

Market Driven Agribusiness Education in Agricultural Institutions for Sustainability

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Abstract

Under the given circumstances the agribusiness courses offered by agricultural universities/ institutions need a market orientation for sustainability. The institutes should be sensitive to students' and industry needs by identifying the target agro-industry, trade or services enterprises and co-coordinating with them in course structure design. This will also make the courses commercially viable and sustainable. The industry focus can give them an edge in the market if some experimental learning is facilitated by placing them in specific industries in the last semester over and above the usual summer training as a part of the course as is done in some leading institutions. The institutes should provide functional area managers to the concerned trade and industrial units who should also be capable to manage independently small business units and entrepreneurial ventures. On-the-job training is very helpful for developing such skills to make the students self dependant. Since the PG students in such courses come from B. Sc. (Ag.) stream they are technically conversant with most of the agricultural specialties but lack seriously in managerial orientation and leadership qualities. They are also found to be deficient in communication and soft skills. Added emphasis should be given on these components. They have to be made better managers in addition to being good technocrats. A package with an outsourcing of such modules through collaboration with professional management institutes may do wonders for the conventional institutes. Such leading institutes may also offer teachers' training for preparing the faculty to take the challenge themselves in future. Quantitative skills development and computer applications capability should be improved for the students as well as the teachers through a customized provision of special modules to overcome the individual weaknesses. It is expected that such a restructuring of the agribusiness courses in the agricultural institutions will upgrade them to meet the market demand in the globalized era and will also lead to modernization of the agriculture sector in India. To equip the farming community with the necessary knowledge, skills and competence more innovative initiatives are required including public-private farm-community partnerships and effective linkages & coordination among various sources of agricultural information to enable them in risk management and to support their farm enterprises.

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Introduction

For the current state of agricultural output in India, besides social and cultural factors responsible for the current poor state, the educational backwardness has also its role. The present literacy rate adds to the problems of growth. A study (Mittal and Kumar, 2000) shows that the improvement in educational standards of rural population leads to growth in adoption of technology, the use of modern inputs like machine and fertilizers and better yield. In case of rice and wheat in India, literacy is found to have a positive and significant relation with crop productivity and a strong link with farm modernization. Rural education contributes to improvement in adoption of high yield variety seeds by about 25-47 percent, fertilizer use by 18-22 cent, about 6-8 per cent in modernization and 5-8 per cent to improvement in yields for rice and wheat.

Educating the Indians and generating the quality professionals at larger scale is the part of national policy to achieve the desired economic growth on sustained basis. Public and private sectors both are contributing to fast expansion in the educational infrastructure and resources to develop the managerial skills in the educated youths of this age. India being mainly an agricultural economy with a rich bio-diversity and manpower resource requires a time-bound modernization of this sector for better exploitation and management of resources and traditional knowledge. Agricultural economy of any country is supporting the life sustaining resources and engaging the majority of population, especially in developing and under developing countries. In fact there is a need to transform the agriculture into agribusiness. Globalization has offered us an opportunity to manage our agriculture sector like a professional enterprise. Agriculture modernization through the use of biotechnology, precision farming, high-tech cultivation, processing and marketing has started making agriculturists prosperous. Mere government support to cooperatives, rural credit and information networking in agriculture alone will not fuel the development of this sector. To promote entrepreneurship, privatization and public-private partnership is also needed. For the accomplishment of these objectives a capable lot of qualified and educated agribusiness managers are obligatory. The education sector of the country is to be geared up to meet the challenges by providing sufficient manpower to effectively develop and capitalize our agricultural and rural resources to achieve an all-round and balanced growth of the economy. This way the technological, managerial and legal education is vital for the agricultural development.

