International Conference on Management of Agribusiness & Entrepreneurship Development
January 6th-7th 2014

Jointly Organized by

Technocrats Institute of Technology-MBA
Bhopal

Central Institute of Agricultural Engineering
Bhopal
Vision:

To provide research oriented quality technical education by inculcating professional skills in students through holistic approach of exposure to diversified exercises so that they achieve a leading edge in the global scenario and can contribute to the socio-economic development of the society.

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SOUVENIR

On the occasion of

International Conference on

on

Management of Agribusiness and Entrepreneurship Development

January 6-7, 2014

Organised by

Technocrats Institute of Technology
Group Campus: Anand Nagar, BHEL, Bhopal. Phone: 0755-2805101-102
website: www.titbhopal.net

and

Central Institute of Agricultural Engineering
Nabibagh, Bhopal
This Souvenir is brought out to mark the International Seminar on Management of Agribusiness and Entrepreneurship Development during January 6-7, 2014 organised jointly by Technocrats Institute of Technology-MBA, Anand Nagar, Bhopal and Central Institute of Agricultural Engineering (ICAR, Govt of India), Nabibagh, Bhopal.

The Organizing Committee of the conference places on record their deep sense of sincere thanks and gratitude towards all the guests, members, sponsors, organizations and industries for their valuable support, cooperation and participation. We are very thankful to all the keynote speakers, panelists and also those who contributed country status papers.

We are deeply indebted to the dignitaries who blessed the event in the form of messages on this occasion. We are also thankful for the support by one and all and the tasks rendered by various committees towards organizing this event.

We are grateful to the Management of TIT Group of Institutions for their help and support in organizing this mega event.

Dr. R. T. Patil  
Chief Editor &  
Conference Chair, TIT-MBA
I am very glad to know that the Technocrats Institute of Technology - MBA jointly with Central Institute of Agricultural Engineering are organizing an International Seminar on Management of Agribusiness and Entrepreneurship Development during January 6-7, 2014.

The economy of Madhya Pradesh is comprised of agriculture and industries. In fact, industries and agriculture form the backbone of economy of Madhya Pradesh, whereas the supporting bones are mining, tourism and banking. Many development countries are looking Netherland in aiming to ramp up its commerce in Madhya Pradesh, especially in agribusiness. The Netherlands dominate floriculture with 90-65% of world trade. The Dutch technology can help MP to reach global floriculture standards.

I am sure the deliberations in the conference will provide a fresh vision and road map for efficient management of agribusiness in the country for its accelerated growth.

I wish the conference all success.

Ram Naresh Yadav
Governor of Madhya Pradesh
प्रसन्नता का विषय है कि टेक्नोकेंट्रस इंस्टीटयूट ऑफ टेक्नॉलॉजी – एम.बी. ए., भोपाल तथा केंद्रीय कृषि अभियांत्रिकी संस्थान, भोपाल के संयुक्त तत्वाधारण में अंतर्राष्ट्रीय संगोष्ठी मैनेजमेंट ऑफ एंजिनियरिंग एंड इंट्राप्रेनरशिप ड्वेलपमेंट विषय पर संगोष्ठी का आयोजन तथा स्मारिका का प्रकाशन किया जा रहा है।

आशा है कि संगोष्ठी सभी विषयों विषयों की वैश्वीकरण के दौर में कृषि व्यवसाय एवं उद्यमिता विकास के समकालीन मुद्दों और विचारों को चर्चा में लाने के लिये आधार प्रदान करेंगी।

संगोष्ठी की सफलता के लिये हार्दिक शुभकामनाओं सहित।

(श्री शिवराज सिंह चौहान)
I am delighted to know that the Technocrats Institute of Technology and Central Institute of Agricultural Engineering are jointly organising an International Seminar on Management of Agribusiness and Entrepreneurship Development during January 6-7, 2014.

I compliment the organisers for choosing this important and highly relevant topic for the conference. Management education is important in today’s business environment and agribusiness is no exception to it. It is important for the state of MP because agricultural technologies are changing so fast that it makes it difficult to survive the growing competition unless modern management concepts are applied to them. This has led to the need for business schools under the umbrella of agricultural university specifically to impart relevant education to students. It is also heartening to note that Indian Institute of Management(s) are also offering courses related to agribusiness management. The entrepreneurial growth of any country is also related to their level of management education.

I am happy to note that in this conference the agribusiness managers, BPD unit head, business managers, industry and management experts will be deliberating on the present status and future prospects of agribusiness management and entrepreneurship development. The recommendations arrived will be very useful for developing agribusiness sector in the state.

I convey my best wishes for the success of the conference.

(Uma Shankar Gupta)
I am happy to note that the Technocrats Institute of Technology and Central Institute of Agricultural Engineering, Bhopal are organising an international conference on Management of Agribusiness and Entrepreneurship Development during Jan 6-7, 2014. This event will be highly useful for the state of Madhya Pradesh whose growth in agriculture has been highest in the country.

Agribusiness as well as food safety and quality are among the most important issues in higher education and science all over the world today. I hope that recommendations arrived in this conference will help our state to have long term tie-up with domestic and International partners to market the products of Madhya Pradesh.

I wish the conference all success.

(Deepak Joshi)
I am glad to know that the Technocrats Institute of Technology and Central Institute of Agricultural Engineering, Bhopal are jointly organizing an International Conference on Management of Agribusiness and Entrepreneurship Development during Jan 6-7, 2014.

Management is a key to effectively utilize the resources and it is very much needed in Indian agriculture looking to resource poor population. The Indian Council of Agricultural Research has been providing leadership in this area by way of National Agricultural Innovation Project with the assistance of the World Bank to accelerate the collaborative development and application of agricultural innovations. Business Planning & Development (BPD) units have been included to promote agribusiness in the country through technology commercialization and to nurture innovations in the agricultural sector, by using the potential of business incubators and I am happy to record that today there are 23 BPDs operating in the country.

Our objective is to promote and commercialize agro-technologies from the BPDs of ICAR institutes and the SAUs and to promote the agribusiness incubators (BPD Units) as a one-stop window for technology commercialization and entrepreneurship development. This encourages the ecosystem that nurtures more agribusiness entrepreneurs and innovators. At this juncture, it is worth-mentioning that Indian Agriculture has the largest private enterprises run by 65 crore farmers serving the billions. Though agriculture is a complex system due to climate dependence it has a huge business potential to explore. The ICAR system is moving ahead from the primary to secondary agriculture offering advisories and services from seed to market through such efforts of public private partnerships to transfer trust and confidence along with the technologies. I am sure this conference will promote innovative thinking on agribusiness and entrepreneurship development, and provide road map for future strategies for sustainable development of Indian agriculture as an Industry.

I wish to compliment the organisers for this initiative and wish the conference to be a grand success.

(Dr. S. Ayyappan)
Message

It gives me pleasure to know that Technocrats Institute of Technology - MBA, Bhopal is Organizing an International Conference on Management of Agribusiness and Entrepreneurship Development during Jan 6-7, 2014. I feel that theme of the Conference is relevant in the modern context. I am quite hopeful that deliberations and discussions during the seminar will be able to suggest some innovative issues related to agribusiness and entrepreneurship development.

At this occasion I congratulate the organizer for selecting this applied theme for the conference and extend my good wishes for the success of the same

(Nisha Dubey)
The organization of International Conference on Agribusiness Management and Entrepreneurship Development is very timely and relevant in general and specific to the state of Madhya Pradesh which is progressing in this field at a much faster rate than envisaged. It is also heartening to note the Technocrats Institute of Technology-MBA, Bhopal and Central Institute of Agricultural Engineering (ICAR) Bhopal are jointly organizing this conference where experts will deliberate on this theme.

I wish the conference all success

(Dr. P. K. Mishra)
Agriculture is backbone of Indian agriculture. There are ample business opportunities in agriculture and rural sector. These businesses need support and guidance from the experts and policy makers to make them more profitable. I am very happy that Central Institute of Agricultural Engineering has joined hands with Technocrats Institute of Technology-MBA for International Conference on Management of Agribusiness and Entrepreneurship Development during Jan 6-7, 2014.

In developing countries like India, the agribusiness sector encompasses four distinct sub-sectors, viz. agricultural inputs; agricultural production; agro-processing; and marketing and trade. All these add value or utility to the goods hence agribusiness is emerging as a specialized branch of knowledge in the field of management sciences. The agribusiness is a unique combination of science and practice of activities, with backward and forward linkages, related to production, processing, marketing, trade, and distribution of raw and processed food, feed and fiber, including supply of inputs and services for these activities.

I am happy that there is a very good response for this conference and agribusiness managers, BPD unit heads, business managers and PIs of Technology management units will be attending this conference. I am sure the deliberations and recommendation will be extremely useful to improve the efficiency and profitability of this sector.

I wish all the best for this conference

(Ms. Sadhana)
I am happy that the Technocrats Institute of Technology and Central Institute of Agricultural Engineering, Bhopal are jointly organising an International Conference on Management of Agribusiness and Entrepreneurship Development during Jan 6-7, 2014.

Agriculture and retail sectors are the two largest employers in India. The entry of organized sector in retail business brings with it more opportunities in agribusiness management creating millions of jobs. This also opens up opportunities for self-employment for entrepreneurs. There is a demand for organized retailing services. Not just high end consumers but also the middle class and lower-middle class consumers are now going to the organized retail stores for a smaller price, better service and shopping comfort, particularly when they are located nearby.

I am sure the conference will explore policies avenues and experiences and contributing factors for sustainable management of agricultural businesses & resources, agricultural extension programmes, entrepreneurship development opportunities, feasibility studies on technologies and products for production and post harvest sector. It will also provide a platform for experts to discuss the contemporary issues and ideas for this sector in an era of rapid technological change and globalization.

I sincerely wish this conference a great success!

(Mr. Saurabh)
I am happy that the Technocrats Institute of Technology-MBA jointly with Central Institute of Agricultural Engineering are jointly organizing an International Conference on Management of Agribusiness and Entrepreneurship Development during January 6-7, 2014.

The commercialisation of agriculture calls for specialised production, post-harvest management, expansion of processing, transportation and packaging activities and positioning of products both in domestic and international markets. The need for effective agribusiness management and use of modern tools and techniques for them has become important.

Agri-business explores production, marketing and trading of products related to agriculture and covers improved growing techniques, agricultural machinery, fertilizer, pesticides pre- and post- harvest handling, storage, transportation, packaging and labelling. Critical management issues as financing and technical assistance, preparation of products for exports, overseas marketing issues and government policy are important constituents of agribusiness management.

I am sure the galaxy of experts attending the conference will deliberate above issues and the recommendations and conclusion will also be highly useful for agribusiness development in the state of Madhya Pradesh

I wish the conference great success and participants a pleasant and memorable stay in Bhopal

(Ms. Surabhi K. Sharma)
I am happy that the Technocrats Institute of Technology and Central Institute of Agricultural Engineering, Bhopal are jointly organizing an International Conference on Management of Agribusiness and Entrepreneurship Development during Jan 6-7, 2014.

The TIT-MBA College under TIT group of institutions is a leading management college in central India. Established in 2003, today we have a total intake of 600 full time and 60 Part time students. The title of the conference is Management of agribusiness which is very appropriate topic for overall development of the country where 70% population depends on agriculture and agribusiness for their employment and livelihood.

The small land holdings and low capital availability make agriculture a difficult proposition. Inefficient supply chain further aggravates the problem resulting in huge losses of agro commodities. Agribusiness and its supply chain require special skills & experience. This sector can offer immense opportunities for wealth generation and poverty alleviation if modern management tools are used.

I am sure the deliberations during this conference will provide answers to these problems and provide a roadmap for future development of this sector bringing in overall prosperity in the country.

I wish the conference all success.

(Dr. C.L. Saxena)
Agriculture combined with innovation, proper management and entrepreneurship now a days is offering unique opportunities for progress. Engineering inputs to agriculture are giving a touch of industry-like approach to agricultural production, value addition and marketing. It is in this context that specialty agriculture is a way to use small land holdings to produce enough income for the farmer's family in a sustainable way. Specialty agriculture enterprises are generally capital, labor and management intensive with high risks. Specialty enterprises, in general, include planning, budgeting, production, value addition and marketing in a seamless value chain mode.

Special efforts are required to determine specific demands of the markets and then establishing the specialty agriculture enterprise. It is a highly dynamic venture. Today when agriculture is being perceived as a producer of many non-food commodities like energy, plastics, pharmaceuticals, colors etc, the scope of specialty agriculture is widening considerably. The specialty agriculture enterprises also include Agri-tourism, agritainment, vertical farming, ocean farming etc. Since specialty agriculture is a hugely diversified activity. The Central Institute of Agricultural Engineering offers the advice to agro enterprises through its 4 research divisions, Krishi Vigyan Kendra, Agricultural Technology Information Centre and the recently established Business Planning and Development Unit.

To deliberate on these and other related issues related agribusiness management and entrepreneurship development in this sector, this conference was planned jointly with the Technocrats Institute of Technology-MBA programme during Jan 6-7, 2014.

I am happy that we have received very good response and professional in Agri business working in academics, extension and industry are also participating in the conference and the outcome of this meeting will definitely will provide a road map for future growth in this sector.

I thank all those with whose, help, cooperation and support this event has been possible and wish all delegates fruitful deliberations.

(Pitam Chandra)
The developing countries like India and economies in transition, particularly those with large rural communities, suffer from inadequate access to food and lack of employment. The problem is compounded by the dependence on outdated and inefficient technologies leading to poor productivity and slow economic growth. Agro-based industrial products account for half of all exports from developing countries, yet only 30 per cent of those exports involve processed goods compared to a figure of 98 per cent in the developed world.

Adding value to the output of agricultural sector through efficient and well managed agribusinesses is important to generate increased employment opportunities for rural communities, thereby increasing food security and sustainably reducing poverty. There is a need to link resources and markets in the agribusiness value chains and strengthen forward and backward industrial linkages in order to leg up the economic transformation, improve employment and income opportunities, and reinforce sustainable livelihoods. Hence this International Conference on Management of Agribusiness and Entrepreneurship Development has been planned to achieve these objectives jointly by Central Institute of Agricultural Engineering and MBA group of Technocrats Institute of Technology, Bhopal.

I hope the conference will provide the platform to discuss the contemporary issues and ideas on agribusiness and entrepreneurship development in an era of rapid technological change and globalization and provide road map for future strategies for sustainable development of the India.

I am overwhelmed to see the response to this event from agribusiness professionals and I am sure the recommendations arrived from this conference will be greatly helpful for the progress of this sector in Madhya Pradesh.

I express my gratefulness and appreciation to all those associated with organizing this conference and wish all delegates fruitful discussion and comfortable stay in Bhopal.

(Dr. RT Patil)
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Prof. Ankur Saxena
# Conference Programme

**Monday January 6, 2014- Day 1**

**Venue:** TIT Campus

**Inaugural Session**

Venue: TIT Conference Hall  
Time 10.30-11.30

High Tea 11.30-12.00

Keynote addresses  
Time 12.00-02.00

Lunch: 2.00 to 2.30

**Technical Session 1 & 2**

Venue: TIT Lecture Halls 1 & 2  
Time 02.30-06.00

**Tuesday January 7, 2014- Day-2**

**Venue:** CIAE, Bhopal

**Technical Session 3 & 4**

Venue: CIAE Conference Hall  
Time 10.00-11.30

Tea 11.30-12.00

**Technical Session 3 & 4**

Venue: CIAE Lecture Halls  
Time 12.00-02.00

Lunch: 2.00 to 2.30

Venue: CIAE Lecture Halls  
Time 02.30-04.00

**Valedictory Session**

Venue: CIAE Conference Hall  
Time 04.00-05.00
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International Conference on Management of Agribusiness & Entrepreneurship Development
Programme

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S. K. Chattopadhyay, A. K. Bharimalla, N. Vigneshwaran and A. A. Athavale

Opportunities for Entrepreneurship Development in Livestock Sector
Puneet Kumar, Vivekanand Mishra I and R.T. PPuneet Kumar, Vivekanand Mishra and R.T. Patil

Transforming a Traditional Fisherman into Successful Aquapreneur
Vikas P.A. and Shinoj Subramannian

Entrepreneurship Development and Business Opportunities in Custom Hiring of Farm Machinery
R S Singh, K P Singh and K N Agrawal

Innovative Programme for Creating Entrepreneurs: Success Stories in Sea Food Micro Enterprises
Shinoj Subramannian, P. Sreeletha, F. Pushparaj Anjelo and P.A Vikas

Promotion of Secondary Agriculture in Eastern Region through Agribusiness and Rural Entrepreneurship: Challenges and Opportunities
R.P. Singh, D.K. Singh and S. Chattopadhyay

Role of KVks in Entrepreneurship and Rural Development
S. K. Goyal, Prabha, Shree Ram Singh, S. N. Singh and Jai P. Rai

Fresh Water Fish Seed Production: Transformation of a Farmer to a Breeder cum Entrepreneur
P.A Vikas, Shinoj Subramannian and F. Pushparaj Anjelo

Agri-Clinics and Agri Business Centers - Turning Farm Graduates to Grass Root Entrepreneurs
Ranjan Audichy and P.P. Jani

Entrepreneurship Development-Opportunities and Challenges
Manisha Mani, Mohan Gautam, Nikhil Khurana, Abhender Singh, Priyanka, Alka Vasan, S.K. Sethi

Opportunities in Beeswax Processing: A Viable Rural Enterprise
Ranjeet Singh, Jarnail Singh and P K Chhuneja

"कमजोर वर्ग के सशक्तकरण में उद्यमिता विकास कार्यक्रमों की भूमिका का एक समाजशास्त्रीय अध्ययन" (सागर जिले के विशेष संदर्भ में)
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Role of Microfinance Institutions in Rural Development
Rajesh K. Yadav and Nishant Dabhide

Impact of Claim Settlement on Sales of Lifeline Insurance policies - A Case Study of LIC of India
Rajesh K. Yadav and Sarvesh Mohania

Employment Opportunities in Agribusiness Sector
Anuj Sheopuri

"Tilapia Drumstick" An Innovative Product for Retail Fish Markets
B.B. Sahu, N.K. Barik, A. Paikaray, B.N. Sahu, S. Pati, S. Mohapatra and P. Jayasankar

Rohu Butterfly- A Product Aiming to Improve Retail Marketing of Carps
B.B Sahu, N.K. Barik, A. Paikaray, B.N. Sahu, S. Pati, S. Mohapatra and P. Jayasankar

Package for Enhancing the Income from Pokkali Farming- A Successfull Agribusiness Model
Vikas P A, Shinoj Subramannian, John Bose, G Syda Rao, Zachariya PU

Strategic Marketing of Early Season Cauliflower for Maximizing Producers' Share in Consumers' Money: A Case Study from Jharkhand
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Study of Tribals Regarding Agricultural Occupation
Pramod Maruti Mandavkar and Manoj Sudhakar Talathi

Role of Rural Co-Operative Banks in Agricultural Development- Challenges and Opportunities
Sulakshna Tiwari and Yogita Singh Jadon

Production Management in Small - Scale Agromachinery Industries
P. K. Das
The Role of Marketing in Sustainable Agriculture: New Challenges
Vikas Saraf, Mahendra Singhai and Lata Yadav

A Model of Interdependent Relationship: Government -Industry-Academia in Agricultural Practices
Rachna Chaturvedi

Information Technology in Human Resource Management: An Assessment
Mukesh Chansoriya

Contribution of Sericulture Towards Livelihood -A Case Study of Hoshangabad Division
M.P. Singh, Umesh Gupta, Pragya Srivastava,

Agriculture Sector of India under Five-Year Plans
Ankur Saxena and Saurabh Karsoliya

Contribution of Agriculture Sector in Indian Economy
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Rural Development Programmes and Schemes and their Impact
Jyoti Pachori

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R.K. Pathak and Ulrich Berk

Soy based Bakery Enterprises for Agri-Food Processing and Livelihood Opportunities
L.K. Sinha, R.T. Patil and S.D. Kulkarni

Entrepreneurship Based on Processing and Value Addition of Lac - A Natural Resin
S.K. Giri, M.F. Ansari and N. Prasad

An Overview of Agricultural Insurance in Agribusiness
Shrikant Bhaskar Rao Katole and Girish Gulab bhai Patel

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Demand, Supply and Manufacturing Opportunity of Gum Based Product in Indore
Akshata Sharma, Meenal Gupta and Yashraj Singh

Research Priority and Development in Agribusiness for Vegetable Sector
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Lovenia Bose

Role of Public Distribution System (PDS) in Ensuring Regional Food Security in India
Anshuja Tiwari and Rakhi Tiwari

Forest Structure and Invasion by Lantana Camara
Atul Mishra

A Study of Index Based Insurance Schemes for Optimal Risk Management in Agriculture in India
B.D. Pandey and Sweta Shrivastava

Supply Chain Management
Pooja Pastore

Modernizing Agriculture for Higher Employment Opportunities
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Agribusiness Scenario of India

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Introduction

The agro processing, production of agro-chemicals and farm machinery, and trade (wholesaling and retailing) are considered to be parts of agribusiness. With increased backward and forward linkages, the distinction between agriculture and agro-industry is getting blurred. Farm production, processing, and trade are getting increasingly coupled. The word 'supply chain' is being increasingly talked about in agribusiness. Supply chain activities in agriculture include the transformation of raw material and components into finished products that are then delivered to the end customers.

In the developed countries, agribusiness is defined as the total output arising from farm production and product processing at both pre- and post farm gate levels. In developing countries like India, the agribusiness sector encompasses four distinct sub-sectors, viz. agricultural inputs; agricultural production; agro-processing; and marketing and trade. Agribusiness due its vast scope has emerged as a specialized branch of knowledge in the field of management sciences. The agribusiness management is a science and practice of activities, with backward and forward linkages, related to production, processing, marketing, trade, and distribution of raw and processed food, feed and fiber, including supply of inputs and services for these activities.

Over the years, while the agricultural marketing and trade scenario has undergone tremendous changes, it has not changed enough to meet the emerging demand for such services. Some of the marketing system-related limitations are as follows (Acharya, 2007):

(i) The market size is large and is continuously expanding but the marketing system has not kept pace.

(ii) Private trade, which handles around 80 per cent of the marketed surplus, did not invest in marketing infrastructure due to excessive regulatory framework and dominance of unorganized sector.

(iii) Increased demand for value-added services and geographic expansion of markets has been hampered by lack of rural infrastructure.

(iv) Direct marketing by ‘farmers to consumers’ remains negligible. In 85 per cent of the 27,294 rural periodic markets, where small and marginal farmers can come in contact with the formal economy, facilities for efficient trade for them are absent and finally it has gone into the hands of traders.

(v) For facilitating trade at the primary market level, 7,161 market yards/sub-yards have been constructed, but they are inadequate, ill equipped, and mismanaged.

(vi) Food processing industry has a high multiplier effect and employment potential. But in India, the value addition to food production has been only around 7 per cent.

(vii) Due to lack of proper handling (cleaning, sorting, grading and packaging) at the farm gate or village level, approximately 7 percent of grains, 30 percent of fruits and vegetables, and 10 percent of seed spices are lost before reaching the market.

(viii) An estimated Rs 40,000 crores are lost annually in the marketing chain due to poorly developed marketing infrastructure and inefficient system of marketing activities.

(ix) The State Agricultural Produce Markets Regulation (APMR) legislation has hampered the contract farming initiatives, which otherwise can be highly beneficial to develop linkages of farmers with the markets.

(x) Farmers, shifting to higher-value crops, face increased risks of fluctuations in yield, price and income.

The Expert Committee on Agricultural Marketing, appointed by the Ministry of Agriculture, Government of India, in December 2000, estimated the investment requirement of Rs 2687 billion in agricultural marketing (Government of India, 2001). This included a possible investment of Rs 1364 billion by the private sector. The Working Group on Agricultural Marketing and Trade, appointed by the Planning Commission, had estimated the total investment requirement of Rs 643 billion during the XI Five-Year Plan, which included a possible private sector investment of Rs 306 billion (Planning Commission, 2007). It is now absolutely clear that the need for an infusion of new technologies, and increasing the economies of scale in marketing for improving the efficiency of entire marketing chain can be met through higher level of investment in value addition and marketing system. Development and promotion of the agriculture sector, which has strong linkages with the agricultural production, agro-processing, and service sectors, is capable of influencing each one of them through adequate investment in marketing activities. This can make a valuable contribution in terms of creating additional employment in the non-farm sector.

Farmers’ Income

There is a considerable income diversification in the rural areas. A study by NCAP (Birthal et al., 2007) has revealed that out of the total income of farm households, around one-fourth (24.4 per cent) is given by non-farm job. For sub-marginal and marginal farmers, it is considerably higher at 33.9 per cent and 27.4 per cent, respectively. It is in this context that a transformation from ‘agriculture’ to ‘agribusiness’ is being recommended and adopted.

Size of Indian Agribusiness

The value of agricultural products marketed at the first point of sale during 2004-05 was Rs 5053 billion, which included Rs 3323 billion of crop products, Rs 1387 billion of livestock products and Rs 343 billion of fisheries products. The value of farm inputs marketed during 2004-05 was Rs 727 billion, which included seeds, fertilizers, pesticides/insecticides, repair and maintenance services, livestock feed/fodder, organic manure, and electricity/diesel. The value of agro-processed products during the year 2004-05 was Rs 4169 billion, in which Rs 2960 billion was from registered manufacturing units and Rs 1209 billion from unregistered manufacturing establishments. These included processed dairy products, meat and fish, fruits and vegetables, edible oils, grain mill products, beverages, tobacco and leather products. Considering all these segments (primary agricultural products, farm inputs and processed products), total value of agribusiness was arrived at Rs 9949 billion.
agribusiness is worth at least Rs 11.43 trillion or Rs 11,43,000 crores.

**Agribusiness Infrastructure**

There are around 121 million farm holdings, of which 63 per cent (76 million) are of less than one hectare in size, operating on an average, 0.4 hectares of land. Assembling of farm products from such a large number units is a huge task. There are about 5 million wholesale traders and 11.2 million retailers of agricultural and other commodities. Out of 11.2 million retail outlets, 3.7 million are estimated to be food retail outlets.

