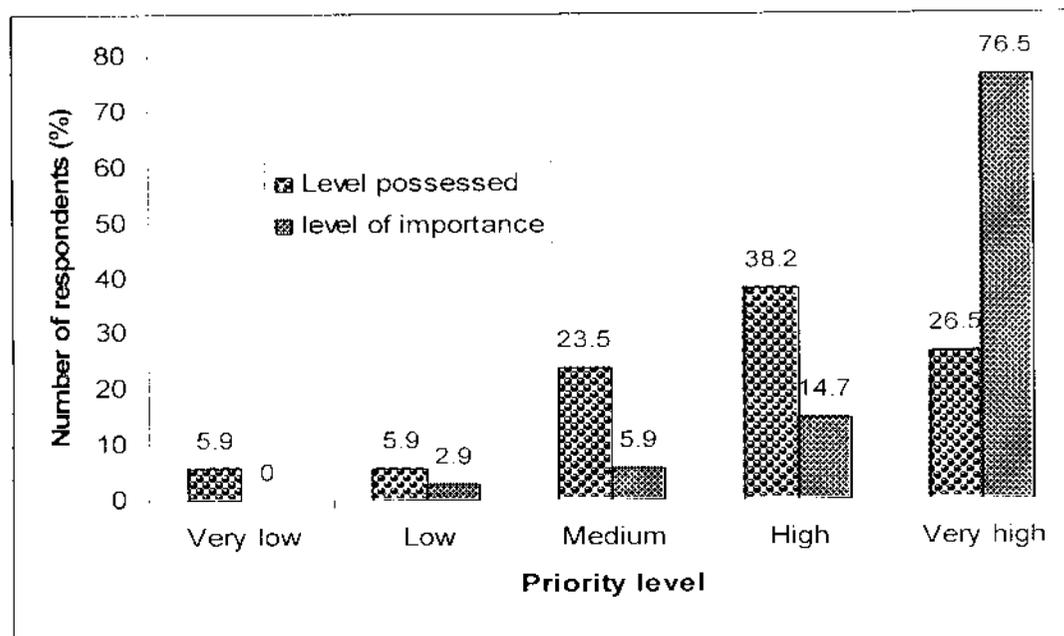


Fig. 3. Guidance of farmers regarding use of herbicides against the weeds.

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### REFERENCES CITED

- Agunga, R. A. 1995. What Ohio Extension agents say about sustainable agriculture. *J. Sustainable Agric.* 5(3): 169-178.
- Ali, T. 1991. An identification and validation of job performance competence needed by Agricultural extension field Assistants in Faisalabad District, Punjab, Pakistan. Unpublished doctoral dissertation, University of Minnesota, St. Paul, Minnesota, USA.
- Alonge, A. J. and R.A. Martin. 1995. Assessment of the adoption of sustainable agriculture practices: Implications for agricultural education. *J. Agric. Edu.* 36(3): 34-42.
- Anonymous. 2007a. Agricultural extension. From wikipedia, the free encyclopedia. [www.en.wikipedia.org](http://www.en.wikipedia.org)
- Anonymous, 2007b. Yield losses in major crops of Pakistan. [www.wssp.org.pk](http://www.wssp.org.pk).
- Boone, E. J. 1989. Philosophical Foundations of Extension. In D.J. Blackburn (ed.) *Foundation and Changing Practice in Extension*. University of Guelph, Canada.
- Carter, G.L. 1993. Looking to the Future Prospects for Extension Here and Elsewhere: What Might be Learned from the USA Experience. Paper Presented at the Conference on Trend and Priorities in Extension. University Pertanian, Malaysia.
- Darkenwald, G.G. and S.B. Merriam. 1982. *Adult education: Foundation of practice*. Harper and Row Publishers, New York.
- Easter, G.W. 1985. Assessment of professional competence needed by extension agent in developing countries. Case study in Switzerland. Unpublished Doctoral Dissertation, Pennsylvania State University, USA.
- Jones, G.E. and C. Garforth. 1997. The history, development, and future of agricultural extension. In B. Swanson. (ed.). *Improving Agricultural Extension: A Reference Manual* (3rd ed.), FAO, Rome, Italy.
- Merriam, S.B. and R.S. Caffarella. 1991. *Learning in adulthood*. San Francisco, USA.
- Najjingo, M. K. and I.L. McCasline. 1991. An Assessment of the technical and professional competence needed by extension personnel in the central region of Rwanda. *Proc. AIAEE Conf.*, St. Louis., Mo.
- Rahim, M. S. 1995. Extension Education for Industrializing Malaysia: Trends, Priorities and Emerging Issues. Inaugural Speech. University Pertanian, Malaysia.
- Randavay, S. and P.R. Vaughn. 1991. Self perceived professional competence needed and possessed by agricultural extension worker in the western region of Thailand. A multivariate technique approach. *The Informer Assoc. Inter. Agric. Ext. Edu.* 7 (1): 19-26.
- Rollins, J. T. and K. Golden. 1994. A proprietary information dissemination and education system. *J. Agric. Edu.* 35(2): 37-43.
- Swanson, B.S., R.P. Bentz and A.J. Sofranko. (eds.). 1998. *Improving agricultural extension: a Reference Manual*, FAO, Rome, Italy.
- Trager, J. 1996. *The Food Chronology*, Aurum Press, London.