Education for Agriculture

Risk and uncertainty are ubiquitous and distinct characteristic of our agriculture. In developing countries, risks are higher in agriculture than developed ones (Chambwera and Stage, 2010). Indian agriculture is characterized by a preponderance of small and marginal landholdings and the small-scale farmers form bedrock for agricultural supply chain (World Bank, 2007). *Farm producers face multiple, often simultaneous, sources of risk; therefore they need proper education and information for good decision making in order to support their farm enterprises*

(Ali and Kapoor, 2008; Cottern et al., 2008; Chong, 2005; Hardaker et al., 2004). Further, climate change and burgeoning environmental risk have increased the demand to adopt sustainable agricultural practices.

Farm related Risk management has always been intricate task of Indian agricultural policy. Government has taken several initiatives to increase agricultural education in the country through formal and Informal modes. In India, the agricultural education system was started in early nineteenth century and today its education, research & training sectors are globally recognized for its quality. The Indian Council of Agricultural Research (ICAR) led Agricultural Research and Development (R & D) structure is one of the largest National Agricultural Research System (NARS) in the world (Awasthi and Nath, 2009). To educate country farmers in agricultural and allied activities, the Farmer Field Schools (FFS), farm exposure visits and demonstration of new farm technology is regularly performed by agriculture and rural development departments including agricultural universities and Non Government Organizations (NGOs). However, gaps still existed between the science generated in research institutions and common farmer practices (Mancini et al., 2007). The UN Food and Agriculture Organization (FAO) designed Farmer Field Schools (FFS) which was launched in India in 1999 is a non-formal and unique way to educate/ train farmers and is an effective platform for sharing of experiences and collectively solving agriculture related problems. Generally, weekly or fortnightly training sessions are conducted in the villages for a group of 20–30 farmers by expert facilitators during the cropping seasons.

Apart from agricultural education, the essence of managing agriculture related activities is good decision making which depends on timely, accurate and customized information and its proper analysis (Narula, 2009; Galloway and Mochrie, 2005). In the absence of sound educational system it becomes difficult to take appropriate decisions. Effective information delivery requires recognition of the needs of the farmers and the determination of how best to provide them with the information they need (Ommani and Chizari, 2010). Past studies have revealed that farmers require a diverse range of informative education, throughout the agricultural cycle starting from crop planning at the pre-sowing stage through to planting, growing, harvest and postharvest stage and at the end of cycle i.e. selling/marketing (Narula and Chopra, 2010) (Figure 1).

The education in formal and informal forms becomes indispensable for good farming. Recent developments in information technologies (ITs) have the potential to provide timely information even to remotely located farmers, and to create efficiencies across agricultural supply chain by addressing all informational needs (Parmar, 2009). A wide range of traditional and modern sources of agricultural information is available to farmers including their social networks. However, the access and adoption of information is limited in developing countries due to various socio-economic and physical constraints (Foster and Rosenzweig, 1995). Access to the right information at the right time in the right format and from the right source may shift the balance

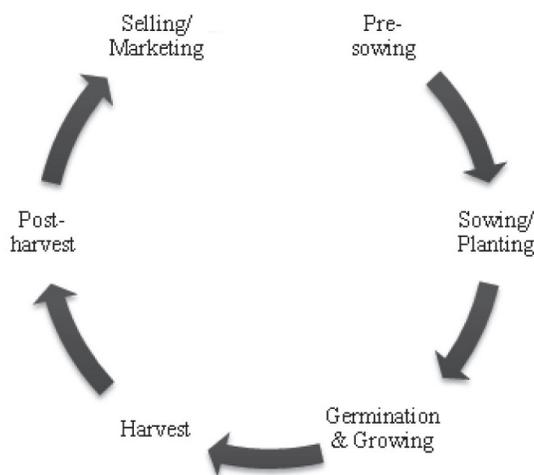


Fig. 1: Education and information requirements at various stages of agricultural cycle

between success and failure of the farmer (Opara, 2008). The preference and choice of appropriate medium is crucial in agricultural information delivery and removing constraints. According to Lee (1996), the desire to use or not to use a particular information channel is affected by the channel's disposition and information demand characteristics. Defining 'information channel disposition' he stated that it referred to the users preferred means and styles of obtaining the needed information whereas information demand characteristics referred to the quality pattern that farmers expect in the needed information. He further added that the source of information must be credible, reliable, cost-effectiveness and above all, familiar to the user before he would use it.