Agro-industries include both organized and unorganized sector units. There are 17.0 million units in the unorganized sector, of which 13.91 million are agro-based. Out of 13.91 million agro-industrial units in the unorganized sector, 12.32 million are own account manufacturing establishments (OAME), 1.2 million are non-directory manufacturing establishments (NDME) and 0.39 million are directory manufacturing establishments (DME) (Chadha and Gulati, 2007).

There are 5.11 million food processing units in the unorganized sector, of which 4.62 million are OAMEs, 0.36 million are NDMEs and 0.13 million are DMEs (Chadha and Gulati, 2007). The units in the organized sector are few in number but account for a bulk of the total gross value addition. There are 35,000 modern rice mills, 20,000 pulse mills, 5198 fruit and vegetable processing units, and 400 fish processing units. There are 426 sugar mills, and 3619 grinning and pressing units (Singh, 2007).

Most of the food processing units are in the unorganized sector and the Indian food market continues to be dominated by the fresh food segment. According to one estimate, Indian food market comprises 10 percent processed segment, 15 percent semi-processed segment and 75 percent as a fresh food segment. Processing is reported to be approximately 2 percent in fruits and vegetables, 37 percent in milk, 21 percent in meat, 6 percent in poultry and 11 percent in marine fish. The overall value addition in food products, which is currently 8 percent, is likely to increase to 35 per cent by 2025.

**Opportunities in Agribusiness**

For improving the efficiency of the marketing system, there is a need for significant investment in marketing infrastructure, both physical and institutional. The investment needs and opportunities for investors exist in the following broad areas (NAAS, 2006):

(i) Production: Which includes the production of high-yielding seeds; high-quality planting material, including the use of tissue culture methods of micro-propagation; raising nurseries, including hardening nurseries; organic farming; production of microbial cultures and vermicompost; and floriculture

(ii) Processing: It includes fruit and vegetable processing, including sorting and packaging, value addition through osmo-dehydration, canning for products like fruit juices, pulps, jam, jellies, ketchup & salsa, grape raisin, fruit toffee, bleached dry ginger and spice powders. In case of grain processing of maize for starch and feed through improved mini/ small mills and dry milling plants, processing of millets for various purposes, including malt from finger millets and RTE (Ready-to-Eat) products, processing of sugarcane for various jaggery products like spiced jaggery, powdered jaggery, and jaggery cubes. The herbal and medicinal plants processing, processing of dairy products, processing of livestock products and livestock wastes offers opportunity in handling, transportation and value addition enterprises.

(iii) Infrastructure: It includes the cool chain infrastructure, including cold stores, Grain storage in modern silos and mechanized warehousing, specialized transport services like ventilated train carriages for horticultural crops, packaging infrastructure, including pack houses, and Agri-clinics and service centers

**Trade Opportunities in Agribusiness**

There is a modernization movement now in the country due and procurement through contract arrangements, including contract farming is a viable business proposition. The delivery of quality food material through modern retailing is another attractive option. The supply chain management and capacity building, including human resource development in agriculture is also one of the emerging opportunity. Many of these activities can be done at small and micro enterprise (SMEs) level. The employment potential of skilled HR in SME sector is very high. It already employs 67 million people and has grown at a rate of 4.4 percent per annum during the 10th Five-Year Plan.

There are several companies and food chains sourcing agricultural products from India to feed their outlets across the globe and as a result our exports in several agricultural sub-sectors are increasing. For example, India now is a net exporter of livestock products. During the triennium ending (TE) 2006, our exports were valued at US$ 676 million, which included US$ 441 million worth of bovine meat.

Due to constant developments in food technology, transportation technology, ICT and biotechnology, India's food companies are also globalizing. India’s food industry transnationality index had increased from 59 in 1990 to 79 in 1999, and is the highest among all the industries.

In India, food retail outlets estimated turnover was of Rs 7400 billion in 2007 (Chengappa et al., 2007). Food retailing in India is, by and large, unorganized, highly fragmented and predominantly small, family owned businesses (Singh, 2007). About 78 percent of them are run with only family labour. Nearly 96 percent of the food outlets are small with less than 500 sq ft area. Unorganized food retail segment consists of kirana shops, selling dry food products, and fruit/vegetable shops and hawkers (pushcart walas) selling wet food products. As the unorganized retail outlets are under-capitalized, these are not able to cater to the consumer demand for value-added services, thus providing the edge to the organized retail sector. Organized food retailing, which till recently accounted for only around 2 percent of the total food retail sales, is expected to reach around 20 percent by the year 2015. The food retail sector is reported to employ about 21 million people.

**Opportunities in Agricultural mechanization**

One of the major constraints of increasing agricultural production and productivity is the inadequacy of farm power and machinery with the farmers. The average farm power availability needs to be increased from the current 1.43 kwh/ha to at least 2 kwh/ha to assure timeliness and quality in field operations, undertake heavy field operations like sub soiling, chiseling, deep ploughing, summer ploughing, etc. All these agricultural operations are possible only when adequate agricultural mechanization infrastructure is created.

Even farmers with small holdings utilize selected improved farm equipment through custom hiring. Each farmer can’t purchase the machinery set-up of his requirement. Therefore,
custom-hiring facility can be of significance to both unemployed youth and the farmers. Establishment of such facilities has potential for adoption of mechanization systems. Repair and maintenance service providers for agricultural machinery are a need and developing countries may adopt that system by training the upcoming entrepreneurs.

The approach identified for employment/entrepreneurship development cover:

- Setting up of Agro-processing enterprises in the rural areas and motivate the farmers to adopt modern techniques.
- Service, repair and maintenance facilities for agricultural machinery.
- Establishment of Agro-Service Centres to provide inputs for mechanization, irrigation, seeds, fertilizers, agricultural chemicals, etc.
- Establishing agri-implement bank by entrepreneurs to provide the machinery on custom-hire basis to farmers when needed.

Opportunities in Food Processing
The opportunities in the food processing industry are significant and expected to reach a size of Rs 400,000 crore by FY 15 contributing to around 6.5 percent to the GDP (Ficci-KPMG, 2013). The vast Indian agri-business market has also triggered a surge in private equity (PE) placements and mergers and acquisitions (M&As) in the past few years. Over 2008-2012, private equity (PE) investments in agri-business have grown to 3.8 percent in 2012 from 0.2 percent in 2008. During the same period, venture capital (VC) investments in agri-business grew from 0.2 percent to 1.6 percent of the total investments. Agri-logistics is the other area that has been attracting a lot of attention from investors with over $60 million invested just in 2012.

Organized Retailing of Food
There are six retail chain formats, viz. Hypermarkets, supermarkets, super centers, warehouse clubs, discount stores, convenience stores and pop and mom stores (Chengappa et al., 2007). In India, 14 companies run departmental stores and several others are regularly entering the retail segment in different formats. It is reported that there are at least 24 hypermarkets, 358 supermarkets, 240 convenience stores, and 464 discount stores. Organized sector players are also doing assembling, storage and sales to other retailers. Some Indian supermarket chains are ‘Food World’, ‘Nilgiris’, ‘Subhiksha’, ‘Fab Mall’, ‘Giant’, etc. Super markets consider fruits and vegetables as a destination category of goods to attract more customers. Some other agricultural retail chains are: ‘E-Choupals’ and ‘E-Sagars’ (ITC), ‘Krishi Vihars’ (M&M), ‘Aadhaars’ (Godrej Agro), ‘Kisan Sansars’ (Tata) and ‘Reliance Fresh/Reliance Retail’.

‘Food World’ was the first supermarket started in Bangalore and it is now considered as the largest food chain in India. It reportedly has 34 stores in Chennai, 29 in Bangalore, 17 in Hyderabad and 7 in Pune, besides stand alone stores in Coimbatore and Mysore. For each city, it follows a hub and spoke model and employs a large number of women to perform various operations in the supply chain.

Contract Farming
The organized sector is using the contract farming model for meeting its requirements for retailing, processing or export purposes. Despite several advantages of contract farming, the coverage continues to be limited. As per the statement of Union Minister of State for Rural Development in the Parliament on September 3, 2007, the total area under contract farming was 4.26 lakh hectares, most of which was in three states of Tamil Nadu (2.37 lakh ha), Punjab (1.21 lakh ha) and Orissa (0.60 lakh ha). There are 18 companies/organizations that are involved in contract farming.

These are Hindustan Unilever, WIMCO, Pepsi, Food Pro, NDDB, Maxworth Orchards, Cadbury India, BILT, ITC, JK Paper, AV Thomas, Reliance Agrotech, Godrej Agro, United Breweries, DCM Shriram, Markfed, L&T, and Escorts. Contract farming has been traditionally a common practice in the paper industry, match stick manufacturers, and now in seed production. Contract farming lowers transaction costs for the company and reduces market risks for the farmer. It is certainly a viable alternative to corporate farming. Some sort of contract farming is also prevalent in sugar cane and dairying, but it is not treated as a formal format of contract farming in the common parlance.

Incentives for Agribusiness
For the promotion of agribusiness, creating a favourable environment for the growth several marketing-related restrictions have been withdrawn or replaced. Amendments in State Agricultural Produce Markets Regulation Acts are being made to facilitate setting up of private markets, direct purchases of farmers’ produce and contract farming arrangements. Several monetary concessions have been announced by the central and state governments.

Keeping in view the growing importance of Agri-exports in improving farmers’ incomes, the government has set up several Agri export zones (AEZs). Further, to help exporters in meeting phytosanitary requirements, regulatory authorities at the state level have been notified. The quality standards have been harmonized and publicized and requirements of the necessary documents have been specified.

Conclusions
There is considerable potential of creating more lucrative and attractive jobs for the youth in agribusiness activities. Super markets and retail chains will need many times more young business graduates. It needs to be noted that already between 2000 and 2005, India created 1.1 million jobs per year, which is the highest among BRIC (Brazil, Russia, India, and China) countries.

The expansion of demand for farm products provides newer opportunities to farmers for value addition, while agro-processing firms provide them crucial inputs and services and also cover a part of their risk. If properly used and understood, it should turn out to be a bonanza for the farmers.

Investment is flowing thick in agribusiness, and agriculture and supermarket retail boom is a new mantra. Many companies have already invested billions either directly or through local partnerships. There is likelihood of agribusiness firms with all their managerial abilities, discovering new ways to use the demand opportunities.

A critical input for successful agribusiness is its dedicated personnel with managerial skills. The managers should be familiar with the local agricultural laws and socioeconomic conditions of the region. The real challenge is to bring small farmers into the network of efficient producers, for ensuring their share in the success. The opportunities in agribusiness are enormous and can be easily encashed with locally available technologies. Now is the time for young managers to accept this challenge for mutual benefits.

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Opportunities for Agri-Business

Opportunities for Agri-Business In India

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Unemployment and Poverty

Indian economy is dependent on agro-based activities as about 65% of the population living in rural areas is dependent on agriculture for their livelihood. A majority of them spend over 90% of their earnings on basic needs such as food, fuel and health care. More than 50% of the rural families with an annual income below Rs. 11,000, are unable to meet even these essential needs. Thus, in a developing country like India, economic development should ensure prosperity among the rural people.

Industrial enterprises and modern technologies no doubt can generate additional employment in urban areas and pay a rich dividend to elite and rich investors. However, this may widen the economic gap between the urban and rural population as well as between the rich and poor, resulting in greater hardship to the poor. Rural development and improvement in agricultural production are essential not only to ensure social justice but also to maintain self-sufficiency in food supply. With our population expected to exceed 1.35 billion, the annual demand for food is anticipated to rise from the present level of 195 m tons to 250 m tons by 2025 A.D. As food security is a pre-requisite for economic progress, agro-based development programmes deserve priority.

Our National Resources

Although the food scarcity is a serious threat there is good scope to convert this crisis into a business opportunity. At present, most of our natural resources are under gross neglect. Out of the total geographical area of 329 million hectares (M ha), over 175 M ha are classified as degraded wastelands. These wastelands are not only lying idle but are also posing a serious threat to our agriculture and eco-system. Our forests are fast diminishing. As against the recommended 33% geographical area under forests, only 12% of the area is under tree cover. Deforestation continues unabated, as wood is used by over 80% of the rural families for cooking food and about 65% of it is collected free from forests and community lands. These large stretches of hilly terrain andneglected agricultural fields which are devoid of vegetal cover, cannot retain water. As a result about 75% of the rain water runs off from the field resulting in floods, soil erosion, silting of reservoirs and river beds.

Out of 147 M ha cultivable land in the country, only 44 M ha are under irrigation and the rest of the area is dependent on erratic rainfall for crop production. As agriculture in low rainfall regions is risky, farmers are hesitant to invest in external inputs to optimise their crop production and thereby incur low yields. Although water is a critical input for agriculture, most of the farmers are ignorant about its judicious use and flood their fields. As a result of excessive use of water, over 9 M ha fertile lands have turned into saline wastelands. Thus in spite of significant progress in agricultural research, the average yield of food crops in India is only 1.5 tons/ha as compared to the World average of 3 tons/ha and 4 tons/ha in China. Selection of appropriate technologies and timely investment in essential inputs and infrastructure such as improved seeds, nutrients, plant protection, post production and marketing outlets can increase the food production by 2-3 folds, while helping the farmers to obtain a better price for their produce.

Livestock is another critical natural resource with a tremendous potential to provide employment and income to rural people. India has the world’s largest livestock population. Out of 500 M heads, 204 M are cattle, representing about 17% of the global total. There are 84 million buffaloes representing 56% of the world population and about 200 M sheep and goats. Among the livestock, development of cattle for milk production can be a sustainable economic activity in rural areas. Cattle is maintained by all the sections of the society irrespective of their castes and income level and the demand for milk and dairy products will continue to increase during the next 20 years, till the annual production rises from the present level of 76 M tons to 130 M tons. The task is not difficult as the bulk of it is presently contributed by 5 M crossbred cows and about 10 M buffaloes, which represent only 15 20% of the milch animals. While the crossbred cows yield an average of 6.5-7.0 kg per day and buffaloes yield 4.0 kg/day, the remaining 85% indigenous cows yield an average of only 1 kg per day. The average milk yield of cattle in India is only 987 kg as compared to the world’s average of 2380 kg/lactation. With breed improvement, better feeding and health care, it is possible to improve the production of the existing cattle and substitute with high yielding stocks. Cattle development is an extremely attractive occupation as with only three crossbred cows, a poor family can earn an annual profit of Rs. 15,000-18000 and improve their quality of life.

It is unfortunate that with all the natural resources lying idle, the custodians of these assets are also unemployed. As agriculture alone in non-irrigated areas cannot provide year round employment, most of the farmers including the large land holders are under-employed for over 6-8 months during the year.

In such a situation, there is good scope for introduction of appropriate technologies to conserve these natural resources which in turn can provide sustainable livelihood to the local communities.

The developmental problems in rural areas are multi-dimensional. The major areas affecting agricultural production and rural prosperity are lack of resources, appropriate technologies, inadequate infrastructure, skilled personnel and lack of confidence among farmers. Being poor, most of the farmers are not able to procure critical inputs on time and thereby end up with low yields. Even after successful cultivation, farmers often face marketing problems arising of surplus production, lack of storage and marketing facilities. Thus the development programme should be promoted as an enterprise and the farmers should manage their farms as a business and not as a family tradition.

Agribusiness

Introduction of management principles to operate agribusiness on a pilot scale has paid rich dividends in the recent past. With such an approach, India can be the leader of the South countries. With plenty of labour, land and water resources along with tropical weather conditions, India can compete with other developed countries and capture the global market. With improved agricultural practices and water resources management, India can achieve food sufficiency by cultivating only 100 M ha and allotting the remaining 45 M ha for growing crops of commercial importance. These crops can be fruits, vegetables, flowers and medicinal plants having good export market. The surplus land can also be utilised to cultivate crops like maize and sugarcane and the...
produce can be diverted to industrial production of alcohol, a substitute for imported petroleum. Such industrial products having good demand can provide assured market and remunerative price to the growers. There is good scope to expand our agriculture in this direction.

Management Support

The agricultural development programme requires the following management support for enhancing its profitability:

Finance: Land development, irrigation systems and arrangements for marketing require huge investments. The present financial resources for agricultural development are neither adequate nor timely. Some of the activities such as water resource development and land shaping need soft loan. Additional finance with village level distribution network are needed for developing this industry.

Information Services: Information on new crops, technologies, systems and demand for the produce would help to optimise profits. The information services can also provide the latest know how and experiences with new varieties, new technologies, pest and disease outbreaks and their control.

Transfer of Technology: As a large section of the farmers are not adequately educated to make effective use of the technologies and information services, special efforts are needed to motivate and educate the backward farmers. This is expected to be carried out by the Agricultural Extension Officers. These field officers need to study the cost benefit analysis of various crops and help the farmers to select suitable crops. For effective transfer of technology, these officers and field workers should be oriented from time to time. To enhance profits through cost reduction and better price recovery, human resource development should be an important component of the agri-business. This should start with confidence building in small farmers.

Marketing Services: Inadequate marketing network is a major bottleneck in agriculture. The farmers should be oriented to make a swift forecast of the demand for various commodities and exploit the opportunities. There is good scope for setting up market outlets to reach the customers without involving too many middlemen. Business houses can establish a direct link with farmers’ organisations for procuring raw materials. Such agencies can support farmers with seeds of improved varieties, finance and other critical inputs for optimising their crop yield.

Management Personnel: A critical input for successful agri-business is dedicated personnel with managerial skills. The managers should be familiar with the local agricultural laws and socio-economic conditions of the region. The real challenge is to bring small farmers into the network of efficient producers, for ensuring their share in the success.

India has no doubt provided opportunities for multinationals to participate in industrial development with new technologies and resources. However, we cannot neglect agriculture and expect economic progress sans rural development. The opportunities in agri-business are enormous and can be easily encashed with locally available technologies. Now is the time for young managers to accept this challenge for mutual benefits.
Present Scenario and Future of Agribusiness in Pakistan

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Introduction

Agriculture constitutes the largest sector of Pakistan economy. Majority of population directly or indirectly depends on this sector. It contributes about 22 percent of Gross Domestic Product (GDP) and accounts for half of the employed labor force and is the largest source of foreign exchange earnings. It feeds whole rural and urban population. The impressive performance of Pakistan across the key commodities of cotton, rice and corn, all of which has grown with the export market in mind, compared with the relative underperformance of wheat and sugar, the production of which is largely absorbed by domestic consumption, suggests that agribusiness in the country does best when responding to international markets. However, in recent years, due to persistent hikes in the prices of essential commodities like pulses, onions, potatoes, chilies and tomatoes these crops have also gained economic importance.

During 2012-13, agriculture sector exhibited a growth of 3.3 percent on the back of nominal growth in agriculture related sub sectors, Crops grew at 3.2 percent, Livestock 3.7 percent, Forestry 0.1 percent and fishing 0.7 percent. The agriculture Subsector which included important crops, other crops, grew by 2.3 percent and 6.7 percent, cotton ginning declined by 2.9 percent. Important crops accounted for 25.2 percent of agricultural value added and has experienced a growth of 2.3 percent in fiscal year 2012-13 against growth of 7.4 percent in 2011-12. The lower growth in important crops is attributed to decline in production of rice and cotton by 10.0 percent and 4.2 percent, respectively. (SOURCE: PAKISTAN ECONOMY SURVEY 2012-13)

Other crops that contributed 12.3 percent value addition in agriculture witnessed a positive growth of 6.7 percent in 2012-13 against negative growth of 7.7 percent during the same period last year. The cotton ginning under new base 2005-06 has been included in agriculture value addition showed a negative growth of 2.9 percent in 2012-13 against the positive growth of 13.8 percent during the same period last year. The Livestock sector which has a 55.4 percent share in the agriculture grew by 3.7 percent in 2012-13. The Fishing sector grew by 0.7 percent as against last year’s positive growth of 3.8 percent. Forestry sector posted a nominal growth of 0.1 percent this year as compared to growth of 1.7 percent last year. (SOURCE: PAKISTAN ECONOMY SURVEY 2012-13)

Keeping in view the increasing demand of credit has provisionally set an indicative agriculture credit disbursement target of Rs 315.0 billion during 2012-13 as against Rs. 285.0 billion set last year. Out of which, Rs. 220.2 billion was allocated to Commercial Banks, Rs. 72.0 billion to Zarai Taraqiati Bank Limited (ZTBL), Rs. 13.8 billion to Microfinance Banks (MFBs), and Rs. 9.0 billion to Punjab Provincial Cooperative Bank Limited (PPCBL). During July-March, 2012-13, banks’ disbursement to the agriculture sector surged by 17 percent year-on-year basis i.e. Rs 231.0 billion or 73.0 percent of the target, Rs. 315.0 billion as compared to the disbursement of Rs 197.4 billion of last year. (SOURCE: PAKISTAN ECONOMY SURVEY 2012-13)

Area Wise Production of Important Crops in Pakistan

Following table shows that in comparison of 2010-11 production area is reducing or remain same but productivity is continuously increasing shows Pakistani farmer has slightly improved their productivity and lot can be done to improve per acre productivity. In 2013/14, it is expected that the Pakistani agriculture sector to reap record harvests for key crops such as rice, sugar and cotton. However, long-term growth in agricultural output will be constrained unless improvements are made in infrastructure and supply chains. I expect the dairy, poultry and wheat industries to be the biggest beneficiaries of increased investment in the agriculture sector.

Potential/Opportunities: Agribusiness in Pakistan

Pakistan is rich in agriculture, which makes this country the 4th largest milk producer, 5th largest producer of mango and 3rd largest producer of dates, and the country also has 3rd largest livestock in the world. By developing these areas and other related fields into a competitive and sustainable agribusiness sector, more employment opportunities could be generated which would help alleviate poverty in the nation. Karachi University Vice Chancellor Prof (Dr) Pizrada Qasim Raza, while addressing a seminar on “Agribusiness the key to future” organized by the department of agriculture and agribusiness management, said that Pakistan had great potential in agribusiness, “The country has a domestic market of 160 million people, a large untapped potential with great possibility of high-value addition and there is a growing global and domestic market for our products.” Following key points shows the potential of agribusiness in Pakistan:

• Large Domestic Market of 160 Million People.
• Strategic Location: Proximity to Regional Markets.
• Rising domestic income levels.
• Low Cost Human Capital.
• Vast Agriculture Resource Base.
• Largest Producer of Dates.
• 3rd Largest Producer of Mango.
• 5th Largest Producer of Milk.
• 3rd Largest Producer of Dates.
• Large untapped potential with high value addition possible.
• Large and growing global / domestic market for targeted high value sectors.

Key Forecasts for Agribusiness in Pakistan

Cotton Sector:

Industry Developments the tough regulatory and operational environment poses a serious threat to production growth in the cotton sector. The Pakistan Cotton Ginters Association (PCGA) has expressed concern about cultivators and giners, citing funding shortages and exploitation at the hands of textile millers. A four-year programme launched by the EU in Pakistan in April could help to solve some of the key issues in the sector.

Cotton production to 2015/16: 45.5% to 12.8mn bales, increased demand from Europe and emerging markets will drive the output.
Author also expects an increase in domestic farmers switching from rice and sugar to cotton cultivation.

**Sugar Sector:**

The Trading Corporation of Pakistan in April procured 478,000 tonnes of surplus sugar following a request from Pakistani sugar millers to allow a surplus 500,000 tonnes for export. The millers requested the sugar in order to pay debts of PKR250bn (US$2.75bn). Sugar production to 2015/16: 22.1% to 4.8mn tonnes. Large-scale consumers such as confectioners, candy makers and soft drink manufacturers account for about 60% of the total sugar demand and will be the main drivers of growth. Sugar consumption growth to 2017: 14.3% to 5.0 mn tonnes. Demand, boosted by growth in population and incomes, will fall just short of supply until 2017.

**Rice Sector:**

Rice production to 2015/16: 50.4% to 7.3mn tonnes. Growth will be primarily led by increased exports as the country expands trade with new partners. It is expected that basmati rice to take up a greater share of the trade as production increases.

**Wheat Sector:**

The government in Pakistan is aiming to procure 7.73mn tonnes of wheat - worth PKR210 (US$2.3bn) - from farmers through loan guarantees. In light of the fact that farmers have typically been unable to sell their grain at the support prices announced by the government, the government has revealed that the current procurement will be carried out at a higher rate of PKR1,050 (US$292) per tonne. Meanwhile, Pakistan is in talks with Iran about the possibility of importing iron ore and fertilizers in exchange for wheat exports.

**Economy:**

- 2012 real GDP growth: 2.2%. Down from 2.4% year-on-year (y-o-y) in 2011; forecast to average 3.7% over 2012-2016.
- Wholesale price inflation: 17.4% average in 2012 (down from 21.1% in 2011). BMI universe agribusiness market value: 2.5% y-o-y decline to US$42.6bn in 2011/12, forecast to average US$44.2bn between 2011/12 and 2015/16.
- Consumer price inflation: 7.4% average in 2013 (down from 11% in 2012).
- BMI universe agribusiness market value: US$42.2 bn in 2013 (down from US$43.3bn in 2012; forecast to grow annually by 1.2% on average to 2017).

Major constraints faced by agribusiness in Pakistan:

- Lack of a guiding national policy
- Limited access to finance
- Limited capacity for agribusiness start-up
- Weak public-private partnerships/institutional capacity
- Poor inter-agency coordination
- Absence of demand driven agriculture research and extension.

**Conclusion**

The future of Agribusiness in Pakistan is very promising. Investment in this side is not only secure but also give rise to huge profitability. The growing population of the world which is expected to reach 9 billion by 2050, migration towards urban living centers and more resource-intensive diets in developing countries, climate-change that increases volatility in production and agriculture, escalating demand for bio-fuels, and growing concern for the sustainability of high-intensity production models are the few challenges for agribusiness industry. In order to meet the 21st Century agriculture requirement, Pakistan need to change their crop varieties, with high yielding, drought and salt resistant with better nutritional value and having a better shelf life. They also need special training and universities of agriculture also need to be changing their syllabus according to the new agriculture requirement of the country. Replacement of field crop with horticulture crop for export, Precession land leveling to save water, Strong horticulture organization, Training people in horticulture science in USA, Australia and South Africa; Building strong post harvest technologies for export; Post harvest transport facilities in land and by Sea Educating farmers in new technologies; Involvement of private sector in agriculture, education, extension and research; Immediate replacement of horticulture varieties of food and vegetables and Development of floriculture and horticulture are some of the key issues must be addressed by Pakistan policy makers to provides huge opportunities in agribusiness.
Agribusiness Scenario of Thailand

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Introduction

Thailand is one of the biggest agriculture reliance countries. Thai agriculture has been at a crossroads for about a decade. The country is able to stay competitive in the world due to its comparative advantage of utilizing its great landscape and weather which provide great nourishment. The agriculture alone contributed roughly 1.26 trillion baht to its country GDP. However due to the several changes in the world climate and rising of temperature, Thailand has struggled to survive this ordeal. With some 20.4 million hectares (50.4 million acres) of farmland, of which about 10 million hectares (24.7 million acres) are under rice cultivation, Thailand continues to rely heavily on agriculture, although the country has suffered from declining export prices in recent years.

