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CONTENTS

EDITORIAL

The Conference of Principal Secretaries of Cooperation organized by the Federation on 20 September 2012 at Chandigarh discussed a wide range of issues concerning the working of Cooperative Agriculture & Rural Development Banks. Legal reforms required in the structure was an important item came up for detailed deliberations in this Conference. ARDB Acts in most of the States were enacted in the late 50s or early 60s, without bringing any change in the original design of Land Mortgage Banks which were started in 1920s as specialized institutions to give long term loans to farmers, fully funded by govt or governmental agencies. The context of these legislations, however, drastically changed in later years, especially since 80s.

The dichotomy of cooperative credit system into short term and long term structures itself became irrelevant and impractical with the entry of commercial banks and RRBs in rural credit offering all kinds of credit and financial services under a single window and the preference of farmers for a package of credit products from a single agency instead of approaching multiple agencies each one of which offering only a part of his total requirements. Similarly, the funds given to ARDBs by NABARD and other public agencies have become too little to meet the growing credit requirements of their members. Lack of provisions in the Act for raising own resources and issuing shorter duration loans as required by members have become major constraints for ARDBs in the last three decades. Some States have already included provisions in the Act for enabling ARDBs to accept deposits and issue short term loans. However, the basic design of the structure as a non resource based agency dealing in one product still remain unchanged in most of the States.

The main objective of legal reforms in ARDBs is to bring changes in its outdated business model. Further, 97th Constitutional Amendment which came into force in February 2012 has brought fundamental changes in the role of State Govts in the functioning of cooperatives. State Cooperative Laws including ARDB Acts need amendments to reflect the constitutional provisions guaranteeing autonomy and independence of cooperatives. The Conference broadly agreed on the need for amending the Acts relating to ARDBs to meet the above requirements.

The Conference also took note that the mandate of ARDBs to sell mortgaged

land to recover loan has been an effective deterrent to loan default and that willful default is increasing at an alarming rate in States where Govt has banned coercive recovery measures. State Govts should refrain from actions that vitiate the recovery climate. Conference was also unanimous in its recommendation to bring down the interest rate of investment credit which at present is unaffordable to farmers. When NABARD is charging interest rate of 10% p.a. on refinance, ARDBs are unable to advance loans at not less than 14%. Such high cost of credit acts as a huge disincentive for farm investments which needs to be stepped up substantially for increasing farm productivity in the country which is almost 30% lower than the regional average in Asia Pacific. It was recommended that the interest subvention scheme of Govt of India for crop loans should be extended to investment credit also to bring down its cost. It was also observed that some of the State Govts are giving additional interest subvention for crop loans to further reduce its cost from 4% after interest subvention given by Govt of India. These States should consider extending such schemes to investment credit as well which is 3-4 times costlier than crop loans.

The deliberations also covered a number of policy and operational issues in the working of ARDBs required to be addressed by State Govts. The recommendations of the Conference are expected to bring significant improvement in the policy environment of ARDBs.

K. K. Ravindran
Managing Editor

Agricultural Credit Cooperatives - Problems and Prospects

Shri P.V.Prabhu*

Cooperative Credit structure is the oldest institutional arrangement in our country for dispensation of credit to farmers both for production and development purposes. It has a history of over a century and considered to be the backbone of the cooperative sector. Cooperatives as such are passing through a critical stage and their existence is threatened in a liberalised competitive economy by other players who are found to be endowed with more resources and competence. Government policies are also not favourable to cooperative development. In the absence of policy direction, plans and support, cooperative credit and banking structures are facing innumerable problems incapacitated for taking any advantage of the opportunities that exist under the liberalised policy environment.

Credit is the critical input for any development. Most of our farmers with small holdings are poor with no sustainable income for a decent livelihood. They account for almost 70% of farm holders with less than one hectare holding. With no assured source of irrigation, they depend on unpredictable monsoon rains and found to be always in debts. They need credit support both working capital for production as also for developmental purposes.

Cooperatives are visualised as most suitable institutional agency to meet the rural credit needs of farmers and other poor. This was the policy observed in the First Five Year plan of independent India because of the inherent strength and utility of cooperative enterprise which is member-based with principles of self-help and mutual help. Cooperative rural credit structure was thus developed as two distinct institutional set-up one for provision of short-term credit for reasonal production and the other for extending long-term credit for investment and development of agriculture.

Till 90s, the cooperative agricultural credit institutions were the major source of credit accounting for over 60% of the total credit in the agricultural sector through various agencies. With aggressive branch expansion programme in the rural area and huge financial resources at their level, commercial banks (public sector banks and Regional Rural Banks) aided by policy support and

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direction of the Government, have now emerged as the main agency for rural financing relegating cooperatives to background. Cooperatives are rendered minor players accounting for only about 18% of the total rural credit in the country presently. Their share is shrinking from year to year which is a matter of great concern. Some of the major problems / impediments of the structure, its operations, viability and credibility are outlined below for evolving a strategic action plan and its implementation in a time bound manner:

1) **Good Governance :** Cooperative Banking structure has governance deficiencies as management continues to be non-professional. To operate in a competitive market, Banks need professional management and qualitative manpower. In many banks the Boards are not elected. This position is likely to change with 97th Constitutional Amendment 2011 which ensures time bound elections and restrict powers of the State to supersede or keep the Board under supersession for a period not more than six months. Apart from democratic management, banks also need autonomy and operational freedom and flexibility facilitated by a liberal law with least interference of the Government. Cooperatives, particularly the elected members of the Board, need to be oriented for good governance. Without professional management, qualitative human resource aided by technology, rural credit and banking sector cannot move forward and survive in a liberalised banking sector.

2) **Business Diversification :** Cooperative Banking institutions traditionally are involved in undertaking routine traditional business operations without much of business diversification. Their product range being limited, members / clients are not being fully serviced with financial products and services. Membership of banks has stagnated as also advances. A sizeable portion of members are dormant with no transactions. Business diversification holds keep to business growth which in turn contributes to profitability and viability.

3) **Member-involvement & Participation :** Members of cooperatives generally do not participate actively in the working of the cooperatives. Their involvement / participation makes cooperatives vibrant member-centric institutions capable of facing the challenges of competition. Member education programmes should be

launched to spread the message of cooperation and values and benefits of cooperatives to tackle the socio-economic problems.

4) **Resources :** The biggest constraint as also weakness of cooperative banking institutions is the inadequacy of resources for business growth. The banks continue to depend on borrowed resources and that too excessively and solely (particulars long-term credit structure). Commercial banks are the major players accounting for almost 80% of rural / agriculture credit mainly because they have resources to meet the growing demand of the rural sector without depending on external funding support.

NABARD is the major resource of refinance to the cooperatives for rural credit operations. Of late such support from NABARD is not forthcoming due to various conditions and as a result, banks are starved of funds for credit operations.

The Banks should strive for self-reliance in regard to resources by aggressively raising deposits and funds from other sources and instruments from the financial market.

5) **Managing Recovery and NPAs:** In agricultural credit sector, recovery of loans is a major problem which the banks have failed to tackle. Mounting overdues and inability of banks to improve the position has contributed to the weakness of the structure as it restricts NABARD's funding support and contributes to losses. Most banks are in losses though in several States, short-term structure has been recapitalised / rehabilitated by Vaidyanathan's revival package. This has not happened so far in the long-term credit sector. In any case, these are short-term measures for revival and ultimately, what matters is good loan repayment record of the Banks for ensuring NABARD's funds flow and for financial viability of the structure.

The major hurdle or impediment for a good recovery climate is the governmental and political interference by way of loan waiver, interest remission, interest subsidy, etc. announced from time to time. This has encouraged defaults and vitiated the recovery climate. The banks can do hardly anything to ensure good recovery for which there is need to create an appropriate climate. There should also be other measures to protect the farmers interest by way of crop insurance, price support, marketing and distribution net work, assured irrigation and

quality power supply and supply of other inputs like seeds and fertilizers at subsidised rates.

Agricultural credit business is in itself not a viable business in our country unless banks diversify their business in other profitable sectors without depending too much on agricultural credit for their profitability and viability.

6. **Systems, Procedures and Technology :** A lot needs to be done to streamline the systems and simplify procedures adopted by the banks keeping in view efficiency of service and convenience of the members / clients of the coop. rural credit institutions. Not much change has taken place to put the systems in order to make it client friendly and least inconvenient to member-borrowers. This has to be in tune with the technology upgradation of which is yet to take place. While commercial banks, including their rural branches have moved to the technological platform of CBS, Cooperatives are found to be far behind, making them less efficient in service and working and in providing much needed services and products. Their ability to compete and succeed largely depends on their technology upgrade.

Major Issues Concerning Cooperatives

Apart from the above major areas of problems and concern affecting the performance and strength of cooperative credit and banking institutions, there are equally important other issues which cooperatives in general and credit and banking institutions in particular should ponder about to make them relevant as vibrant socio-economic enterprises. These issues are :

1) **Cooperative Law and Policies:** For over two decades, we have been discussing on the need to evolve an enabling law which would promote and strengthen cooperatives as vibrant enterprises for the benefit of the common man. However, this has not happened as every State Government has tried to take advantage by promoting its political agenda. Cooperative law is still restrictive and obstructive for healthy growth of cooperatives. Government still exercises control and interference with the operations and governance while they hardly play a supportive and developmental role. Cooperatives need a level playing field to function as autonomous institutions in a competitive regime. Government control

should be minimal and cooperatives should be free of political interference.

2) **Leadership :** There is a crisis in cooperative leadership. Leadership has vested interest and at times even exploitative. Without good and honest leadership, cooperatives cannot grow and serve the cause of its members. Honesty, dedication and self-less service are the qualities missing in leadership which have contributed to the downfall of cooperatives in several cases. Build the leadership which will restore the confidence of people in cooperative way of solving the economic problems. Leadership should inspire the confidence of members of cooperatives and they should be judged by their governance record and performance results. No doubt there are few good leaders also who are dedicated but we need more such leaders to succeed.

3) **Member-involvement and Member Participation :** Members of cooperatives are found to be non-participative in the working of cooperatives and are not active. They are ill informed about principles and values of cooperatives and come to cooperatives only for personal benefits. They should be educated to build loyalty and participate actively to make the cooperatives truly peoples movement for the benefit of self and other members. Member education should receive attention so that members are well informed of cooperative values and principles. Without member involvement and loyalty, no cooperative can succeed in the long run.

4) **Corruption and Corrupt Practices:** Cooperative enterprises are not free from corruption. There is corruption in one form or the other for personal gains which has tarnished the image of the cooperatives. There are financial irregularities and mis-management which have caused great harm to the movement. We need a code of conduct to elected members of the Board, Managerial personnel and other staff to prevent exploiting cooperatives for self-gains and favouratism.

5) **Cooperation among Cooperatives:** Cooperative federalism appears to be only on papers as one of the principles of cooperation. It is not practiced which is the root cause of weakness of cooperatives at the base level. Cooperatives should cooperate themselves and assist each other. It is of utmost importance to ensure good health

and strength of cooperatives at the base level as they are the real service providers. For example, it is PACS which provide credit and services to the farmers but they are found to be the weakest link. DCCBs and Apex Banks are fairly strong and viable but neglect the problems of the affiliated PACS. For solving the problem of recovery, better cooperation and coordination should be built up with marketing cooperatives and processing / industrial cooperatives.

6) **Dependence v/s. Self-reliance:** Dependence of cooperatives on Government or over dependence of rural banking and credit cooperatives on refinancing institutions like NABARD has been a major problem which needs to be reversed if the cooperatives are to survive. Cooperatives are not self-reliant in regard to resources both financial and human. They are short of funds and lenders have no confidence in them. The conditions stipulated by NABARD and other financial institutions are rigid and cooperatives find it difficult to fulfil. They are thus starved of funds like Agriculture & Rural Development Banks which are suffering for want of funds due to over dependence. Cooperatives should raise funds by way of deposits or through market borrowings on their strength depending less on institutions like NABARD. Self-reliance is need of the day for autonomy and development.

Apart from resources, cooperatives are also depending on Government for human resource. Most cooperatives at State and District level are manned by Government officials who listen to their bosses in Government or political masters and not to the elected management. Government should not force its officers on cooperatives which hinder and constrain the autonomy and independence.

Most cooperatives, particularly rural credit and banking cooperatives, are inadequately capitalised. A weak capital base restricts their borrowing, viability and growth. They cannot go to market to borrow equity and it has to come mostly from members. However, some innovations are necessary so that the cooperatives can raise equity through certain sources and instruments. A strong equity base is essential for soundness of the cooperatives and their business growth. To raise equity or loans, cooperatives need to improve their image and credibility.

