



## **Sources of Information & Their Extent of Utilization by Actors in AKIS for Betel Vine Growers in Nadia District of West Bengal**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. Author MB designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author AS managed the analyses of the study. Author SRD managed the literature searches. All authors read and approved the final manuscript.*

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### **ABSTRACT**

Studying Agriculture Knowledge Information System (AKIS) in terms of generation, dissemination, transformation, utilization, storage and retrieval of knowledge and information is needed for agriculture development. A study was conducted in Nadia district of West Bengal and Betel vine growers, Extensionist, Researchers were considered as respondents. Cultivation of betel vine is one of the most important horticultural crops as it is gradually increasing its popularity in the Nadia district as cash crop. It is observed that in-adequate information regarding Betel vine production in the sampled areas, almost cent percent growers were using their own traditional planting materials since long and growing their crops with their indigenous knowledge, skill and their past experiences.

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They have little awareness regarding the improved method of cultivation. The study further indicated that the respondents were receiving better information and technical knowhow about betel vine cultivation from Opinion leader, participating in training programmes, discussing with Extension personnels, input dealers, neighbours and different NGOs and to some extent from electronic media. The respondents treated relatives, neighbours and co-operatives as better credible sources followed by demonstration, campaign, Argil. University expert, Krishi-mela, Leaflet and Input dealers and electronic media to some extent. Establishment of research station, transfer knowledge information system and marketing system might be useful for realising better return on betel vine cultivation and young farmers are quite enthusiastic to cultivate the betel vine and promotion of this crop should be continued in the other parts of the district for gainful employment through need based and location specific technology support system.

*Keywords: (AKIS) agricultural knowledge information system; researcher; extensionists; technology development and transfer; integration; diffusion and utilization of information.*

## 1. INTRODUCTION

The present age has been rightly called as an information age. Information has become the most important element for progress in society. According to Kemp "information has been described as the fifth need of man ranking after air, water, food and shelter". Providing information on farming practice, market information helps farmer make correct decision. Constraints existing in interface between generation, transfer and use of farm innovation should be removed through dual concept of synergy and Agricultural Knowledge Information System [1]. Effective technology development and transfer depends on an interactive holistic system that is called the 'agricultural information system' which includes: a research subsystem; a dissemination sub system; a user subsystem. An agricultural knowledge information system is a system in which agricultural information is generated, transformed, transferred, consolidated, received, utilized and feedback in such a manner that these processes function synergically to underpin knowledge utilization by agricultural producers [2]. Agriculture Knowledge information System (AKIS) is a system that links the rural peoples and institution to promote mutual learning and generate, share and utilize agriculture related technologies, Knowledge and information, this system integrates farmers, agriculture educators' research and extortionist to harness knowledge and information from various sources for better farming and improved livelihood. An Agriculture Knowledge information System (AKIS) is intended as a bridge for sharing ideas and principles with various stakeholder.

AKIS is defined as "the set of organizations and /or persons, and the links and interaction

between them that are engaged in, or manage such processes as the anticipation, generation, transformation, transmission, storage, retrieval, integration, diffusion, utilization of agricultural knowledge and information, which potentially work synergistically to support decision making, problem solving and innovation in agriculture on a domain thereof." [3] AKIS framework is useful in analysing how farmers are supported by institutions involved in the process of generating and diffusing new knowledge, i.e., research, extension and education. The underlying feature of the AKIS in that farmers obtain the knowledge and information from many sources and that new knowledge is generated not only by research institutes, but also by many different actors, including farmers themselves (Van Den Ban, 1996). The traditional role of the extension organization in less industrialized countries is the transfer of technologies (TOT) developed at the research institutes of farmers. A major role in industrialized countries has always been to learn from the experience of the most successful farmers in order to teach other farmers how they can improve their farm management. Quite often analysis of the AKIS shows that a role other than TOT is more appropriate. This could involve providing farmers with a basket of opportunities and helping them to choose the right one of their situation. Another role of the extension organization can be:

- to help farmers experiment with new technologies or with new farming system;
- to gain access to relevant information from a variety of information;
- to evaluate and interpret this information for their own situation; and
- to learn from their experiences.

Betel vine or Pan (*Piper betel* L.) belongs to the family Piperaceae and is a perennial aromatic creeper grown for its leaves. India is the largest producer of betel leaves in the world. It is an important commercial crop and is grown as a cash crop across the states of Andhra Pradesh, Karnataka, Kerala, and Assam, Odisha, Uttar Pradesh and West Bengal. The Indian betel leaves are in great demand in several countries and leaves worth about Rs. 30-40 million are exported to European countries [4]. It is an opportunity for the Indian betel vine growers as well as seller to earn more profit not only within the country but also by exporting. About 20 million people derives their livelihoods directly or indirectly from production, processing, handling, transportation and marketing of betel leaves in India [4]. On an average about 66% of such production is contributed by the state of West Bengal where it is cultivated on about 20,000 ha encompassing about 4-5 lakh employing about the same number (4-5 lakh) of agricultural families (Guha, 2006). Betel vine cultivation has brought a paradigm shift in the farm economy in West Bengal and offers perennial employment and income to small and marginal farming community because of its capital and labour intensive characteristic [5]. It is the most important cash crop and its cultivation has already brought a perceptible and conspicuous change in the livelihood security of farmers in Nadia district. However, the betel vine is susceptible to damage caused by insects, rain and wind. Shortage of irrigation can also cause hindrance for the growth of betel vine. High cost of fertilizer and pesticide, fluctuating price, many intermediaries, inadequacy of finance, transport, absence of grading, lack of storage facility also cause of great loss to farmers. In view of the above problems in betel vine cultivation the current study was undertaken with an objective to identify the sources of technological information & their extent of utilization by actors in agriculture knowledge information system for betel vine growers in Nadia district of West Bengal.