Agribusiness of Thai cannot rely on the two primary factors that supported its growth in the past—surplus land and stable markets abroad. These factors and market constraints have led policy makers to advocate a larger role for agribusiness in agricultural development. A perception has emerged that Thailand is losing its comparative advantage in staple food crops and that future success in agriculture will depend on the ability of private firms to create more value added and innovate technologies.

Climatic and soil conditions permit the cultivation of a wide range of crops, not only tropical varieties but also many originating in semitropical and temperate zones. The agriculture in Thailand is highly competitive, diversified and specialized and its exports are very successful internationally. Rice is the country’s most important crop; Thailand is a major exporter in the world rice market. It has the fifth-largest amount of land under rice cultivation in the world and is the world’s second largest exporter of rice. Rice production in Thailand represents a significant portion of the Thai economy and labor force.

Thailand has plans to further increase its land available for rice production, with a goal of adding 500,000 hectares to its already 9.2 million hectares of rice-growing areas. The Thai Ministry of Agriculture expects rice production to yield around 30 million tons of rice for 2008. The most produced strain of rice in Thailand is jasmine rice, which is a higher quality type of rice. However, jasmine has a significantly lower yield rate than other types of rice, but it also normally fetches more than double the price of other strains in a global market.

Other agricultural commodities produced in significant amounts include fish and fishery products, tapioca, rubber, grain, and sugar. Exports of industrially processed foods such as canned tuna, pineapples, and frozen shrimp are on the rise. The northern Thailand is home to Black Ivory coffee.

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New strategies to improve agribusiness

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A new set of agricultural strategies for 2012-2016, focus on creating confidence in Thai agricultural products and food in order to strengthen the country’s farm sector on a sustainable basis. The Ministry will work in partnership with international organizations for research and development, as well as technology transfer.

New domestic and export markets - the engine of growth

Diversification and specialization among farmers have been possible in part because of the emergence of higher-value markets alongside the country’s economic growth. Technically innovative so-called ‘professional farmers’ represented 19.5% of Thai farmers in 2012. Supermarkets led the development of higher food standards, offering a price premium for contracted producers. The government facilitated the emergence of contract farming schemes by supporting interaction between smallholders and with private companies which supplied inputs and purchased products. Commercialized farming also looks for opportunities to trade on international markets. Thailand, a founder member of the Cairns Group, has been an active member of the G20 in pushing for more liberalized global trading rules. The country has negotiated, or is negotiating, a dozen bilateral Free Trade Agreements.

According to the policies, the Government will expand the role of agricultural and food businesses, which have long been Thailand’s national income and employment sources. The key objective is to develop Thailand as a center for food trade and food production of high quality in order to meet the demand of consumers with high income and unique preferences. Moreover, the Government will strive to develop Thailand to be the center of futures markets for such agricultural commodities as rice, sugar, and tapioca. The move will help accelerate the country’s ambitious project to turn Thailand into the “Kitchen of the World.”

Thailand will maintain its status as a key Asian agricultural provider in the coming years, as the sector benefits from strong export opportunities and government support as well as an efficient food-producing industry. The sugar and livestock sectors are especially promising; however, the government’s interference in the market, especially in the rice sector, will hinder the competitiveness of Thailand’s production relative to its Asian rivals. Although rice farmers will directly gain from the rice guarantee buy-back program, we are uncertain about the long-term effectiveness of these policies in enhancing Thailand’s food-producing efficiency and in boosting the country’s export competitiveness. Thailand will remain a key rice exporter but may lose out to secondary exporters owing to growing instability in its trade policy.

The Policy Agenda: Technological and Institutional Innovation

Agribusiness invites the public sector to fall back on practices it used during the first wave while turning second wave responsibilities over to private firms. That approach is inappropriate for facing up to the challenges that now confront
Thai agriculture. Development theory identifies technological and institutional innovations as the keys to sustaining comparative advantage. Institutional innovations involve both economic and political institutions.

Economic institutions refer to the rules of an economy which organize product inputs, product exchange, and product upgrading. They include property rights, product distribution networks, the mode of technological innovation (such as public research and patenting), the modern firm, credit institutions, and capital markets. Political institutions include the legal system, the bureaucracy, and the system of law enforcement. Agricultural development is a process whereby institutions undergo substantial innovation and change.

**CONCLUSIONS**

Agribusiness is not a panacea for innovation, it is a partner in what should be a transparent, public-private alliance which should include independent farmers as well. In second wave commodities, officials need to scrutinize which commodities will afford an "appropriate" role of agribusiness, based on the externalities thus generated and on the economic and political costs of third-party enforcement. While in very simple terms there can be a line drawn between open-pollinated and hybrid crops, that line is becoming increasingly fuzzy. It is likely that research programs will involve extensive cooperation among firms, public agencies, and other research institutions, including universities. The fragmentation of the public research apparatus, however, has thus far worked to discourage public-private collaboration.

In the face of factor and market constraints, institutional innovations in areas such as property rights, credit, price supports, risk-bearing (insurance), and the overall regulatory framework would provide incentives for firms and independent farmers to cope. But the public sector must get its own house in order to face these tasks. The promotion of agribusiness alone will not do the job. Institutional reform in the public sector should top the list of priorities for the overall promotion of institutional change in agriculture over the coming decade. For agribusiness to become a functional partner for both farmers and the state, it must have an effective, coherent, and competent state with which it can coordinate its contribution to agricultural development. Otherwise promotion of agribusiness could lead to inappropriate roles and negative outcomes for both the government and private firms.
Meat is the major live stock produce of South Africa and hence forms the major agribusiness of our country. Up to the mid-1990s our meat production and consumption was dominated by beef. Despite this, growth in beef production has been decidedly sluggish over the past few decades. This past decade, there has been some improvement after the large fall in production following the end of Apartheid. Despite this, current production levels are fairly similar to the levels seen in much of the 1980s. The South Africa has the potential to increase beef production. South Africa has large expanses of grazing land suitable for beef cattle production. About 54% of the country is classed as suitable for grazing. At present, production usually falls short of meeting domestic demand. As per capita incomes rise over the coming decade, we expect demand for beef to grow. If the country has to become self sufficient, the efficiency of domestic production needs to be improved.

The poultry sector has been far more dynamic over the past decade. The poultry production expanded by almost 75% from 1999 to 2009. Growth in demand was even faster. Consumption grew 85% over the period. The rise in production has been driven by the high demand for meat. Poultry is more affordable than other meats for millions of low-income consumers in South Africa. Broiler production is dominated by large, vertically integrated producers. The two largest producers, Rainbow Foods and Astral Foods control more than 50% of the market. As the two companies' smaller competitors aim to increase their scale to be able to compete, we expect to see further consolidation in the years ahead.

In the crop sector, production of important food grain corn, is set to rise owing to an increase in the area planted. Wheat production, however, is set to fall once again. Wheat production is extremely dependent on the levels of duty applied to wheat and flour imports by the government. In the past, when duty has been removed, producers have often struggled to compete with imports from major producers such as the US. As prices were rising in the lead up to the 'food crisis' of 2008, the government removed import tariffs on wheat. Now that world prices have fallen, South African farmers are again struggling to make a profit from the grain. Improvements in yield should see domestic producers better able to compete with imported grain, though we still do not see any major gains in production while tariffs are kept low.
Scenario of Agribusiness in Israel

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Introduction

Israel’s agriculture is a combination of sophisticated, applied science, rugged determination and government support which has helped Israel's farmers to modernize.

By the year 2020 Israel's population is expected to grow by about a third, to 8.5 million. This will cause huge increases in demand for agricultural produce and products; but urban use of land and water will also increase enormously. Part of the higher demand - notably for field crops (such as cereals, oilseeds and sugar) and for milk products, fish and beef - will have to be met by imported increases. Nevertheless a substantial part of the additional requirements will have to come from increased domestic production. Sweeping changes - like a 33% increase in the labor force and a reduction in irrigated field crops, such as cotton - will be required to make water available for growing fruit and vegetables for the local market.

Today, Israel agriculture represents a mere 2.4 percent of the Gross Domestic Product and four percent of exports, compared to 30.3 percent of exports during the 1960s - the heyday of the famous Jaffa orange. Nevertheless, despite the decline in its importance relative to other economic branches, agriculture has grown in absolute terms and played an important part in Israel's economy for over five decades. Agricultural output in 2000 was worth about $3.3 billion, of which 20 percent was exported. Agriculture is of major importance in certain areas, such as the Arava and the Jordan Valley, it provides almost the sole means of livelihood for the population. In 2000, approximately 72,000 people were involved in farming, constituting about 1.7 percent of the country's workforce.

In monetary terms, Israel produces almost 70 percent of its food requirements. It imports sugar, coffee and cocoa and much of its grains, oilseeds, meat and fish. However, these imports are partially offset by exports of fresh agricultural produce and processed foods valued at $800m. Today, 20% income of Israel's farmers comes from the export of fresh produce, including such products as flowers, avocados, vegetables that are out of season elsewhere, and certain exotic fruits grown exclusively for export. In addition, some 442,000 tons of fruit and vegetables - 16 percent of the entire crop - sold to factories for processing and export in 2000.

Since Israel attained its independence in 1948, the total area under cultivation has increased from 165,000 ha. to some 420,000 ha., and the number of agricultural communities has grown from 400 to 900 (including 136 Arab villages). During the same period, agricultural production has grown sevenfold, keeping ahead of the population, which grew by a factor of six. Israel's varied climatic, topographical and soil conditions (from sub-tropical to arid, from 400 meters below sea level to 1000 meters above and from sand dunes to heavy alluvial soils) made it possible to grow a wide range of agricultural produce. The success of the country's agriculture stems from the determination and ingenuity of farmers and scientists who have dedicated themselves to developing a flourishing agriculture in a country which is more than half desert, thus demonstrating that the real value of land is a function of how it is used.

Research and Development

The agricultural production continued to grow despite severe water and land limitations as a result of a unique Israeli phenomenon: the close and ongoing cooperation between researchers, extension workers, farmers and agriculture-related services and industries. Continuous, application-oriented research and development (R&D) has been carried out in the country since the beginning of the last century. The agricultural sector today is based almost entirely on science-linked technology, with government agencies, academic institutions, industry and cooperative bodies working together to seek solutions and meet new challenges.

The Ministry of Agriculture's research body, the Agricultural Research Organization (ARO), is the primary driving force behind Israel's internationally-acclaimed agricultural achievements. The drive to achieve maximum yields and crop quality has led to new plant varieties, to breeding of improved animal species and to a wide range of innovations in irrigation and fertigation, machinery, automation, chemicals, cultivation and harvesting. The telecommunications revolution of the late 1990s also made its mark on farming methods in some sectors, with more and more farmers employing mobile phones, the Internet and computer-guided farm supervision as basic working and marketing tools. Their agricultural methods were astonishingly sophisticated. By building terraces and clearing the soil of stones, every drop of runoff water was collected and then diverted to the lower-lying fields and orchards.

Over the past 25 years agricultural output has increased sevenfold (source: Statistical Abstract of Israel, 2001) with hardly any increase in the amount of water used. This reflects technological advances of different types - water efficiency (up by more than 30%) and crops with higher yields and market value. To reduce water consumption for agriculture, advanced water-saving techniques were applied, notably the drip system, which directs the water flow straight to the root zone of plants. In addition, computerized irrigation systems were introduced and climate-controlled greenhouse agriculture was significantly expanded.

Israeli engineers and agriculturalists created the revolutionary drip system, which has reduced water consumption by 50-70% compared with gravity irrigation, and by 10-20% compared to sprinkler irrigation. Recently growers have been introducing the first generation of ultra-low application rate (minute irrigation) drip emitters for soil-less media in greenhouses, emitters with 100-200 cc/h flow rates. Considered even more advanced than the drip system, they create optimal air-water relationships in the plants' root zones and, being more efficient, save yet more water.

The future direction and success of Israeli farming, too, will depend on water availability: in particular, the ability to even further minimise water use, and in general to use more saline and/or recycled wastewater and less potable water.

Mechanization and Agro-technology

Development of know-how and technology has been both a cause and effect of the country's farming prowess. In fact, exports of agricultural inputs in 2000, including chemicals and fertilizers, were almost double those of exports of agricultural produce. Automated milking and dairy herd management systems, egg-collecting equipment, computerized feeding systems and production-recording computers have been introduced, as well as...
machinery for the grading, packing, control during refrigeration and transporting of produce.

The Ministry of Agriculture supports and supervises the activities of the country's agricultural sector, including R&D, maintenance of high standards. Most of Israel's agriculture is organized on cooperative principles, which evolved in the country during the first decades of the 20th century. Motivated by both ideology and circumstances, the early pioneers set up two unique forms of agricultural settlements: the kibbutz, a collective community in which the means of production are communally owned and income is equally distributed; and the moshav, a co-operative village where each family maintains its own household and works its own land, while purchasing and marketing are conducted cooperatively. In recent years both systems have undergone vast ideological and structural changes, though they still account for the lion's share of productive crop-growing area. For example, in 1999 they accounted for three quarters of the total area producing crops.

Aquaculture

Israel imports about two-thirds of the fish it consumes. Demand is steadily rising: from 11.7 kilograms per capita in 1994 to 13.4 kgs. in 2000, a 13 percent increase. Growing demand - both local and worldwide - is prompting Israel to step up fish production, especially in the arid southern part of the country, where brackish geothermal water can be used. The 1990s saw the introduction of mariculture, a development that enabled a 25 percent increase in domestic breeding in the final decade of the 20th century.

Floriculture

Flowers are Israel's leading agricultural export (29 percent). Individual farms average less than a hectare and together occupy less than 2 percent of crop-producing land. These units are small by international standards and have hitherto been highly profitable. The expertise of the farmers, backed by private and government research and development and field service supervision, contributes to the high quality and wide variety of flowers (over 100). These include cut flowers such as roses, gypsophila, carnations, solidago, limonium, gerbera, anemone, and ornamental plants.

Today, some of the more innovative growers are connected on-line with the auctions and follow transactions in real time. Some are selling their flowers directly to buyers in the flower auctions of the Netherlands, Belgium, Germany and elsewhere. Nevertheless, marketing as well as shipping are handled by a new private company - Aviv - and by the long-established joint government-growers export company Agrexco, which has special air and sea terminals in Israel and Europe and ensures quality and timely arrival at the markets. The Flower Production and Marketing Board provides each grower with daily results of sales.

A combination of sophisticated, applied science, rugged determination and government support have helped Israel's farmers to modernize and adapt to changing geopolitical, market and climatic conditions, giving them a strong base from which to proceed in the coming decades.

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Scenario of Agribusiness …………

R. T. Patil
Introduction

Australia is a developed country and one of the wealthiest in the world, with the world’s 12th-largest economy. The Australian agribusiness sector is ideally placed to meet increasing worldwide demand for farm products and services. As global challenges such as population growth, changing consumption patterns, climate change, food security and the need to improve farm productivity become increasingly urgent, Australia offers best practical solutions in agricultural research, consulting, technology and equipment.

Agribusiness is a high-tech commercial sector centered on the business side of farming, and is now attracting more corporate interest than at any stage in its long history. It covers businesses operating as meat and grain processors; fiber, textile and food manufacturers; and agricultural machinery sellers, through to all different types of farming. Over the five years through 2013-14, sector revenue is expected to grow at a compound annual rate of 3.2% to $206.9 billion. Australian agriculture produces three per cent of gross domestic product (GDP), but it is the post farm-gate agribusiness sector that has grown exponentially in recent years. It also encompasses aspects such as agricultural fertilizers, chemicals and pesticides, agricultural machinery and value-added processing of agricultural products, domestic and export market distribution.

Agricultural Industry in Australia

As a fundamental component of the Australian economy, the agricultural sector contributes about $50 billion to GDP. The value-adding that happens after the food leaves the farm means the food processing and agricultural product sectors account for 12 percent of GDP. The industry exports around 60% of farm products grown and produced, delivering about $33 billion in exports for the Australian economy. Australia’s leading agricultural commodities, covering Beef, Cotton, Dairy, Dried Fruits, Grains, Rice, Sheep Meat, Sugar and Wool.

Australia is rich in natural resources and has a strong history of primary industrial development. Its varied climate has fostered the development of a wide range of agricultural technology and equipment to help farmers make the most of an often harsh environment.

Exports of Agri Products

Agriculture is an important part of the Australian economy. The agricultural industry has increasingly become export-oriented, with each Australian farmer producing enough food to feed 600 people; 150 at home and 450 overseas. These farmers produce almost 93% of Australia’s daily domestic food supply. Australia is a competitive net agricultural exporter, with around two thirds of total production exported. In 2011-12 agricultural exports accounted for 13.8 per cent of Australian merchandise exports. In 2011 Australia accounted for 2.1 per cent of all global exports of agriculture, fisheries, forestry, and rubber.

Role of Agriculture in Sustainability

Social: There are approximately 134,000 farm businesses in Australia, 99 percent of which are family owned and operated. Each Australian farmer produces enough food to feed 600 people, 150 at home and 450 overseas. Australian farmers produce almost 93 percent of Australia’s daily domestic food supply. As of now, there are about 3,20,000 people employed in Australian agriculture. The complete agricultural supply chain, including the affiliated food and fiber industries, provides over 1.6 million jobs to the Australian economy.

Economics: The agricultural sector contributes 3 percent to Australia’s total gross domestic product (GDP). The gross value of Australian farm production in 2010-11 was $48.7 billion. Yet this is only part of the picture. When the vital value-adding processes that food and fiber go through once they leave the farm are added in, along with the value of all the economic activities supporting farm production through farm inputs, agriculture’s contribution to the GDP averages out at around 12 percent (or $155 billion). Australian farmers export around 60 percent of what they grow and produce. Australia’s farm exports earned the country $32.5 billion in 2010-11, which is growing at a faster pace. While the wider agriculture, fisheries and forestry sectors earn the country $36.2 billion in exports. The value of our farm exports, and indeed the future of Australian agriculture, depends largely on conditions in overseas markets, due to our high level of exports.

The growth in the farm sector has increased steadily over the 30 years at an average rate of 2.8 percent, consistently out-performing other sectors. In more recent times, agricultural productivity growth has slowed to 1 percent per annum, illustrating the need for an increased spend on research and development to ensure the industry can meet the food and fiber needs of the growing world population.

Environmental: Australian farmers are environmental stewards, owning, managing and caring for 61 percent of Australia’s land mass. Farmers are at the forefront of delivering environmental outcomes on behalf of the Australian community, with 94 percent of Australian farmers actively undertaking natural resource management.

Employment

The agriculture sector is an important source of employment in regional and rural Australia. The number of people employed in the Agriculture and Services to the agriculture industries increased marginally in 2007 to a yearly average of 334,000 persons. A 15% reduction in the work force in 2003 was largely the result of the drought experienced over most of Australia in that year which severely affected the agriculture sector. Since then, much of Australia has barely been out of drought, with employment in the agriculture sector averaging 338,000 people over the last five years - still 18% less than those employed in 2002. The majority of people employed in agriculture in 2007 were men (68%). There has been growth in the percent of the employment year by year.

Conclusion

Australia being a developed economy is not much dependant on Agriculture as a sector. Since its contribution to its GDP is also not that significant but Australian Govt has recognized its Future potential in terms of Job employment, Higher Productivity and availability of scientific methods to improve the productivity and yield. It is taking almost each and every step to enhance the spectrum of Agri- Business. Its focus on production of quality products is a well conceived strategy to counter the lower price developing economies of the world.
Contemporary Trends of Agriculture Sector of Brazil

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“FAO estimates that US $ 30 billion per year is needed in investment in agriculture and food safety to eradicate world hunger.” Jose Graziano.

Introduction

The presence of agriculture is thousands of years old in the World. Agriculture is the cultivation of plants, animals and other kinds of food, drugs, fiber & other products used to enrich the life of a human being. As far as the presence & growth of agriculture in Latin American region are concerned, the countries like Brazil and Argentina have a dominant role to play. The Latin American region contributes about 10% of the value of world food production and represents 22% of the world’s arable land. In Brazil, agriculture accounts for 8% of the GDP of the country and employs about 1/4th of the total labour.

Brazilian agriculture has been growing at a very fast pace these last few years. In the first decade of this century, grain production growth reached 61%, from 92 million tons in the 2000/2001 to 162 million in the 2010/2011 harvest. This increase reflects the increase in cultivated area as well as the gains in productivity, which rose by 34% in the period due to high investments in research for new cultivars which are more productive.

Based upon these facts and development given above, an effective and substantial distribution channel structure has to be built so that all these agricultural inputs properly reach to end-users through a middleman.

In a wide country such as Brazil which has 5560 counties accommodating 7 million rural producers. Currently, to supply this target market, it is estimated that there are about 9,000 points of sale that move around $30 billion in the commercialization of agriculture inputs and products that supply Brazilian.

“What do soccer stars and Soybeans have in common?”

The answer lies in “Brazil is incredibly good at producing and exporting both.”

Distribution of Inputs in Brazil

The following figures 1 & 2 show the input distribution system that works in Brazil. It shows the analysis how this chain works from industry up to the rural producers:

Key facts of the agriculture of Brazil:
1. Brazil is the largest producer of Sugarcane and Coffee in the World. It harvests more than 600 million metric tons of sugar cane every year.
2. It is a net exporter of cocoa, soybeans, orange juice, tobacco, forest products and other tropical fruits and nuts.
3. 60% of the agricultural production is from field crops and 40% is from livestock.
4. Brazil is the biggest exporter of coffee, soya beans, beef, sugar cane, ethanol and frozen chickens.
5. Emissions of greenhouse gases of Brazil are mainly due to the result of agriculture development & deforestation which accounts for 75% of the total.
6. Brazil is the World’s top exporter of poultry also.
7. An increase in incomes in developing countries: besides China and India, the increase in purchasing power of the Brazilian population (34% over the past five years) has raised the country’s per capita consumption of beef to 38kg/inhab/year, on par with levels in the United States.

Key Forecasts about Agriculture of Brazil
1. Soybean production growth in 2016/17 by 31.4% that is to 87.4mn tonnes. This will be due to more area is shifted from corn to soy in the coming years.
2. Sugar production growth in 2016/17 by 16.8% to 43.1mn tones, because replanting has been slower than initially expected.
3. Coffee consumption growth in 2016/17 by 11.5% to 22.3mn bags. Coffee consumers in emerging markets that do not have a strong coffee culture are often very price-sensitive, which will drive demand for the cheaper robusta given its lower production.
costs.

4. Poultry consumption growth in 2016 by 22.3% to 11.6mn tonnes. This will come from production process improvements and strong gains in feed crops such as corn and soybean, making the input more affordable. Domestic and export demand will also serve as key drivers over the medium term.

**Conclusion**

In order to fulfil its objectives in the agriculture sector, Brazil will need to make investments in infrastructure and logistics, as well as in the development of new corridors and routes for exports. (Two ports, Santos and Paranaguá, currently account for 60% of all Brazilian agribusiness shipments.). Needed reforms include enhancing the agricultural insurance system, to stimulate competition and to wean producers from their dependency on federal Subsidies, and giving priority to commercial agreements with key markets, such as Mercosur and the European Union.

This highly challenging scenario of Brazil for the world presents itself as an opportunity for Brazilian agribusiness and for the country’s economy. If the necessary adjustments in public policy priorities are made, such as those mentioned in the previous paragraph, it will be possible to broaden the strategic role played by Brazil as one of the most important and competitive suppliers of food for the world.

Overall, it is believed that there is great potential for growth in Brazil's soybean, livestock/dairy and coffee segments. This is because of a shift in food consumption growth towards Asia for these items, while demand growth from traditional buyers will be subdued. More cautiousness about the sugar cane sector as a whole, as mills are suffering from low profitability linked to low global sugar prices and heavy debt burdens. Only the ethanol industry will encourage cane production growth, but it is still unclear if the government will continue to see biofuels as a priority in its energy mix. In the short term, it is highlighted that downside risks to the coming soybean harvests, especially as infrastructure bottlenecks could limit export potential in the coming years.
Agribusiness Scenario in European Union

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Introduction

The EU has 500 million consumers and they all need a reliable supply of healthy and nutritious food at an affordable price. Agriculture is not just about food and fiber. It is about rural communities and the people who live in them. It is about their countryside and its precious natural resources. In all EU Member States, many jobs are related to agriculture. Farmers need machinery, buildings, fuel, fertilizers and health care for their animals. Many people have jobs in these ‘upstream’ sectors. Other people are busy in ‘downstream’ operations – such as cooking, processing and packaging food. Still others are involved in food storage, transport and retailing. All in all, farming and food production are essential components of our economy and society. In its 27 Member States, the EU has some 14 million farmers with a further 4 million people working in the food sector. The farming and food sectors together provide 7% of all jobs and generate 6% of European gross domestic product.

The evolution of competitive agribusinesses and agro-industries has been recognized as essential for creating employment and income opportunities as well as for enhancing the demand for farm products. Agro-industry and rural enterprise development has the potential to provide employment for the rural poor in the strain of off-farm activities such as handling, packaging, processing, transporting and marketing of food and agricultural produce. Unfortunately, there are also risks and tradeoffs in agro-industrial development, often affecting the most vulnerable countries and people. It is important therefore to build on the experiences of countries that have developed competitive agro-industries in order to improve the understanding of trends and contribute to the formulation of sound policies and strategies for fostering agro-industries and rural initiatives.