7) **Economy & Cost cutting Measures :** Financial discipline is lacking in cooperatives and they are not able to exercise control on wasteful expenditure. This is because they do not understand the value of money, economics of business operations and good governance needs. Wasteful expenditure should be curtailed to improve financial viability. Appropriate financial control mechanism should be introduced to curtail costs, expenses and leakages.

8) **Human Resource Development:** Cooperatives generally are not serious about human resource development and management. They are either over-staffed or understaffed. Recruitment is not done objectively. There are no effective regulations, systems and procedures in the matter of staff and most get into service not on merit but on other considerations. Staff is thus qualitatively poor and incapable of performing efficiently and effectively. Without a good HRD policy and practice and competent manpower, cooperatives cannot prosper and deliver. Management of the cooperatives are also not serious about developing the human resources through unbiased and objective recruitment and training. Training is a neglected area and management should realise that investment in human beings(Staff) for training is an essential business investment and not a wasteful expenditure.

Conclusion

Cooperatives are relevant institutional alternative to help and solve the socio-economic problems of farmers and other poor as compared to any other sector of the economy. In a liberalised economy, they are more relevant to serve the poor and to protect them from market forces. A majority of our farmers, rural and urban poor are still under-privileged and they need institutions like cooperatives for credit and other services. This is because cooperatives are non-exploitative enterprises not working with the motive of profits. This is the unique feature of cooperatives as compared to private sector which exists only for profits and to enrich the shareholders wealth. However, to serve the farmers and the marginalised poor effectively in a competitive economy, cooperatives should be strong, viable and self-reliant. A weak cooperative can hardly serve the cause and objective and will ultimately prove irrelevant. Such cooperatives will have no place to exist. Unfortunately, a majority of cooperatives fall in this category which have no future.

Dr. Verghese Kurien
(26 November 1921 - 9 September 2012)

The architect of 'White Revolution', Dr. Verghese Kurien, who led "Operation Flood' to transform India from a milk-deficient nation to the largest milk producer in the world, is credited with laying the foundation of the nation's co-operative dairy model. The sad demise of Dr. V. Kurien a doyen of the cooperative movement in India was a great shock to the cooperative fraternity.

Dr. Kurien showed how a small co-operative can grow to dominate a business sector. As the founding chairman of the Gujarat Co-operative Milk Marketing Federation (GCMMF), he was responsible for the creation and success of the Amul brand of dairy products. More importantly, Dr Kurien found a way to bring a decent and fair livelihood to thousands of India's dairy farmers.

Amul's co-operative model became a success and it was replicated throughout Gujarat. The different dairy unions were later brought under the banner of Gujarat Co-operative Milk Marketing Federation (GCMMF). Dedicating his professional life to empowering the Indian farmers through co-operatives, Dr. Kurien, served GCMMF from 1973 to 2006, and Institute of Rural Management (IRMA) from 1979 to 2006.

Dr. Kurien's tenure at Anand changed the destiny of Indian dairy industry. He began helping the fledgling dairy co-operative. The first dairy co-operative union in Gujarat was formed in 1946 with two village dairy co-operative societies as its members. He is also credited with being the first one to produce powder from buffalo milk, when elsewhere in the world; cow milk was used to produce milk powder.

Impressed by the success of Amul, then Prime Minister Lal Bahadur Shastri established the National Dairy Development Board (NDDB) to replicate the Amul model across the country and Kurien was made its chairman.

We pay our homage to Dr. Verghese Kurien for his extraordinary contribution to the co-operative movement and exemplifying cooperatives a change maker in the lives of billion people.

Amul: A Success Story of Dairy Supply Chain Management and Business Sustenance

Dr. C.L. Dadhich*

1. The Context

Economic reforms in India addressed mainly to dismantling of license Raj and ensuring of liberalised environment to businesses. As a result of liberalisation, while efficient business entities flourished the hitherto protected businesses generally suffered a significant setback. In this context, it is worth noting that dairy co-operatives particularly in operation flood areas enjoyed near monopoly situation in the pre-reforms era due to entry restrictions on private sector. However, in the wake of economic reforms, dairy sector was opened for private sector, by enactment viz., milk and milk product order (MMPO) 1992 for maintaining and increasing the supply of liquid quality. Under the MMPO necessary provisions have been made for regulating, the production, supply and distribution of milk and milk products (Government of India 1992). Registration is mandatory for all the establishments handling milk in excess of ten thousand litres of milk per day or milk product containing milk solid excess of five hundred tonnes per annum with State Authorities. Further, establishments handling milk excess of 2 lakh litres per day or milk solid of 10,000 tonnes per annum are required to get registered with the Central Government authorities.

As a result of opening of dairy business for private sector, a large number of private players entered into dairy market particularly in major milk producing states (Government of India 2010). It may be observed from data as presented in Table 1 that private sector accounted for 70.2% of plants and 58.0% of capacity installed as at end March 2010. The proportion was highest in Madhya Pradesh with 87.2% plants and 79.3% capacity installed closely followed by West Bengal, (82% plants and 60% capacity) Uttar Pradesh 81% plants and 87% capacity. Haryana (80% plants and 78% capacity) Punjab 79% plants and 69% capacity and Andhra Pradesh 72% plants and 71% capacity. However among the important milk producing states the lowest presence of private diary was noticed in the state of Gujarat at 38% plants and 7% capacity installed. Consequently except Gujarat, the share of co-operatives in terms of

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TABLE 1.
Number of dairy plants and installed capacity registered under MMPO: 2010

No.	State	No. of plants			Total installed capacity ('000 liters per day)		
		Total plants	of which: Private	Percent to total	Total capacity	of which: Private	Percent to total
1	Andhra Pradesh	34	26	72.2	6872	4922	71.6
2	Bihar	11	2	18.2	785	200	25.5
3	Gujarat	31	12	38.7	11015	775	7.0
4	Haryana	31	25	80.6	2447	1917	78.3
5	Karnataka	25	10	40.0	4238	835	19.7
6	Kerala	24	10	41.7	1535	373	24.3
7	Madhya Pradesh	39	34	87.2	4906	3892	79.3
8	Maharashtra	297	192	64.6	22285	11986	53.8
9	Orissa	7	1	14.3	199.5	25	12.5
10	Punjab	58	46	79.3	5658	3938	69.6
11	Rajasthan	36	19	52.8	3826	1826	47.7
12	Tamil Nadu	33	17	51.5	8042	3908	48.6
13	Uttar Pradesh	182	147	80.8	19792	17316	87.5
14	West Bengal	17	14	82.3	2081	1265	60.8
	All India	**841**	**562**	**70.2**	**98315.5**	**57063**	**58.0**

Source: Basic Animal Husbandry Statistics.

number of plants and processing capacity has witnessed a setback in most of the milk producing states. However milk procured in organised sector registered a rise.

State-wise milk procured by dairy cooperatives as presented in Table II reveal that in absolute terms during 1995-96 the highest procurement of milk by co-operatives was noticed at 32 lakh kg/day in Gujarat distantly followed by Maharashtra 19 lakh kg/day, Tamil Nadu 14 lakh kg/day, Karnataka 12 lakh kg/day and Uttar Pradesh 6 lakh kg/day. In 2009-10 again highest procurement was recorded in Gujarat at 91 lakh kg/day distantly followed by Karnataka 36 lakh kg/day, Maharashtra 32 lakh kg/day, Tamil Nadu 23 lakh kg/day and Rajasthan 17 lakh kg/day. In case of Uttar Pradesh procurement of dairy co-operatives witnessed decline both in absolute and proportionate terms. However at aggregate level, co-operative procurement of 1.09 crore kg/day in 1995-96 forming about 6% of production increased to 2.59 crore kg/day constituting about 8% in 2009-10.

Juxtaposing, analysis of Table I and II, it is evident that except in Gujarat, almost in all the major milk producing states in the country private dairies have made their presence felt. Nonetheless despite, increased penetration of private sector in dairy industry almost equivalent to that of dairy co-operative (IFCN, 2007) growing milk procurement of dairy co-operatives suggests that entry of private sector has not adversely impacted the

Table 2: State-wise milk production and procurement by co-operative network (in lakh kg. per day)

Major State	1995-96			2009-10		
	Production	Procurement	%	Production	Procurement	%
Andhra Pradesh	117.0	6.0	5	286.0	14.0	5
Bihar	91.0	2.0	2	168.0	7.0	4
Gujarat	126.0	32.0	25	242.0	91.0	37
Haryana	111.0	1.0	1	165.0	5.0	3
Karnataka	87.0	12.0	14	132.0	36.0	27
Kerala	60.0	3.0	5	69.0	8.0	11
Madhya Pradesh	140.0	2.0	1	196.0	5.0	3
Maharashtra	137.0	19.0	14	210.0	32.0	15
Orissa	18.0	1.0	3	45.0	2.0	5
Punjab	176.0	6.0	4	257.0	10.0	4
Rajasthan	149.0	4.0	3	338.0	17.0	5
Tamil Nadu	104.0	14.0	13	186.0	23.0	12
Uttar Pradesh	325.0	6.0	2	554.0	5.0	1
West Bengal	92.0	1.0	1	118.0	3.0	2
All India	**1814.0**	**109.0**	**6**	**3190.0**	**259.0**	**8**

Source: Basic Animal Husbandry Statistics, GOI.

market share of dairy co-operatives rather it has benefited one and all the consumers, producers, dairy co-operatives and private dairies alike. Since their inception, dairy co-operatives in Gujarat in 2009-10 have remained on the top. Similarly, Gujarat co-operative milk marketing federation (GCMMF) an apex marketing of body of dairy co-operatives, marketing its products in brand name 'Amul' had performed exceedingly well. Its annual turnover increased from ₹2336 crore in 2001-02 to ₹9774 crore in 2010-11 registering more than four fold rise (GCMMF, 2011). Evidentally the entry of private sector in dairy sector was insignificant in Gujarat. The primary objective of this paper is to highlight the strengths of dairy co-operatives of Gujarat and identify the factors that have contributed to their roaring success in augmenting their business horizons and sustenance. The outcome of this paper will also help others to follow suit.

2. Evolution of Amul Brand

The origin of Amul brand is in the history of Kaira District Milk Producers Union. In Gujarat the idea of organising Kaira District Cooperative Milk Producers Union was first conceptualised at the instance of Sardar Patel on January 4, 1946 to impress upon Colonial Government of buying milk from the farmers under Bombay Milk Supply Scheme. However, this did not make any dent and there was a milk strike. Finally Government relented and Kaira District Cooperative Milk Producers Union at Anand was formally registered on December 14, 1946 to provide marketing facilities for the milk producers of the Kaira

district (Heredia 1999). Kaira District Cooperative Milk Producers Union Limited, Anand is popularly known as Anand Milk Union Limited (AMUL Dairy) and its registered trade name or brand is Amul. Incidentally, Amul means "Amoolya" or precious in sanskrit.

In shortspan of two years in June 1948, Amul Dairy started pasteurisation of milk with only 250 litres a day which was increased to 9000 litres a day by the end of 1948. With a view to ensuring regular market for the extra milk produced in winter a plant to process extra milk into product like butter and milk powder was set up in 1955 under Colombo plan. AMUL Dairy made a history of producing cheese and baby food in the world from buffalo milk on a large commercial scale. In 1960 AMUL Dairy started supplying dairy products to Defence services. AMUL followed a pattern that envisaged uniting farmers at village level in the form of the dairy co-operative society to procure surplus milk from them, organising union at district or milkshed level to be owned by dairy co-operative societies to process milk and convert surplus milk into the products, to market in the urban areas by hiring the services of professionals (Shah Jignesh and Dave Darshana 2010). The Union also envisaged to undertake supply of inputs and other technical services such as artificial insemination, veterinary health etc. to their members. These unique features of AMUL distinguished it from other government dairies. The success of AMUL Dairy inspired farmers in other districts viz, Mehsana, Banaskantha, Sabarkantha, Baroda and Surat in Gujarat to organise dairy co-operatives on the pattern of AMUL Dairy.

Impressed by the success of AMUL, the then Prime Minister (late) Shri Lal Bahadur Shastri, Government of India established National Dairy Development Board (NDDB) at Anand in 1965 to replicate AMUL in the other districts of the country under the Chairmanship of Dr. V. Kurien, the then General Manager of AMUL. NDDB ushered in white revolution of the country. As a result milk production in the country increased from 21.2 million tonnes (per capita availability of 112 grams/day) in 1969 to 112.5 million tonnes (per capita availability 263 grams/day) in 2010.

India is largest producer of milk in the world. The value of milk output at ₹2,28,809 crore in 2009-10 was highest among agricultural commodities distantly followed by paddy output amounting to ₹1,35,307 crore.