Efficient crop production requires that producers have timely and relevant information about Good Agricultural Practices (GAP). A wide range of sources of risk management information is available to the farmers; therefore choice of appropriate medium is crucial in agricultural information delivery (Chatman, 1983; Aboyade, 1987). However each source of information is limited to provide only on few specific aspects of agricultural information (Table 1). Farmers prefer sources which, during transmission, ensure them of providing good characteristics of information (Pushkaran and Knight, 1980). The major characteristics of good information are accessibility, usability, timeliness, accuracy, cost-effectiveness, reliability, exhaustiveness, and aggregation level which lead to improved decision making and creates value (Galloway and Mochrie, 2005).

As majority of the farmers do not have access to all sources of information due to social, economic and physical constraints; therefore informational needs of these farmers remain unmet.

Table 1. Sources of agricultural information and their use

S. No.	Information Sources	Use
1.	Newspaper	Market rates, new products, local News, query or question answers related to agriculture, advertisements, job related news, government's subsidies, and contract rates.
2.	Agricultural Magazines	Package of practices of different crops, profit and loss of different crops, new movies, monthly news, articles.
3.	Pamphlets	Knowledge about particular crop, like cash crop and a specific disease control.
4.	KVKs/Research Stations	Expert's advice, new technologies and hybrid seeds, disease control measures, weather related advices, input related advices.
5.	Radio	Weather information, Government schemes, news, disease and pest control.
6.	Television	Krishak darshan for different kinds of information, upgraded package of practices of agriculture, news, new techniques, fashion trends, market watch.
7.	Fellow Farmers	Seed sowing, harvesting, input use time and quantity, new technologies and new world.
8.	Farm Fairs	Hybrid seeds, improved practices of farming, irrigation related up gradation.
9.	Portals	News, new trends in different fields like in agriculture as well as in human life.
10.	Agricultural shows/Films	New products and farm technologies.
11.	Agri-input dealers	Seed, fertilizers, pesticides, farm machinery.

Source: adapted from Narula, 2009

In recent years, due to an increase in risk and vulnerability in agriculture, the farmers' demand for agricultural education and training has increased significantly (Hurley, 2010). To conform to Good Agricultural Practices (GAP) and minimize risk, farmers require education and training on various important aspects about agricultural practices. The analysis of variables representing the possible areas of education & training to the farm producers has extracted four major factors namely: Farm Management, Production Technology, Post Harvest Management, and Agricultural Marketing. Farm Management as an important factor represents crop planning & management, integrated pest management (IPM), irrigation management, and fertilizers/nutrients management and requires special arrangements for education and training particularly to marginal and small growers. Agricultural marketing, also a very important area for education and training, requires market linkages and information dissemination.

Agriculture Education in India

Historically, our educational system provides for a separate full fledged set of institutions rendering technical education, research and training in various

agricultural fields like plant sciences, animal husbandry, dairy technology, post-harvest technology, food technology, biotechnology, extension, economics, statistics and a host of other subjects. The education in Indian agricultural sector did not have 'Management' as a component in it. Indian Council of Agricultural Research (ICAR), an organ of the Ministry of Agriculture, GOI and the main coordinating body of agricultural education on behalf of Govt. of India included Agricultural Economics, Extension and Statistics as their allied subjects which were treated only next to science and technology subjects in importance. Education division of Indian Council of Agricultural Research (ICAR) sponsors and monitors State Agricultural Universities (SAUs), Deemed to be Universities (DUs), Central Agricultural University (CAU) and Central Universities (CUs) with agriculture faculty. The graduation courses provide a broad base of sectorial knowledge. After graduation the students go for M.Sc./ M.Tech in their choice of specialization. Agribusiness opens as a PG option at this level.