Agriculture in the European Union: Statistical and economic information

Roughly half the EU’s land is farmed. The 2011 agricultural year in the EU was characterized by a 3.7% increase in the real agricultural (factor) income. This is the second year of income increase (+10% in 2010), following a sharp reduction in 2009 (-13%). The rise in 2011 was the outcome of increases in both the volume of the agricultural output (1.4%) and prices (5.7%) in the agricultural sector.

Crop Production: In 2011, the real value of EU crop production is estimated to have increased by 7.5% due to higher prices (5.7%) and volumes (1.7%). Prices rose for most crops markedly for cereals (18.3%), oilseeds (15.1%), forage plants (12.8%) and protein crops (11.6%) with the exception of fresh vegetables (-9.7%), olive oil (-1.4%) and flowers (-1.2%). Most products recorded higher volumes, in particular sugar beet (11%), wine, potatoes and fruits while lower volumes were recorded for protein crops (-16.3%), olives (-4.8%) and plants and flowers (-2.1%).

Animal Output: The increase in animal output value by 7.7% reflects a rise in both, producer prices (6.6%) and volume (1%). Prices increased in milk (9.2%), poultry (8.5%), cattle (8%), equines (7.2%), sheep and goats (5.2%) and pigs (4.4%) but decreased for eggs (-4.7%). Higher volumes were registered for most products except equines (-2.9%) and eggs (-1%).

Agricultural Income

Agricultural input costs (in real terms) showed an increase of 9.2% mainly due to higher prices (9.2%) on a slightly higher volume (0.5%). The rise in input prices was mainly driven by higher prices for feeding stuffs (16.9%), fertilizers (14.7%) and energy/lubricants (+11.9%). Mulling over the output and input price developments, the estimates depict a remarkable growth in the agricultural income per annual labor unit of 6.5% in real terms as compared to 2010 in the EU. Even so, the actual scope of land varies from -22.5% in Belgium to +43.7% in Romania.

General Economic Situation

The worldwide economic situation reflects a continued albeit moderate recovery in 2011. Total Gross Domestic Product grew by 1.6% in 2011 in the EU and by 3% at world level. The overall rate of recovery remains gradual and uneven among the EU countries; the Baltic States recorded the highest GDP growth rates (Estonia 8%, Lithuania 6.1% and Latvia 4.5%) followed by Poland and Sweden (each by 4%) while Greece and Portugal, confronted with drastic fiscal austerity and high unemployment rates, registered negative growth of -5.5% and -1.9% respectively. The outlook for 2012 looks less favorable with GDP growth at 0.6% in the EU and 2.7% at global level.

Overall consumer price inflation in 2011 is estimated at 3.1%, while food price inflation would stay at 3.2%. The Euro appreciated against the Dollar until August 2011 when it reached 1.43 S/€. The following months were characterized by depreciation of the exchange rate, standing at 1.312 S/€ at the end of 2011.

Trade Data: The 2011 provisional data show an exceptional year for the EU trade: the EU recorded an agricultural trade surplus (around € 7 billion), for the second year in a row. Estimated EU agricultural exports in value terms would reach around € 105 billion (+16% compared to 2010) of which 64% are processed final products. The increase in export value was particularly marked for “Spirits and liqueurs” and “Wine and vermout”(each by +20% to reach more than € 8 billion), and “Cereal preparations” (+17% reaching € 6.6 billion). “Wheat (grains)” accounting for about half of exported goods, increased by 11% and reached over € 4 billion in 2011. These products represented around 26% of all agricultural exports. The US remained the primary destination for EU agricultural products with a value of € 14.6 billion (+8% compared to 2010). Exports to Russia continued their recovery also in 2011 (+14%), going above € 10.5 billion. Switzerland maintained a position as the EU’s third main destination of agricultural exports with a value of over 6.5 billion Euros (+7%).

The value of the estimated 2011 EU agricultural imports would increase to € 98 billion (+16% compared to 2010). As in the case of exports, processed final products represented the highest share in agricultural imports (51%). Tropical products were the most significant EU imports: “Fruits and Spices” and “Coffee, Tea and Mate” imports reached together a value of over € 18 billion. Oilcake imports were over € 7 billion and the category “Other animal or vegetable oils” stood at about € 8 billion. The above mentioned product groups combined represented almost 35% of all EU...
agricultural imports. In 2011 EU imports from Brazil, the main EU partner accounting for 14% of total agricultural imports, were higher than one year ago (it reached almost €14 billion) and imports from the US increased from €7.4 billion in 2010 to over €8.2 billion in 2011 (+12%). For the EU third main supplier, Argentina, EU imports increased to €6.3 billion.

Other important facts relating to agriculture in EU’s are as follows:

• 40% of the EU’s land area being farmed (Eurostat 2010).
• Agriculture has a very important impact on the natural environment.
• The food and beverage industry is representing 13% of EU manufacturing sector turnover (CIAA 2010, data 2007).
• The EU is the world’s biggest food and drink exporter with a share of EU exports to world markets by 17.5% in 2008 (CIAA 2010).
• The share of Agri-food logistics in the EU road transport is approximately 20% (Eurostat/TLN 2008, data 2007).
• 11% share of agriculture-related products in total export value of EU countries in 2009 (Eurostat Comext trade data / Eurostat).

The favorable climate, fertile soils and the technical accomplishments of its farmers, Europe is one of the world’s most significant producers of agricultural products. The volume, diversity and quality of its products make the EU a major exporter. In fact, the EU is the leading exporter of agricultural products (mostly processed and high value-added products). At the global level, food production will have to double in order to feed 9 billion people – the estimated world population in 2050. Apart from all this European Union is the world’s largest importer of foodstuffs – by a large margin. Through its overseas development policy, the EU helps developing countries to sell their agricultural products in the EU. It does this by giving preferential access to its market. Each year, the EU typically imports close to €60 billion worth of agricultural products from developing countries. This is more than the other five major importers combined (the US, Japan, Canada, Australia and New Zealand).
Agri Business Scenario in Russia

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Introduction

Russia as a nation has to its credit one of the biggest spread of the geographic land and possesses 9% of the world’s total agricultural land but the domestic market of the country for agricultural land is still undeveloped with the vast share still owned by the state.

The Russian economy is currently labeled as a developing one by the International Monetary Fund and the World Bank. It is the sixth/fifth largest economy by the purchasing power parity (PPP). The country has abundant natural resources like timber, metals, and fossil fuels like oil, natural gas, and coal. Taking in to consideration the agricultural aspect of this nation agricultural production accounts for only 7% of Russia’s GDP and employs around 12% of the labor force. Russia has been a dominant player role in global agricultural market but its situation has seen many ups and downs over the years. Statistics reveal that it has been the one of the largest grain producers in the world when it stood as USSR and even now. The northern part of the country mainly focuses on livestock, whereas the southern part and western Siberia produce grain.

After the breakup of the Soviet Union, Russian agriculture showed signs of improvement due to technological advancements. The agricultural crops in Russia include grains, sunflower seeds, sugar beet, potato and vegetables. However, the agriculture in the region faces important challenges. The productivity remains low as compared to other developed economies. The investment in rural areas is not business-friendly; finance is difficult to access, the quality of infrastructure is poor, and the market institutions are not well developed.

The agricultural set up in Russia

It can be summarized to some extent as follows:

1) Slow pace of growth: Russia’s agriculture has experienced a fairly slow pace of growth – 2.7% a year on average. Between 1999 and 2001, the sector benefited from the devaluation of the ruble but the effects of the devaluation quickly faded away.

2) Recovery of the grain and livestock sectors: The crop production remains dependent on weather conditions and world price levels but still it enjoys a comparative advantage on domestic and world markets for particular crops. Grain remains Russia’s major crop and in the livestock sector, the situation is worse. However, the productivity of animals is steadily growing.

3) Growing private and public investment in agriculture: The private capital investment of the agri-food sector has been growing since 1998. Government support for agriculture has also increased in the last few years.

4) Limited state support: State support to agriculture in the country is still large as compared to other developed countries. The majority of state support to agriculture (up to 80%) in Russia comes from the budgets of federal entities as Russia is a state of federal nature.

Inspite of the above few features of the country’s agricultural set up showed some positive developments. Russia’s agro-food sector over the last few years like the regional specialisation in agriculture has been seen as an emerging trend. For example, under the Soviet economy grain was produced on almost all of the country’s arable land; few regions like the Krasnodar, Rostov, Stavropol, and Volgograd had a 21% share in the gross grain output and in the last three years, this share has increased to 30%. On the other hand, other regions have also specialized in milk production.

Crop Production

Crop production in the country is to a large extent dependent on the weather conditions and price levels. Some crops have been of a comparative advantage for the nation both in the domestic as well as global markets due to modernization. The production of crops like sunflower, sugar beet, vegetables, and potatoes is continuing to grow at a high rate. Grain is the main crop in Russia’s agriculture sector and wheat is a major cultivated cereal. According to the official balances of agricultural resources, in 2011 Russia had significant exports only in the grain production.

Livestock Sector

In the livestock sector the situation is poor as compared to crop production as production is low because of increasing costs and strong competition from imports. Many domestic producers face financial difficulties due to heavy debt burden. The share of imports in meat and poultry is 30%, 20% in milk and 18% in vegetables and it still imports most of its salmon, mackerel, herring and prawns from countries like Norway, Scotland etc.

Consumption of fruits and cheese has grown. Poultry sales have also grown rapidly, more than meat sales. Another significant trend in the food industry is a vertical integration along the food chain. The domestic markets are highly underdeveloped; collection of raw produce is costly and goes hand-in-hand with high business risks. Therefore, companies operating in this domain have initiated to increase their business control over how the produce is farmed and this trend is continuing in the Russian agrofood sector.

Agro-Food Trade

The Russian agro-food trade is steadily growing and a high trade turnover of more than 26 billion USD was recorded in January–October 2007. But, despite of increased agri-food exports, imports also continue to be a part, and thus the country is still the importer of agro-food products due to its dependence on weather conditions to a large extent.

Grain has become Russia’s main agro-food export as in 2007 it accounted for 42% of total agro-food exports leaving behind the traditional exports such as fish and seafood.

In recent years a massive private and public investments have been made in the grain export infrastructure, especially in the area of export seaports. Russia continues to be a net exporter of wheat and wheat flour.

Oilseeds, mostly sunflower seeds, have been a major export crop in Russia since the very early 1990s. In the beginning of the 2000s, vegetable oil exports started to expand due to the development of the domestic oil extracting industry. In 2005 Russia became a net exporter not only of sunflower seeds but also of sunflower oil. The new trend in crop exports is an expansion of the export of rapeseeds and rape oil in response to growing world demand and strong world prices.
Together with traditional raw crop exports, the export of value-added items such as bread and bakery commodities, dairy, and chocolate has started to grow. Meat continues to be the major item of Russia’s agro-food import, making up 20%. Share of sugar and sugar-containing commodities in overall agro-food imports fell significantly.

The main trend in the structure of agriculture is the severe division of large farming enterprises and small family farms. As concerns policy making related to agriculture New Land Legislation (Land Code and Law on Farmland Turnover) came into force in 2001–2002. This legislation dramatically increased transaction costs on the farmland market and land turnover farm has actually been paralyzed since that time. Law on Farmland Turnover was amended several times and corrected in order to ease transaction procedures, but the situation has not changed.

**Conclusion**

The year of 2012 was generally positive for the Russian agriculture. Despite a decrease in crops, the financial results of Russian farmers were stronger than that in 2011 due to a significant price growth for wheat and other major agro commodities. It is expected that the grain prices will remain at high levels in 2013 and beyond and therefore the Russian agricultural sector will be flourishing with strong projected investments into modern technologies, equipment, fertilizers and agricultural lands.

The developments of the Russian agriculture has been rather positive over the last 10 years with significant investment, modernization of technologies and equipment, emergence of large private vertically integrated holdings and strong support from the government. Thus, in the long term the country has a huge potential to increase the output and productivity of its agriculture in most products. With the continuing growth of global food demand and prices, Russia has unique competitive advantages to strengthen its positions at both domestic and exports markets and re-establish itself as the world leading agricultural state.
Agribusiness Scenario of China

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Introduction
As the world's most populous nation and the largest grain consumer, China has stepped up efforts to ensure its food security, including boosting agricultural technology to increase land yield and guaranteeing the area of arable land. China recorded a bumper harvest in 2012-13. Yet agricultural problems remain and are clouding the world's most populous country, prompting the government to take measures to beef up food security. China's grain output in summer 2013, mostly wheat, hit a record high of 132 million tonnes, the National Bureau of Statistics (NBS) said. The production of maize, harvested in autumn, is expected to hit a record high of 215 million tonnes, according to the State Administration of Grain (SAG). The country's grain output rose 3.2 percent year on year to hit 589.57 million tonnes in 2012, marking the ninth consecutive year of growth, according to NBS data. Despite the record harvests, China’s agriculture faces chronic problems. China’s agriculture is faced with a dilemma between less farmland and more demand for farm produce. Solving it does not only mean improving overall agricultural productivity through investment, better facilities and more technology, but the key is raising farmers' enthusiasm for production. A new system of agricultural management, with family operations at the base, will encourage family ranches, cooperatives and local companies to manage agricultural production and will stimulate development. Industrial and commercial capital will be encouraged to invest in rural areas to develop a modern farming and plantation businesses. China is continuously trying hard to become self-sufficient to meet its population food need. China's agriculture industry continues to be strongly driven by government policies in its effort to ensure national food security, particularly in grains self-sufficiency. A prevailing trend as a result of that is a more aggressive pursuit of overseas farmland acquisitions. Indeed, it can be observed that the trend of 'going global' has featured strongly in the government's 12th Five Year Plan (2010-2015) and a rise can be expected in such activity in Western African countries as well as in Latin America. Securing farmland for production of cereals and livestock will be the top priority. The 19.5% increase will be fuelled by demand growth in the livestock sector. Increased role of corn in the industrial sector (corn starch and ethanol), will hinge on corn demand for the feed sector. Pork and poultry production growth in 2015 will be increased to 22.3% and 24.7% respectively. Continued consolidation of the Chinese meat industry should support large-scale production and increase efficiencies of scale in production so as to meet the growing demand of a national diet that is increasing its protein intake. Soybean consumption growth for 2015 has been planned by 71.6%. The livestock sector will continue to drive consumption for the grain. At present, roughly 70% of soy consumption is allocated to the livestock industry. China has been ranked as the 4th largest agricultural exporter and the 2nd largest agricultural importer in the world. Specifically regarding the U.S., China is the number one market for agricultural exports (including soybeans, cotton and corn), and it’s the 3rd most significant supplier of agricultural imports from the U.S (including products such as apple juice, dog and cat food, and canned citrus). Currently, the U.S. has a trade surplus with China in agricultural products, which means China sells more to them than they buy from US.

Major Challenges for Agribusiness in China
One of the major challenges facing China’s agriculture is a transition to larger-scale farms. Right now, the farms in China are very small, approximately one acre in size. One-third of the Chinese labor force is farming, and most of those individuals are relatively poor compared to residents in urban areas. It will be a major challenge and social issue for the government to facilitate allowing farms to get larger, more efficient, and more profitable. It might seem like a disproportionately high percentage that one third of the population is farming; however, just recently the population in the cities has exceeded the population in the countryside, which is a major shift. Going forward over the next ten to twenty years, this trend towards massive urbanization will continue. There are major discussions going on regarding the creation of farm cooperatives and land ownership reform to increase the size and scale of existing farms. Ultimately, China can’t modernize its agricultural production unless it makes the transition to larger scale farms. Another obstacle is dealing with resource scarcity – primarily water, because a large share of Chinese agriculture uses irrigation. Another is the environmental impact of agricultural production in China. They’ve expanded food production quite rapidly, but have done so using very intensive production techniques, such as heavy use of chemical fertilizer. Management of natural resources is key including the use of chemicals and controlling the pollution externalities associated with agricultural production.

Opportunities in Chinese Agribusiness
China is the number one market for agricultural market so the opportunities are tremendous for importing and exporting agricultural products. A few examples are: Technology transfer: China faces major challenges in food safety. The way the developed nations produce, process, handle, and transport food is much more advanced and environmentally friendly than China, creating an opportunity to transfer this technology to Chinese markets. Investment is critical on a global level because it’s about world food safety, not just about food safety in China. Changing tastes: A growing urban middle class with higher income has led to a higher percentage of disposable income. Because of China’s food safety issues, this population is gravitating towards higher quality imported food and organic food, which offers multiple opportunities for world’s exporters. Talent: Larger Chinese agribusinesses are having trouble retaining talent – finding and keeping people with the know-how and technical savvy to help the company modernize agricultural practices. The agribusiness experts with experience will find their skills in high demand in this emerging market. Trade: With growing urbanization, the country is seeing significant changes in food consumption, primarily greater demand for protein in the form of meat products like pork and poultry. There is scope for producing and exporting animal products.
African Agribusiness: Future Prospects in a Global Setting

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Introduction
In recent years the focus on agriculture has been reflected in policy formulation and development concept of growing African economies. The purpose of this article is to explore the rapid changes in agribusiness for expansion of Africa’s economic growth and development. The word agri-business has a broad concept which covers input supplier, agro-processing, traders, exporters and retailers. Agri-business is a source of input to farmers. It also connects farmers to consumers through a number of activities involving financing, handling, processing, storage, transportation, marketing and distribution of products like food and beverages, tobacco products, leather and products, textile, footwear, garbage, wood and products, rubber product, etc.

Relation between agri-business, economic growth and poverty reduction
Many evidence have a shown a link between economic growth and poverty reduction which varies according to countries. The Agribusiness of a country has the potential to contribute substantially to poverty reduction and improved social consequences. In 2007, the World Bank has also found strong synergies exist between agribusiness and poverty reduction for Africa. Therefore, agri-business should concentrate on strategies for economic diversification, structural transformation and technological upgradation of African economies. These will help in initiating progress towards growth and prosperity in Africa.

Sources and structure of agro-industrial demand
The overall market for agro-industrial products in Africa can be divided into four primary segments: (a) traditional food staples; (b) modern urban supply; (c) traditional export commodities; (d) non-traditional exports. Both within Africa and globally, the trend has been the shift away from the consumption of undifferentiated staple crops and towards increased consumption of fruit, vegetables, vegetable oils, fish, meat and dairy products as a percentage of total calorific intake. This has translated into a shift away from undifferentiated primary commodity products in international trade, towards higher value-added product categories. Although high value and non-traditional agro industrial production for export provides dynamic and growing market opportunities for some African countries, the most important demand driver in Sub-Saharan Africa is, and will remain, the domestic and regional (intra-African) market.

Agribusiness Trade
Total merchandise and agro industrial imports from Africa by commodity category worldwide recorded average annual growth rate from 1990-2008 at 11.3% in total merchandise export, while 7.2% growth rate was for total agro industrial exports. Processed commodities exported for final use reported around 10.8% growth rate in this period. The growth rate of Semi-Processed commodities exported for processing, unprocessed commodities exported for final use and Horticulture were 7%, 5%, 5.5% and 10.7%. Total Intra-African merchandise and agro industrial imports recorded average annual growth rate of from the period of 1990-2008, 19.2% for total merchandise export, while 14.2% growth rate was for total agro industrial exports. Processed commodities exported for final use reported around 19.8% growth rate in this period. The growth rate of Semi-Processed commodities exported for processing, unprocessed commodities exported for processing, unprocessed commodities exported for final use and Horticulture reported 18.7%, 9.7%, 13% and 15.5%.

Projected increases in intra-Africa demand 2000-2030
A study of projected increases in intra-African demand undertaken by the New Partnership for Africa’s Development (NEPAD) Secretariat (2005) suggests that the opportunities provided by the growth of domestic and regional urban demand will massively outweigh those provided by high-value and commodity exports combined, amounting to an estimated $150 billion by 2030, Intra-African trade.

Patterns and Trends in Africa’s Intermediate inputs Trade
Agricultural inputs such as fertilizers, plant health protection products and soil preparation machinery are essential for increased agricultural productivity. Although some exports of these inputs occur (e.g. fertilizers mainly by Tunisia and Morocco and agricultural machinery mainly by South Africa), Africa as a whole is a net importer of these intermediate inputs. Africa’s share in global imports of fertilizers was at 4.8%, and plant health protection products was at 5% in 2008, much lower compared with the share of imports of other developing regions of Asia (33.2% for fertilizers and 12.4% for plant health protection products) and Latin America and the Caribbean (19.8 per cent for fertilizers and 17.2% for plant protection products). Given the net-importing position of Africa, this low level of imports translates into low-level utilization of these inputs on a per hectare basis. Africa’s share in global imports of soil preparation, harvesting and threshing machinery, at 4.4% in 2008, was, however, comparable to the share of imports of Asia (at 4.2%) and Latin America and the Caribbean (at 6%), even though these two regions are net exporters of this type of agricultural machinery.

Patterns and trends of utilized inputs trade in crop production
In 2008, Africa’s imports of crop production inputs represented around 47% of the region’s crop production inputs. A total value of $82.4 million to almost $1.4 billion—an average annual growth rate of 16.8 per cent. In this context Africa could intensify cooperation with China and India with a view to increasing exports of processed commodities, inter alia through leveraging FDI inflows into Africa’s natural resources. However, unprocessed commodities destined for processing and horticulture (which is largely composed of unprocessed commodities exported for final use), constitute the vast bulk of China’s and India’s agro-industrial imports from Africa. In 1990, the share of unprocessed commodities in China’s agro-industrial imports from Africa was almost 95%, declining somewhat to 86% in 2008, reflecting an increase in the share of semi-processed commodities from 4% in 1990 to 11% in 2008.

In India’s case, horticulture accounted for 81% per cent of agro-industrial imports from Africa in 1990 but this share fell steeply to 51% by 2008. Over the same period, the share of unprocessed commodities destined for processing increased from 17 to 42.5% of total agroindustrial imports from Africa.
KEYNOTE ADDRESSES
A Global Perspective and Assessment of Indian Entrepreneurial Environment for Women Entrepreneurship

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Abstract
Women entrepreneurship has been recognized as an important source of economic growth. Women entrepreneurs create new jobs for themselves and others and provide society with different solutions to management, organization and business problems. However, they still represent a minority of all entrepreneurs. Women entrepreneurs often face gender-based barriers to starting and growing their businesses, like discriminatory property, matrimonial and inheritance laws and/or cultural practices; lack of access to formal finance mechanisms; limited mobility and access to information and networks, etc.

Support for women’s entrepreneurship in India is rated (2.60) well below the Global Entrepreneurship Monitor (GEM) global average (3.15). While such a difference is maintained across most of the components of this dimension such as exposure to opportunities, acceptability of women as entrepreneurs, encouragement to women’s enterprises, and availability of support services specifically to facilitate women entrepreneurs, there is one item on which the rating is almost on par with the GEM average. This is about Indian women having the skills and motivation required for starting new businesses. The score for this is 3.41 as against the global average of 3.46. Women’s entrepreneurship can make a particularly strong contribution to the economic well-being of the family and communities, poverty reduction and women’s empowerment, thus contributing to the Millennium Development Goals (MDGs). Thus, governments across the world as well as various developmental organizations are actively undertaking promotion of women entrepreneurs through various schemes, incentives and promotional measures. Throughout the world, shifts in population demographics, technological change, fluctuating economies and other dynamic forces have transformed societies as never before, bringing new challenges and opportunities to the forefront. Among the responses to these shifting forces is an increased emphasis on women entrepreneurship by governments, organizations and the public. While women entrepreneurship may not be a universal remedy, it can surely be part of the solution.
Technologies for Agribusiness and Entrepreneurship Development- Some Case Studies

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Abstract

India with its diverse agro-climate conditions and consumer preferences, holds a major production status in the global context, producing more than 900 million tonnes of plant and animal based biological material besides, other fibre and cash crops. The existing weak link between the production exit gate to the consumer calls for a robust entrepreneurship intervention at all levels to achieve near zero tolerance in 2-V(volume and value) transmission losses in the food chain, conversion to high value diversified products and generate additional income and employment opportunities, which would eventually check capital and human drain from rural to urban areas.

Over the years, NARS, CSIR laboratories and other R&D institutions, innovative farmers and entrepreneurs have churned out a large number of bankable technologies for primary and secondary processing, which, in turn, have led in establishing micro-businesses in the production catchments in the country.

A few successful case studies in respect of food grains, horticulture, animal/fish, cotton, jute and lac based enterprises have been described in this presentation, to motivate young management-cum-entrepreneur students and provide interactive coupling between technology, economy, environment and society for speedy development of agribusinesses and build up a substantial base for production of value-added products.
Growth Dynamics and Entrepreneurship Potential of Processing and Food Industry in Hilly Areas of North India

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Abstract
Growth of processing and food industry in hilly and rural areas of India has been much slower in comparison to plains and urban regions. Several factors have been responsible for this. The major problems have been lack of adequate infrastructure, trained manpower, seasonality of raw materials, non-availability of assured electricity supply, and lack of local demand for processed products. However, a large number of options are available to the entrepreneurs in this sector. The paper discusses such options with the help of case studies and recommends measures for the entrepreneurs and promoting institutions including government agencies.
NERAMAC - Harbinger of Hope for North Eastern Farmers for 31 Years

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Abstract

NERAMAC was set up to support farmers/producers of north east getting remunerative prices for their produce and thereby bridge the gap between the farmers and the market and also to enhance the agricultural, procurement, processing and marketing infrastructure of the Northeastern Region of India. We are offering helping hand in sourcing and procuring cash crops of the producers by intervening in the market and provide them remunerative prices. It also helps processing units by providing raw materials and arranging packaging materials. NERAMAC has a few retail outlets within the North East region which directly sell various processed and value added products produced locally in the region.

Food processing scenario in the Northeast Region has changed for the better from the year NERAMAC was incorporated. NERAMAC has been providing adequate support to fruit processing units. It has set up its own food processing plants which is helping farmers in getting right prices for their produce. NERAMAC helped local food processing units by marketing their products in identified domestic markets through its own retail outlets. Some of these products are also exported. They established processing facilities for Fruit Juice Concentration Plant (FJCP), Nalkata, Tripura, Cashew Processing Unit (CPU), Agartala, Tripura; and Integrated Ginger Processing Plant (GPP), Byrnihat, Meghalaya.

NERAMAC intervenes in sourcing, procuring and marketing different Agro-Horticultural Commodities produced by the farmers of pineapple, ginger, banana, chillies, black pepper, cashew nuts etc. and minor forest produces like hill grass. It also supports the farmers with agricultural inputs like seeds, fertilizers etc. We also assist farmers in producing planting materials under Horticulture Mission Schemes and also by marketing their produces.