3. Amul Brand - The Journey from a Brand of Tiny Town to an International Brand

Although Amul brand was well

established, its supply was constrained due to limited availability of milk in Kaira district. This apart, competition with other upcoming co-operative dairy brands like Sagar of Mehsana Dairy, Sangam of Baroda Dairy, Sumul of Surat Dairy, was also experienced. With a view to eliminating competition among dairy unions of Gujarat as well as curtailing the growing expenses on advertisements and ensuring market expansion, it was decided to set up an apex marketing body of unions of Gujarat. Accordingly, in 1973 six milk unions of Gujarat formed an apex marketing body known as Gujarat Co-operative Milk Marketing Federation Ltd., (GCMMF) to market their surplus milk and milk products in the brand name of Amul. Nonetheless they continue to market their own brand in their area of operations. Today as many as 13 milk unions in Gujarat covering 24 out of 26 districts are members of this Federation. The headquarter of GCMMF is at Anand. This is a marketing organisation of 3.1 million milk producers belonging to 15712 village dairy co-operative societies. These village dairy cooperative societies collect on average 94 lakh kg milk per day. Now Amul has gone beyond the districts of Gujarat state by setting up plants in other places/states like Pune in Maharashtra, Kolkata in West Bengal, Gangtok in Sikkim. It is the largest food products marketing organization in India. Amul is the largest food brand of India and world's largest pouched milk brand with an annual turnover of ₹9774 crore or over US$2 billion (GCMMF, 2011).

Under the AMUL brand, there are more than 55 products comparing 17 items. These products are distributed through a network of 5400 distributors (3600 Distributors for value added milk products and 1800 distributors for Fresh Milk) through 2 million retail outlets. There were as many as 6000 AMUL Parlors with turnover of ₹400 crore during the year 2010-11. These parlors have been opened at potential locations like Railway Stations, Airports, Universities and shopping malls.

Amul has also entered overseas markets such as Mauritius, U.A.E., U.S.A., Oman Bangladesh, Australia, China, Singapore, Hongkong, and a few South African countries, Amul exports amounted to ₹98 crore in 2010-11. According to a study of International Farm Comparison Network (IFCN, 2009), Germany, India's largest food brand AMUL is now among the first 21 brands of the world.

Keeping in view both letters and spirit of its name, the precious AMUL brand is now the aspiration of lakhs of milk producers and confidence of crores of consumers across the

world. In this backdrop, one can conclude that AMUL is a brand of the people, by the people and for the people.

4. Robust Supply Chain Management in vogue

The primary objective of supply chain management is to manage complex and dynamic supply and demand network (Wieland and Wallenburg 2011). In this context the importance of Amul model cannot be over emphasised. As mentioned earlier, Amul has evolved a unique model which is also known as "Anand Pattern". This model consists of pyramid type three tier structure with village dairy co-operative society at primary level, district milk union at middle level and state milk federation at apex level. Milk producers at village level are organised as village dairy co-operative society (VDCS). VDCS is responsible for collection of milk from producers twice a day. Price is decided on the basis of quality and quantity of milk poured. Price of the milk is based on double axis formula that takes care of both fat and solid non fat (SNF) contents. Initially interim payment is made. However at the end of the year the difference between price initially paid to producer and price actually realized from the customer is paid to members based on the quantity and quality of milk poured. There is uniform price rate through out the area of operation of a union, irrespective of location of the VDCS.

It is interesting to note in this context that in case of other agricultural commodities, farmers have to incur cost for transporting it to APMCs. There is transparency in weights and quality of milk contents as these operations, have been completely computerised at dairy society level. Payment is made twice in a month and credited to bank account. VDCS also provides support services to member producers like veterinary first aid, artificial insemination, cattle feed mineral mixture, fodder and fodder seeds at reasonable rates. Cattle feed is available on credit from VDCS with a liberty to pay in three to four instalments out of the sales proceeds of the milk. Training programmes on animal husbandry and dairying etc are also organised by VDCS. After selling milk to local consumers, surplus milk is supplied by VDCS to district union through the transport arranged by union twice a day.

Earlier producers were required to pour milk during the specified hours to coincide with the arrival of vehicle, but now large number of societies have installed bulk milk cooler that not only provide freedom of pouring hours but also keeps quality of milk intact. Special care is taken to implement clean milk production programme of the central and state Governments to assure high quality

standards of products. VDCS is an independent entity democratically, managed on the basis of one member one vote irrespective of quantum of milk poured by producer members and number of shares held.

Most of the VDCS have their own office premises and full time paid secretary to attend members. At the middle level, district milk union is engaged in procuring milk from VDCS and transport the same to dairy plant, for further processing into products and for marketing in their area of operation. Surplus products are marketed by federation elsewhere. Unions also installed chilling plants to chill milk. It also organises input services for members producers, conducts training programmes and provides management support to VDCS along with regular supervision of their activities are milk prices to be paid to member producers and prices of support services are also decided by union keeping in view market conditions. Majority of unions owned cattle feed plants to ensure uninterrupted supply of cattle feed to members.

At the apex level, Federation is entrusted with the responsibility of marketing of surplus milk and milk products of unions by establishing distribution network. It also creates and maintains brands of milk and milk products (brand building). Federation installs, feeder balancing dairy plants to process surplus milk pooled from union. It also guides union matters relating to training, technology transfer, knowledge management fixation of milk and service prices etc. Amul enlisted the services of veterinary, technical management and marketing professionals both at union and federation levels to achieve high standards. It is indeed, owned and controlled by milk producers and managed with the help of professionals (Kurien, 1987). In short Amul is a unique organisation that links more than 3.1 million milk producers of Gujarat with millions of customers in India and abroad by eliminating middlemen.

Indeed, Amul model (popularly known as Anand pattern) is the best model of supply chain management involving, a gamut of activities like design, planning extension, control and monitoring of supply chain activities with a objective of value addition and movement of goods from point origin to consumers as mentioned by Harland (Harland 1996). Amul has followed the principles of supply chain management through Anand pattern in letters and spirits that has enabled it to edge over others in the industry even in a liberalised environment.

5. Some Other Contributory Factors

Apart from robust supply chain management in place, in Amul, other

factors that contributed towards its success are as follows:

(i) Unlike other cooperatives, elsewhere in India, dairy co-operatives in Gujarat did not avail of share capital contribution from state Government (Dadhich 2010). As a result, there was least state interference of the Government Instances of posting of bureaucrats as Chief executive officer of federation were almost rare. Similarly, supercession of elected boards of unions and federation was not noticed in Gujarat.

(ii) Because of organizational links of Amul and NDDB (in initial years Dr. Kurien was Chairman of both the Institutions), Amul took full benefits of technical, financial and professional strengths of NDDB (Dadhich, 2011). The headquarters of both the institutions at Anand have further added to their organizational links.

(iii) Dairy co-operative of Gujarat have freedom to recruit professionals. Accordingly, they have appointed a number of IRMA graduates in managerial positions.

(iv) The visionary and forward looking co-operative leadership of Gujarat has incorporated in the bye-laws of Gujarat Cooperative Milk Marketing Federation (GCMMF) voting right on the basis of patronage, hiring the services of professionals holding election regularly etc. These provisions indeed have helped them to govern better.

6. Suggestions or Policy Implications

It is interesting to note that supply chain management as envisaged under Anand pattern is theoretically supposed to be in vogue in all the dairy co-operatives across the states. However in practice it varies from state to state. Among others, the transparent fat testing system, flexible milk prices for lean and flush seasons, regular and timely payment of milk prices, efficient veterinary services, A.I. services and uninterrupted supply of inputs like feed concentrate have been vital ingredients for success of dairy cooperatives in Gujarat. Contrastingly, co-operatives in Uttar Pradesh, did not ensure these as a result they lost their market share heavily to private dairies.

The degree of success is positively associated with degree of availability of these services. In most of the states with sub optimum performance of co-operatives Anand Pattern is followed half heartedly. This apart, the political influence rather than business considerations played inordinate role in the governance of co-operatives in majority of poor performing states

(Amrita Patel 2004). While Anand Pattern is fair blend of both co-operative principles particularly mutual help, democratic governance, commitment to the community and equitable distributions of returns on the one hand and three tier efficient supply chain management system particularly to ensure fair deal for all the producers, consumers and processors. Unless, cooperatives in poor performing states follow the Anand Pattern in toto (a fair blend of cooperative principles and tenets of efficient supply chain management) they will not achieve the desired results. Further, a strong and vibrant brand name is imperative for the success.

7. Conclusion

The foregoing analysis brings to the fore that the supply chain management as envisaged under the Anand pattern was indeed adopted by the Amul in letters and spirits. The remarkable progress made by Amul under the liberalised environment confirms the common belief that the threat of competition is a blessing in disguise for the efficient businesses to further streamline and strengthen the system and grow faster. However for the inefficient business it is a wake up call to get up from the slumber and improve or get perished. The rising competition from private sector in Indian dairy industry is a last opportunity for dairy co-operatives in other states to adopt supply chain management both in letters and spirits to forge ahead in the new economic environment. The outcome of this paper also dispels the fears of retailers in India have that entry of FDI in retail sector will harm their interest. Both will rather grow in the competitive environment and help the economy as a whole. Incidentally, the experience of dairy sector under liberalised environment in general and that of Amul in particular is highly rewarding for the other sectors of the economy.

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THE HARYANA STATE COOPERATIVE AGRICULTURE AND RURAL DEVELOPMENT BANK LTD.

Sahakarita Bhawan, Bay No. 31-34, Sector - 2, Panchkula

The Haryana State Cooperative Agriculture and Rural Development Bank Ltd., is the specialised institution in the State, which caters to the Long Term credit needs of the farmers for the upliftment of the economic position of the agriculturists and allied fields.

The bank advances Long Term loans to the farmers for the following purposes :-

Scale of finance and periodicity of Major Sectors

Farm Sector

Sr.No.	Name of the Scheme	Period	Scale of finance
1.	Minor Irrigation	9 years	₹ 36,000 to 1,50,000
	i. WCS/UGPL	-do-	90% of the project cost
2.	Farm Mechanisation	5-9 Years	85% of the cost of the Machinery
3.	Purchase of Agriculture Land	10 Years	Upto Rs. 10.00 Lacs
4.	Horticulture/Plantation	5-9 Years	₹ 40,000 to 1,55,000 per Acre
	i. Medicinal & Aromatic Plants	-do-	90% of the project cost
5.	Animal Husbandry	5-7 Years	90% of the project cost
6.	Rural Godowns	Upto 10 Years	75% of the project cost

Non Farm Sector

Sr.No.	Name of the Scheme	Period	Scale of finance
1.	Rural Housing	Upto 10 Years	Upto ₹ 5.00 Lacs
2.	Marriage Palaces	Upto 10 Years	90% of the Project Cost
3.	Community Halls	Upto 10 Years	90% of the Project Cost
4.	Village Cottage Industry	Upto 10 Years	90% of the Project Cost
5.	PublicTransport Vehicles	Upto 10 Years	85% of the Project Cost
6.	Rural Educational Infrastructure	Upto 10 Years	90% of the Project Cost
7.	Other SSI Units	Upto 10 Years	90% of the Project Cost

Rate of Interest

The Loans for the purpose of non-farm sector, Rural Housing and Purchase of land are being advanced @ 13.25% p.a. w.e.f. 1.4.2011. All other loans are being advanced @ 12.25% p.a. w.e.f. 1.4.2011 and a rebate of 25% w.e.f. 1.12010-31.3.2012 is allowed on all slabs to regular paymasters.

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Emerging Investment Opportunities in Agriculture Precision Farming and Organic Farming

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1.Introduction

Twelfth FYP envisages higher, sustainable and inclusive growth in agriculture and aims to achieve the target of 4%. It may be remembered that the realized growth during the 10th and 11th FYPs were only 2.4 % and 3.3 % against the target of 4%. The challenges of achieving 4% growth rate during the twelfth FYP is more complex due to the forces of climate change and globalization. The role of capital (manufactured, human, natural and knowledge) in triggering and stimulating the agricultural performance is well acknowledged. The human capital involvement in agriculture sector is projected to be on the decline as revealed by the Situation Analysis Survey results which indicated the desire of some 45% of farmers to leave agriculture, given an option. This underline the need for attracting and retaining the people in agriculture sector, especially the youth. For this farming is to be made more socially acceptable, by making it rising to the status of an industry through technology application and making it more rewarding. For this, manufactured capital investment in agriculture should increase. The net Fixed Capital Formation in agriculture during the 10th FYP was growing at 4.7% and that during 11th FYP increased to 6%, though the share of public sector stagnated, mainly due to fall in irrigation investments.

The role of natural capital in augmenting higher output needs no elaboration. The reports of declining fertility and soil quality in different agriculturally prosperous areas in India raises great concern and challenges. The declining or platauing yield trends, the ecosystem damages and human health damages are to be seriously considered while aiming at higher growth trends. The sustainability of natural ecosystems are to be taken care of.