With the emerging scope of Management discipline, some of the forward looking agricultural institutions opened up courses or departments/ colleges in Agribusiness to meet the market demand. The premier management institutes like IIMA, IIML, IRMA, MANAGE, NIAM have their PG programs well established but such courses have their distinct focus and approach (content wise as well as pedagogy wise) to suit their respective upper class clientele. The conventional agricultural institutions/ universities are offering a package which at best produces a lot inferior to ordinary MBAs available in the job market. This paper focuses mainly on revamping of Management education in educational institutions of agriculture sector.

Opportunities for Agribusiness Managers

There is enormous scope in agriculture and allied sectors and its diverse activities. It is getting profitable too, especially in precision farming, horticulture, dairying and poultry farming in addition to the commercial processing, packaging, trading and export ventures. Careers in agribusiness range from totally academic pursuits of teaching and research to entrepreneurial, managerial and consultancy jobs. Careers are especially attractive in the following sectors:

- Hi-tech Farming
- Organic Farming
- Agricultural Finance/Banking
- Agricultural Futures and Options Markets
- Bio-fertilizer Industry
- Bio-fuel Technology
- Agro and Food Processing
- Forest-based Industries

- Agricultural Infrastructure
- Agri Retailing & Exports
- Marketing of Agri Inputs
- Management of Contract Farming
- Franchising in Food & Agribusiness
- Agri Information & Rural Advertising
- Agri Consultancy

Most of the MBAs do not easily fit to these sectors. Agribusiness specialists with agriculture background are the obvious choice to give the charge of these activities. A number of agricultural institutes and universities in public as well as private sector are offering PG courses in Agribusiness Management but the quality and quantity both are far below the required level to effectively run these functions. Much more and better is to be produced by the education sector in these areas.

Market Orientation

Education is a dynamic and complex process which must be adjusted to changing circumstances. Demand and supply interaction does the fine tuning in knowledge, skills and competences to be packed in the courses. Market adaptation includes responding to the clients (students and industry here), competition (other programs offered by similar institutes) and the society (national objectives here). This demands a regular up gradation and replacement of the ongoing programs with the new ones in spite of the resistance to change in the institutions. The marketing orientation in the area of education expresses a rethinking of the educational supply (Platis, 2009).

The conventional agriculture education lacks this tendency. New courses in agribusiness are opened on popular demand with a tinkering with other courses and syllabi but the approach to these courses remains traditional. Little is done to align the programs with the demand of students, employers and the competitors. Agriculture by its nature provides for a technical education which is utopia in that it does not focus on the target population and their expectations. For purposes of training change agents in education, the pragmatic model would be imperative (Chilcott, 1987). In the words of Akridge *et al.* (1994) “any department seriously considering a move into this market must make a careful assessment of what potential employers are looking for in master’s-level graduates and how employer needs square with what the department can deliver”. Therefore it requires a ‘Market Focus’ which concerns the target customers, the industry that employs them, the competitors and the society at large. This will also guarantee a viability and sustainability to the programs.

Market orientation involves incorporating in the course structure and curriculum design the inputs recommended by the students and the employers. And it should also not be inferior to what other institutes are offering. The institutes should be

sensitive to industry needs by identifying the target agro-industries, traders or service enterprises and co-coordinate with them in course structure design. This will also make the courses acceptable in the market.

The dependence of education on public funds has no support today especially when the education is linked with commerce and industry. Agribusiness education should expand further, not only to meet the rising demand from agriculture and allied industries, but also because the needs of highly qualified manpower for agricultural development are potentially high. The best solution for the public institutions would not be to expand on the basis of manpower demand through public funds. In contrast, the provision of self supporting programs should be encouraged for quality and sustainability. The public sector in education will shine only when it runs the programs on cost recovery basis and competes with the private institutions in quality.