NERAMAC also undertakes responsibility of marketing agro-horticultural inputs like Fertilizers, Seeds etc. keeping in view of the overall agricultural development of the region. It also provides Marketing assistance to small and cottage scale food processing units of the region. We are making attempts to generate employment by providing Juice Vending Machines on franchise basis. This scheme is aimed at, apart from employment generation, creation of alternate marketing structure for natural juice and other processed products and fresh fruits & vegetables of NE Region.

NERAMAC also provides training on Post Harvest Management and fruit processing from time to time to develop entrepreneurs for value addition of the agro-horticultural produces grown in the region in collaboration with institutions like Central Food Technological Research Institute (CFTRI), Mysore and other constituents Laboratories of CSIR/Agricultural Universities etc.

Because of NERAMAC’s intervention in marketing of agricultural commodities like Ginger, Citronella Oil, Grass Broom, Bamboo Sticks etc. helped thousands of farmers engaged in cultivation of these produces obtain remunerative price. We also help in marketing of processed products manufactured by all the processing units spread throughout the North Eastern Region besides helping the farmers indirectly.
Agri Business Incubators: Vital for Development of Agri-Entrepreneurship

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Abstract
The role of business incubators in promoting entrepreneurship is known around the world. But entrepreneurship in Agriculture is a lesser known fact particularly in a country like India where agriculture is seen more as a way of life rather than a business. But when more than 60% of Indian population depends on agriculture to make livelihood, agriculture has to be seen as agribusiness to stop the dwindling share of agriculture in national GDP. To promote and support entrepreneurship in agriculture, Indian Council of Agriculture (ICAR) initiated 10 Agri Business Incubators (ABIs), five in State Agricultural Universities and another five in Research Institutes (RIs) through World Bank funded National Agricultural Innovation Project (NAIP) under its Component-1 in 2009. Within a short period 3-4 years, these 10 ABIs have been a grand success particularly w. r. t. development and promotion and entrepreneurship. Looking at the success of these 10 ICAR started another 12 ABIs in the year 2013 across the length and breadth of the country. This paper highlights the role of ABIs in promoting Agri entrepreneurship in the country, the challenges faced by them in doing so and how to overcome those challenges. The older 10 ABIs can now act as mentors and hand holders to the 12 new ABIs. The paper concludes by showing the way forward and future scope for ABIs.
Entrepreneurial Opportunities through Agricultural Machinery Manufacturing & Mechanization

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Abstract
Mechanization has played an important role in agriculture resulting various advantages as: Labour saving, Timeliness of Operation, Reduction of dependence on Labour, High Production of rare items under adverse conditions according to costumer’s choice, Reduction of Drudgery, Better utilization of resources, Reduction in cost of crop cultivation/Production, Quality products, Reduction of losses, Value addition, and over all Economic Benefits of input and output cost ratio. Increasing Production and Productivity, Reduced Dependence on Labour Agriculture sector has lot of potentials for the employment and business opportunities in various activities which are associated to cultural practices performed in farming systems, crop production, animal husbandry, aquaculture, Horticultural production, post harvest and processing operations. Food and feed production industries are almost untapped and have vital role to play in management of agri-business and management.

Agriculture sector has lot of potentials for the employment and business opportunities in various activities which are associated to cultural practices performed in farming systems, crop production, animal husbandry, aquaculture, Horticultural production, post harvest and processing operations. Food and feed production industries are almost untapped and have vital role to play in management of agri-business and management.

Starting from tractor industry which mainly supports the farm power supply, has developed a lot since independence. Other sources of power such as power tillers, animal and human power and, diesel engines other sources as electric, solar, wind and other non conventional sources could be utilized for agricultural sector. With matching source of power an agricultural machinery can give the best out put. Presently India is the largest manufacturer of the tractors in the world. About 1/3rd of the world tractor production is in India. About 50% tractors being manufactured in India are of below 60 horse power category. During the year 2007-08 tractor production was 345,172, out of which 43553 tractors were exported [TMA(Tractor Manufactures Association), 2006-08]. Tractor production was about 0.6 million in the year 2012-13. India has emerged to be one of the potential exporter of tractors and agricultural machinery in the world. There are over two dozens of tractor manufacturers of more than five dozen of models of different makes of tractors.

In India there is a network of Agricultural Machinery Manufacturers consisting of small, medium and big category. At national level there is a network called Tractor Manufacturer Association having 11 members. There are 9 manufacturers and distributors of power tillers in the country Agricultural machinery manufacturer have 20 members in their executive representing from different organizations and states. In addition there are state level associations of agricultural machinery manufacturers in different states. There are more than 1000 agricultural machinery manufacturers of different type of different category manufacturing, marketing and trading variety of machines. They are situated in different states which are mainly engaged in agricultural sector. About one million village craftsmen are engaged in agricultural tools and equipment fabrication, supply, development, repair and maintenance of these labour saving devices at village level. Agricultural tools, machines and equipment include small, medium and big size manufacturers of various types of machines. Almost in every state there is directorate of agricultural engineering dealing with manufacturing, coordinating supply, extension and training of agricultural extension workers, farmers and other functionaries. In all the state agricultural Universities there are agricultural Engineering colleges imparting engineering education, training, R&D, Testing, training and extension programmes. There is a good network of R&D workers in SAU’S (State Agriculture Universities), AICRP’S (All India Coordinated Research Project on Farm Machinery and Power), ICAR (Indian Council of Agricultural Research) Research Institutes, NGO’S (Non-Government Organizations), NRC’S (National Research Centres), State governments, association of different manufacturing units of some of the commodities as sugar and many others are deeply involved in promoting the cause of a particular area of work in one or the other. Central Mechanized farms, Tractor, Agricultural machinery, Training and Testing stations. Small scale Industries promote popularization of agricultural machinery programmes with the organized sector and network develop.

With all these possibilities of selection, identification, market survey, planning, designing, development, adoption manufacturing, marketing, sales promotion, repair & management, custom hire, agro service and also trading, supply system and net work can be developed for employment of youths for their happy life and financial growth of the country. After proper training of the personals job opportunities can also be created in the quality control, standardization. Marketing of various inputs such as seed, fertilizer, pesticides, irrigation equipment and systems provides lot of employment scope with proper planning and management. The paper also includes some of the case studies through which number of entrepreneurs has established their organization i.e. agricultural machinery workshops, generated employment opportunities for many people. It is expected that this paper will lead the path of success for many of the upcoming business managers and entrepreneurs.
Agribusiness Management - Opportunities and Challenges

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Abstract

Agriculture, being the main sector of Indian economy, supports more than three-fourth of the total population and contributes nearly one-fourth to the total Gross Domestic Product of the Country. During last five decades, even through agriculture sector has grown substantially, it has not been able to sustain its growth mainly due to lack of proper management of resources like land, water and manpower. The master key of management has unlocked the jeopardy of agriculture sector which was struggling to find a way to stand as a strong pillar of Indian economy. With the advent of technology and involvement of professionals, today agriculture sector is contributing around 15% to Indian GDP.

The term agribusiness was used in 1955 by Harvard University for the first time. In the 1980s it acquired three connotations: (1) synonymous with term agriculture, (2) synonymous with agricultural economics and (3) a modified concept of agriculture (not including farming), or the off-farm activities related to agriculture. At present, agribusiness is defined as activities of all business enterprises involved in selling to or buying from farmers / traders / consumers, any products and services related with agriculture. In India, biotechnology applications in agriculture have vast scope in production of seed, bio-control agents, industrial harnessing of microbes for bakery products. Organic farming has highest potential in India as the pesticide and inorganic fertilizer application are less in India as compared to industrialised countries. The farmers can be encouraged and educated to switch over for organic farming. There is a need of substantial investment in agribusiness infrastructure, both physical and institutional. Farmers now started to sell their products directly in the market and began exporting too. The deprived farmer of yesteryears was now selling his crop in a business man’s suit. Also, other sectors of agriculture like fishery, sericulture and selling other products like milk, flesh or wool also witnessed a healthy growth.

The investment needs and opportunities exist in production, processing, infrastructure, trade and others. Micro-irrigation systems and labour saving farm equipments have good potential for the years to come due to declining groundwater level and labour scarcity for agricultural operations like weeding, transplanting and harvesting. Many companies have already invested billions either directly or through local partnerships.

There is likelihood of agribusiness firms with all their managerial abilities, finding new ways to use the demand opportunities. The challenges that are being faced are related to the need for change in the paradigm of functioning of agricultural systems. What is required is improvement in the existing marketing system to reduce cost by saving the losses in the marketing chain and increasing the competition. Ministry of Agriculture has signed 55 umbrella MOUs / Agreements with various countries for cooperation in the field of agriculture and allied sectors intermediaries and creating the new employment opportunities in the agricultural marketing system. Despite several forms of government intervention and a number of marketing development programmes, the marketing system for farm products has continued to suffer from several weaknesses. The farmers have borne the brunt of these weaknesses.

Finding the balance between development potential arising out of investment by the private sector and implications of these developments for employment of a considerable section of society is one of the major challenges for policymakers today. While some issues are only apprehensions, the others are real. We need to dispassionately assess the outcomes of the current wave already underway to see whether agribusiness and retail food chains help improve the agricultural marketing efficiency. While the new firms will find their place in the market, they would also need to realize returns for their investments. In this context, it has to be seen that how much benefits of the reduced marketing cost would they transfer to the farmers and consumers? Will they encourage farmers’ organizations to assist in sourcing the farm products? To what extent, these firms will be able to use the expertise and experience of the existing traders and vendors? What is going to be the overall employment scenario? Can the entry of big firms in agribusiness help India become more internationally competitive? The most important issue, of course, relates to the legal and regulatory framework that is put in place, which will determine whether or not adequate private investment flows in these activities and the market structure that ultimately emerges is more or less perfect than what we have today. We are at the crossroads of agricultural marketing development in the country. Unless we are careful, we may err and move along the road where we should not be moving or we may not move along the road where, in fact, we should be moving. The policy analysts, agricultural economists and marketing specialists have a great challenge in advising the country, i.e. policymakers, businessmen and farmers, in selecting the road which, while takes the country forward on a higher growth path, will help our farmers increase their incomes. Our scientific analysis should lead to finding a way to eradicate poverty, food insecurity and malnutrition in the near future.
Entrepreneurship Development
Role of Management Studies in Entrepreneurship Development with reference to Bhopal Region

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Abstract

There are several skills which are needed for being an entrepreneur, like risk taking ability, leadership skills, Innovation, Interpersonal skills and so on. Many institutes and organizations which are involved in imparting entrepreneurship development skills and many individuals use that knowledge to become entrepreneur. It is a known fact that management institutes cater to the growing need of industries by supplying traditional/corporate managers. Management plays an important role in entrepreneurship development. Management studies also molds the student to develop entrepreneurial skills. It is not the lack of resources but the lack of entrepreneurial abilities and lack of initiative and lack of efforts for utilization/value addition of resources. Entrepreneur is expected to play vital role in the process of development by introducing innovations and demonstrating leadership qualities in the dynamic situation.

The scope of this study was to find out the role of management study in enriching these abilities in management students and compare it with those people who have become entrepreneur. The study has revealed the facts which are important to develop entrepreneurship as a career option among management students.

Entrepreneurship in Nanocellulose from Cotton Ginning Biomass

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Abstract

‘Cellulose’ is a naturally and abundantly available polymer. It has gained importance recently, as a nano-engineered material; more popular forms are NanoCrystalline Cellulose (NCC) and Nano/Microfibrillated cellulose (NFC). Reputed international organizations like CelluloForce, FP Innovations, Alberta Innovates etc. have built their own Nanocellulose production plants with an average production capacity of about 100 kg per day. Nanocellulosic material is important due to biodegradability, low environmental risks, unique mechanical, optical and surface area properties, high strength and modulus, high aspect ratio, dimensional stability, chemical functionality, thermal stability, carbon neutral, light weight and optical transparency. The applications of nanocellulose are in cosmetics, biodegradable packaging, paper and board, food products, tissue engineering to coatings and medical textiles.

A technology for production of nanocellulose using cotton linters as raw material has been developed by CIRCOT, Mumbai and commercialized by its Zonal Technology Management and Business Planning and Development Unit. This unique technology has achieved five agreements for a consultancy fee close to one crore rupees. This paper explains the scope of this technology along with techno-economic feasibility report for promoting entrepreneurship using abundantly available cotton linter.
Opportunities for Entrepreneurship Development in Livestock Sector

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Abstract

The Indian Council for Agricultural Research and National Agricultural Innovation Project has established a Zonal Technology Management - Business Planning and Development (ZTM-BPD) Unit at Indian Veterinary Research Institute, Izatnagar with a view to promote technologies developed by NARS institutions in this region to foster the entrepreneurial spirit and eventually greater creativeness in the research system. For effective technology transfer management, a diverse portfolio of technologies has been prepared encompassing animal vaccines and diagnostics, value added meat and milk products technologies, animal nutrition technologies, farm implements and machinery etc. The technologies from 20 ICAR Institutes identified for transfer were as follows:

A. Vaccines Technologies
B. Diagnostics & Biotechnology Products Technologies
C. Herbal Drugs Formulations for Livestock Technologies
D. Animal Feed Technologies
E. Machineries/Equipments (Surgical) & Reproductive Technologies
F. Value Added Livestock Products Technologies
G. Machineries/Equipments (farm Based) Technologies

The ZTM-BPD Unit offers opportunities for developing entrepreneurial abilities and building strong partnerships with entrepreneurs, startup companies, small, medium and elite industrial houses for technology based viable business ventures. The unit also provides an attractive platform for nurturing new innovative ideas of rural innovators into viable commercial ventures paving the way to further innovations and faster technological progress. Facilitating process development and validation of technology is yet another important goal of this new initiative in the region.

The unit has commercialized technologies from all the segments from the High Entrepreneurial Potential (Value Added Meat and Milk Products Technologies) to High Revenue Generation (Vaccines and Diagnostics Technologies) along with Nutritional Technologies, which have both Entrepreneurial as well as Revenue Potential characteristics. In this paper, a brief description of the potential technologies (most of them have already been commercialized) for entrepreneurship development for startups in the livestock sector.

Transforming a Traditional Fisherman into Successful Aquapreneur

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Abstract

Shri. Ambrose Thommissery was a traditional fisherman till October 2012. KVK selected him for demonstrating scientific Mullet (Mugil cephalus) fish farming in his pond of 0.8 acre size which was kept idle due to the downfall of shrimp farming on account of White spot syndrome (WSS) viral disease. Traditional shrimp filtration and fishing using traditional gears were his livelihood options. He hardly earns INR 20,000/- per annum from this pond and was striving to manage his family of four. The programme started with multiple site visits in the locale by KVK officials to identify the farmer interested in associating with the venture. After finalizing Shri.Ambrose, the farming programme developed through a continuous collaboration between KVK and him. His local support group was watching and also participating in the program. Mullet fry’s required for the culture were caught from wild using improved gears. Quality control of seeds was ensured by using healthy and damage free seeds transported in oxygen filled polyethylene bags. Nursery rearing of Mullet fry’s was done in happa nets erected in the pond. Spot feeding was done using pellet feed. The feed size successively increased and the ration managed depending on the growth. A survival percentage of 90 was ensured in nursery rearing phase. The fingerlings were then released into the pond for grow-out culture for 10 months. Here also scientific feeding schedule was followed. The fishes reached average length weight of 520 gm with 80 % survival rate. Live caught fish were marketed at farm gate itself. It was a great success due to high domestic demand for the live farm fresh fish. This process also avoided the intervention of middlemen and fetched a maximum price higher than the prevailing retail market price. The total expenditure including seed cost, feed, pond cleaning and other miscellaneous expenditure was INR 44,500/- . A total of 500 kg fish was harvested and sold at the rate of INR 500/- per kilogram fetching a total income of INR 2.5 lakhs. Following the success of the demonstration, other traditional farmers in the locale have come forward for replicating scientific mullet farming programme during the next season using own funds. The participant farmer has already kept aside INR 50,000/- for continuing the farming in the next season.
Entrepreneurship Development and Business Opportunities in Custom Hiring of Farm Machinery

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Abstract
The recent structural changes in the economic environment, liberalization policy and the signing of general agreement on tariff and trade has laid down new challenges in which, India has to compete in the international trade including agricultural trade. The basic requirement of this competition is to reduce the unit cost of production, and improve quality of agricultural produce so as to meet the international standards. The cost of production can be reduced only if the cost of every single factor contributing towards the total cost is minimized and resource productivity maximized. Increased productivity and production of food grains from limited land resources is required for feeding the ever-increasing population. This is possible through the mechanization of agriculture through adoption of high capacity improved agricultural machinery. High costs of these machines with associated low annual utilization are bottlenecks in their large-scale adoption on ownership basis. Ensuring availability and use of machines in custom hire basis could help in the rapid mechanization of agriculture.

Innovative Programme for Creating Entrepreneurs: Success Stories in Sea Food Micro Enterprises

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Abstract
Krishi Vigyan Kendra (Ernakulam) formulated a special training programme with an intention to create micro –sea food entrepreneurs. There was no stipulated time for the training programme, instead it continued till the selected entrepreneurs become successful. Follow up services are also being given to the successful entrepreneurs. Selection of the trainees was based on their accessibility to the raw material and availability of space for processing, packing and forwarding. The programme covered all aspects of initiating a sea food enterprise. The syllabus covered selection of good quality raw fish at a cheaper price from the auctioning centers near Kochi. The first lesson was to learn the process of fish auctioning. Subsequently, the candidates were trained in the transportation of bulk quantity of fish without quality degradation followed by temporary storage and scientific cutting and cleaning. Selection of quality additives like spices, oil etc. in bulk quantities in cheaper price and their storage were covered. Introduction of processing gadgets, labor & time management, product formulation, packing, attractive label designing, design of trademark, registration of trademark, the importance of branding etc. were covered. In addition, the statutory licenses and certificates required for the industry and step by step procedure to obtain the same were also included in the syllabus. Tie-ups were made with retail marketing outlets and test marketing of the products were done by the participating trainees. Methods in finding out the marketing channels and waste utilization were also covered. Two entrepreneurs started products under own brand name. The products are fish pickle, squid pickle, dry prawn roast, prawn chutney powder and ready to cook dry prawn. One entrepreneur started exporting dry prawn products and prawn wafers.
Promotion of Secondary Agriculture in Eastern Region through Agribusiness and Rural Entrepreneurship: Challenges and Opportunities

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Abstract
Till the ‘fifties, the Eastern Region was most prosperous region in the country. The green revolution has not been widely replicated in the Eastern region because of a variety of constraints rooted to socioeconomic features, fragmented and smaller land holdings as well as institutional, organizational, technological and developmental inadequacies. Sluggish growth of the agriculture sector in the Eastern region is mainly due to low irrigation coverage, erratic climate with deviations in rainfall and most strikingly, a very high degree of dependence on a single rice crop. The diffusion and adoption of green revolution technologies for rice and wheat has proceeded slowly in the eastern India’s rice-growing region. The eastern region has a higher population density than the national average. In the absence of local entrepreneurship, the opportunities in agriculture are harnessed by outsiders, particularly the urban businessmen and traders, leading to exploitation and deprivation of employment for the farmers. Nevertheless, the conversion from farmers to agricultural labour is on the rise particularly in the tribal dominated states in the eastern region. Considering the growing unemployment in rural areas and slow growth of the agricultural sector, it is necessary to tap the opportunities for promoting entrepreneurship and agribusiness in the primary sector, which in turn can address the present problems related to agritourism and profitability. There is a need for efficient support organizations to monitor the activities of small enterprises. Prediction of the future demand, the introduction of modern technologies, cost control and business expansions are the important areas, where entrepreneurs need regular support. The agribusiness and entrepreneurship can be enhanced through diversification and production of high value commodities (HVCs), value addition, processing, storage, grading & packaging in addition to forward and backward integration with market and FIs. The strength of private sector innovation can also be harnessed through hand holdings in ventures related to agribusiness. The BPD unit at Birsa Agricultural University, Ranchi has taken steps in several ventures related to agribusiness (seed, organic farming, cluster development, meat processing & animal feed production and supply) and entrepreneurship development in selected areas.

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Role of KVKs in Entrepreneurship and Rural Development

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Abstract
Krishi Vigyan Kendra (KVK) is a noble concept developed and funded by the Indian Council of Agricultural Research (ICAR), New Delhi. KVKs are working under the control of ICAR, SAUs, Central Universities and NGOs. The basic concept of KVKs functioning is transfer of technology from laboratory to the farmer's field (under Lab to land programs) with respect to important fields of agriculture viz.; Crop Production, Crop Protection, Horticulture, Animal Husbandry, Agricultural Engineering, Home Science and allied fields. They are directly working for development of rural community through various activities such as new / improved technologies developed by ICAR and SAUs are transfer to the farmers filed through OFTs, FLDs, Trainings, Kisan gosthies, Farmer fairs, etc. In the present day farmers are educated, intelligent, attentive, skilled and always try to learn new things that may helpful to their agribusinesses. They are using most modern technologies for better production and marketing their agricultural produce. Hence, agriculture is flourishing as agribusiness and it has a better potential to develop socioeconomic status of Indian rural community. In this way KVKs are playing an important role in rural development through all mentioned activates.
Fresh Water Fish Seed Production: Transformation of a Farmer to a Breeder cum Entrepreneur

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Abstract
Fresh water Aquaculture is getting a good momentum in Ernakulam district of Kerala. Among the different categories of fresh water fish, carps are most popular in this area. Requirement of carp seeds in Kerala is presently met from the nearby states viz., Andrapradesh and Tamilnadu. In order to develop local seed production as an enterprise, Krishi Vigyan Kendra (Ernakulam) identified a traditional fish farmer Shri. Joseph Thakadiyel. He has 1.0 ha land and 0.4 ha farm ponds. He used to grow fresh water fish species in his pond in a traditional way. The total income of the farmer from fish farming was INR 1.5 lakhs annually. KVK supplied a portable carp hatchery worth 1.2 lakhs to him. This hatchery was developed by Central Institute for Fresh Water Aquaculture (CIFA), Bhubaneswar. The intention was to use his fish stock as brood stock and produce fingerlings in the portable hatchery. KVK formulated a package of practice for the small scale fish seed production using the portable hatchery. In this process, KVK provided the farmer and his support group hands on training on installation and operation of the unit, induced breeding techniques, hatching technique, pond preparation technique, nursery rearing technique, feeding and other management techniques. Farmer took initiatives and invested INR 0.6 lakhs for the renovation of abandoned ponds for brood stock development and for carrying the nursery rearing. Breeding trials were successfully conducted using commercial grade synthetic hormones. Catla catla, Labeo rohita and Cyprinus carpio were bred in the portable carp hatchery. Produced fish seeds were reared two months in nursery ponds till the marketable size using formulated and farm made low cost feeds. In one breeding the farmer got 1 lakh healthy fingerlings, each costing 1 rupee. One cycle required 2 months only. Minimum three cycles of carps breeding can be carried out during monsoon period and Cyprinus carpio (Koi carp) breeding during the post monsoon period. Thereby proper utilization of the hatchery can produce 10 lakh fish fingerlings of worth INR. 10 lakh annually. Since the breeding and raising of fingerling are under the technical guidance of KVK, enquiries for fresh water seeds received at KVK are diverted to this farmer, making his marketing easy. The farmer again invested INR 50,000/- for a hatchery shed recently by understanding the potential.

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Agri-Clinics and Agri Business Centers - Turning Farm Graduates to Grass Root Entrepreneurs

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Abstract
In order to strengthen the transfer of technology and extension services and also provide self employment opportunities to technically trained persons the scheme of ‘Agri-clinics and Agribusiness Centers’ was launched on 9th April, 2002 by GOI. The implementing agencies are National Institute of Agricultural Extension Management (MANAGE), an apex level institute of GOI is the overall implementing agency for training component and imparting two months training to the agriculture graduates through selected Nodal Training Institutes (NTIs) across the country and National Bank for Agriculture and Rural Development (NABARD) is the Nodal Institute for banks who is responsible for monitoring the credit support to Agri-clinics through commercial banks and is also responsible for extending refinance support to the banks under the scheme. Through this paper an attempt has been made to know the effectiveness of Agri-clinics and Agri-business centers in converting agri graduates to agripreneur. In Rajasthan state the number of Graduates Trained are 1981 and 677 have been established their Ventures (as on 30th April, 2010) in different fields of agribusiness. This paper also gave an insight about the success stories of agripreneur of Rajasthan state.
Entrepreneurship Development - Opportunities and Challenges

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Abstract
Myriad of institutes are involved in entrepreneurship development programme and people who engage themselves in these programmes develop a potential to become an entrepreneur. To cater up the growing needs of industries many management institutes are coming up by supplying corporate managers. Due to the scarcity of jobs among youth, it has become necessary to empower them and channelize their raw energy so that they can create jobs for themselves and for others which eventually will lead to strengthen the economy of the country. An entrepreneur isn’t only throwing its energy on organizing and conceiving ventures but also a frequent risk taker to make their ventures successful. An entrepreneur develops a vision to change the world in concrete ways through their inventions, their businesses, their social and economic impacts. Entrepreneurship doesn’t always involve inventing something amazing, sharing it with millions of people, and then making a fortune on its success but is one who understands the market dynamics and searches for change respond to it and exploit it as an opportunity. Entrepreneurship consists in doing things that are not generally done in the ordinary course of business routine; it is essentially a phenomenon that comes under the wider aspect of leadership. The World wide focus of scientists and researchers is shifting in the development of cost effective technologies, protection of invention and technology transfer through licensing to accelerate the growth in agriculture. Therefore, agribusiness industry is now becoming a knowledge based and technology driven. This paper focuses and provides an insight into the meaning, qualities required for an entrepreneur, opportunities and challenges faced by them and at last with a small discussion on entrepreneurship as a career.