The knowledge capital that we possess (Indigenous Technical Knowledge) and that we generate can come up with solutions to many of these challenges and thus form the basis for tomorrows` agriculture. Technologies like organic farming may belong the former category and that like precision farming to the latter. The capital investments in this sectors are to be prioritized considering the capital intensive nature of these technologies and the

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social significance. This paper tries to discuss these two technologies highlighting the positive and risk factors of investments in them.

A. Precision farming

Precision farming (PF) is the application of technologies and principles to manage spatial and temporal variability associated with all aspects of production for improving crop performance and environment quality. It is an information and technology based farm management system to identify, analyze and manage variability within fields, for optimum profitability and sustainability. Originally, it was strictly based on the Global Positioning System (GPS) developed by U.S. defense scientists for the exclusive use of the U.S. Defence Department. The unique character of GPS is precision in time and space. In 1983, the technology (GPS) was released to various civilian uses. Thus, the definition of PF as given by the US house of representatives in 1997 explained PF as an integrated information and production based farming system that is designed to increase long term site specific and whole farm production efficiency, productivity and profitability, while minimizing unintended impact on wild life and environment.

As the name implies Precision farming or precision agriculture involves a micro approach in farming. Each and every single plant or small plot is approached and managed individually. Thus every small plot or plant is cared and managed depending upon its micro climate and characters. It is about doing the right thing, in the right place, in the right way, at the right time. The focus of precision farming is to match agricultural inputs and practices as per crop and agro-climatic conditions to improve the accuracy of their applications. Basically the technology is focused on managing the variability within a field condition.

A1. Components of Precision Agriculture

1. Spatial Prediction & Mapping

The field is demarcated into small units (grids) and the values for soil and crop attributes must be predicted for all locations across a field. This enables detailed representation of the spatial variability within an entire field through the creation of a smoothed map.

2. Soil & Crop Monitoring: Soil and crop attributes must be monitored at a fine-scale. When observations are tagged with a GPS location, they provide data on the spatial variability of the attributes within a field.

3. Decision Support : Knowledge about the effects of field variability on crop growth, and the suitable agronomic responses, can be combined to formulate differential treatment strategies. The treatment /management strategies can also be streamlined based on the market signals,

credit supply and risk factors.

4. Differential Action: To deal with spatial variability, operations (tillage, sowing rate, fertilizer, lime & pesticide application etc.) can be varied in real-time across a field. (Variable rate Technology). Water, the critical and limiting input in agriculture presently is managed most efficiently though Micro Irrigation and Fertigation .

The PF technology in developing countries are highly capital intensive because of the high dependence on sophisticated machinery and other technology support.

A2. Technology support

- Global positioning systems (GPS).
- Geographical information systems (GIS)
- Variable-rate technologies (VRT): Include precise and variable application of seed, water, fertilizer, pesticides etc .
- Remote sensing (RS)
- Geographic Information System (GIS).

A3. Advantages of PF

Input use efficiency through better management: Application of inputs at the required level and method so that maximum utilization is ensured (precision in time, quantity and space).
Energy efficient technologies

Economic attraction: Reduces cost of production by efficient use of farm inputs. Maximizing total factor productivity, Ensuring safe produce and scope for premium price realization, Production planning in accordance with market signals (employing market intelligence).

Social acceptability: Enhance productivity and profitability in agriculture, dissemination of modern farm practices to improve quality, quantity & reduced cost of production in agricultural crops. Reduced drudgery in farm work and acceptance among youth. Assured markets and marketing support

Ecological health: Reduction of chemical use in crop production, Efficient use of water resources, Energy saving, Production of safe food and hence better health for the population and ecosystem.

A4. Precision Farming Indian Experience

The adoption of PF technology in its original perspective in India and other developing countries is in a nascent stage, though technologies required for PF are there. The organized system for precision farming applications in India, perhaps was initiated with the national project for use of plastics in agriculture which had set up Plastic Culture Development Centres, across the nation. The use of plastic materials

in crop production as irrigation equipments, mulches and other production systems were popularized . Later on these centres were converted as Precision farming Development Centres (PFDC). Some important PFDCs in India are

- IARI, New Delhi.
- University of Agriculture Sciences, Bangalore.
- Gujarat Agriculture University, Navsari.
- Indian Institute of Technology, Kharagpur and
- Central Institute of Sub-tropical Horticulture (CISH), Lucknow.

These are the Centers for Excellence for Precision Farming (CEPF).

In India, the PF technology is not as machine /technology dependent as in developed countries. The remote sensing, GPS and GIS or the coordinated and synergized application of these tools are not very popular. But the basic philosophy of managing the on farm variability is the key aspect of PF. The farm, instead of treating as a single production unit, is managed by considering the variability in fertility status and other soil and geographic peculiarities. Thus the definition of PF in India can be taken as management of on farm variability for resource use efficiency and economic gains. The precision in management (input supply) is brought in through cost effective technologies. Further, market support was an important component in the programme and market led agriculture was the term often used in this context. PF techniques in India can be grouped under two situations;

1. <u>In open field conditions</u>

For crops like, wheat, rice, cotton and other field crops. This mainly include the mechanization for all possible farm operations (field preparation to harvesting) and the resource saving technologies (drip irrigation, fertigation). The use of GIS/ sensors/ GPS etc are not very much popular, though these are made use of, in some instances.

2. <u>Protected cultivation</u>

Green houses/ glass houses/polyhouses are popularized under this method which manipulate and control the atmosphere and make it favorable for crop production. This is also categorized as high tech agriculture. This approach is more popular in the case of flowers, and vegetable production.

Thus, all high tech production systems in India are generally called as precision farming. Here the use of GPS /GIS data or VRT concept is not fully employed in the real sense. For instance, a green house is a framed or inflated structure covered with a transparent or translucent material in which crops are grown under controlled or partially controlled conditions. Here the variability in the production system is minimized through artificial means and then

the rate of input application is regulated based on crop requirement. Mostly, the investment requirements for such units are in accordance with the size of the unit and the construction material used. The system is preferred on account of the space, time and cost saving coupled with higher returns. For instance, 625 cucumber plants can be grown in a polyhouse of 12.5 cents as against 30 in the conventional style. The resource constraint (land) can be effectively overcome by the technology. In states like Kerala where the population density is very high and hence per capita land availability very low, the system is of much scope. The small holders and the urban entrepreneurs can also start the enterprise. Similarly, the scope for leasing out the land for agricultural production will be more, owing to higher rent. Even small plots /spaces can also be leased out for green houses and polyhouses. This situation can trigger the agricultural production process, as the chances of utilizing all available land is higher.

The labour management in small units of production is much efficient and easy than in large farms. The skilled nature and the easiness in operations may improve the chances of family labour involvement in production under green houses/polyhouses. The mechanized natures of operations replace the labour to some extent. The problem of shrinking labour supply in agriculture can be tackled to considerable level, in this system.

6.1. The Indian experiment in Precision farming

First comprehensive project on PF was tried in Tamil Nadu. Tamil Nadu Precision Farming Project (TNPFP) was a Tamil Nadu State sponsored turnkey project which was implemented at Dharmapuri and Krishnagiri districts in 400 ha with a total budget of 7.20 lakhs for a period of three years (2004-05 to 2006-07). The project started with training the farmers and empowering them technically, economically and socially. TNPFP propagated a novel method of farming that takes adequate care of technology upgradation and marketing support. TNPFP tailors inputs water, fertilizer and pesticides in a measured form to match verifying growth stage of each crop on the field. TNPFP adopted a location specific, field specific and crop specific approach. The objective was optimisation of input use to facilitate optimal output resulting in saving of valuable resources like water and energy. The project had adequately prepared the farmers for market driven production

In the project, 23 kinds of crops were raised over three years and recorded 60% increase in yield and 90% marketable quality. The buyers and sellers meets are arranged and farmer level organizations are formed which facilitated bargaining

powers both for sale of the produce and for purchase of inputs . The site has now become the training ground for the farmers of rest of the state.(www.tnau.edu)

The highlights of the scheme include;

Social institutional forms : Cluster approach :Precision farmers` Association producer company.

Technological support: PF technologies (Remote sensing, Historic data, VRT), Varieties, Fertigation, cultural operations.

Extension support: Capacity Building of stakeholders, Entrepreneurial development, awareness creation, skill development, exposure visits. The scientists and technocrats were available for consultation in the locality during 24x7.

Market support: market intelligence, market infrastructure, value addition, quality management

Monitoring and evaluation: Team of scientists and development officials in the village, arrangements for quality assurance and supply of inputs in time and quantity support for. Data management, facilitating the marketing and other support services (credit delivery, risk management) and technical guidance and problem solving.

Political will: the whole programme was supported by the political system.

Highlights of the result were as follows:

1. Input saving and cost reduction
   - Less labour
   - 30-40% water saving
   - Less pesticides
   - Less fertilizers
2. Higher output level and better Returns-Quantity / Quality / uniformity and timeliness
   - 60-80% additional yield
   - Weight/volume 25 % higher
   - 90% first grade produce
   - 30% premium price
3. Extended harvest

A5. The Scope of PF under Indian Scenario

1.Rural Employment Generation

PF is technology oriented and hence demands specialization and skill development. Naturally this leads to division of labour. The technology and information support are the key determinants of the spread of the technology. The specialized machines required for PF, the consultancy services and computer support are the major areas. Diffusion of the technology create the demand for agri support services like equipment sales, software development and consultancy services.

The scope for additional employment generation in rural areas, on account of PF is reported to be rather modest, even in countries like US. Going by the experience in US it is reported that some of the PF equipments replace the production of existing ones and neither the manufacture nor sale of such

equipments require expanded employment - may be more skilled personnel are required. Same is the case with service delivery mechanism and technical advisory mechanism. Moreover, the size of the market for PF products and services is also not big enough to effect sizeable effect on the employment scene. Further, any gains in employment creation in this sector will be beneficial for highly skilled people, which probably will be in urban centres. The scope of rural employment generation in its present form is rather limited

2. Structural transformations in farming- from agriculture to agribusiness:

Farming in India has been of subsistence in nature operated by small and marginal farmers. 59 million farming families in India (32 crore rural people) live on agriculture, with less than 5 acres of land. Small farmers use one third of cultivated area and produce 41% of total food. But the Situation Analysis Survey in Agriculture indicated that 45% of the farmers want to quit agriculture as the next generation is disinterested. There is large scale migration (vertical and horizontal) from farming sector due to socioeconomic reasons, relative profitability factors, and risk management reasons. The drudgery in farming operations and low social recognition associated with farm sector also force the youth away from farming. PF technologies can retain and attract these set of farmers and entrepreneurs to farm sector. The PF necessitates knowledge acquisition and skill development and offer attractive returns. Hence the educated youth, next generation of farmers, retired people, NRIs who have returned to homeland and the like people can invest in this sector and manage it by themselves.

3. Managing labour shortage in Agriculture

Agricultural production under the traditional management systems is posing great challenges due to labour shortage. The adaptation strategies include mechanization (for farming operations) and chemical management (weed control/pest management). However, the scope of mechanization is limited in certain cases due to farm size, geographic peculiarities and scale economies. The use of chemicals invite serious ecological problems. PF can address the labour management issues to some extent, as the drudgery is considerably reduced and the works are mainly skilled in nature. However, the possibility of work loss to traditional farm workers is there, at least in some areas, unless they are ready for skill development .

4. Scope for Sectoral integration

PF improves the scope for forward and backward linkages. The reliance on specialized technologies and information systems necessitates the backward linkage. Similarly, the

uniformity and quality of products improves the scope for forward linkages with exporters, processors and super market chains. The assured markets facilitate the producers for risk management and better price realization. However, the producers should take care to choose market driven products and management aspects.

5. Environmental Effects

Agriculture sector in India have been reported as a major source of pollution and green house gas emission. The major sources of agricultural pollution include chemicals (pesticides, chemical fertilizers) and some of the management practices. The ecological health (residue in soil, water, products) influences the societal health and there has been growing volume of literature on the negative externalities of agrl. production. PF technologies demand the application of agrochemicals in the correct dose, correct time and correct method limiting the chance of ecosystem damage. Hence, the spread of the technology can be favoured in populated areas as well. But the use of plastics in polyhouses and irrigation systems may be a cause of environmental damage.

6. Resource conservation

Water resources in India is reported to be on a critical situation and India is projected to become a water scarce nation. 80% of fresh water in the country is used in agriculture and hence the sector will be most affected. The threat to food security is also a matter of serious concern. The PF technologies facilitate the use of water most judiciously, regulating the time, quantity and method of application. The management tool of more crop per drop is achieved through this. Similar is the case with energy management.

