



Studies on awareness pattern and communication behaviour among potato growers in relation to different diseases and their control measures

J.N.BHATIA, R.S.CHAUHAN AND DEVENDER CHAHAL

ABSTRACT

Potato is an important tuber crop which is a staple food to millions of people in the world. The crop is attacked by several diseases, which not only affect production /yield but also affect its quality. For effective disease management strategy, an adequate knowledge of host, pathogen and agro-climate conditions is the pre-requisite. In the absence of proper knowledge with the farmers, most of the diseases remain beyond control inspite of readily recommendations and huge application of pesticides. A study on awareness pattern and communication behaviour among potato growers of Ambala and Kurukshetra districts were undertaken about different aspect of potato diseases. The results obtained indicated that almost all the potato growers were well acquainted with the symptomatology but only few farmers were aware about the weather factors and recurrence of the disease. In most cases, farmers were noticed to spray their crop as a routine practice adopted (*i.e.* after the appearance of disease symptoms) which was also a limiting factor in the perfect disease management. The study on information sources revealed that 75 per cent of farmers were well aware about the KVK's followed by fellow farmers (67per cent) television (56per cent), other sources(42.5per cent), State Dept.'s(32.5per cent), radio (26.7per cent), farm literature (30per cent) and ICT(13.3per cent) . As far as the evaluation of different sources of information is concerned, KVK was considered the most relevant source of information by the farmers.

See end of the article for authors' affiliations

Correspondence to :

J.N. BHATIA,
Krishi Vigyan Kendra,
C.C.S. H.A.U.,
AMBALA
(HARYANA) INDIA
Email: bhatia1960
@rediffmail.com

Bhatia, J.N., Chauhan, R.S. and Chahal, Devender (2011). Studies on awareness pattern and communication behaviour among potato growers in relation to different diseases and their control measures. *Agric. Update*, 6(3&4): 191-194.

INTRODUCTION

Vegetable crops have an important place in the agricultural economy of India. Potato (*Solanum tuberosum* L.) is one of the most popular and widely grown vegetables all over the world ranking first in the India. It is one of the most important and staple food crops, which ranks fourth in production after wheat, rice and corn and provides wholesome food (Rhodes, 1982, Shekhawat and Ezckiel, 1999).

Potato is an important commercial vegetable crop thriving well in Ambala and Kurukshetra districts. The vegetables grown in Ambala district are mainly potato followed by cucurbits, cauliflower, onion and radish whereas in Kurukshetra district the vegetables mainly grown are potato followed by leafy vegetables and tomato. In both the districts, the vegetable crops are far from being exploited due to several biotic and abiotic stresses. Occurrence of various diseases in potato crops

not only affect production /yield but also affect its quality (Khurana, 2000). Deformed / disease crops fetch very less/negligible price in the market and farmers had to bear huge economic losses due to poor management strategy (Arora and Khurana, 2006). In the absence of proper knowledge available with the farmers in respect of vegetable diseases, their causes and remedies the farmers suffer a great loss. Most of the vegetable diseases remain beyond control in spite of huge application of pesticides. Although most of the vegetable diseases are very old in their occurrence, studies in detail and informations are readily available in printed form but most of the vegetable diseases are not yet properly managed. The reason being, whether or not, this information has actually been made known to the farmers and in the absence of complete information available to the farmers about a particular disease and its different aspects, these diseases are not yet

Key words :

Potato growers,
Awareness
pattern,
Communication
behaviour,
Disease control
measures

Received:

Jul., 2011;

Revised:

Sep., 2011;

Accepted :

Oct., 2011

properly controlled and occur year after year. Since no effort has been made to survey, collect and analyze the quantum of information available to the farmers about a particular disease and its various aspects, which are of a great significance to control the diseases. Keeping in view of the paucity of information on the awareness pattern and communication behaviour among potato growers with regards to different diseases of potato and their control measures, the present study was therefore undertaken in two major potato growing districts of Haryana state.

METHODOLOGY

The study was undertaken during the cropping season of 2010-11 in the randomly selected 20 villages of Ambala and Kurukshetra districts in Haryana. These two districts fall under dry-sub humid zone of the agro-climatic zones classified in the state and have varied climatic, topographical, soil and ground water status (major source of irrigation) and cropping systems. Annual average rainfall of these districts is 1000 mm and temp. ranging from 2^o-45^oc. Two blocks from each district were purposively selected for the study where potato cultivation covered more areas as compared to other blocks. Saha and Ambala-II blocks were taken from Ambala district while Ladwa and Shahabad blocks of Kurukshetra district were included in the study. From these four blocks of these districts, twenty villages were selected. Six respondents were randomly selected from each of the identified villages. Thus, 120 potato growing farmers spread over in these 20 villages of 4 blocks constituted the sample for the study. To determine the awareness pattern and communication behaviour regarding different diseases of potato, suitable interview schedule was prepared according to the recommended package and practices of the University for potato crop. A personal interview technique was used to collect the information and data from the respondents. The information collected was analyzed separately for awareness for important diseases of potato about symptomatology, causes, recurrence of diseases, weather conditions favourable for diseases and control measures and were formulated as:- S/* , C/* , Re/* , W/* and Rc/*