Opportunities in Beeswax Processing: A Viable Rural Enterprise

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Abstract
Beeswax is an important and valuable by-product of beekeeping, which is often neglected as a source of additional income or as an utilisable resource. The beeswax obtained from honeycombs, after purification, is put to diverse uses like in the formulation of cold creams, ointment, medicinal lotions, candles etc. However, in our country it is chiefly used for the construction of comb foundation. In the past no major emphasis has been given to this valuable by-product to develop suitable technology to process beeswax. The processing of this by-product has sufficient scope of income and employment generation in rural sector and to provide higher value to end product. This paper presents an in depth account of present status of techniques used as well as prospects of much needed technological interventions required for mechanization/standardization in processing of beeswax to increase product recovery, profitability and its diverse uses for establishment of successful rural enterprise.
शोध अध्ययन “कमजोर वर्ग के सशक्तिकरण में उद्यमिता विकास कार्यक्रमों की भूमिका का एक समाजशास्त्रीय अध्ययन”

शोध अध्ययन “कमजोर वर्ग के सशक्तिकरण में उद्यमिता विकास कार्यक्रमों की भूमिका का एक समाजशास्त्रीय अध्ययन”

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उद्यमिता एक ऐसी प्रक्रिया है जिसका उद्देश्य भविष्यवाणी और उद्यमिता को विकसित करना है तथा उनके संक्रमण के लिए उद्यमिता के लोगों के लिए प्रशिक्षण देना है। उद्यमिता के लोगों को अपने आपके व्यवसाय की स्थापना करने का समक्ष स्थापना की है। उद्यमिता के लोगों को अपने आपके व्यवसाय की स्थापना करने का समक्ष उद्यमिता के लोगों को अपने आपके व्यवसाय की स्थापना करने का समक्ष स्थापना की है।

उद्यमिता के लोगों को अपने आपके व्यवसाय की स्थापना करने का समक्ष स्थापना की है। उद्यमिता के लोगों को अपने आपके व्यवसाय की स्थापना करने का समक्ष स्थापना की है।

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उद्यमिता के लोगों को अपने आपके व्यवसाय की स्थापना करने का समक्ष स्थापना की है।
General Management
Role of Microfinance Institutions in Rural Development

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Abstract
Present economy is dependent on the availability of financial products to offer support to individuals in terms of economic needs. Microfinance is the provision of granting small or very small loans and other financial services to microenterprises in emerging economies. It is the provision of providing financial services to low-income clients or cohesion lending groups including consumers and self-employed, who have traditionally lagged behind in access to banking and related services. Microfinance includes microcredit which is the provision of credit services to poor clients. This study is an empirical study which aims to find out the role and responsibilities of microfinance in rural development. Our experience while doing this study suggests that microfinance provides key lessons for development in terms of what mechanism and best practices should be adopted and how to make a small change that creates a big difference. It is concluded that poor people in rural areas especially in under developing countries, are in immense need of credits so microfinance programs must make available this credit needs and motivate the poor people to increase their standard of living.

Impact of Claim Settlement on Sales of Life Insurance policies – A Case Study of LIC of India

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Abstract
Claim settlement is one of the most important parts of the life insurance services. Any person who holds or planning for the life insurance coverage will always want to have prompt claim settlement. For any insurance company sales of insurance policies is the only source of revenue and if the claim is not properly settled then it will affect its sales. Due to globalization, today there are lots of choices of different insurance products and insurance companies are available. LIC of India still strongly holds major market due to strong channels of sales, prompt claim settlement, trust and adaptability to change with a changing environment. The paper presents the success story of LIC with facts and figures of claim settlements and its relationship with progress.
Employment Opportunities in Agribusiness Sector

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Abstract

An Agribusiness boom is underway in India, and it needs big talent to drive its growth. Growth in agricultural productivity will build incomes and assets. Recognizing the opportunities that will continue to grow in the future, leading corporates are reinventing their induction, retention and leadership plans for expanding their agribusiness talent pool in India.

During last many years, the prime objective of a youngster of India was to get a job / career in which it gives job security and social status. The first choice, therefore, was a Government job – preferably via competitive examinations. Private sector (except MNC’s) was least preferred. Multinationals were preferred as they paid well and also had strong HR practices. Input industries were at the bottom of the heap for obvious reasons. There were hardly any multinationals outside of the agro chemicals sector, and other input industries have been usually local companies that lacked stability with the exception of the fertilizer and the farm mechanization sector. The corporate sector in India has begun to experience and respond to changes, and one now finds a growing number of interesting career opportunities in agriculture as corporates drive the talent acquisition and retention component. There are a growing number of new companies in the billion dollars plus club in the area of processed foods, beverages, nutrition and the plantation sector. Inputs and farm mechanization have several such companies.

Indian agriculture is at crossroads and one of the major challenges is to reverse deceleration in agricultural growth. The main reason for the deceleration in agricultural growth is declining investment particularly public investment in agriculture research and development and irrigation, combined with the inefficiency of institutions providing inputs and services including rural credit and extension. The crisis of stagnation in agriculture needs urgent attention. The government has renewed focus on agriculture and promoting public-private partnership to accelerate growth in the rural economy. Many Indian and multi-national agribusiness companies have entered the Indian agribusiness sector. The central government has also initiated reforms in outdated laws such as the Agricultural Produce Marketing Committee (APMC) Act, Essential Commodities Act (ECA), and given some incentives like waiver of market fee, rural development tax, etc. for companies making investment in agribusiness sector.

“Tilapia Drumstick” An Innovative Product for Retail Fish Markets

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Abstract

A value added primary processed product called tilapia drumstick has been introduced by BPD Unit, CIFA. Tilapia drumstick can be preserved at -200°C for six months. Tilapia drumstick has been introduced in Reliance super, various hotels and fast food chains. The response is encouraging. Technical feasibility and economic viability of the tilapia drumsticks in a small processing plant has been evaluated. The product can be made very popular in retail fish marketing.

Rohu Butterfly- A Product Aiming to Improve Retail Marketing of Carps

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Abstract

Carps are main stay of Indian aquaculture primary processed “ rohu butterfly” – a product has been introduced in the retail market. Butterfly rohu has served advantages. Butterfly cuts of carps are tried in retail market, hotels and restaurants and also with institutional caterers. These products are easily frozen and the cold chain is maintained. The frozen products last for six months without any quality deterioration. Cross contamination from the gills and gastrointestinal contents are minimized. Butterfly cuts are efficiently frozen. The product can be marketed as whole fish, can be cut into primal cuts for curry, fry, cubes or chunks for table use.
Package for Enhancing the Income from Pokkali Farming-A Successful Agribusiness Model

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Abstract
Pokkali is a typical farming system in which saline tolerant paddy and shrimp are alternatively cultured in the same field where salinities range from 0 to 28 ppt depending on climate. The biomass residues of the paddy crop form the feed base for the shrimps and the residues of the shrimp culture acts as a fertilizer for paddy and hence the symbiotic system can be referred to as “Zero Input” organic farming system. The fields are located in central Kerala, India. Pokkali farming received GI of Govt. of India and also Plant genome saviour community award of PPV&FRA, New Delhi recently. Pokkali fields were spread over an area of 25,000 ha in the 1980s, but the cultivated area shrunk to 5000 ha by the year 2000. The decline in the area is due to fewer returns from pokkali farming due to climate dependency, high labor cost, lack of machinery, widespread attack of White Spot Syndrome Virus (WSSV) on shrimps etc. A package was developed by Krishi Vigyan Kendra (Ernakulam) with funding from the National Initiative on Climate Resilient Agriculture (NICRA) where the total income from per ha area increased by integrating high value finfish farming in cages in pokkali fields. The sustainable revenue act as an incentive for the farmers to take up Pokkali farming in large scale. Initially an extensive survey was conducted in different Pokkali farming areas of the district and data collected regarding local traditional farming practices. The survey also identified the problems faced by the different Pokkali farmers of the district. Subsequently the Pokkali farmers were trained in pond preparation, cat walk construction, cage construction, nursery rearing, fish transportation, feeding, cage maintenance etc. Nursery reared Mullet (Mugil cephalus) and Pearl spot (Etropus suratensis) were cultured in cages and were fed formulated pellet feeds. Additional supplementary feeds such as rice flakes, GNOC and rice bran were provided occasionally. A total of 324 kg Pearl spot and 312 kg Mullet were harvested from a pokkali field of 1 ha area. Traditionally paddy provides a yield of INR 15,000/- per hectare. The combined revenue from the paddy - shrimp field is INR 50,000/- per ha. The present model could generate an additional income of INR 38,000/- per ha. The income generated showed the viability and replicability of the model which also received national attention. Several agricultural agencies such as Agricultural Technology Management Agency (ATMA) functioning in the district have now come forward to replicate the model.

Strategic Marketing of Early Season Cauliflower for Maximizing Producers’ Share in Consumers’ Money: A Case Study from Jharkhand

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Abstract
The vegetables play an important role in the economy of the agricultural sector. The vegetable crops usually give higher yield per unit area as compared to other crops, ensures generation of a sustainable income for farmers and additional employment for seasonally unemployed farm labourers. Among different vegetables, India occupies first position in the production of cauliflower and the yield of cauliflower in India (18.44 tonnes per hectare) is slightly higher than the world average of 17.58 tonnes per hectare. Therefore, an attempt to identify the marketing channels, the producers share, the price spread for cauliflower and factors affecting marketed surplus of cauliflower in Ranchi district of Jharkhand as a case study covering 82 growers of cauliflower. The cauliflower produced on the sample farms were marketed through various channels of marketing i.e. channel-I (producer-consumer), channel-II (producer-retailer-consumer) and channel-III (producer-wholesaler/commission agents-retailer-consumer) etc. The producer’s share of consumer’s rupee was the highest on the first channel but the third marketing channel offered the considerably high producers share from marketing of cauliflower as the entire early season cauliflower were sold through this channel to the markets located in Kolkata city at a very premium price. The functional analysis for marketed surplus revealed that the level of production was positively and significantly influencing the marketed surplus of the cauliflower for all categories of farms. However, operational land holding and price of the produce for all categories of farms was observed to have positive but insignificant effect on marketed surplus. On the other hand, family size and annual household income for small farms was observed to have negative and significant influence on marketed surplus.
Study of Tribals Regarding Agricultural Occupation

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Abstract
The study sample constituted 100 tribals drawn from 10 villages. The respondents were interviewed with the help of a specially designed schedule. Most of the respondents belonged to middle age, illiterate, medium annual income, medium family size and nuclear type of family. It was observed that farming and agricultural labour were the major occupation of the tribals in relation to agriculture. They were also engaged in goat keeping, labor in industry and the collection and selling of forest products. In farming, all the tribals reported constraint regarding higher prices of improved seed material, lack of knowledge about plant protection measures and low market price for agricultural produce. Illiteracy and low education, non-availability of loans for starting any other occupations and lack of awareness about Govt. Schemes are the constraints experienced by agricultural labour. The constraints about lack of technical knowledge and lack of public field for open feeding are major in case of goat keeping. The major suggestion for improving the agricultural occupation of tribals were training on modern agricultural technology be organized for tribals at village level, continuous and special educational programme be implemented in the tribal areas, loan for agricultural and other related occupation be given with less interest rate and plantation of shrubs and bushes palatable to goats in public waste land.

Role of Rural Co-Operative Banks in Agricultural Development- Challenges and Opportunities

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Abstract
RCBs have long been considered the backbone of Indian economy. Rural credit cooperatives were basically established to meet the crop loan requirements of farmers, and other capital investments in agriculture. There has been a wide range of changes in the co-operative movement. It is now an admitted fact that the agricultural co-operative sector played a very important and decisive role in the development of agriculture and the rural economy of the country. An attempt has been made in this paper to review the efforts made by the rural banking sector for achieving the growth of the nation with emerging issues and challenges.

Production Management in Small – Scale Agromachinery Industries

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Abstract
This paper focuses on computer based techniques developed by the author that can help economically manage production of agro machinery industries in general and unorganized industries in small-scale sector in particular. These management tools will benefit 10 thousand and odd agroimplement industries and several other light manufacturing industries in the country that are inadequately equipped with the necessary personnel and infrastructural facilities except having computers in most cases limits in their use for preparing customer bills. The traditional method of fabricating implement on fixed position layout and process layout need be replaced with cellular and mass-production manufacturing techniques. Use of right types and quality of steel & alloys instead of re-rolled steel must not get lower priority if industries vouch for quality, implements.
The Role of Marketing in Sustainable Agriculture: New Challenges

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Abstract
The expansion Agricultural sector is decisive for facing the challenges of poverty, food security and redundancy in the developing countries like India. Along with increase in production and productivity agricultural marketing should be properly addressed in strengthening agricultural sector. Marketing and institutional credit no doubt has a significant role and this role has further increased in the liberalized environment. Permitting significant investment in agricultural retailing is likely to ensure adequate flow of capital into rural economy in a manner likely to promote the welfare of all sections of society, particularly farmers and consumers. It will bring about improvements in farmers’ income and agricultural growth and assist in lowering consumer price inflation. Farmers are extremely distressed and need desperately some scope for marketing their produce with at least a reasonable margin which the Government till date has failed to provide. The present paper focuses on new challenges in agricultural marketing in the emerging environment. The importance of marketing in agriculture is very well illustrated by saying, “that a good farmer has one eye on the plough and the other on the market”.

A Model of Interdependent Relationship:
Government-Industry-Academia in Agricultural Practices

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Abstract
Agricultural is the most neglected sector, though nearly 70% of our population depends upon it. In spite of large population engaged in it, it contributes for very low share in GDP and growth. The model of interdependent relationships between the three elements namely government-industry-academia can provide a common portal or gateway to growth and development in agricultural sector.

Information Technology in Human Resource Management: An Assessment

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Abstract
The paper begins by introducing the observations on the applications of information technology (IT) in the field of human resource management (HRM) in general. This is due to the fact that IT and its wide range of applications have already made their presence felt in this area. Although the impact of IT on HRM has long been attracting the interest of academicians, no empirical research has ever been realized in this field. The IT managers and professionals from various sectors, based on whose results, the data shows that IT is used extensively in the organizations to perform HRM functions in India’s dynamic economy. The results also indicated that, while IT has an impact on all sectors in terms of HRM to certain extent, the types of IT used vary significantly between recruitment, maintenance, and development tasks. However, the empirical results here reveal that these organizations are not applying these technologies systematically and maturely in the performance of HRM functions.
Contribution of Sericulture Towards Livelihood -
A Case Study of Hoshangabad Division

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Abstract
This paper provides a summary/review of the development and implementation of Sericulture by different Self Help Groups (SHG’s) as means of livelihood in the Indian state of Madhya Pradesh. The Self Help Groups are active in developing and promoting better livelihood options for the rural poor in the country. Recognizing the potential of sericulture to provide self-employment and remunerative returns, Self Help Groups initiated on-station experiments to obtain first-hand experience with various aspects of the technology of silkworm rearing and to test potential refinements to suit local conditions. In a second step, sericulture practices were taken to farmers in the field on a pilot basis in Hoshangabad, and Pachmadi districts.

These Self Help Groups adopted a multi-pronged strategic approach by introducing a technology-based integrated farming model, empowering and capacitating communities to take the lead in implementation and marketing of the product, but providing strong backup support with an effective monitoring system.

This paper provides an overview of the technological innovations in sericulture that resulted from Self Help Group’s on-station and on-farm experimentation. The economics of sericulture was worked out along the entire value chain from cocoon to raw silk to silk fabric, in short from soil to silk, and the environmental impact of two forms of sericulture – smallholder farmers using planted mulberry trees and tribal communities relying on Arjuna / Asan trees in natural forests to feed the silkworms.

Agriculture Sector of India under Five-Year Plans

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Abstract
The major portion of the natural resources of India consists of land and the most of its inhabitants are engaged in the exploitation of land. In any scheme of planned economic development of the country, therefore, agricultural sector hold a position of basic importance. India’s agriculture sector has an impressive long-term record of taking the country out of serious food shortages despite rapid population increase. This was achieved through a favorable interplay of infrastructure, technology, extension, and backed by strong political will and policy framework.

The Indian economy has undergone structural transformation from an agriculture-based to knowledge-based services and industrial economy but the agriculture sector is still the mainstay as about half of India’s population is wholly or significantly dependent on agriculture and allied activities for their livelihood (Gov. of India, 2011). The contribution of agricultural sector to GDP has continued to decline over the years, while that of other sectors, particularly services, has increased. In 1970-71, agriculture contributed about 44 per cent of the GDP, which declined to 31.4 per cent and 13.9 per cent in 1990-91 and 2010-11 (at 2004-05 prices), respectively (CSO, 2012).

Five-Year Plans (FYPs) are centralized and integrated national economic programs. At the time of independence, stagnant production, low productivity, traditional technology, and poor rural infrastructure were the major challenges for the Government. Not surprisingly, food self-sufficiency became a key national policy goal. To achieve this goal, agricultural development received the highest priority in the First Five Year Plan, about 17.5 per cent of the plan outlay was allocated to agriculture and about 22 per cent to irrigation, multi-purpose irrigation, and power projects. Thus, it strongly supported agriculture production. From the first to twelfth plan agriculture sector received priority in Five year plans. This paper is an attempt to see the growth and development of agriculture sector in India through the goggle of Five year plans.
Contribution of Agriculture Sector in Indian Economy

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Abstract

India is an agriculture based country. Agriculture is the backbone of the Indian economy. Agriculture is the only means of living for almost two-thirds of the employed class in India. Agriculture is still the only largest contributor to India's GDP even after a decline in the same in the agriculture share of India. The composition of Indian GDP includes many sectors like industry, infrastructure, agriculture, and services. In the steady investments in technology development, irrigation infrastructure, emphasis on modern agricultural practices and provision of agricultural credit and subsidies are the major factors contributed to agriculture growth.

The agriculture sector of India has occupied almost 43 percent of India's geographical area. As per the economic data of financial year 2012-13, agriculture has acquired 13.7 percent of India's GDP. Agriculture is still the only largest contributor to India's GDP even after a decline in the same in the agriculture share of India. The composition of Indian GDP includes many sectors like industry, infrastructure, agriculture, and services. In the steady investments in technology development, irrigation infrastructure, emphasis on modern agricultural practices and provision of agricultural credit and subsidies are the major factors contributed to agriculture growth.

India is a vast country, so the sectors contributing to the country's GDP is also big in numbers. Various sectors falling under the India GDP composition includes food processing, transportation equipment, petroleum, textiles, software, agriculture, mining, machinery, chemicals, steel, cement and many others. India has always been benefited by agriculture. Though the future of India is industrialization, the contribution of agriculture would always prove to be vital for making India a powerful and stable economy in the future.

Rural Development Programmes and Schemes and their Impact

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Abstract

Indian economy is predominantly rural, agriculture being its mainstay, although its share in GDP has been declining, it still provides livelihood to 58% of rural population and 70% of its population resides in its villages. Rural development implies both the economic betterment of people as well as greater social transformation. Increased participation of people in the rural development programmes, decentralization of planning, better enforcement of land reforms and greater access to credit are envisaged for providing the rural people with better prospects. The Government of India has always made concerted efforts to bring sustainable and inclusive growth of rural India through a multipronged strategy for eradication of poverty by increasing livelihoods opportunities, providing social safety net and developing infrastructure for growth. This is expected to improve quality of life in rural India and to correct the developmental imbalances, aiming in the process, to reach out to most disadvantaged sections of the society. This paper looks at the various programmes and schemes undertaken by Indian government in the past and analyses the impact on poverty reduction, employment generation, rural infrastructure, habitant development and provision of basic minimum services to the rural parts of the country.
Strategies for Growth and Development of Agricultural Sustainability in the Indian Economy

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Abstract
Agriculture sector, world over, has experienced a phenomenal growth since the mid-twentieth century. The growth, driven by Green Revolution technology, has made a significant impression on aggregate supply of food grains, ensuring food security to the growing population. The next stage of agricultural growth however, faces a serious challenge in terms of sustainability. While the need for a paradigmatic shift in the growth strategy is well recognized, the transition from input intensive to sustainable farming however, has certain inherent difficulties. On the other hand the contribution from the agri-sector is significant in the development of the Indian economy which has led increased emphasis on promoting sustainable agriculture development in India.

The sustainable agriculture development of any country depends upon the judicious mix of their available natural resources; therefore agriculture determines the fate of a country like India where about two-thirds of the population still lives in rural India with agriculture as its livelihood, in spite of the increasing urbanization that has been taking place since many decades. So if the agriculture goes wrong, it will be really bad for the economy as the falling of agricultural growth not only affects employment but GDP too (thus increasing poverty). But in spite of the fast growth in various sectors, agriculture remains the backbone of the Indian economy, therefore there is need to deal with the issues related to sustainable agriculture development.

This present paper attempts to tackle and explore the issue of sustainable agriculture development in the Indian economy. Further it aims to compare the sustainable agriculture system with the traditional system and the current system in practice, across the dimensions of ecological, economic and social sustainability. It also tries to give long term solutions to solve the problems plaguing the system so that sustainable practices can be promoted and practiced.

Role of Public Distribution System (PDS) in Ensuring Regional Food Security in India

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Abstract
In India, growing population has created the need to produce adequate food grains domestically for which efficient distribution network system is required. The Public Distribution System(PDS) in the country facilitates transfer of the food grains in the country to the poor and needy in various geographical regions across the country. In the light of the growing food subsidy stocks in India, It is essential to evaluate the cost effectiveness of the PDS to meet the food need of the poor. Therefore this paper is focused on the role of the public distribution system in ensuring regional food security in India. The paper also discusses the various elements that are involved in food security of the country.
Forest Structure and Invasion by Lantana Camara

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Abstract
During the course of succession, many tree species competed with each other to establish their hold on the vacant niches. Consequently, some tree species occupied the top position and became dominant in the community, and others were either content with their lower social status or eliminated from the system. It is an accepted fact that community is a dynamic biological system consisting of a number of plant and animal species and vegetation at a particular site is the result of interaction of the various climatic and bio-edaphic factors.

A Study of Index Based Insurance Schemes for Optimal Risk Management in Agriculture in India

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Abstract
This paper discusses the dependence of Indian agriculture on uncertain rains. In addition the farmer’s face different types of risks such as production risk as well as marketing risks. It then argues for the need for crop insurance as an alternative to manage production risk. It provides the historical overview of crop insurance products, their execution and performance. The issues related to the progress of crop insurance products during pre-independence and post independence are also discussed. The important schemes of agriculture namely, National Agricultural Insurance Scheme (NAIS), Weather Based Insurance Scheme (WBIS), Experimental crop Insurance Scheme (ECIS) and Pilot crop Insurance Scheme (PCIS) have been highlighted. The paper also reflects on challenges and opportunities for Indian agricultural insurance sector.

Supply Chain Management

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Abstract
With only 2.4% share in world’s total land area; India has to ensure food security of its population which is about 17.5% of world population. This leads to excessive pressure on land and fragmentation of land holdings. Though India spends over 13 per cent of its GDP on logistic and supply chain management, there is a colossal waste during the post-harvest storage and handling due to improper bagging without crating, lack of temperature controlled vehicles, no cold chain facilities for preserving the produce, coupled with significant processing of the agricultural produce, fragmented traditional supply chain management and presence of large number of intermediaries resulting in enormous losses to the nation. In this context, logistics and supply chain management have become the crucial areas of management and national focus. Supply chain management spans all movement and storage of raw materials, work-in-process inventory and finished goods from point-of-origin to point-of-consumption.

An efficient supply chain can contribute to an increase in the marketable surplus by lowering down the inefficiencies in production, processing, storage and transportation. It ensures better prices to the farmers inducing them to invest more in the vital inputs. India on one side is endowed with abundance of skilled labour and very favorable agro climatic conditions for the cultivation of a wide variety of fruits and vegetables, but on the other hand suffers from supply chain inadequacies; competition posed by economic reforms and liberalization. Hence, the future of Indian food processed industry is at crossroads. The study examines the comparative roles played by the intermediaries in the traditional and modern supply chains in agricultural marketing and suggests that through integrated and improved transportation system and regional distribution centres the import/export capabilities could be enhanced and with technological interventions supply chain management practices in India could also get improved.
Modernizing Agriculture for Higher Employment Opportunities

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Abstract

India being the world’s largest producer of fruits, vegetables, milk, pulses, wheat and rice is predominantly agricultural economy and contributes more than a fifth of the country’s gross domestic product (GDP) and also generates about 60% employment opportunities in our country. The crop production of our country dominates the sector, representing about 70% of the total value of agriculture output. It is not only addressing the food and nutritional requirements of people but also fulfilling the basic needs and demands of agro-based industries. Though the unfavorable climatic conditions act as a hurdle in producing ample crops, it also faces the poor post-harvest management and processing prospects offers a bleak scenario for marketing as well as trade. So a better marketing and managing expertise is the need of the hour for an economic rural development which will foster the Agri-business all over the country as well as for export purpose. For the completion of this dream of every agriculturalist that one day he will be at the zenith of the “Agribusiness”, we have focused in our study on the fabricating of agriculture to the splendid Agribusiness and tried to highlight the tremendous employment opportunities and challenges regarding the same.

Through our research by meeting some peasants of our city and adjacent villages, we have found that due to lack of proper supply of the advanced agricultural implements and better quality seeds they are unable to cultivate expected crops and thus can’t contribute much in the country’s economy. Our study also suggests that there is a need to develop the processed food industries all over the country in order to provide more employment opportunities. Taking this into consideration, we propose some measures for elucidating their problems and if the agriculturalists implement these measures and methods, then the growth and development of the agribusiness is assured which will definitely bestow a huge sum in the country’s economy.

Organizational View on Green Supply Chain Management: A Strategic Analysis Tool

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Abstract

Confronted with global resource exhaustion and increasing environmental deterioration, enterprises cannot ignore environmental issues in today’s business. Economic globalization and pressure from the public, laws, and environmental standards are forcing and driving enterprises to improve their environmental performance as well. Green SCM is getting more attention as a sustainable development mode for modern enterprises and is increasingly a part of Corporate Social Responsibility (CSR) initiatives. Green Supply Chain Management (Green SCM) is gaining significance due to some of specific reasons likewise; diminishing raw materials, Deterioration of environment, overflowing waste lands, increasing levels of pollution. This paper tries to get an overview study of these specific reasons for strategic analysis of green supply chain management.