A6. SWOC Analysis

Strength

- The technology for PF is available (remote sensing, GPS/GIS/VRT).
- Scope for introducing the technology in field crops (rice, wheat, cotton), plantation crops (coconut, arecanut, rubber, spices, forest species) fruit trees (mango), vegetables, flowers etc.
- Growing domestic market due to population growth and economic development.
- Interactive and open economy and liberalized economic/trade policies.
- Existing gaps in production and demand in many products

Weakness

- Lack of management and organizational mechanism for developing a complete package of practices for PF.
- Inherent weakness in the system for efficient supply management of inputs.
- Large number of small holdings

and hence the need for appropriate social mechanism for consolidation.

- Traditional approach towards farming due to the presence of large number of senior farmers.
- Insufficient market support mechanism and infrastructural developmen.

Opportunities

- Scope for export market possibilities.
- Vibrant domestic market to absorb the additional production.
- Improving status in literacy and education which favours transfer of technology.
- Large number of educated unemployed youth can be capacitated to take up enterprises in agriculture.

Constraints

- In the present situation, the potential of precision agriculture in India is limited by the lack of appropriate measurement and analysis techniques for agronomically important factors.
- High accuracy sensing and data management tools must be developed and validated. The limitation in data quality/availability.
- The practice of keeping farm data is not common among Indian farmers.
- Combined efforts on behalf of scientists, farmers and the government is lacking.
- The system needs to address the issue through concentrating on social, technological, political, economical and ecological aspects.

1. Creation of multidisciplinary teams of agricultural scientists in various fields, engineers, manufacturers and economists to study the overall scope of precision agriculture.
2. Formation of appropriate social institutional forms (farmer's co-operatives, SHGs, Producer Companies) since many of the precision agriculture tools are costly (GIS, GPS, RS, etc.).
3. Government legislations favouring the spread of the technology.
4. Pilot study should be conducted on farmer's field to show the results of precision agriculture implementation.
5. Creating awareness amongst farmers about consequences of applying imbalanced doses of farm inputs like irrigation, fertilizers, insecticides and pesticides.
6. Development of market infrastructure and strengthening market intelligence.

A7. Investment opportunities

1. Manufacturing machinery for PF.
   1. Materials for polyhouses/

greenhouses.
   2. Drip irrigation/fertigation systems.
   3. Liquid fertilisers.
2. Software development /GIS/GPS service experts.
3. Service providers (installation and maintenance and servicing of machinery.
4. Consultancy service providers (technology /disease and pest management).
5. Input supply services.
6. Market intermediaries.
7. Processing and value addition.
8. Market intelligence service.

Rough estimates suggest that only 2.5 million of India's 120 million farmers practice PF. It is estimated that India will need to produce 480 million tonnes of foodgrains by 2050. That is double the 241 million tonnes produced in 2010/11. The demand factors due to the burgeoning population and fast economic growth coupled with the challenges in the supply side factors (climate change, shifting of farm population from agriculture, technological fatigue) act in opposite fashion. The PF technology can be a technological alternative. But it is to be implemented with care considering the social, economic and environmental aspects specific to India.

B. Organic Farming (OF)

Agricultural growth triggered by the green revolution technology has significantly augmented supply of food grains, in India. However the agricultural system could not sustain the higher yield for long and fluctuating/ platauing yields are reported from various parts. Yield trends from long term continuous cropping experiments indicate that even with best available technologies and scientific management, yields, either have become stagnant or have started to decline. This has resulted in an increasing awareness on ecological safety and consequent shift in growth strategy in favour of organic/sustainable agricultural practices.

Organic farming systems are based on the development of biological diversity and the maintenance and improvement of soil fertility. Practicing organic agriculture is managing agro-ecosystem as an autonomous system based on primary production capacity of soil under local conditions. USDA (United States Department of Agriculture) defines OF as a system that is designed and maintained to produce agricultural products by the use of methods and substances that maintain the integrity of organic agricultural products until they reach the consumers. This is accomplished by using substances to fulfill any specific fluctuation within the system so as to maintain long term soil biological activity, recycle wastes to return nutrients to the land, provide attentive care for farm animals and handle the agricultural products without the use of extrane-

ous synthetic additives. The basic rules of organic production are that natural inputs are approved and synthetic inputs are prohibited, but there are exceptions in both the cases. Certain natural inputs determined by certain certification programmes to be harmful to human health or the environment are prohibited (e.g. arsenic). As well as certain synthetic inputs determined to be essential and consistent with organic farming philosophy, are allowed (e.g. insect pheromones). Organic farming is generally based on the dynamic interaction between the soil, plants, animals, humans, ecosystem, environment etc. It relies largely on locally available resources.

A widely quoted comprehensive definition of organic farming is of Codex Alimentarius Commission, a joint body of FAO/WHO. This definition reads as "Organic agriculture as holistic food production management systems, which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological activity. It emphasizes the use of management practices in preference to the use of off-farm inputs, taking into account that regional conditions require locally adapted systems. This is accomplished by using, where possible, agronomic, biological and mechanical methods, as opposed to using synthetic materials, to fulfill any specific function within the system".

According to the data as of end of 2010, organic farming is practiced in about 160 countries, which showed slight increase in area as well as production. Globally organic food is cultivated in 32.2 million ha, operated by some 1.2. million producers. About a third of land under organic farming is in developing countries (11 m.ha). Latin America leads in this followed by Asia and Africa. The continent with most organic land is Australia (11.9 ha) followed by Europe (7 m ha), Latin America (5.8 m ha), Asia (almost 2.8 m ha), North America (2.2 mha) and Africa (almost 0.9 m ha).

The total organic agricultural area in Asia is nearly 2.8 million hectares which is 7% of the world's organic agricultural land. The leading countries by area are China (1.4 million hectares) and India (0.8 million hectares). When the overall area under organic farming increased worldwide, it showed a slight decline in Asia especially due to decline in China and India (FiBL-IFOAM Survey on certified organic agriculture worldwide). Currently, India ranks 33rd in terms of total land under organic cultivation and 88th in agricultural land under organic crops to total farming area . But the decrease in the area has not affected the trade.

Organic farming under Indian situation can be by deliberate attempts or by convention. There are several geographic belts in the

country where the system of agricultural production is by organic methods only. At the same time areas are being converted to organic farming mode, owing to ecological factors or for tapping the market opportunities. Thus the organic farming units in India include the registered farms as well as unregistered. The percentage share of organic land to the total agricultural land in India was 0.3% in 2006. As per 2006-07 data, the cultivated area under certification was 3,39,113 ha. including wild collection area, the total area under certification was around 2.8 million ha (www.apeda.com). Madhya Pradesh has 1.63 lakh ha of area under organic certification followed by Maharashtra (1.15 lakh ha). This, however, is the area under certified organic management and does not include those areas which are organic by default.

The global organic food and beverages market is expected to grow from $ 57.2 billion in 2010 to $ 104.5 billion in 2015 at an estimated CAGR of 12.8%. Better purchasing power and growing awareness among the consumers in India create rising demand for the organic food products. The current size of the market for organic foods in India is pegged at about ₹1,000 crore with a huge untapped potential, as per a recent article in the 'Down to Earth' magazine. The major organic food products from India are tea, coffee, rice, wheat, spices (cardamom, black pepper, white pepper, ginger, turmeric, vanilla, mustard, tamarind, clove, cinnamon, nutmeg, mace, chilli), pulses (red gram, black gram), fruits (mango, banana, pineapple, passion fruit, sugarcane, orange), nuts (cashew nut, walnut), vegetables (okra, eggplant, garlic, onion, tomato, potato), Oil seeds (sesame, castor, sunflower). Besides some non- food products such as cotton fiber, garments, cosmetics and herbal extracts are also produced in the country.

B1. Organic farming issues and challenges

The shift in production policy to eco friendly methods finds relevance not only in the light of environmental concerns but also the expanding realm of global agricultural trade in favour of quality produce. While this transition is well appreciated, the inherent issues associated with these technologies are often poorly addressed. Some of these are listed below.

- The effect on production, productivity and the time factor.
- The effect on food security.
- The supply management of biocontrol inputs and its quality assurance.
- The skill development strategies.
- Marketing arrangement for inputs and produce.
- Livelihood impacts.
- The relative economics and risk management.

- The climate change impacts.
- Farmer behavioral responses.

All these issues are of equal importance and are to be given serious thought while moving forward with the policy of ecofriendly agriculture.

The major challenges in this sector can be discussed under the following heads:

1. Farmer perceptions and production performance

Switching to organic/non chemical based technologies often result in a dip in output, which is reported to get smoothened after a period of time. The extent of fall and time requirement to regain the original level/higher level varies depending on the crop, climate and other agronomic, soil and management factors. We do not have scientific estimates of yield performance and its pattern in different crops under varying conditions, while switching over to organic management practices. The questions in this regard are

1. Is there always a yield reduction upon switching over to Organic Farming (OF) from Chemical Farming (CF)?
2. If so, how much is the decline, under varying management practices, agroclimatic conditions and different crops/crop combinations?
3. How long it will continue?
4. Will the yield stabilize at lower/same/higher level?
5. What is the extent of deviation from original yield?
6. Under the existing socioeconomic situation, what can be the financial performance in OF technology at farmer level management strategies?

The experimental data from research fields are to be supplemented with farmer level data generated through farm surveys to arrive at meaningful conclusions on a policy perspective. Farmer's have their own perception regarding the yield loss associated with OF practices, based on experience and observation. The scientific data on this aspect is to be generated for crops and regions.

2. Produce quality

The qualitative and organoleptic advantages in OF is often contradictory. There are reports which highlight favourable attributes and no significant difference. However, the public perception is that of a favourable quality and taste. Many studies reflect the higher willingness to Pay by the consumers, ie. a price premium. This is largely decided by the awareness level and income of the consumers.

3. Influence of external factors in production

The decision to manage one`s farm organically cannot be taken in isolation to the surrounding environments. The externalities associated with irrigation water quality, farm management in neighborhood farms and upstream areas restrict the

chances of organic production prospects. The presence of pesticide residues in irrigation water or the residue of chemicals used in upland farms make their way to the farm and affect the produce quality and limit the chances of certification. This is beyond the control of the farmers. Often scientific information on the suitability of a farm to be converted to organic methods are not known to them. There is a need for an educative handbook on this aspect which can help the farmers to make an initial judgment on the scope of converting their farm as organic. There are instances wherein the farmers ended up in trouble, due to inadequate scientific information.

4. Organic inputs-challenges in supply management

Traditionally organic manures were mostly farm produced and locally available. The traditional homesteads of Kerala, the live fences and the livestock integrated farming systems facilitated ample supply of organic manures. The socioeconomic and demographic changes have resulted in a slow decline in locally /farm produced organic manures and the market for organic manures has emerged. However, the farmers are apprehensive about the quality of these manures.

The small and marginal farmers face difficulties in getting organic manures, green leaf manures and green manures. In spite of these shortages the crop residues from the field are not properly used for composting by many and a lion's share is being used as animal feed. But they have to either produce the organic manures by utilizing the bio-mass they have or they have to be collected from the locality with a minimum effort and cost. Increasing pressure of population and the disappearance of the common lands including the wastes and government lands make the task difficult now a days.

The organic manures and fertilizers are becoming increasingly costlier. This makes the condition worse since these high costs can't be afforded by the small and marginal farmers. Bio fertilizers and biocontrol agents are the alternative technology for chemicals in crop management. But the supply side aspects of these are not fully developed and there is need for an aggressive marketing and awareness creation effort in this regard. Currently the market for bio fertilizers and organic inputs are largely unregulated and less monitored. Legal standards for quality are to be set and enforced .

5. Extension support

Effective interventions in agricultural sector through farm contacts still need refinement. Some studies in Kerala (state with high level of literacy) show that, nearly 50% of the farms still depend on the pesticide dealers for getting the information regarding identification and choice of

chemical for pest management. Consulting with Agricultural Officials is the practice among 22.5% to 30% of farmers. Approximately same number of farmers takes their own decision or discuss with friends. This results in unscientific practices and resultant negative externalities . This highlights the need for refocusing the system of information dissemination in favour of sale points and a system of effective monitoring.

The public extension system is to be strengthened to have wider reach to the farming community with focus on green technologies. The monitoring and implementation of the quality standards and the constant vigil on the markets are very important in countries like India.

6. Produce marketing problems

Low-level of market information about organic production is a major challenge especially for medium and small farmers. High transaction cost and lengthy and complex certification process are also limiting factors. The consumer awareness regarding organic products is to be improved. The existing system of organic certification is cumbersome and monopolized by the private sector. The cost of certification is prohibitive for the SF/MF. The reliability of the produce that is sold in the domestic market as organic is often questionable and lacks the ability to convince the consumers. There is a need for domestic certification with less stringent rules and it should be made affordable through support mechanism.