## 2. MATERIALS AND METHODS

The study has been oriented towards the system approach for analyzing the Agriculture Knowledge Information System of betel vine growers in Nadia district. The present study was undertaken in Nadia district of west Bengal to identify the sources of information & their extent of utilization by actors in agriculture knowledge information system for betel vine growers. Multi-

stage stratified sampling procedure was employed for selection of blocks, villages and betel vine growers. Four blocks namely *Karimpur 1*, *Karimpur 2*, *Krishnaganj* and *Chakdah* were purposively selected from Nadia district as betel vine is a major cash crop in this area. Eight villages predominated by betel vine growers namely *Arabpur*, *Kechuadanga*, *Rajapur*, *Hogolberia*, *Taldah*, *Adityapur*, *Simurali* and *Anyetpur* were selected purposively from above four mentioned blocks. Two hundred betel vine growers from the selected villages were selected randomly by selecting 25 farmers from each village. All the extensionists working in the field of betel vine cultivation in the study area and all the extensionists (25) were selected for the purpose of study. All the researchers (10) related with betel vine cultivation in the study area were also interviewed. The primary data were collected from the sample respondents by semi-structured schedules, pre -tested earlier through personal interview method in the year 2015-16 and analysed to reveal the results. In order to measure extent of use of sources of information, measurement of frequency use of sources and channels was followed. The data on source of information were collected on scale point of Most often, Often, Some times and Never with assigned score were 4,3,2,1 respectively and information on credibility of sources were collected on scale point, Most reliable, Somewhat reliable, Unreliable with assigned score were 3, 2, 1 respectively. The total preference score for each content was calculated and mean score for particular source of information was worked out, and then ranking was done on the basis of CV percentage. The data were compiled, tabulated and analysed by using the statistical tools such as mean, standard error and CV (%).

## 3. RESULTS AND DISCUSSION

The findings of the present study as well as relevant discussions have been summarised under the following heads. Access to information is very essential to increase agricultural productivity and considering the changing nature of agriculture and the evolving challenges, farmers currently needs a wider range of support including organizational, marketing, technological, financial, and entrepreneurial support service. Farmers require location specific information system for agriculture development to meet different challenges in their production context. The farmers depend on extension personal to get the proper advice to accelerate

the crop production. The information needed are related to different schemes, crops, technologies needs, fertilizers, pesticides, availability of fertilizers, bio –pesticides, soil fertility, pest and disease diagnosis and many more. The agricultural marketing information is essential for farmers to increase their profit. Information such as price details of seeds, fertilizers and availability of these products market enable the farmer to make decision in choosing right items for better farming. Sources of information are an important consideration which determines the level of education, exposure and cosmopolitaness.

Mean score of each sources of information and its extent of use by the respondents were calculated and on that basis the different sources of information were ranked and presented in the Table 1.

From the above table it has been found that village teacher (12.006), training camp (12.006) have been assigned by the respondents, as the first rank followed by betel leaf vender (13.760), youth club (17.8010), KPS (18.890), Extension personnel (19.246), ADA/HDO (22.080), Input dealers (24.132), Agril. University expert