Self Help Groups : A Vehicle of Rural Development

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Abstract

Self Help Group is a homogeneous group of micro entrepreneurs with affinity among themselves, voluntarily formed to save whatever amount they can conveniently save out of their earnings and mutually agree to contribute to a common fund of the group from which small loans are given to the members for meeting their productive and emergent credit needs at such rate of interest, period of loan and other terms as the group may decide. A self-help group is formed with 5 to 12 individuals. The SHG model has been instrumental in generating employment and better incomes for the rural population. In the Rural Women’s Development and Empowerment Project, for example, 90 per cent of the beneficiaries reported increased access to and control over resources such as land, dwellings and livestock. Under the Livelihoods Improvement Project in Himalayas, women self-help group members in Uttarakhand were even elected as gram pradhans (heads of the local governments at the village or small town level) in 170 out of 669 panchayats in villages.
Agribusiness
Management
Homa Therapy an Effective Tool in Mitigating Soil, Water & Environmental Crises

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Abstract
The fertility of the earth is contained in the thin layer of topsoil which supports all plant life, and which is, in turn, protected by plants. Today, the soils of India are dying, and the most fertile among them are dying because of the indiscriminate use of agro-chemicals over 5-6 decades. This has adversely affected soil fertility, crop productivity, produce quality, water and the environment. Homa Therapy with Agnihotra as its basic tool has wide-reaching beneficial effects on soil, water resources and to the environment. In fact, the food which we consume, water which we drink and the environment in which we live, all are polluted and the problem becomes alarming every day. Homa Organic Farming an ancient technology, provides an alternative in resolving these crises. Agnihotra is a gift to humanity from ancient- most Vedic Sciences of bio energy, medicine, agriculture and climate engineering. Agnihotra is the basic fire in HOMA THERAPY. It is the process of purification of the atmosphere through the agency of fire, prepared in the copper pyramid tuned to the biorhythm of sunrise/sunset. Basically it is the science of pyramidology, biorhythm of nature, burning of organic substances, sonic power of chanting special mantras and its electromagnetic effects which extend to a larger area by establishing a resonance point. By the practice of Agnihotra, one can notice that tension of mind disappears and one begins to experience peace. The mind is reshaped so nicely, so delicately, so effortlessly by simply sitting in the Agnihotra atmosphere.

Soy based Bakery Enterprises for Agri-Food Processing and Livelihood Opportunities

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Abstract
Technological advancement, innovation, and globalization have created a new economic imperative in agricultural and food system. The establishment of small enterprise to process soybean into economical and nutritious value added products having many health benefits and suiting to Indian taste offers a great opportunity for the production of cost effective nutritious products. Plant management for these enterprises has become the most important aspect of entrepreneurship development and is becoming a matter of public policy to rejuvenate the Indian economy. Soybean is a rich source of good quality protein, fat and array of micronutrients, Among bakery products, biscuit is one of the best highly nutritive cost effective products with good shelf life. Hence efforts were made in a planned manner to make upcoming entrepreneurs aware about tackling of the nutritional deficiency problem of existing product and creating income generating activities through the establishment of soy based bakery enterprises for value added nutritious biscuits. The techno-economic analysis of the enterprise ensured economic viability and feasibility for nutritional security and better health. The processing facility for small enterprise can be established with capital as low as Rs 50000 to 2 lakh. To demonstrate the feasibility of such enterprise, the formulation was tried in a local biscuit industry with glucose syrup which produced a very acceptable soy based glucose biscuits. The soy supplemented biscuits based on our formulation were produced at large scale by this firm and supplied under nutrition programme for improving nutritional security. The paper discusses in detail the various aspects of processing technologies and equipment for production of value added soy supplemented biscuits and project profiles for establishment of small enterprise.
Entrepreneurship Based on Processing and Value Addition of Lac – A Natural Resin

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Abstract
Lac cultivation is an important source of income for livelihood of the forest and sub-forest dwellers in different states of the country. India is the largest producer of Lac, contributing about 60% of total world production. Besides domestic consumption, around 70% of Lac is exported to different countries for various applications. While this natural resin of versatile physico-chemical properties is useful for various applications, it supports and provides employment to small artisans and high-tech industries based on Lac. A number of processes and products of Lac have been developed. Some of the promising Lac based products viz. equipments for Lac processing, aleuritic acid, food grade Lac dye, improved wood varnishes, air-drying and baking type insulating varnishes, multipurpose glazing varnish, gasket shellac compound, lamp capping cement, adhesive for agarbatti, Lac based dental base plate, fruit coating formulation etc., which can be conveniently adopted by the farmers, entrepreneurs are discussed in the paper.

An Overview of Agricultural Insurance in Agribusiness

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Abstract
Agriculture is the backbone of the Indian economy. The fact is that it is one of the riskiest economic activities. Variation in farm income due to fluctuation in crop yields and from commodity prices is one of the most significant features of agriculture. Indian agriculture is overwhelmingly a small farmers' enterprise i.e. operating two or less than two hectares. The small and marginal farmers account for three fourth of the total holdings. The impact of droughts and crop failure may be disastrous for these resource poor small and marginal farmers. The crop failure due to natural calamities like drought, floods or attack by pests and diseases may lead to many economic setbacks. This all thus results in worsening their economic conditions. The cases of committing suicides by farmers in the event of crop failure or crash in market prices are not uncommon in recent years. Crop failure reduces employment opportunities in the rural areas leading to welfare loss to the society. It leads to a chain of reaction i.e. loss of income reduces demand for non-farm products by the farmers. Decline in the farm products used as inputs creates shortage of inputs in other sectors of the economy and thus the entire economy faces the consequences of agricultural risks of which farmers are the most direct and primary victims. The insurance agencies in India are more than 150 years old and it is logical that insurance cover should have penetrated into rural areas and covered agriculture sector in a big way to benefit the agribusiness in long term and avoids the consequences of crop failure and natural calamities.
Impact Analysis of Activities of Krishi Vigyan Kendra

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Abstract
A study was conducted to analyze the impact of the Krishi Vigyan Kendra (KVK) trainings on farmer’s attitude and to explore the relationship between attitude and profile of the farmers. The total numbers of farmers studied are 200. The questionnaire was prepared in accordance with the objectives of the study. The data were collected by personal interview method. Majority of respondents, who were from middle age with secondary level of education have integrated agriculture with animal husbandry. The another reason might be that the parental occupation taken up by middle age group, induce in them a sense of responsibility to keep in touch with KVK training programme, which may not be same with older ones due to their inability to do farming apart from education and the young ones who are not capable of taking responsibility. Adoption of improved and newer technology requires decision by farmers. Scientific orientation is a degree to which respondents is oriented to the use of scientific methods in relation to adoption behavior. It is important psychological factor in decision making process. Innovations which is the main theme of KVK training, is the degree of an individual interest and desire to seek changes in farming techniques and to introduce each change into his own operations as and when found practicable and feasible. Present study revealed that out of nine independent variables, correlation coefficient has shown positive and significant relationship in case of variables namely, occupation, experience in farming, training received at KVK, scientific orientation and innovation while, non significant relationship in case of age education, size of land holding and animal possession with attitude of the farmers toward training organized by KVK. It is concluded that farmers with progressive attitude will always try to involve themselves in all activities through which more annual income can be achieved. Thus, such kinds of farmers are always optimistic and try to get maximum information and benefit from KVK trainings.

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Demand, Supply and Manufacturing Opportunity of Gum Based Product in Indore

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Abstract
Chewing gums are mobile drug delivery systems. It is a potentially useful means of administering drugs either locally or systemically via, the oral cavity. The medicated chewing gum has through the years gained increasing acceptance as a drug delivery systems. Several ingredients are now incorporated in a medicated chewing Gum, e.g., Fluoride for prophylaxis of dental caries, Chlorhexidine as local disinfectant, nicotine for smoking cessation, aspirin as an analgesic, and caffeine as a stay alert prepetition. In addition, a larger number of chewing gum intended for prevention of caries, xerostomia alleviation, and vitamin/mineral supplementation are currently available. Medicated chewing gums are solid, single dose preparation with a base consisting mainly of gums that are intended to be chewed but not swallowed. The study was conducted to find out market for establishment a production unit of gum based product, find out future requirement, find out the level of demand. The chewing gum production line comprises of Gum base oven, 200L Mixer, Extruder (double screw), Rolling Sheeting machine, Sigma Mixture, Twin Colour Rope Extruder and Six way cooling tunnel. So far there is NO Gum Base manufacturer in our region right now and all the Gum Base is imported or purchases from outside of the M.P. though there is huge scope for starting of the business. The paper discusses total supply chain for this product.
Research Priority and Development in Agribusiness for Vegetable Sector

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Abstract
Agribusiness in terms of linkages in marketing channel, market infrastructure, price stabilization and maintaining liaison between demand and supply is a sine qua non for horticultural crops like vegetables, which are perishable in nature. Poor linkages in the supply chain and poor marketing infrastructure are leading to high and fluctuating consumer prices for vegetables and only a small proportion of the consumer rupee reaches to the farmers. There is substantial wastage, deterioration in quality, and frequent mismatch between demand and supply of vegetables spatially and over the time. Research and development (R&D) in agribusiness is needed to be revitalized and an effort was made to identify the priority areas where interventions are required. This study was undertaken during 2012-13 by conducting a survey of horticultural and marketing experts in which major problematic areas in the agribusiness of horticultural crops were considered. According to 73% respondents inadequacy of infrastructure and cold storage facilities (Rank-1) is among the most problematic areas where intervention should be a priority. The other problem areas are marketing system of vegetable is not defined and poor (Rank-2), contract farming in vegetables is inadequate (Rank-3), small scale production of quality processed vegetable items are inadequate (Rank-4), instability in vegetable price leads to food price inflation (Rank-5) etc. The vegetable retail sector in India is also highly fragmented and there are huge inefficiencies in the supply chain therefore in the present study according to 31% respondent FDI in retail market of vegetable is highly required but 16% told that it is not at all required and according to 11% respondents it is a less priority area of intervention. Addressing all the problems at one time is difficult. This study throws some light to the policy makers and research managers to identify the way in which future agribusiness R&D should be directed.

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Enhancement of Agribusiness Industry towards Sustainability in North-West (NW) Himalayas

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Abstract
The global agribusiness industry has seen a series of transformations. These transformations in agriculture created vast opportunities for the agro industries to produce quality food and fuel. But at the same time it also faces a number of challenges like globalization, liberalization, industrialization, fragmented land holdings and crop diversification. A gradual transformation has been observed from agriculture to agribusiness in developed and developing Asian country’s economy. The agriculture and food business sectors cooperate with farmers and other stakeholders, including governments and NGOs, to develop appropriate technologies that are required to feed the growing world population. The hilly state, Uttarakhand falls in NW Himalayas is bestowed with diversified agro climatic and social cultural milieu. There is a big need for more food production to feed the increasing population and an agribusiness industry to preserve and process it. As far as the Agri-food industry is concerned, it is being largely dominated by the unorganized sector. Over the past decade, companies such as Hindustan Unilever, Pepsi and Godrej made an entry into the Agri-food business with their ready-made snacks and other Indian preparations. The monopolistic market dominance of these agribusiness firms is widespread by reducing farm incomes and increasing the prices for the consumers globally. Keeping in view the above facts, the factors which are considered essential for enhancement of agribusiness industries towards sustainability in NW Himalayas are sound technology, boosting competitiveness of rural agri business industries, focus on simplified agribusiness supply management, linkages to develop integrated agribusiness ecosystems, public private partnership, research and development and training in agri-business, flexibility in marketing standards, farmers friendly corporate/contract farming, abolition of monopolistic market, maintaining product quality and reliability, development of rural financial and physical infrastructure services, increasing importance of environmental standards, farmers property rights and trade negotiations, etc.
A Maize Sector in India: Rising Business Opportunities in Export Market

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Abstract
India is the sixth largest producer of maize in the world, and contributed about 2 per cent to the global maize production of 855.72 Mt in 2012-13. As per the fourth advance estimates of the Department of Agriculture & Cooperation, Government of India, the total maize production in 2012-13 is expected to be 22.23 Mt from about 8.62 M ha land of the total production, 16.04 Mt would come from rainy season (Kharif) maize, while 6.19 Mt from winter (Rabi) and spring maize. There are many drivers of maize demand in India, the most significant being a growing demand from the poultry sector (consume more than 52 %); growing urbanization and consumption pattern change; and rising international price due to diversion of maize grain towards biofuel production. Moreover, the demand of maize for poultry and livestock feed (59%) will be the major driver of future maize production growth in the area. It is anticipated that the demand for corn may increase up to about 30 Mt by 2020. Against this, the production outlook exhibits surplus maize production in the country and expected to touch 38-44 Mt by 2020 under aggressive hybrid adoption scenario. This will give a modest surplus of 5-10 Mt of maize for export. India has emerged as one of the top 10 maize exporters in the world with export escalating by more than 10-times from 0.3 million metric tons in 2000-01 to 4.27 million metric tons in 2012-13. It accounted for 2.8 per cent of the world maize exports. A large chunk of Indian maize (85-90% of total export) is exported to the South-East Asian countries like Indonesia, Vietnam, Malaysia, Taiwan, etc. and the remaining 10-15 per cent is exported to the Middle-East countries and Bangladesh, Nepal, Bhutan, etc. As the global maize demand keeps increasing, particularly in Asian nations, India has a huge potential to increase its market share in global trade. There are ample business opportunities to increase the maize trade from India. The adoption of modern technologies, particularly hybrids suiting to the importing countries, soil-test based fertilizer applications, improving irrigation efficiency through micro-irrigation, etc. will increase crop productivity significantly in all the regions. Similarly, development and introduction of customized farm mechanization, storage and grading facilities would help in value creation and capturing in the domestic as well as export market. Likewise, maintaining rigorous quality standards in the entire supply chain from farm to the port in cost effective manners may help in attaining the higher export share in the region.

Identifying Research and Development Priorities for Vegetable Seed Sector in India

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Abstract
For raising the productivity, seed is recognized to be the cheapest source, yet most critical single input. Use of good quality seeds can result in as much as 15 to 20 percent yield increase. The Indian vegetable seed sector today is well established with tremendous potential to grow beyond boundaries of the domestic market. Being high value per unit weight, the vegetable seed segment has a significant share in overall seed market. Although the price of vegetable seeds in the market is very high, farmers are dissatisfied with spurious seed, less germination percentage and availability of quality seeds on time. Research and development interventions are required to bridge these lacunae and an effort was made to identify the priority areas where interventions are required in the vegetable seed sector. This study was undertaken during 2012-13 by conducting a survey of vegetable and seed experts in which major problematic areas in the vegetable seed sector were considered. There was an increase of 194% in vegetable hybrid seed market during 1998 to 2008 and is expected to grow further but the actual requirement of vegetable seeds in India still not known (Rank-1). Among the other constraints, data on the conversion of breeder seed to foundation and certified level not available in India (Rank-2), quality seeds of recommended/ released hybrids and OP varieties of vegetables are not available (Rank-3&5) and the price of private sector hybrid is exorbitantly high (Rank-4). As a remedial measure of the above said problems, an intervention was made in selected two blocks of Mirzapur district of Uttar Pradesh. A seed village concept was introduced and 4 seed villages were developed during 2012-13. A total of 21 farmers were trained and the seed production of cowpea (Kashi Kanchan) and garden pea (Kashi Nandini, Kashi Uday & Azad Pea-3) were demonstrated in an area of 0.95 acres and 16.23 acres respectively in the farmers’ field in a participatory mode of production of quality seeds. The selected farmers were able to produce 2.8 qt. of cowpea seeds and 44.6 qt of pea seeds which paved the way of seed security of the farmers.
Integrated Dairy-Farm : A Business Venture for Maximization of Returns

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Abstract
The paper attempts design and development of viable business model based on integrated dairy-farm enterprise under self-energy sustainable approach. The paper illustrates opportunity for establishment of organized dairy (livestock) unit of around (100 animals housing) followed by pelletized feed production plant with production capacity (1 t/h), milk processing plant around (500-1000 l), and for electricity generation biogas plant (35 cu m) and biomass briquetting unit (50 kWh) for maximization of effective socio-economic returns inclusive of climate resilience through integration of small scale dairy-farm product / by-product based enterprises. The paper therefore, attempts a recycling approach for waste minimization and maximization of possible returns on account of integration of potential dairy-farm enterprises. The constituents of machinery / facilities of each linked enterprise in the whole value chain have also been discussed. Therefore, it is to establish such rural industrial complex an investment of Rs. 10 million with expected minimum return on investment (ROI) would be 38 % and expected area (space) requirement worked out to be around 10 ha. It has also been anticipated that due to integrated establishment expected social return would be in creation of employment (around 8000 mandays/year). Further capturing methane and burning it as a source of fuel through establishment of such integrated enterprise would reduce the methane loss and its release in the environment, which also contribute significantly to the global warming.

Agriculture Commodity Trading in India: Evolution and Progress

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Abstract
The piecemeal evolution of commodity market in India has been of great significance for our country’s economic prosperity. Strengthening institutions play a vital role in the liberalization process in agriculture. The future of futures market in respect of agricultural commodities in India has to be more focused and pragmatic approach is to be adopted by the government. In agriculture based economy, like India, farmers face not only yield risk but price risk as well. To uplift the price risk management process, commodity future and derivatives play a crucial role especially in the agriculture sector. Agriculture sector in India has a major intervention in government since long back. To eradicate some traditional features many economists focused on the liberalization of this traditional agricultural sector to generate more benefits to our economy. Indian farmers have to face sudden and unexpected price changes because of various reasons, in this way the system of future market can be of great help to them. It also helps towards evolving a better cropping pattern in our country.
There are a number of varieties of products in commodity market including agricultural products like wheat, rice, maize, pulses, palm oil, soya oil, cattle etc. There are some perishable items also such as sugar, coffee and cocoa, which cannot be put in stock for a long time. Two methods generally used for predicting futures prices are fundamental analysis and technical analysis. The fundamental analysis is concerned with basic supply and demand information, such as, weather patterns, carryover supplies, relevant policies of the Government and agricultural reports. Technical analysis includes an analysis of movement of prices in the past. Many participants use fundamental analysis to determine the direction of the market, and technical analysis to time their entry and exit. With the development of commodity future indexes, commodities have gained importance along with the mobilization of more resources in the commodity market. For a good economy, the existence of a future market is must because it opens up a new opportunity for people to protect themselves from unexpected risks. In India mainly two national commodity exchanges located -- the Multi-commodity Exchange (MCX) and the National Commodity Derivative Exchange (NCDEX) comprises of 90 percent of the commodity futures trading volume. India is known as one of the largest commodity future market in the world, and these markets are of huge interests to traders, market participants, and exchange stakeholders in India and abroad. Agriculture now accounts for 23 percentage of GDP, as compared with the level of 50 percent in 1947.
Sustainability through Urban Farming: A Case Study on Priyanka Amar Shah-Woman Ecopreneur

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Abstract
There were times when women were perceived to be the home makers with little to do with business and economy. But in the contemporary world, more and more women are taking up entrepreneurial activity especially in medium and small scale enterprises. Women entrepreneurship has been recognised as an important contributor to economic growth and well-being of community. The growing recognition of green perspectives provides foundation for the creation and growth of realistic and commercially booming ecopreneurial business ventures. The awakening of consumers has resulted in the movement for safe, organic and natural way of living. The increasing awareness regarding organically grown products amongst urban Indians has led to the development of Organic Food Market in India. The present study aims to address the sustainability issues under urban farming & also discusses the business model adopted by Priyanka Amar Shah – Woman Ecopreneur towards sustainability through case study methodology. The paper highlights the various advantages of urban farming and integration of a policy initiative that would advocate the role of urban farming towards the sustainable development of the economy.

Agribusiness Scenario in Agrarian State Like Madhya Pradesh- A Study

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Abstract
Every country has its own importance of natural resources and mainstay of its majority of population. India in general and Madhya Pradesh in particular is an agricultural State. Majority of population in Madhya Pradesh is agrarian & around 73% is still dependent on agriculture for their livelihood. Agriculture contributes to the major part in GDP of Madhya Pradesh, hence state government has to implement all sorts of measures to uplift the agriculture in state providing advanced seeds, pesticides, fertilizers, agricultural equipments, better and advanced irrigational facilities. The intension for preparing this paper has been to bring up the burning issues related to agricultural developments and challenges in the State of Madhya Pradesh.
Agribusiness Technologies
Indigenous Technological Knowledge in Dairy Enterprise

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Abstract

The sustainable development of agricultural as allied business can be possible by using ITK has been proved by Shri. Tukaram Devidas Pawar, 33 yrs, educated upto M.A. (Economics) having 8 years experience in farming. After education he obtained jobs in Amul Dairy Depot in Kolhapur (M.S.) in 2001. He worked there upto 2005. While working there he decided to start his own dairy at his native place Dugara Tq. Selu Dist. Parbhani. In the year 2006 he started his dairy enterprise with the use of ITK. Initially he invested Rs. 1 lack for purchasing deep fridge (Rs. 35,000/-), fat extracting machine (Rs.4,000/-), big vessels and big deep frying pans (Rs.14,000/-) and kaccha construction of 2000 sq.ft. (Rs.17,000/-). He also employed other seven skilled and unskilled labourers for this dairy enterprise. On an average daily collection of buffalo milk is 400 lits. from Dugara and adjoining villages. Milk is purchased at the rate of Rs. 4.50/degree of fat. For processing of 100 lit. milk he requires 2 qtls. of fuel wood and Rs. 300/day for transport. Only two products are prepared from milk i.e. paneer and cream. Cream is separated with the help of cream separator then remaining milk is used for making paneer. The indigenous method is used for preparation i.e. simply heat the milk on chullas, after acid treatment paneer is prepared using jata (round stone). Prepared paneer and cream is kept in deep fridge for one day and then taken for marketing. From daily collected milk 60-70 kg pane and 40-50 kg cream is prepared and regularly sold to wholesaler at Aurangabad (M.S.) at fixed rate of Rs. 180/ kg. for both i.e. paneer and cream. In a month near about 1800-2100 kg paneer and 1200-1500 kg cream is prepared. By sale of these products, he earns Rs.5,40,000/ month. By deducting investment cost i.e. milk collection (Rs.4 lakh/month) and other expanses (Rs.90,000/ month) he gets net profit of about Rs.50,000/ month. Now he is living comfortably while providing employment to 7-8 people in the village and has become a role model for rural youth of Dugara and nearby villages.

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Development and Commercial Testing of Custard Apple Pulp Extraction Machine and Technology at Custard Apple Production Site in Rajasthan

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Abstract

Custard apple grows naturally in the forests and also on marginal lands in Rajasthan. It is one of the delicious fruits. Custard apple fruits are very perishable and have short post harvest life; therefore they require efficient storage and processing techniques. There is huge demand for its pulp, particularly by ice-cream industry. Presently traditional pulp extraction is done manually which is tedious, cumbersome and inefficient giving a very low output. To solve these problems an attempt was made at Rajasthan College of Agriculture, Maharana Partap university of Agriculture & Technology, Udaipur (Rajasthan) and Central Institute for Post Harvest Engineering, Abohar, Punjab. This joint venture resulted into development of custard apple pulp machine and technology for pulp storage, which has several advantages over the traditional method. The machine is new and innovative and has mechanized the extraction of custard apple pulp with higher yield, recovery, quality, consistency, hygiene, structure and texture of the pulp as per the need of the industry. After testing the machine and technology for two years at laboratory scale, it was tested at field with the help of an NGO (SRIJAN) at Nana village under Bali block of Jodhpur, district of Rajasthan during fruiting season of the year 2013-14. The machine as well technology was found perfect for large scale pulp extraction. In this paper an attempt has been made to demonstrate the merits of mechanized custard apple pulp extraction its storage and viability as a commercial venture for adaption by interested party.
Rural Digital Enterprise for Agro Business Management

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Abstract
Aggregation is key to success for the supply chain management. A Food Producer Organization or company (FPO) is a formal aggregation of the producers, brings more discipline, structure and reliability than its predecessors such as Farmer’s club or Co-operative societies or the Joint Liability group or individual big growers. A producer company has more flexibility in so far as investment in other companies and formation of subsidiaries is concerned. Since shares can be attached, more borrowings can be raised from banks. This concept has the potential to change the scene of the agro business in India. But there are multiple challenges such as related to members – mindset, education, social, cultural background or the administration – processes, compliance, and record keeping. While it’s important to motivate and bring people together; keeping those together in changing circumstances will be key challenge. Transparency in decision making, accounting practices, access to information, fair deal and profit/dividend distribution will be major need to ensure that the organization remain intact and function. This paper talks about a Rural Digital Enterprise (RDE) model which draws parallels from the other industries to manage a company and integrates Process knowledge and Technological tools seamlessly in the Agro Business Management framework. The resultant framework is more objectively managed and revolves around standardized processes, improved data visibility, data driven analysis and decision making and demand driven production and supply chain. It effectively uses the ICT tools such as mobile, tablets and web to support the framework. The paper covers how this can help in development of a easy to measure and replicable, scalable business model.