7. Inadequate supporting infrastructure

Poor infrastructure in terms of roads and cold storage facility affects the produce cost, quality and availability. Importantly, fragmented and unorganized management of the entire value chain of organic products is a major deterrent. Also the infrastructure facilities for the verification process for certification of farms are also seen inadequate.

8. Absence of an appropriate agriculture policy

An appropriate national agriculture policy, giving a prominent place to organic farming addressing the issues related to its coverage, financial support during the conversion period, creation of linkages among the farmers, processors, traders and consumers, inspection and certification of organic products and increasing the public awareness of the benefits of organic agriculture along with the ill effects of the conventional system, should be designed. This must be followed by concrete action on the ground

9. Lack of financial support

The financial support advanced in many of the developed countries for organic farming is not seen in developing countries like India. Supports for marketing agricultural produce, as well as costs for certification

procedures have to be well backed with suitable financial policies. Adequate support for holistic development of organic farming has to be put forth by both State and Union governments.

10. Political and social factors

The debate on the potential effect of organic farming on food security is still on. There are concerns that the organic farming approach cannot meet the food requirements and hence cannot be accepted as a general policy. While this apprehensions are there, the prospects of popularizing the technology in a phased manner in ideal locations has to be considered. The markets development support for organic produce is to be prioritised, so that the economic incentive for production can trigger the farmers. The increasing percapita income foretell the rising demand for quality environment (food) . The efforts to fulfill this demand should be there.

B2. The SWOC Analysis Strength

- India is a specialized and known centre for production of certain crops like spices, tea,medicinal herbs etc. wherein the scope for international market opportunities for organic products are more .
- Rich heritage and indigenous technical knowledge which qualifies as OF.
- The natural ecosystems (eg. the homesteads) and high biodiversity and traditional practices (crop rotation, legume cultivation, mixed farming) in India facilitate organic approaches.
- Many agriculturally prosperous areas in India are organic by practice, as they do not use chemicals either due to geographic factors or cultural reasons (mountain regions, pokkali lands).
- There is a visible presence of NGOs in the rural sector in the country that can facilitate the spread of the technology and offer management and organizational support in marketing.
- There is policy and legal support for organic farming in India, mainly in view of the conservation and improvement of ecosystem health and export earnings.
- There is growing awareness on the potential damage to human health and ecosystem due to the application of chemicals in agriculture.
- The technological fatigue that limits agricultural growth in several agricultural areas prompts farmers to shift to Organic Farming.
- There are standardized package of Practices Recommendations for many crops for organic production.

Weakness

- Poor awareness regarding the potential of the technology.
- Inadequate arrangements for supply of quality organic inputs.
- Insufficient technical and extension support.

- The mind set of old farmers and apprehensions of lower yield realization.
- The financial management problems during conversion period.
- The scattered and low level of output necessitates infrastructural development and institutional support for pooling the products for effective marketing. Often this is lacking.
- The topography and soil characteristics limit the chances of technology adoption. For instance chemical residues in the irrigation water, percolation and seepage from neighboring farms that make the farm unfit for conversion.
- The scanty presence of certification agencies and high charges.
- Lack of aggressive marketing and market intelligence support.

Opportunities

- Fast growing global market for organic products especially food products.
- Vibrant and growing domestic market due to the fast pace of economic growth.
- Better awareness on health and ecosystem conservation.
- Wide network of communication facilities.
- Liberalized economic policies.
- Strong institutional credit market.

Constraints

- Large number of small and marginal farmers with low resource base and poor technical knowhow on OF, who follows chemical based farming.
- Inadequate market information-on potential markets, prices and preferences, trends (both domestic and global).

B3. Investment opportunities in Organic farming sector

- Manufacture of organic inputs

  The priority area for investment in organic farming sector, is the production investments in organic inputs. This include the production of biofertilisers, biocontrol agents, organic manures, green leaf manures etc. The investment can be for large scale production and also for rural small scale units. The organic manure production through appropriate composting technologies can also facilitate waste management. The employment generation and rural economic growth are the resultant effects.

- Quality testing facilities for Organic inputs and products.

  The market dependence for organic inputs necessitates the mechanism for ensuring quality to the users. So the establishment of quality testing labs for organic inputs is a potential area of investment. This can be a potential area of employment for the educated unemployed youth.

- Certification

  Organic certification is a technical process which is expensive. Setting up certification agency and taking up facilitating role for certification are potential areas of investment. Generally the certification involves sizable cost and hence there is demand for credit from the side of farmer producers as well as agencies.

- Financial support during conversion period.

  During the period of transition from conventional farming to organic farming there are chances of some considerable yield reduction. Financial institutions have to design appropriate instruments to support during this period and enable the farmers to maintain their cash flow.

- Organic Farm Tourism

  Tourism is reported as one of the fast growing sectors of the economy and the prospects of integrating organic farming with health rejuvenating tourism is to be explored seriously.

Traditional farming methods in India was basically tuned according to the ecosystem characters. The disturbances to the ecosystem was minimal. Technological development characterized by the use of chemical inputs in agriculture has resulted in damages to the ecosystem. This decline in ecosystem health has necessitated the relook on farming methods and lead to the concept of organic farming. The demand for safe food and healthy environment is growing across the globe, consequent to the affordability and awareness. The potential markets for organic products (domestic and global) can be effectively utilized by countries like India through appropriate policies and programme.

Conclusion

Technological advancements in agriculture and market opportunities can be explored only if the infrastructural backing for production is adequate and timely. The investment demand from agricultural sector is undergoing fast changes in tune with the rapid changes in the technological and social settings in this sector. In this background the financial institutions, as facilitators of agricultural growth, should gear up to meet this challenge and should shoulder the responsibilities.

The Federation organized IYC National Conference of ARDBs to mark culmination of programmes during International Year of Cooperatives 2012 during 20-21 November 2012 at Chandigarh. The main theme of the Conference was 'Cooperative Enterprises Build a Better World' in line with the theme of International Year of Cooperatives. Presentation of success stories documented by member banks as part of IYC 2012 formed an important segment of the Conference.

Conference devoted a three hour session for presentation of success stories documented by member banks as part of IYC celebrations of ARDBs. Success stories presented in the Conference mostly related to projects financed by member banks. Innovative practices and application of technology that suits best for each situation and ensuring efficient use of resources including water were the highlights of such projects. The success stories presented by various banks included kinno plantation, vegetable cultivation in green house, dairy farms using latest technology and also service sector projects like marriage hall, setting up homestay arrangements for tourists etc. Punjab, Karnataka and Kerala were awarded the 1st, 2nd and 3rd prizes for best presentations selected by the jury.

Success story of High-tech Kinnow project financed by the Primary Cooperative Agricultural Development Bank Ltd., Abohar, Punjab.

The area of Tehsil Abohar is situated towards Sourthern-Western side of Punjab State. Traditional crops viz. Paddy, Sugarcane, Corn, Vegetables, etc. of Punjab can not be cultivated in their full productivity being the hot climatic condition. The yield of wheat crop is mostly 25-30% less as compared to other area of Punjab. Only 50% water is available to the crops during the whole year and the underground water is also not suitable for the crops.

Abohar PCARDB has played landmark role in the agricultural Sector financing in the past and is now concentrating on high tech farming so as to bring manifold increase in the income of the farmers. Shri Shiv Narain and Smt. Rukmani Devi (Husband & Wife), V.P.O., Shergarh, Tehsil Abohar, District Fazilka responded to the proposal of this bank and took initiative to start High Tech Kinnow Project in their Farm.

Role of Abohar PCARDB

The contribution of the Abohar PCARDB in developing orchards in the area has been significant since its establishment in 1978. The major difficulty faced by the farmers of the region was the maintenance of their orchards is the supply of inadequate

water. The farmers did not get the supply of required water and the underground water was also not suitable. The bank came forward with the financing of Drip irrigation technique in the year 2000. The farmers grabbed this technique with both hands which resulted into a great success in the life of various farmers. Simultaneously the area saw a revolution in the cultivation of Kinnow crop earlier where the same crop was going to diminish due to scarcity of water now in the same area 20-25 Kinnow Waxing Plants have come up from where the Kinnows worth crores of rupees are supplied to several parts of the country as well as to other countries.

Project Introduction

The High-tech Kinnow Project being new of its kind got the approval from the Punjab State Coop. Agriculture Development Bank, Head Office, Chandigarh which was received on 15-09-2005. Then the bank deputed the Field Officer for getting detail and verification regarding the Project. The applicant was already A-Class Member of the bank and the agriculture land belonging to the applicant and his family members was barren. As per the Project Report, there was estimated cost of ₹65.15 lacs out of which the applicant applied for bank loan of ₹26.50 lacs and the applicant agreed to spend the remaining funds from his own sources. The loan was in the names of Shiv Narain Bhadoo and his wife Smt. Rukmani Devi. After completion of Project, the applicant informed the bank in this regard on 14-09-2007. The bank and the applicant requested the National Horticulture Board for conducting the final verification and for releasing the subsidy for this Project. A team consisting of National Horticulture Board, Chandigarh and Deputy Director, Horticulture Deptt. Abohar and the bank conducted a joint inspection. After the inspection, the National Horticulture Board released the subsidy of ₹10,74,683/- on 20-12-2008.

After the success of the aforesaid Project, the bank arranged the demonstration of the Project and also provided the financial assistance to other farmers. Now No. of projects are running successfully with the financial assistance from the bank and in this way, the contribution of the bank in bringing the orchard revolution in this area is remarkable.

The details of the Project are as under:-

1	Name of PADB	Abohar
2	Name of the Scheme/Project	High Tech. Kinnow Project
3	Name of the Borrower with address	Shri Shiv Narain and Smt. Rukmani Devi (Husband & Wife), V.P.O., Shergarh, Tehsil Abohar, District Fazilka

4	Amount of Loan financed	₹ 26.50 Lacs (Cost of Project ₹ 65.15 Lacs)
5	Borrower's Contribution	₹38.50 Lacs
6	Subsidy if any	₹10.74 Lacs
7	Repayment Period	11 Years (Grace Period three years)
8	Rate of Interest	11%
9	Date of Finance	22-09-2005
10	Disbursement of Schedule (in lump sum/instalment)	In Six Instalments
11	Total Land Holding of the Borrower	A.K.M 172-0-0 (All Share Holders)
12	Experience of the Borrower	Five Years
13	Marketing Avenues	Good Demand
14	Environmental Infrastructure	Yes
15	Man Power	50
16	Natural Resources	Yes
17	Existing Sources of Income	₹10.00 Lacs
18	Annual Income from Project	₹70.00 Lacs
19	Annual Instalment of Loan	₹8,53,300/-
20	Utilization Report	Fully utilized and instalment of loan is regular.

Community Lift Irrigation Scheme of Siraguppa Taluk Bellary District, Karnataka

Many lift irrigation societies are formed by group of farmers in Siraguppa Taluka and have availed Loan from PCARDBank Siraguppa of Bellary District.

Agriculturist in the areas have come together and formed lift irrigation societies and made united approach for lifting the water from the Thugabhadra River. The water from river will be lifted and flown through the pipes to a far areas of around 5 to 8 Kms. And irrigating an area of around 300 to 500 acres.

Bank has financed 4-5 such societies in the area. The details of the loan availed for the purpose in one of the project is as under;

Loan Amount: - ₹106.472 Lakhs

Area: - 558.22 Acre

Village: - Ibrahimpura

Date of Sanction: - 26/12/2001

Mode of Disbursement: - In installments depending on the progress

Details of Project: The project is lifting the water from Thugabhadra river water permission has been obtained from irrigation Department and carrying the water to a distance of 3 Km and pooling at a huge tank and pumping it from the tank and distributing water to agriculture fields in an area of around 550.00 acres. This project is inclusive of land development, pipe line, jack wells and pump sets for lifting water from river and from jack wells and tank.

Beneficiaries had experience in paddy cultivation but they were not having irrigated lands. They have purchased a barren land and has converted in to a productive irrigated land which is suitable for growing paddy.