Industry Focus

Agribusiness education offered by the public institutions should help the students meet the rapidly changing needs of the vocational world. To this end the academic performance of agribusiness education should be given serious scrutiny so as to improve its standards. The cultivation of technical and professional manpower should be highlighted, and its training ought to be practically orientated. To develop a pragmatic approach and an industrial outlook, the management education is always emphasizing on industry-institute interface. This is usually done by offering internship in a specific job situation usually during the summer vacations. Guest lectures by the industrialists, seminars and forums are also organized for bridging the gap between industry and the academia. This approach gets more importance in agribusiness due to the diversity and heterogeneity in different agricultural sectors. The specified summer breaks in the educational schedules may also not suffice to give a complete exposure to many natural processes involved in this sector's units.

The industry focus can give them an edge in the market if some experimental learning is facilitated by placing them in specific industries for one full semester after the last semester, over and above the usual summer training as a part of the course. The institutes should provide functional agro managers to the concerned trade and industrial units who should also be capable to manage small business units and entrepreneurial ventures independently. On-the-job training is very helpful for developing such skills to make the students self dependant.

A dynamic learning environment itself provides for 'Experimental Learning'. The premier management institutions provide for pedagogy that includes case-studies, role playing, simulation, management games, field visits etc. to reduce the dependence on off-campus trainings. Some institutes assign projects on industrial problems that require the students to collaborate with the industry under the guidance of institutes' guides. There are some institutes which place their students for longer period (usually in the last year of the course) to some industrial/ commercial unit for projects as well as on-the-job training. This reduces the effective duration of the course by one

semester. Industry/ sector wise electives are invariably given by all the institutes to students in final year to choose from among the alternatives for providing them sectorial specialization.

The leading institutions have their individualized approach to suit their high-end clients. The IIMs offering courses in agribusiness have special electives for different sectors but they don't give much weightage to on-the-job training in the agricultural sectors. Their students are rarely going to those sectors. But the others have to place special importance to these sectors by facilitating an exposure to their students of these operations.

The agricultural institutes can also make it compulsory on their PG students to join any of the specified agricultural or allied sectors as interns for a reasonable period (say 6 months or a year) on the pattern of medical graduates, after completing their courses to be eligible for the degree. This is more justified if they are educated at the public cost. This will greatly strengthen these deprived sectors and also develop flair among the professionals to join these operations after completing the course.

Decision Making Skills

Since the PG students in agribusiness courses in agricultural universities/ institutes come from B. Sc. (Ag.) stream they are technically conversant with most of the agricultural specialties but lack seriously in managerial orientation and leadership qualities. Technical and job related skills do give them an edge over the others but they are not sufficient. In the initial part of the job, may be technical skills get importance for accomplishment of the assigned tasks. But in the managerial capacity a management process orientation and other than the technical skills like conceptual skills, communication skills, interpersonal skills and behavioural skills also get an equal importance.

The products of agricultural institutes are also found to be deficient in communication and soft skills. Added emphasis should be given on these components. They have to be made better managers in addition to being good technocrats. Such soft skills like team spirit, motivation, initiative and time management can be developed (or at least improved) by facilitating group activities and involving them in interactive classroom or extracurricular events. Sometimes academically weak students perform extraordinarily in such activities. Soft skills' training is essential as we do not have it in our academic curricula. During the course of study, they should practically be taught how to be part of team activities and how well should they manage their time. The professionals who want to do well in their career must possess these soft skills too. In our traditional education the personality development aspect is by and large neglected.

Another problem area is the analytical skills' development. The jobs of 21st century will increasingly require quantitative skills due to higher level of automation and computer controlled facilities and processes. And some industries like banking and insurance, accounting and finance, futures' trading and options, engineering and

design, information and networking, data warehousing and many others are inherently quantitative. Now business analysis is supported in all the functional areas through computer software which requires that the users be familiar with those applications. Quantitative skills development and computer applications capability should be improved for the students as well as the teachers through a customized provision of special modules to overcome the individual weaknesses.