**Table 1. Sources of information, extent of use and its credibility (n =200)**

Sources/channel	Frequency contact				Credibility of sources/channel			
	Mean	Std error	CV %	Rank	Mean	Std error	CV %	Rank
Friends	2.250	0.051	32.361	xvii	2.105	0.043	29.124	xvii
Relatives	1.830	0.054	41.399	xxi	1.775	0.051	40.899	xxiv
Neighbour	1.580	0.044	39.298	xix	1.540	0.041	37.869	xxiii
Village leader	1.100	0.024	30.227	xiii	1.090	0.020	26.321	xvi
Opinion leader	1.165	0.034	41.069	xx	1.135	0.026	32.666	xviii
Progressive farmer	2.035	0.040	27.595	xi	1.950	0.035	25.054	xv
Youth club	1.035	0.013	17.801	iii	1.025	0.011	15.270	vi
Village teacher	1.015	0.009	12.006	i	1.010	0.007	9.876	iii
Extension personal	1.030	0.014	19.246	v	1.020	0.010	13.760	v
Co-operatives	1.370	0.036	36.814	xvii	1.360	0.035	36.886	xxii
Asst Director Agril / Hort Dev Officer (HDO)	1.045	0.016	22.080	vi	1.035	0.015	20.266	xi
Krishi Prayukti Sahayak(KPS)	1.040	0.014	18.890	iv	1.030	0.012	16.603	viii
Betel leaf Vender	1.020	0.010	13.760	ii	1.005	0.005	7.036	i
Training camp	1.015	0.009	12.006	i	1.005	0.005	7.036	i
Field day	1.065	0.024	31.330	xvi	1.010	0.007	9.876	iii
Village level work shop	1.065	0.024	31.330	xvi	1.010	0.007	9.876	iii
Leaflet	1.085	0.025	33.028	xx	1.030	0.012	16.603	viii
Input Dealers	1.920	0.033	24.132	vii	1.895	0.028	20.759	xii
Panchayet personnel	1.060	0.021	27.800	xi	1.025	0.013	18.134	ix
Krishi Vigyan Kendra	1.055	0.020	27.207	x	1.005	0.005	7.036	i
Agril. University expert	1.045	0.019	25.915	viii	1.015	0.011	15.546	vii
Campaign	1.045	0.019	25.915	ix	1.010	0.007	9.876	iii
Krishimela	1.045	0.020	27.207	x	1.015	0.011	15.546	vii
Research Stations/ Adaptive Farms	1.050	0.021	28.243	xii	1.010	0.010	14.002	v
Bank personal	1.050	0.021	28.243	xii	1.010	0.010	14.002	v
SHG	1.090	0.025	32.112	x	1.050	0.017	22.895	xiv
NGO	1.470	0.039	37.916	xviii	1.420	0.036	36.247	xxi
Folder/Leaflet	1.095	0.024	31.179	xiv	1.060	0.017	22.461	xiii
News paper	1.510	0.039	36.959	xvi	1.455	0.035	34.311	xx
Radio programme	1.080	0.024	31.286	xv	1.040	0.014	18.890	x
TV programme	1.615	0.039	33.817	x	1.555	0.036	32.682	xix
Demonstrations	1.045	0.019	25.915	ix	0.010	0.007	9.872	ii

(25.915), Demonstrations (25.915), Krishi-mela (27.207), KVK (27.207). This indicated that farmers had good contact, good rapport and depending more on the above mentioned sources of information. The respondents had expressed that they have moderate contact with Panchayat personnel (27.800), Research station/ Adaptive farm, Bank personnel (28.243), Village leader (30.277) Folder/Leaflet (31.179), Radio programme (31.286), Field day, Village level workshop (31.330) and least contact with SHG (32.112), friends (32.361), Leaflet (33.028), TV programme (33.817), Cooperatives (36.814), News paper (36.959), NGO (37.916), Neighbour (39.298), Opinion leader (41.69) Relatives (41.399).

Very limited exposures were observed on receiving information from various sources by the respondents. The respondents were receiving information through Opinion leader, training programmes, Extension personnel, input dealer, neighbour and different NGO and to some extent electronic media. It can be apprehended that the respondents were receiving information mainly through individual contact. Similar results were observed by (Engel 1997), Pandey [6] and (Silerova and Lang 2006) with respect to AKIS.

### 3.2 Credibility of Sources

It was revealed from the above table that the respondents treated Betel leaf vender (7.036), Training camp (7.036) and Krishi Vigyan Kendra (7.036) as most credible source of information and ranked first among all sources/channels, followed by Demonstration (9.8720), and Campaign (9.876) Argil. university expert (15.546), Krishi-mela (15.546), KPS, Leaflet (16.603), Panchayat personnel(18.134), Radio programmes (18.890), ADA/HDO (20.266), Input dealers (20.759), Folder, leaflet (22.461), SGH (22.895), Progressive farmer (25.059), Village leader (26.321), Friends (29.124), Opinion leader (32.666), TV programmed (32.682), News paper (34.311), NGO (36.247), Cooperatives (36.886), Neighbour (37.869), Relatives (40.899).

The respondents were gaining better credibility of sources from relatives, neighbour and co-operatives. It can be also concluded that respondents were receiving of credibility of sources from print and electronic media to some extent.

## 4. CONCLUSION

The study revealed that Agricultural Knowledge Information System (AKIS) for the past few decades has made an impressive linking in the minds and thoughts of policy makers, development planners, extension as well as researchers as a mechanism to build linkage between farmers, extension workers and researchers. AKIS in betel vine cultivation has gained momentum after establishment of Horticulture Department and KVK in West Bengal at various district head quarters. Physical, social and cultural environments, land availability and needed inputs, the sustainability of utilities and communication network are the important factor that affects the success of the AKIS in betel vine cultivation. The key findings of the study can also provide significant benefits not only for the betel vine growers but also to the Extension workers, Researcher, related developmental departments and district administration for effective implementation of the agriculture knowledge information system (AKIS). A number of practical implementations such as policy considerations, linkages with stakeholders and marketing could be helpful for the betel vine growers of Nadia district for better livelihood. It is concluded that information delivery system should be strengthened to increase the effectiveness of existing agricultural research extension and farmer's linkage and more priorities should be given on advocacy, capacity development and integration of information resources.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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