PRIMARY CO-OPERATIVE AGRICULTURE & RURAL DEVELOPMENT BANK LIMITED, SIRAGUPPA

Sr. No.	Particulars	Siddalingeswara L I.Society Ibrampur	Mahalingeswara L.I. Society Ibrampur	Satyanarayan & Others Nadivi	M.Ramkrishan Rao & Others Bagewadi
1	Loan Sanction	₹54.39 Lakhs	₹58.24 Lakhs	₹60.27 Lakhs	₹137.13 Lakhs
2	Loan Disbursed	₹54.39 Lakhs	₹58.24 Lakhs	₹60.27 Lakhs	₹137.13 Lakhs
3	Area Covered	510 Acres	390 Acres	347 Acres	₹827.35 Acres
4	Pipe Dia	600 MM	600 MM	600 MM	RCC 900 MM & PVC 280 MM
5	Length of Pipe	3380 Mtr	3810 Mtr	3300 Mtr	RCC 3080 Mtrs & PVC 11500 Mtrs
6	Pumpset Installed				
	1 st 3	60 HP	60 HP	50HP	I stage, 60 Hp, 5 Nos Total 300 HP
	2 nd 3	50 HP	60 HP	40 HP	II Stage, 10 HP, 28 Nos Total 280 HP
7	No. of Beneficiaries	74	62	32	106
8	No. of Small Farmer	40	20	20	80
9	No. of Big Farmer	14	22	8	26
10	No. of SC / ST	10	10	4	8
11	L.P.S. water for irrigation availed	325 Lps	280 Lps	280 Lps	770 Lps
12	Before Development Income	₹7.45 Lakhs	₹6.40 Lakhs	₹6.46 Lakhs	₹19.01 Lakhs
13	After Development Income	₹61.15 Lakhs	₹52.57 Lakhs	₹53.04 Lakhs	₹104.91 Lakhs
14	Net Income	₹45.80 Lakhs	₹38.80 Lakhs	₹38.41 Lakhs	₹74.44 Lakhs
15	Rate of Interest	15	15	15	12
16	Loan Period	15	15	14	13
17	Repayment Loan	₹10.85 Lakhs	₹11.62 Lakhs	₹12.33 Lakhs	₹23.10 Lakhs
	Installment Fixed	13 Installment	13 Installment	12 Installment	11 Installments

Project Period 10 Years

Repayment period 12 Years, with a moratorium period of one years for taking up the project. Repayment is yearly installments. The applicants have to pay installments depending upon their area of benefit; it is inclusive of principal and interest. The rate of interest calculated is 14.5%.

The project location in and around Ibrahimpura village which is about 20 Km. from the taluka HQ and 80 Km. from the centre of the district head quarter.

The advantage to the beneficiaries is that the product paddy which is famous in all the parts of Karnataka finds ready market.

By starting this unit the unemployment problem in and around area is solved as the irrigated area has provided employment to agriculture labours in two seasons of paddy cultivation. The society has established the unit in such a way that the farmers in and around area have noticed and stated forming societies of similar type and stated irrigated their barren lands. It is a kind of extension work for the development of irrigation in the area.

The beneficiaries are regular in repayment of installments. The status of the farmers who have benefited from this project has improved both economically and socially. Farmers are visiting this project for guidance and advice for taking up similar project.

By taking the advice and seeing this project many farmers are approaching the bank for financial assistance for lift irrigation project. There is lot of demand for such projects in and around Bellary.

Farm loan target fixed at ₹6 lakh crore in 2012-13, says FM

In a clear indication to the government's resolve to scale up farm financing in a big way, the Union finance minister Shri P Chidambaram said that the public sector banks have set a target to disburse ₹6 lakh crore as agriculture loan during the current fiscal. The banks which had collectively targeted to disburse ₹5.75 lakh crore have revised upwards the lending towards agriculture by around ₹25,000 crore. The interest rate will come down to 4% for farmers who pay the loan and interest on time and 60% farmers are charged 4% as they repay their loans on time. In a bid to suggest means and ways to shore up farmers income, Shri Chidambaram urged farmers to look at non-farming activities. While speaking on the role of Rural Training Centres (RTC) in skilling farmers for non-farm based additional income generation activities, he said RTCs play a major role in providing training to farmers to undertake activities like poultry farming, dairy farming, sheep rearing, embroidery, tailoring, two-wheeler repair, mobile phone repair to supplement their farm income.

RBI tells banks to implement Scheme of 1% Interest Subvention on Housing Loans up to ₹15.00 lakh

The scheme of interest subvention on housing loans has been liberalized with effect from FY 2011-12 by extending it to housing loans up to ₹15 lakh where the cost of the house does not exceed ₹25 lakh. The Scheme has since been extended by Government of India and will remain in force up to March 31, 2013. A Budgetary provision of ₹400.00 crore has been made under the Scheme for the year 2012-13 by Government of India. The National Housing Bank is the sole Nodal Agency for implementation of the Scheme for Scheduled Commercial Banks, Regional Rural Banks and Housing Finance Companies. In a notification Reserve Bank of India has advised all Scheduled Commercial Banks to implement the Scheme vigorously, submit their claims to NHB expeditiously and extend the benefits of the Scheme to all eligible borrowers / beneficiaries. SCBs are further requested to give wide publicity to the Scheme.

30% Scheme Funds being Allocated for Development of Women Farmers: Agri Minister

Union Minister of Agriculture and Food Processing Industries Shri Sharad Pawar informed Members of Parliament that “in order to ensure that funds get adequately devolved for women specific needs, 30% funds

are being allocated for development of women farmers under various schemes / programmes with a focus on formation of Women Self Help Groups."

Speaking at the Meeting of the Consultative Committee on "Women in Agriculture", he expressed that rural women play a pivotal role in the entire gamut of agricultural operations ranging from land preparation to post-harvesting operations. He said, "Their access to productive assets like seed, water, credit, subsidy needs to be enhanced. Women are often not recognized as farmers for want of ownership of land and are not considered as beneficiaries under various government programmes / services. Due to wage differentials between men and women in some parts of the country, the situation gets further aggravated."

He elaborated on the steps taken by the Ministry of Agriculture to improve the lot of women farmers and said, "Currently, there are number of schemes being implemented by the Ministry of Agriculture, wherein there is a provision for women-specific activities. These include Gramin Bhandaran Yojana, Rashtriya Krishi Vikas Yojana, ATMA Scheme, National Food Security Mission National Horticulture Mission etc."

RBI cautions Public Not to respond to Phishing Mail sent in its Name

It has come to the notice of the Reserve Bank of India that an email has been sent in its name from mail id: *Reserve Bank Of India < no-reply@rbi.com >* and signed by RBI, Security Team offering a 'new online security protection' called "Netsecured" to "reduce fraud and theft in various banking system... (and)... to enable all customer's online banking in all Indian Banks to get protected and Secured." The Reserve Bank cautions members of public that it has not developed any such software; nor has it sent any such mail asking online banking customers to update their account details to secure their online accounts. In fact, the Reserve Bank does not have any mail id with extension @rbi.com. Members of public receiving such mails should not open the attachment and/or try to download the attachment on their computers.

Ethical principles that banks need to follow

Banking is no ordinary business. Banks are "special" business units which, as financial intermediaries, borrow money from savers to on-lend for productive ventures. Thus, the underlying is one of the riskiest things in the world money and money alone. Banks run on public trust which, in turn, is a function of ethical principles and moral values they follow. The world is witness to numerous bank failures, small and

large, which could not withstand the rigour of public trust. The ethical principles that banks follow ought to be of a higher order than those followed by any other businesses.

A depositor saves his hard-earned money in a bank, first and foremost, for 'safety' and then 'return'. By 'safety' we do not mean from theft or burglary alone but also safety of the intrinsic value of money. For example, if a depositor puts ₹100 in his bank, he will definitely get back his nominal ₹100 plus some interest after the contractual period. However, economically speaking, does the value of money, in real terms, remain same over time? No. Due to inflation its real value erodes. Hence, the first ethical principle that a bank should follow with respect to its depositors is to protect the 'real' value of money by providing an interest rate which would eventually neutralise the impact of inflation and give a positive 'real' return over the contractual period.

Are Indian banks doing this at present? The answer is an unequivocal 'no'. Recently, RBI Deputy Governor proposed inflation-indexed bonds as a hedge against inflation. Why not inflation-indexed deposits? The second ethical question is the protection of small depositors' money from bank failures. In our country, up to ₹1 lakh is insured by the DI&CGC (Deposit Insurance and Credit Guarantee Corporation). The limit, which was revised in May 1993, has remained stubbornly static despite rise in per capita income and inflation.

Net Interest Margin: Our bankers are 'programmed' to be obsessed with targets. To achieve the 'agreed' level of profits, they artificially keep deposit rates low and lending rates high so that NIM is maximised. Is it ethical to penalise both depositors and borrowers like this? The RBI Governor D. Subbarao in his speech "Five Frontier Issues in Indian Banking" at BANCON 2010 had argued for "a balanced approach to bring down NIM..."

Sub-PLR Lending: Until July 1, 2010, banks had got into the unfair practice of sub-PLR lending to certain borrowers. Fortunately, the RBI constituted a Working Group on BPLR (Chairman: Shri Deepak Mohanty) and Base Rate system came into being. Since then the administration of lending rates has become transparent, an essential quality expected from entities like banks at all levels.

Customer Service: Ethics should dominate customer service rendered by banks. Business etiquette should be an integral part of ethical customer service. Bankers need to be trained in this line. Fundamentally, banks should not differentiate customer service rendered to a small customer and a large customer. Whether it is a depositor, borrower or simple service seeker there should not be any hidden charges cropping up from time to time because of the 'fine-print'.

Accounting, disclosures: Banks' balance-sheets and profit and loss accounts along with other statutory

disclosures must reflect the true scenario of banks. Data purity and integrity are of paramount importance for banks from the viewpoint of all stakeholders. Corporate governance holds the key here.

Employees: If employees are demoralised by unethical policies relating to their service conditions, their frustration would be reflected in a bank's businesses, howsoever ethical it may be to its customers.

Banks told to Recover Bad Loans to Get Funds

The cash-strapped finance ministry has made it compulsory for banks to meet bad loan recovery target for fresh capital investment, a move that could improve the profitability of lenders and reduce bad loans in the future. The government has mandated state run banks to recover at least 20% of their written-off loans to receive any capital this fiscal, said two bankers familiar with the directive. The government is giving thrust to recovering more than lending, said the head of recovery at a state-run bank who did not want to be identified. The government had said that we must have a recovery target of 20%- 30%.Capital investment will depend on the recovery.

"The cooperative ethic is unexceptionable and it has been and can be a powerful instrumentality for enfranchising the poor and the less privileged" Governor RBI

Inaugurating the International Conference on Cooperatives, Governor RBI, Dr. Subbarao, said that the world has realized that global financial order today needs the cooperative ethic to attain the inclusive growth which is eluding all of us. He said that if there were infirmities in the sector, it was imperative that we all strove to remove them as he said "Indeed this is not a matter of choice, but an imperative if we are to achieve our collective aspiration for inclusive growth".

He devoted a good part of his address in emphassing that the commercial financial banking sector should follow certain basic principles adhered to by cooperative. He dwelt at length about the out reach of cooperative sector in the country and the important role played by cooperative banking in the agricultural and rural credit domain. He also pointed out that certain visible governance issues had steadily eroded the dominant position of the agricultural cooperative credit sector over the years and it was in the Country's interest that this extremely important network of financial system did not become insignificant and irrelevant as we did not have a credible alternative. He laid emphasis on the cooperatives at primary and secondary levels to embrace technology at the shortest possible time so that they are ready

to undertake many tasks that the govt is looking to delegate them.

Speaking of PACS he said, "we need to work towards converting PACS into multi functional entities so that all members automatically think of their PACS whenever they think about products and services. Examples of PACS engaged in procurement, providing warehousing facilities, stocking and providing other inputs including seeds and saplings, leasing out farm equipments, becoming e-enabled common service centres providing land records and information on weather, market prices, and extension advisories, and so on are now available in some states. PACS also need to provide other financial products, especially insurance, and enhance their fee based income".

He then flagged following points for revival of cooperative structure in India;

i. Improve professionalization in governance management.
ii. Address Poor Financial Status.
iii. Adopt Technology for a Level Playing Field.
iv. Improve Share Capital and Deposit Safety.
v. Increase Member Participation

He then posed few questions that he said should be answered by all concerned as way forward;

Question 1: Are cooperatives doing enough for financial inclusion?

Question 2: Can cooperatives improve the supply chain to ease inflationary pressure?

Question 3: How to strengthen the democratic character of a cooperative?

Question 4: Should cooperative banks diversify beyond basic banking?

Question 5: Should there be social audit of cooperatives?

RBI extends deadline for new cheques

The Reserve Bank of India (RBI) has extended the deadline for implementing the Cheque Truncation System-2010 (CTS-2010) by another three months. This is the second such extension. Banks have now been asked to ensure all cheques are compliant with CTS-2010 standards by April 1, 2013. The earlier deadline was December 31, extended from October 1, 2012.