Collaborations

All these expertise may not readily be available in agricultural institutes to produce highly vibrant lot of agribusiness managers. This is the age of outsourcing replacing the target of self sufficiency. As the institutes are collaborating with the industry for 'Guest lectures' or 'Summer training', they can also collaborate with the premier institutes for hiring their services for developing some of the above mentioned skills in the students. This will substantially raise the value of their courses. A package with an outsourcing of such modules through collaboration with professional management institutes may do wonders for the conventional institutes. This may be a costly and procedurally complex and difficult exercise for most of the public institutions who have a more bureaucratic and orthodox system of decision making. In the long run it may not be preferred.

To avoid this on continuous basis, the collaboration with the leading institutes may be done for teachers' training modules. They may offer teachers' training packages for preparing the faculty to take these challenges themselves in future. Some institutes have been offering Faculty Development Programs on the sponsorship of some government agencies. The agricultural institutions can tie-up with these institutions to provide tailor-made programs on requisition to suit their specific needs. The leading institutions like IIMs can contribute to this capacity development exercise in agricultural universities/institutions.

Conclusion

Mass media, interpersonal network and commercial network are among the potential sources of risk management information which provide timely and accurate information to the farmers. These sources are easy to access, full of content, highly reliable and more economical for the users. The innovative sources of information such as agricultural shows/ films, power-point presentations, and SMS are available to supplement the efforts. The Institutions dealing with agricultural occupations and responsible to provide agricultural information to the farmers can go for partnership with the private institutions, professional corporate houses and NGOs to fulfil farmers' unmet informational needs at the least possible cost.

Table 2. Innovative strategic interventions to meet farmers' informational needs

S. No.	From	To
1.	Generic	Localized specific information (commodity-specific)
2.	Traditional media	Social media & Social Networks
3.	Information clutter	SMART information
4.	Information supply	Demand driven information
5.	Free of cost information	Value added premium services
6.	Single supplier	Collaborative business modules
7.	Text services	Multimedia supported information
8.	Costly technology	Cost-effective innovative solutions

Source: adapted from Narula, 2009

Education and Information is critical for managing agricultural risks. Effective education and information influences agricultural productivity in a variety of ways. Agriculture involves masterly managing for the weather, the input quality and its timely supply to farm gate, the farm credit, the extension and information, market prices, government policies etc. and these factors largely depend on farmers' education and skills. Recent advancements in agricultural technology and demand for food quality and safety across the world have compelled farmers to adopt innovative practices in order to meet these standards. Therefore, farmers require knowledge of new developments in agriculture, often gained through education and training. Government has taken several initiatives for the delivery of information. However, gap still exists due to lack of farmers' awareness, skills and competence.

It is strongly recommended that innovative steps should be taken (as suggested in table 2) including public-private farm-community partnerships and effective linkages & coordination among various sources of agricultural information to meet all informational needs of farmers for risk management and to support their farm enterprises.

Globalization is causing fast expansion in industrial, commercial and service activities in agriculture sector which needs large number of agribusiness managers who could lead the sector to development. The agricultural education sector is not sufficiently geared up to offer this service to the desired level. A restructuring of the agribusiness courses in the agricultural institutions is required to upgrade them to meet the market demand. Industry focus should be increased by placing the students there for longer period to strengthen these deprived sectors and also to develop flair among the professionals to join these operations after completing the course. Managerial orientation and leadership qualities should be developed in the students by adding the components of soft skills in classroom and extracurricular activities. Experimental learning should be promoted by organizing events and industry-institute interaction. Collaboration with the professional institutes for outsourcing the training modules for students as well as the teachers will substantially raise the quality of the courses. It is expected that this capacity building exercise will lead to modernization of agriculture sector in India in the globalized era.

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