. The symbol stand for S = Symptomatology; C=Cause of disease; Re= Recurrence of diseases; W= whether favourable for disease; Rc= Recommend control measures about particular aspect/ factor. Any figure which falls below 50 per cent was considered as limiting factor to determine threat to awareness, in other words, 50 per cent population having unaware towards perfect disease control measures.

OBSERVATION AND ANALYSIS

The results obtained from the present investigation are presented below:

Awareness pattern:

Potato occupies the 1st rank among the vegetables grown in both the districts. Around 25 to 30 per cent cultivators preferred to grow potato crop. Potato is susceptible to attack by wide range of pathogens during cropping, harvesting, transit and storage but the common scab and black scurf, early and late blight and viral syndrome mostly occur year after year and cause substantial loss in yield in these districts. The details such as symptoms, disease cycle and control measures for these diseases have been established and described by various workers (Khurana *et al.*, 1998, Khurana, 2000, Nagaich *et al.*, 1974) all over the world and therefore not included in this paper. The results obtained in the present study indicated that almost all the potato growers were well acquainted with symptomatology of these diseases but only few farmers were aware about the weather factors and recurrence of the diseases (Table 1).

The awareness pattern for common scab and black scurf was: S/113, C/40, Re/0, W/0 and RC /62. The results thus indicate that potato cultivators were well acquainted only with the symptomatology and recommended control measures of these diseases while unaware about the factors responsible for these diseases. The unawareness factor CReW may be a limiting factor in the perfect disease control in case of common scab and black scurf disease. As far as the major and destructive diseases of potato *i.e.* early blight and late blight are concerned, the

Sr.No.	Analysis factors	Common scab / black scurf farmers		Early / late blight famers		Viral syndrome farmer	
		aware	unaware	aware	unaware	aware	unaware
1.	Identification on symptoms (S)	113	07	118	02	120	0
2.	Perfect cause of the disease (C)	40	80	65	35	28	72
3.	Recurrence of the disease (Re)	0	120	0	120	0	120
4.	Weather factors responsible for disease (W)	0	120	4	116	8	112
5.	Recommended control measures (Rc)	62	58	90	30	80	40

awareness pattern was obtained as: S/118, C/65, Re/0, W/4 and RC/90. The awareness pattern formula indicated that the cultivators were well acquainted with symptomatology, cause of the disease and their control measures while unaware about their recurrence and congenial weather factors responsible for their outbreaks. ReW may be the limiting factor in the perfect and successful disease control. In most cases, farmers were noticed to spray their crop after the appearance of the disease symptoms, which is of no use to minimize the losses except to check the further spread of the disease. Interestingly, no cultivator was aware about the recurrence of the disease and only four farmers (4/120) were aware about the type of weather and prevailing conditions responsible for further spread.

The most common viral diseases of potato are PVX, PVY, and PVM and PLRV which can cause yield loss of 20-85 per cent. The awareness pattern for these viral syndrome was: S /120 , C/28 , Re /0 , W/8 and RC/80, which clearly indicated that potato growers were only acquainted with the symptomatology and recommended control measures while completely unaware about their cause, recurrence and weather factors responsible for these diseases in potato crop. So, the unawareness factors CReW may be the limiting factor in perfect disease control of viral diseases of potato. Manjunath *et al.* (2011) from Dharwad(Karnataka) in their studies also corroborated the above findings. However, they reported that lack of knowledge about chemicals, number of sprays and application of chemicals were the major constraints in adoption of plant protection measures in paddy crop.

Information seeking behaviour:

Communication plays a vital role in development. According to Rogers and Shoemaker (1971), the dissemination of any technology depends on how best the information regarding the particular technology is

communicated. The authenticity and specialization of the information sources play an important role in acceptance or rejection of agriculture innovations advocated by the sources. Farmers are equally privileged to get informed of farm related information's without delay. Effort has been made to identify different sources of information and locate the most utilized sources for developing a suitable approach to recommend an effective communication strategy. To get a clear idea about the source of information used by the potato growers for acquiring knowledge about different diseases and their control measures, mean score for each of the source was worked out and presented in Table 2.