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Business Opportunities Based on Agricultural Engineering Technologies – An Example of NEH Region of India

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Abstract
The global market for organic food (including beverages) is expected to grow from $57.2 billion in 2010 to $104.5 billion (almost double fold) in 2015 an estimated CAGR of 12.8%. In 2014, the global organic food market is forecasted to have a value of $100 billion, an increase of 60% since 2009. Fresh as well as processed food products, especially fruits and vegetables, are the highest selling organic foods with 37% share in terms of revenue. The other organic foods with increasing global demand are rice, dairy products, spices and condiments, tea, coffee and snack foods, sauces, meat-fish and poultry products. At present, India is believed to hold only 2.5% share in the global organic food market. The current size of the organic foods market in India is pegged at about 1000 crores ($ 16.05) though a huge untapped potential exists as it is believed that a very large population of small farmers who still use the traditional methods of farming, with low agricultural inputs and have no option other than farming without chemical fertilizers and pesticides may be motivated and guided for organic food production. In this reference, special mention of the North-Eastern Hilly Region of India, comprising of 7 states (excluding Assam) may be made where the fertilizer consumption is as low as 23 kg/ha as against the national average of 95.6 kg/ha (1999-2000 data). Unfortunately, this region has low farm productivities and lacks farm mechanization in production and post harvest sector. Agricultural Engineering interventions viz. resource conservation technologies, protected cultivation, farm mechanization, scientific post-harvest management and value addition can improve the farm productivities, enhance the business opportunities and profitability in business besides reducing drudgery and high post-harvest losses. Incidentally all the major farm produces of NEH region viz. rice, fruits & vegetables, spices & condiments, meat-fish and poultry products tea & coffee etc. are included in organic foods. Their sustainable organic production and processing can transform the entire NEH region as a major supplier of organic foods in both, domestic and global market. This paper presents a discussion on business opportunities in the NEH region of India based on sustainable organic farming and processing of organically produced food products and other non-food items mainly flowers. The paper also discusses issues related to capacity building of concerned stakeholders and entrepreneurship development.
Study on Resource Conservation Technologies (RCTs) Machineries for Saving of Natural Resources and Environmental Benefits

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Abstract
The different field experiments on resource conservation technologies (RCTs) were carried out at research farm as well as farmer's field at Project Directorate for Farming Systems Research, Modipuram, Meerut (UP), India, during 2006-2010. The recent efforts have attempted to develop the comparison of different resource conservation technologies with efficient and environmentally friendly tillage/ crop establishment with conventional farmers’ practices. The different treatments viz. zero till drill, cup-type zero till planter, happy seeder, turbo seeder, inclined plate-raised bed planter and conventional practices for sowing of wheat crop after combine harvested rice fields were used to study the different resources and its effect on environment. The zero tillage saved the diesel and time (73-80%) and energy (65%) as compared to conventional practices due to no field preparation before sowing of crops. However, in case of raised bed planter, the time taken and fuel consumption was 13 h ha-1 and 55 l ha-1 in field preparation and bed making followed by sowing in well pulverized soil which is more as compared with the conventional one (i.e. 11 t ha-1 and 44 l ha-1). Whereas, the 25-30% water saving was observed in each irrigation in comparison to conventional practices. Raising crops on raised bed can save irrigation water which indirectly saves the fuel that is used for running engines. The happy and turbo seeder was used for sowing of wheat crop with the residue condition in no-till field. The happy seeder used time 4 h ha-1 and consumed diesel 12-14 l ha-1 for the sowing of wheat. It saved the diesel (70%), time (80%), and energy (65%) due to no-till sowing under crop residue. The turbo seeder required time for sowing about 5-6 h ha-1 and diesel consumption was about 12-15 l ha-1. It was observed that time, labour, energy was saved 60-70% and irrigation water about 10-15%. The mulching of crop residues reduces the weed population about (60-65%) as in zero till drill condition. Every liter of diesel fuel used by tillage machinery and irrigation pumps also contributes 2.6 kg CO2 to the atmosphere. Thus, nearly 110 kg CO2 ha-1 would be generated in conventional practices however, other resource conservation technologies viz., zero till, happy and turbo seeders are producing from 30 to 60 kg CO2 ha-1 for machinery operation. The use of happy and turbo seeder reduce different green house gases viz., CO2, N2O and CH4 to a significant extent due to reduction in burning of crop residues.

Kokum Syrup: Golden Opportunity of Health Drink Production in Western Ghat

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Abstract
Kokum is a tropical fruit of the country. It has high nutritional and medicinal benefits. Kokum fruit act as an appetite stimulant and also has anti-helminthic, antioxidative, anti-inflammatory, anticancer, and angiogenic properties. Kokum is processed traditionally for making of syrup however quality of products varies from processor to processor. Efforts were made to investigate and standardize the technology of syrup making to run a successful health drink production. Kokum fruits selected were washed and sorted and were cut into different sizes of 2 halve, 4 halves and by shredding in order to study its effect on juice extraction. Cut fruits were exposed to reverse osmosis techniques using the rind to sugar ratio (1:2) for the extraction of juice. The mixture was kept for the duration of 4 weeks and extracted juice was collected. The developed Kokum syrup was analyzed for physical and chemical properties. Sensory evaluation was carried out using 9 – point hedonic scale. Kokum syrup extracted by cutting fruit with 2 halves with rind to sugar proportion of 1:2 have the highest value of acidity (0.34) and TSS (70.90) as compared to other treatments. The colour of the extracted Kokum syrup in the form of a value (Redness) was 5.81 on Hunter Scale Colorimeter. The sensory evaluation on the nine point hedonic scale was having overall acceptability of 7.62 for aforesaid extracted Kokum syrup. The NAIP technology of Kokum syrup developed can produce 1300 liters of Kokum syrup from one ton of fruit using the reverse osmosis process in a batch of 5 days. The paper explains the technology along with its techno economic feasibility for processing at cottage scale.
Gasification Technology – A Source of Energy for Agro-industry

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Abstract
A 10 kW biomass based gasifier system was installed at Dr. Panjabrao Deshmukh Kriushi Vidyapeeth (PDKV) in College of Agricultural Engineering & Technology, Akola campus for power generation. The economic feasibility of gasifier system was evaluated by using Prosipus Juliflora as a fuel for operating 16 h of in a day. Net Present Value (NPV), Benefit Cost Ratio (BCR), payback period and per unit cost for power generation was workout by discount cash flow method with 10 per cent discount rate. NPV, BCR, payback period and cost of electricity generation was found to be Rs. 785382, 1.47, 1293 days and Rs 3.77 per kW. The study revealed that Prosipus Juliflora was gasified in down draft gasifier. The system was found economical feasible

Studies on production of Osmo-Convective Dried Jackfruit Bulbs

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Abstract
The Jackfruit (Artocarpus heterophyllus lam) is underutilized nutritious fruit crop, popular in Southwestern rain forests of India. The flesh (bulb) of the jackfruit is starchy and fibrous and is a source of dietary fiber. The jackfruit bulbs are rich in energy and are good source of the antioxidant vitamin C and has important role in body to develop resistance against infectious agents and scavenge harmful free radicals. This fruit is highly perishable and 70% of production goes waste due to no-availability of quick preservation technology. The Osmo-Convective dehydration is a novel technique to preserve perishable fruits. The studies on Osmo-convective dehydration of bulbs were carried out to study the effect of osmotic treatments on quality of dehydrated bulbs. The bulbs were dried using two levels of osmosis dehydration in sugar solution (40 and 600B) for 3h in the bulb to sugar solution proportion of 1:3. Osmo dehydrated bulbs were further dried at 600C in convective dryer. The sensory analysis and chemical analysis of dehydrated bulbs was carried out. The bulbs osmo-dehydrated in 40 0B sugar solution dried in 4 h which was having overall acceptability (8.2) in sensory evaluation on 9 point hedonic scale. Acidity of dehydrated bulb was 0.64% and pH was 5.09. The Total sugar of bulbs was 31.36. 40 kg of dehydrated bulbs can be produced/day per tonne of jackfruit. The benefit to cost ratio is about 1.21:1. The paper explains the technology along with its techno economic feasibility of processing at cottage scale.
Soy Fortified Extruded Functional Food for Entrepreneurship Development

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Abstract
Soybean is rich in phytochemicals beneficial to the human beings and is therefore considered as a nutraceutical or a functional food crop. Soybean is a “functional food” that reduces the risk of a range of hazardous diseases like atherosclerosis, osteoporosis, various types of cancer (cancer of breast, uterus, and prostate) has attracted people’s attention across the globe. It has a major proportion of antioxidants in the form of Isoflavones. Extrusion cooking method used in production of soya based food products permitted a large number of food applications include destruction of antinutritional factors, gelatinisation of starch, increased the protein content of extruded snacks and increased nutritional value of snacks. For the development of functional extruded products different raw materials were taken, which have more functional properties and also the puffing characteristics. Accordingly rice, corn, wheat, 5-30% soybean in different form, fruits and vegetables (mango, papaya, guava, carrot, spinach) and dairy ingredients were taken for the study. Fruit and vegetable powders were prepared and the nutritional parameters of raw materials were analysed. Response surface methodology (RSM: Mixture Design) was employed to evaluate the effect of different combination with proportion of raw ingredients and their interaction on the nutritional qualities parameters namely protein content, fat, carbohydrate and energy of the extruded snack foods. Corn flour, Rice flour, Wheat flour, Dairy whitener, carrot, mango, papaya, guava, spinach powder, and soy flour (DFSF, FFSF, SPI) were taken as independent (input factor) and quality attributes such as protein content, fat, carbohydrate and energy were considered as dependent parameters. Soy-protein fortified snacks were prepared by using twin-screw extruder. The nutritional qualities of these products were estimated. The protein content, fat, carbohydrate and energy were found to be 16-19%, 8-15%, 61-70% and 414-451 kcal, respectively. The storage study inferred that all the samples were suitable after six month in these packaging system, however, packaging in PET/PET met/LDPE kept the product with superior quality followed by PET met/LDPE and LDPE in terms of moisture content, crispness and sensory data. The developed products were provided to 250 school children’s of different age (10-18 yrs) group of Bhopal and collected the response for knowing the acceptability level of the product. The products were rated as ‘very much liked’. These extruded products have high potential for entrepreneurship development.

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Electro-Heating of Foods to Extend the Shelf Life

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Abstract
The food processing sector is growing by large with the increasing demand by consumers for healthy and safe food. In the era where Nonthermal Non Chemical processing of food is becoming priority of the consumer, electro- heating of the food has also come up as a new processing technique to increase the shelf life of the processed products. Electro-heating or resistance heating of the food items is also referred to as ohmic heating. In electro-heating process the food material is made as a part of an electric circuit through which alternating current flows causing heat to be generated within the foods due to its own electrical resistance. As food becomes the electrical component of the heater so its electrical property must match the capacity of the heater. The microbes or the spoilage causing organisms are thermally inactivated by electro-heating and during the electrification process a mild electroporation mechanism may occur during ohmic heating operation at low frequency (50-60 Hz) which allows electrical charges to build up and form pores across the cell walls. The present abstract deals with the process review, present status and future applications of electro-heating or ohmic heating of foods to improve the shelf life of the products with some of the results from the laboratory model.
Scope of Agricultural Machinery Production in Briquetting Automation

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Abstract
In India millions of tons of agricultural wastes are generated every year, which are either destroyed or burnt and causing air pollution. These wastes can be used as a useful fuel as a source of renewable energy by converting biomass waste into high density - fuel briquettes without addition of any binder. This recycled fuel is beneficial for the environment as it conserves natural resources. For this the biomass briquetting is the main renewable energy resource. Crop residues of bush origin need shredding before transportation to the briquetting plant. The baled residue also needs size reduction before feeding to briquetting plant. The process used to produce the binder less briquettes consist size reduction of crop residues into fine particles and then compressed at high pressure (It is called as “Densification Process”). During this process the lignin present in biomass melts and acts as a binder to make good quality briquette. The briquetting process improves density of biomass about 1100-1200 kg/m3. This paper will discuss about the advancement and automation of an Agricultural Machinery which is used in briquetting technology and aim of this paper provide a good relation between agriculture and management (Agribusiness).

Functional Food Product Development: Role of Food Biotechnology in Agribusiness Development

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Abstract
Functional foods, being one of the major food categories of the global health and wellness market, are becoming a major focus of new product development in food industry. Functional foods are found virtually in all categories, however products are not available over all segments of the growing market. The development and commerce of these products is rather complex, expensive and risky along with potential technological obstacles like legislative aspects and extent of consumer demands. In particular, consumer acceptance has been recognized as a key factor to successfully negotiate market opportunities. It was mainly the advances in understanding the relationship between nutrition and health that resulted in the development of the concept of functional foods. It provides a practical and new approach to achieve optimal health status by promoting the state of well-being and possibly reducing the risk of disease. Promoting agriculture in developing countries is the key to achieving food security. It is therefore essential: to increase investment in agriculture, broaden access to food, improve governance of global trade, and increase productivity while conserving natural resources. To enable the fourth action, the suite of technological options should be as broad as possible, including the field of agricultural biotechnology. Agricultural biotechnology includes the genetic improvement of plant varieties and animal populations, characterisation and conservation of genetic resources, diagnosis of plant or animal diseases. To successfully develop biotechnology industries, it is critical to understand and improve the system of health innovation, as well as the role of each innovative sector and the linkages between the sectors. The private sector is one of the main actors in functional food innovation, contributing significantly to the development of health biotechnology via knowledge, expertise, resources and relationships to translate basic research and development into new commercial products and innovative processes. This paper discusses many such partnerships between the public and private sector established to leverage the potential of the private sector to produce more affordable functional food products.
Membrane Separation Technology: Industrial Application

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Abstract

In several food processing industries, separation technology is widely used to separate and in some cases to purify a particular component from the rest of the mixture. The target component might be the desired product or an unwanted component, separated to increase the purity of the original mixture. Separations take advantage of differences in physical or chemical properties of the mixture of components. Of the several separation technologies available, membrane separation technology brought a significant change in food processing industry. There are several advantages of membrane separation technology when compared to other processes. These include, separation of components at a lower temperature, separating the component in its native state, less energy use etc. Reverse Osmosis (RO), Nanofiltration (NF), Ultrafiltration (UF) and Microfiltration (MF) are four commonly used membrane separation process in the food processing. These processes differ in membrane characteristics, their pore size and operating pressures to which they are exposed to. Membrane separations are used for selective separation of different species. Membrane processes inherently offer some advantages over conventional separation operations: Separation and concentration of contaminants into a single process stream, Continuous (non-batch) process, no regeneration step, Modular design suitable for scale-up, Compact design for easy retrofit and integration into existing and new processes and Minimal maintenance and operator attention. The main operating problem of membrane separation processes has been the ease with which the membrane material plugs, causing the resistance to flow to increase. This behavior is normally called fouling, from the slimy solids. These solids deposit on the upstream membrane surface and eventually block it. The problems of fouling and concentration polarization have found some resolution in the process arrangement that causes the feed liquid to flow parallel to the membrane surface, rather than perpendicular to it, so scouring the surface as it moves across, thinning the surface layer and removing deposited material. The consequent “cross-flow” filtration method has been one of the most important equipment developments in the filtration industry. In the industry, membrane technology can be used for instance for recycling chemicals, cleaning total effluent, or membranes can be used to eliminate contaminants from the water circulation system. The membrane separation processes can be tailored according to the required degree of purification by choosing the convenient membrane. The major application of membrane separation includes dairy, textile, bulk chemical processing, petrochemical, pharmaceuticals and food industry. One of the potential area where membrane separation can play an important role is preparation of protein isolate and concentrate for designer food.

Scope of Custom Hiring of Tractor Operated Straw Reaper Combine in Bhopal District

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Abstract

In India, cultivation of wheat is carried out in 266.92 lakh ha with production of 721.40 lakh tonnes. Harvesting of wheat is carried out by different methods such as manual harvesting by sickle, harvesting by reaper and direct combining. In combining operation, the grain is recovered from straw/plant and stalks are left in the fields. Farmers use commercial tractor operated straw reaper-combine to recover the straw from field for cattle feed. Commercial straw reaper combine was used in Bhopal district on custom hiring basis. CIAE had also developed a straw reaper combine with design improvement in straw delivery system as well as safety and comfort to the operator. It consists of cutting mechanism, conveying mechanism, a brushing, collection tank and blower unit. The developed straw combine has a tank above the harvesting unit as result of which turning is less and field capacity is high. It has low turning radius, less operator’s efforts and more output. Performance evaluation of developed tractor operated straw reaper combine was carried out in combine harvested fields. It was carried out in an area of 28 ha. Data revealed that the mean capacity of the machine was 0.37 ha/h. The output of straw varied from 1.5 t/ha-2.2 t/ha. It recovered 50-70% straw in addition to 70 kg of grains/ha. Operating cost and net saving was Rs. 1350 / ha and Rs. 1900 / ha respectively. Six straw reaper combines were purchased and introduced by the owners for custom hiring shows that this machine is suitable for developing rural entrepreneurship in custom hiring.
Agricultural Machinery Manufacturing in MP – Scope for Quality up-gradation Through Process Improvement and Standardization

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Abstract
With global demand for food expected to increase by 70 percent by 2050, the role of the machinery manufacturers is changing, and machinery is becoming an integral part of the all-encompassing solution to increase productivity. According to NSDC report the agricultural machinery market size in India is estimated worth 37,000 crores and compound annual growth rate as 12.3%. In comparison to Punjab and Haryana, Madhya Pradesh is at a relatively early stage in adopting modern agricultural machinery. Out of 108800 of total micro, small and medium entreprises, 2480 are engaged in agritural machinery manufacturing in MP.

The manufacturing process being practiced by these manufacturers has almost remained traditional over the years. There is no concept of workbenches or assembly line. Improvement in design, material selection, manufacturing process or aesthetics is not exercised by most of the manufacturers. Metallurgical aspect of material is almost neglected.

There is enormous scope for new entrepreneurs for producing high capacity, precision equipments for latest techniques of farming. Improvements in manufacturing techniques, workmanship and overall production methods is essentially required to be adopted by manufacturers for Quality up-gradation of agricultural machinery being manufactured in Madhya Pradesh. There is lot of scope for improvement in the manufacturing of critical components as well. This paper presents the scenario of manufacturing methodology and suggests strategy for quality improvement for boosting the business of agricultural machinery.
Globalization and Agricultural Management Schools

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Abstract
Globalization is possibly the biggest and most important phenomenon that has shaped the world after the last world war. Globalization has altered the economic structure of both developed and developing countries in ways that are sometimes difficult to understand or even believe. Globalization has brought in new opportunities to developing countries. It has affected (and improved) trade, investment and other types of economic activity, and affected people through awareness, cultural exchange, tourism, migration trends, communications and technology. Globalization has usually been supported and promoted by most national governments so that it has created its own momentum. There has been an enormous increase of interchange among people and nations, much positive and some acrimonious, particularly among small farmers who understandably are unwilling to lose any form of governmental protection and face competition from larger and more "efficient" producers.

Over and above, education plays a prime role in achieving the development in any sector. Currently, agribusiness education is one of the promising qualifications helps to mold the personnel in to potent managers having managerial expertise. To realize the real potential in Indian agriculture and to grow it to the point of a prospective sector, it is necessity to manage the sector like a professional enterprise. The same can be expected by utilizing the agri-business managers having the qualities to serve the agriculture sector efficiently. This can be done with the help of agricultural management schools. This paper is an effort to evaluate the relationship between globalization, agricultural management school and agricultural management.

Tools & Techniques For Production Of Jackfruit Bulb Powder

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Abstract
Globalization is possibly the biggest and most important phenomenon that has shaped the world after the last world war. Globalization has altered the economic structure of both developed and developing countries in ways that are sometimes difficult to understand or even believe. Globalization has brought in new opportunities to developing countries. It has affected (and improved) trade, investment and other types of economic activity, and affected people through awareness, cultural exchange, tourism, migration trends, communications and technology. Globalization has usually been supported and promoted by most national governments so that it has created its own momentum. There has been an enormous increase of interchange among people and nations, much positive and some acrimonious, particularly among small farmers who understandably are unwilling to lose any form of governmental protection and face competition from larger and more "efficient" producers.

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Management of Farm Mechanization and On-farm Agro-processing for Rural Development

Anwar Alam
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Abstract
Mechanization in simple terms is interjection of improved tools, implements, machines and other equipment between man and materials. In agriculture materials are soil, water, environment, seed, fertilizer, pesticides, growth regulators, irrigation, water agricultural produce and by-products such as food grains, oil seeds, fruits and vegetables, flower and other ornamentals, spices and condiments, cotton, jute and kanaf, milk, meat, eggs, fish etc. There is scope of mechanization in every unit operation of production agriculture, post-harvest management and rural living. It is directed to enhancing workers output, multiply human effort, supplement and substitute human labour that is enabling and removing avoidable drudgery or stress that adversely affect human mental faculties leading to error, imprecision and hazards and eventually loss of efficiency. It imparts dignity to work removing taboos associated with certain farm operations. It contributes to agricultural productivity through assuring timeliness, precision in metering and placements of inputs effecting economy in input use at the same time enables plants and animals express themselves better. Improved process and equipment and management techniques help in conservation of agricultural produce, residues and by-products against qualitative and quantitative damages, value addition, agro-processing entrepreneurships generating additional income and employment. Mechanization is also needed in domestic activities and rural living. Mechanization stands for modernization and material culture of any society.

Agricultural mechanization is a relatively less regulated sector. Usually demands are made for "appropriate mechanization" which bring economic competitiveness and remove avoidable drudgery. Agricultural mechanization trends are linked with the trends in agriculture, agro-processing and rural living, globalization of world markets and market trends, WTO obligations, and State and Central Government policies and demands of political constituents. Modernization requires sophistication in mechanization which is possible at relatively large scales of operations with capital and management constraints overcome. Government of India has launched Agri-clinic and Agri-business Scheme and it is envisaged that entrepreneurs will be providing custom service to the farmers besides other services which will need machines of large capacity. Availing this scheme entrepreneurs are taking up agro-processing, packaging, transport and marketing activities both for domestic and foreign markets.
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Mr. Anand Kr. Singh
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Organic foods are foods that are produced
using methods of organic farming
Benefits of Organic Foods

- Produced with Stringent Standards
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- Better for the Soil
- Better for the Water
- Innovative Research
- Increases Biodiversity
- Harmonious with Nature
- Increases Consumer Choices
- Protects Family Farms and Rural Communities
- Organic Food is Generally Fresher, Better Tasting
- Part of Your Community
- Sustainable Seafood Choices
- Safer and More Humane Animal Products.

We forayed into Organic Agriculture in 1999 with a vision to work with small and marginal farmers to improve their livelihood by adopting organic & natural farming practices. We started organic farming with a group of 150 Farmers in 1999 and now have a base of 4000+ Certified Organic Farmers accounting for more than 10000 Hectares of Certified Organic Land in Madhya Pradesh & Maharashtra state of our country. We do have state of the art organic processing facilities for Oilseeds, Grains, Spices and Cotton. Some of our Organic Products are as under:

<table>
<thead>
<tr>
<th>Grains</th>
<th>Cake/Meal</th>
<th>Oils</th>
<th>Spices</th>
<th>Other Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soybean</td>
<td>Soya Cake</td>
<td>Soybean</td>
<td>Coriander</td>
<td>Cotton</td>
</tr>
<tr>
<td>Wheat</td>
<td>Cottonseed Cake</td>
<td>Flaxseed</td>
<td>Chilli</td>
<td>Lecithin</td>
</tr>
<tr>
<td>Corn</td>
<td>Sunflower Cake</td>
<td>Mustard</td>
<td>Turmeric</td>
<td>Glycerine</td>
</tr>
<tr>
<td>Chikpeas</td>
<td>Rapeseed Cake</td>
<td>Groundnut</td>
<td>Fennel</td>
<td>Peas</td>
</tr>
<tr>
<td>Flaxseed</td>
<td>Flaxseed Cake</td>
<td>Sunflower</td>
<td>Fenugreek</td>
<td>Pulses</td>
</tr>
</tbody>
</table>

We are certified for NPOP, EU and USDA NOP regulations and exporting our products to various countries.

For any enquiries contact:
Mr. Salil Gupta, Director and CEO
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<table>
<thead>
<tr>
<th>Thrust Areas</th>
<th>Facilities</th>
<th>START HERE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Processing</td>
<td>Free technical handholding</td>
<td>ZTM &amp; BPD Unit, IARI, New Delhi - 110012</td>
</tr>
<tr>
<td>Tissue Culture</td>
<td>Free Business handholding</td>
<td>+91-11-2584-3553, +91-11-2584-3542</td>
</tr>
<tr>
<td>Microbiology</td>
<td>Seed Capital Funding*</td>
<td><a href="mailto:zonaltech@iari.res.in">zonaltech@iari.res.in</a> or log on to</td>
</tr>
<tr>
<td>Bio-technology</td>
<td>Networking</td>
<td><a href="http://ztmbpd.iari.res.in">http://ztmbpd.iari.res.in</a></td>
</tr>
<tr>
<td>Floriculture</td>
<td>Industry linkages</td>
<td></td>
</tr>
<tr>
<td>Seed Production</td>
<td>Office infrastructure</td>
<td></td>
</tr>
<tr>
<td>Farm Engineering</td>
<td>Laboratory space</td>
<td></td>
</tr>
</tbody>
</table>

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**Functional Requirement:**
ERP Payroll Management System is lot more than a simple input/output utility.
- It Addresses the Real Pain areas of Payroll automation including complex arrear calculation, customizable and continuous salary payouts.
- It is fully integrated with other modules of Payroll that have direct or indirect impact to employee payout.
- Flexible data entry option that lets you work in a way that makes the most sense for your business.
- Robust functionality from basic to the very complex. Unique graphical interface will even guide you through the payroll process in step-by-step mode.
- Complete and easy access to information, update payroll information, track trends and generate management reports on demand.
- Unlimited numbers of salaried or hourly employees.
- Unlimited numbers of wage/salary categories (e.g., overtime, shift differentials).
- Powerful and Flexible Organizational Structure Module.
- Different versions to suit different client requirements.
- Accuracy: All the calculations are done automatically so will avoid the human errors involved.
- Tax tables for any number of taxing entities.
- Complete necessary paperwork with forms such as Form 16 and Form 12AB preprinted forms, and tax reports.
- Quick, easy backup of database and compacting features.
- Multiple document interfaces allows simultaneous examination of various forms, lists, data and specifications.
- Define the emoluments, deductions, leave, tax etc.
- Generate Pay-Slip at the convenience of a mouse click.
- Personalized salary Slip Printing.
- Generate all types of important reports such as Employee details, Leave details, Loan Details, Attendance details etc.
- Built-in calculator.

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- Indian Institute of Soil Science

**Advantage:**
- Ability to print maintain complete employee information either in the form, bio-data or table
- Automatic Salary Slip generation and dispatch mechanism
- Rule based arrears calculation, automatic leave regularization, leave balance updatations and reimbursement balance updatations
- Ability to rerun the payroll, freeze payroll, hold payroll for a selected location, company or search based employee
- Ability to modify or tweak final payout as per convenience
- Ability to upload employees to exclude from payroll
- An ability to export the reports in the user requirement format like .doc, .xls, .pdf file so as to these files may be use to maintain any relevant information.

**Technical Specification:**

**Requirement Hardware**
- RAM: 512 MB (Recommended), P-III or above, IST
- Hard disk Space: 5 GB (Includes 500 MB free space on disk)
- Monitor: 15" Color Monitor
- Networking: NIC Card

**Software Requirement**
- Designing Tools Used:
  - Macromedia dream weaver 4.0
  - Adobe Photoshop 6.0
  - Macromedia Flash MX
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- Back End Tool: Microsoft SQL SERVER 2005
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