It is clear from the response obtained in Table 2 that among the institutional sources, Krishi Vigyan Kendra was considered the most relevant and credible source of information by the farmers (75.0 per cent) while fellow farmers (68.3 per cent) were their non-institutional source. This may be because of the fact that farmers had better contacts and confidence with the scientists of these centres and their fellow farmers affection, proximity, interdependence and we-feeling were the other major reasons for their preference. Among media sources television (56.6 per cent), farm literature (30.0 per cent) and radio (26.7 per cent) were the important channels as they ranked 3rd, 6th and 7th. On the other hand, less used among them were newspapers (10 per cent). It could be seen from Table 2 that Agriculture / Horticulture Development officers though visit farmers regularly and also have developed good rapport with the farmers even though only 32.5 per cent farmers preferred to contact / consult for diseases management strategies. It is pertinent to note and amazing aspect that other sources which mainly includes input suppliers and sale representatives of various firms were still considered as the important sources of information for disease management strategy. From the above explanation and discussion it can be concluded that

Sr. No.	Sources	No. of farmers	Percentage of farmers	Ranks
1.	KVK's scientists	90	75.0	1
2.	Nearby SAU' s/research institutes	12	10.0	9
3.	Agri/ Hort. Dev. officers	39	32.5	5
4.	Fellow farmers	82	68.3	2
5.	Television	68	56.6	3
6.	Farm literature	36	30.0	6
7.	Newspapers	12	10.0	10
8.	Radio	32	26.7	7
9.	ICT(KCC,ATIC,KMAS,etc.)	16	13.3	8
10.	Other sources(input suppliers/sales rep.)	51	42.5	4

in the past changing scenario information plays an immense role in our society and its large scale dissemination through institutional and media contribute a striking development of our time.

Adoption of the plant protection measure is complex one as it involves skills and more risk. Mere application of the fungicides does not control the diseases. For the effective control of various diseases, one must have detailed knowledge of the disease based on symptomatology, nature of organism, cause of the disease and its life-cycle. Weather factors are also responsible for the rampant form of the disease and suitable fungicides and insecticides are to be applied (Shukla and Ramaiah, 2006). In other words, assessment of awareness among the cultivation about a particular disease and its various aspects, which are of great significance to control the disease. This will enable to know exact technical informations not yet reached to them, which influence the control strategies for a specific disease. Dissemination of such information and communication behaviour, will certainly be beneficial to control the disease, thereby increasing production, productivity and marketability of the product. In the absence of plant protection measures, the positive contribution of improved seeds, fertilizers and irrigations to output could completely nullify and farmers may incur heavy losses.

Authors' affiliations:

R.S. CHAUHAN AND DEVENDER CHAHAL, Krishi Vigyan Kendra, C.C.S. H.A.U., AMBALA (HARYANA) INDIA

REFERENCES

- Arora, R.K.** and Khurana, S.M.P. (2006). Major fungal and bacterial disease of potato and their management. In : *Fruit and Vegetable Diseases* (Eds. Arora, R.K. and Khurana, S.M. P.)pp. 189-231 Springes Netherlands.
- Khurana, S.M.Paul** (2000). *Diseases and pests of potato*. Manual. CPRI, Shimla, 66 pp.
- Khurana, S.M. Paul**, Pandey, S.K., Patel, R.L., Singh, R.B, Pundir, V.S. Pathak., S.P. and Pani, A.K. (1998). Surveillance for potato diseases in India over last five years. *J. Indian Potato Assoc.*, **25** : 16-20.
- Manjunath, T.**, Manjunath, L., Natikar, K.V., Jahagirdar, K.A. and Megeri, S.N.(2011). Paddy growers profile, knowledge and adoption of plant protection measures. *Agric. Update*, **6** (1): 21-27.
- Nagaich, B.B.**, Shekhawat, G.S., Khurana, S.M. Paul and Bhattacharya, S.K. (1974). Pathological problems of potato cultivation in India. *J. Indian Potato Assoc.*, **1** : 32-34.
- Rhodes, R.E.** (1982). The incredible potato. *National Geographic*, **161** : 668-694.
- Rogers, E.M.** and Shoemaker, Floyd, F. (1971). Communication of innovation – A cross cultural approach. The Free Press, New York.
- Shekhawat, G.S.** and Ezekiel, R.(1991). Potato as staple food. In : *Survey of India Agriculture*, Cheenai, pp. 73.
- Skukla, H.S.** and Ramaiah, P.V. (2006). Studies on awareness pattern among cole crop cultivators with reference to different diseases and their control. *Indian J. Pl. Pathol.*, **24** : 114-115.