In a circular to banks, RBI also said, "Residual non-CTS-2010 Standard cheques that get presented in the clearing system beyond this extended period (March 2013) will continue to be accepted for clearing but will be cleared at less frequent intervals." It, however, indicated it might impose some fee for such cheques after March and how to do so was being discussed. A separate communication is to be issued on this. In CTS-2010, there is no need for physically presenting a cheque to the payee bank as is the current practice, substantially reducing the clearing time for outstation cheques.

Maharashtra, Gujarat declare 254 talukas Drought Hit

Four states have declared drought in over 390 talukas so far in a written reply to the Rajya Sabha, Agriculture Minister Sharad Pawar said rainfall deficiency was 12% so far. The ministry was closely monitoring the monsoon situation along with the India Meteorological Department and State Governments, he said. The maximum number of talukas declared drought-hit were in Karnataka at 142, followed by Gujarat (132 talukas), Maharashtra (122 talukas) and Rajasthan (5 Districts).

The centre has introduced diesel subsidy to offset the cost of diesel used in pumping for providing supplementary and protective irrigation to standing crops in drought-Affected area, he said. He further said that the Government had also enhanced the ceiling on subsidies on seeds of cereals, pulses and oilseeds to partially recompense the farmers for additional expenditure incurred by them in re-sowing or purchasing drought tolerant variety of seeds.

Other measures taken include channeling funds available under various flagship schemes for drought relief activities, upgrading Central schemes on feed and fodder and waiver of import duty on oil, he added. In memoranda submitted to the Centre, Karnataka has sought an assistance of ₹11488.96 crore, Rajasthan ₹7424.13 crore, Gujarat ₹18673.37 crore and Maharashtra has demanded ₹3011.61 crore to mitigate drought effect, the ministry said.

Improve Credit Management to curb Bad Loans: RBI tells banks

Flagging the surge in bad assets levels and requests for loan restructuring, RBI said that NPA levels are higher now and "there is a stress" in the financial system. "Deteriorating asset quality of banks can be contained by substantially upgrading their credit management system," Reserve Bank Deputy Governor Anand Sinha said in his address on concluding day at the three-day FICCI-IBA banking summit. Though Sinha was quick to add that domestic financial system remains robust, according to the RBI stress tests, he said "the downside risks to financial stability have worsened due to several global and domestic factors. Our banks are no doubt strong, but there are many challenges we have to live with.

The amount of restructured assets has gone up. Restructuring assets, whether you call it standard or sub-standard, the fact is that even if they are standard, they represent stress in the system, he told. While the overall bad assets in the system rose to 5.7% in FY12, from 4.2% a year ago, the quantum of restructured loans is set to cross ₹2 lakh crore by the end of this fiscal.

Listing out the challenges before the domestic banks, Sinha said the immediate challenge facing the banks is arresting the deteriorating asset quality, while the mid-to-long term challenge is to raise capital to meet the Basel III norms.

The man who empowered through milk

Varghese Kurien who passed away, was in Kerala, before landing for the first time in Anand on an early May morning of 1949. Moreover, the man who endeared himself to Gujarat's farmers and created a brand called 'Amul' for the milk. It was in Anand that Kurien encountered the man who changed his life: Tribhuvandas Kishibhai Patel.

The latter had, in late 1946, organized a cooperative for marketing the milk of farmers in Kheda district, who were being fleeced by the lone Polson Dairy promoted by a Parsi businessman, Pestonji Edulji Dalal. It was a struggling cooperative without any proper processing facilities to prevent the milk from curdling by the time it reached Mumbai. Patel had, however, managed to lease a part of the government creamery, where Kurien was biding his time, for the cooperative's use. The Kerala cooperative which was collecting 5000 lt/day of milk from 430 farmers in year 1948, eventually became a pan Gujarat organisation that not procures over 100 lakh. lt milk daily from 30 lakh producers in 60,000 village level societies.

What Patel and Kurien ended up creating was a unique entity, whose sole purpose was to procure, process and market the milk of Gujarat's farmers with a view to maximize their share of the consumer rupee. The unions affiliated to the Gujarat Cooperative Milk Marketing, Federation today pay their farmers an average rate of ₹470 for every kg of milk fat. That, for full cream milk containing 6% fat works out to ₹29 a litre or three-fourths of what consumers in Ahmadabad or Delhi shells out.

Not a small achievement, made possible only because of Kurien's vision that saw farmers not only owning processing facilities for their milk, but even having control over marketing. Central to this was selling under their own brand-in this case Amul. “Without a brand, you will just be a contract supplier doing all the hard work of collecting and processing the milk from lakhs of farmers. The cream is not there. It lies in marketing, which is where actual value realization takes place. The benefits of it should accrue to the producer”. This is how the legendary dairyman summed up his philosophy in an interview. I am in the business of empowerment. Milk is just a tool in that”. He couldn't have expressed it better.

RBI introduces New category of NBFCs

The Reserve Bank of India (RBI) introduced a new category of NBFCs, Non-Banking Financial Company-Factors and stipulated that every company seeking registration as NBFC-Factors would have a minimum net-owned fund (NOF) of ₹5 crore. Factoring is a financial transaction where an entity sells its receivable to a third-party called a 'factor' at discounted prices.

Existing companies seeking registration as NBFC-Factor but do not fulfill the NOF criterion of ₹5 crore may approach the RBI for time to comply with the requirement," RBI said in a notification. An NBFC-Factor would ensure that its financial assets in the factoring business constitute at least 75% of its total assets and its income derived from facturing bussiness is not less than 75% of its gross income. The RBI said that an existing NBFC registered with it and conducting factoring business that constitute less than 75% of total assets / income shall have to submit to the RBI within six months from the date of notification, a letter of its intention either to become a Factor or to unwind the business totally, and a road map to this effect. However, the RBI said that these NBFCs should raise the asset / income percentage as required or unwind the factoring business within two years from the date of this notification. They would be granted CoR (Certificate of Registration) as NBFC-Factors only after they reached the required asset or income percentage, the RBI added.

Directorate of Oilseed Research Initiative to train tribal farmers

To boost production in oilseeds, an initiative to train tribal farmers has been launched by the Directorate of Oilseed Research, Hyderabad. A tribal sub-plan has been firmed up. The emphasis is on taking tribal farmers to farms and laboratories to expose them to the improved production technologies. To begin with, castor has been taken up said K.S. Varaprasad, Project Director of the Directorate. The objective is to enhance the income levels of tribal families. Select villages in Andhra Pradesh and some across tribal villages in the country have been involved in the project with promotion of castor crop.

The Hyderabad-based Directorate under the Indian Council of Agricultural Research is focused on castor, sunflower and safflower. It has come up with a wide range of varieties that are being cultivated across the country. To further popularize some of these technologies among farmers, the Directorate is organizing a farmer's day at its campus. Queries of farmers would be answered by scientists, State Government Agriculture officials. An exhibition of inputs, equipment and seed, with the participation of private companies has also been planned. Oilseed production in the country is set to

touch 30 million tonnes during the year 2011-12 as per indications, the Directorate said in a press release. India is amongst the largest producers of oilseeds in the world but the present monsoon deficit may affect it adversely.

Coming together to help single women, landless women, widows

The Tamil Nadu Women's Collective, a network of rural grass root level women's groups working in around 20 districts in Tamil Nadu for the past eight years, has been successfully promoting collective model farms in several districts of the state.

The prime objective of this collective farming is not only to ensure food security but also to ensure safe food through adoption of natural methods and encourage millet growing in dry lands. "The present status of agriculture in the country is quite bleak. Farmers are not able to get a good income, the cultivation cost has increased, and many are leaving their land fallow. Says Ms. Ponnuthayee, Secretary of the Network.

From the last three years, the organization has been providing several capacity building programmes and exposures to women in rural areas to bring about awareness on the importance of reviving livelihood opportunities like agriculture work for achieving self reliance and sustainable development at the community level. With the network's support and guidance the women farmer's collectives have gained necessary skills on agriculture, improved their decisions making capacities, leadership qualities and thereby enhanced their economic and social status. Almost 90% of the members of all 13 women farmers' collectives have members consisting of single women, landless women, and widows.

The following are the criteria fixed for collective farming initiative: The farmers' collective should have a maximum of 10 members. All of them must be landless, single women, or widows, maintaining bank account, records and registers to show the income and expenditure, and decision making processes. They can take the land on lease for a period of three years or share 1/3 of the crop yield with the land owner. The decision on the size of the land holding rests with the members. Focus should be on food crops of daily use such as grains, vegetables, pulses and they should be specific to the location.

Training programmes were organized for the women in participatory planning, decision making, crop choice, and method of farming with the help of eminent resource persons. One of the emphasis of this collective farming is the importance given to the members making their own manure for the crops. The raw materials like cow dung, cow urine, plants and jaggery are all locally available and do not cost much compared to the fertilizers

sold at the shops," she explains. With regards to division of labour, all the members are equally responsible for each and every activity right from seed sowing, transplanting, weeding, manuring, irrigation, harvesting, etc. The allotment of the work would be decided in the weekly meeting during the cultivation period. All the farm works are shared equally by all members using a revolving system of labour so that all the members are engaged in all types of farm activities. This collective farming is presently being practiced by 15 farmers' groups in eight districts of Toothukudi, Virudhu Nagar, Madurai, Salem, Thiruvannamalai, Vellore, Kancheepuram, and Tiruvallur Districts of Tamil Nadu.

Subsidy for dairy farming in Punjab

To develop dairy farming and encourage the youth to adopt it as a lucrative business; the Punjab Government has decided to give 25% subsidy on setting up of a dairy unit. An advanced institute of dairy farming in collaboration with Israeli firm Dairy Farming Solutions (DFS) would also be set up in the State. The institute would provide the technique for the scientific handling and processing of milk. The State Dairy Development Minister Shri Sarwan Singh Phillaur said more hi-tech dairy units would be set up and the subsidy for the dairy units with 2-10 cattle would be deposited in the account of the beneficiary. The minister said that to promote dairy as an alternative venture to the agriculture, the Dairy Development Department has also launched a comprehensive training programme for young dairy farmers in the State.

RBI calls for expanding e-payment infrastructure

There is an urgent need to expand the electronic payments acceptance infrastructure such as ATMs, Point-of-Sale terminals, micro-ATMs, and handheld devices, according to the Reserve Bank of India. India has one of the lowest numbers of ATMs and PoS terminals per million (or 10 lakh) population. The penetration of ATMs is 63 per million populations and that of PoS terminals is 497 per million populations. A fraction of the 10 million plus retailers in India have card payment acceptance infrastructure presently this number stands at just 0.6 million. The RBI said that an electronic GIRO instrument (A GIRO transfer is a payment instruction from one bank account to another bank account) for effecting credit transfer by a payer from any branch of a bank or from any other authorized non-bank would be explored.

Further, considering the fact that cheque continues to be a dominant payment instrument in India, the scope of implementing a cheque based GIRO system would be examined. Pointing out that a large portion of the bill payments are done at the biller's location (generally walk-in customers), the RBI said there is a huge opportunity for

developing a bill payment system for payments towards insurance premia, utility payments, taxes, and school fees. Among the electronic payments infrastructure, electronic clearing service (ECS) occupies a major share followed by cards and bank account funding in payment of bills. There is a need for developing an electronic GIRO system for bill payments. One of the prerequisites for developing an electronic GIRO system is the standardization of biller information, the central bank said.

The central bank observed that there is a need to substitute the cash on delivery (COD) mechanism through non-cash payment modes like cards and prepaid payment instruments. While endeavour's are on to actively encourage less cash transactions, an anomalous situation is also emerging. Several studies have revealed that a significant percentage of e-commerce (32%) takes place through the system of COD. The RBI said the COD mechanism has several drawbacks such as costlier order fulfillment, risk of fraud by cash collection agents and high cost of cash handling.

150 work days under rural job scheme; 7% interest on crop loans

To offer some relief to farmers in drought-affected States, a ministerial panel has decided to increase the number of guaranteed work days under MGNREGA to 150 days and cut interest rates on crop loans to 7% for one year. These decisions were approved by the EGoM on drought. The Agriculture Ministry had proposed interest subvention on such crop loans for at least five years, but the EGoM approved it for one year.

Another proposal on raising number of work days under the Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA) was also approved for implementation in drought-affected States for one year, sources added. "The number of guaranteed work under the MNREGA has been increased to 150 days from 100 days,". Four States - Karnataka, Gujarat, Maharashtra and Rajasthan have declared drought in more than 390 talukas.

During agrarian crisis like drought, crop loans automatically get converted into term loans for a longer period of three years but at a higher interest rate of 12%. The EGoM has decided to slash rate on reschedule loans to 7% from 12% for one year in drought-hit areas. The four States have sought relief funds to mitigate the impact of drought and central teams have been constituted to visit these States to assess the situation.

GM cow that produces Milk without allergy-causing protein

A genetically modified cow whose milk lacks a substance that causes allergic reactions in people has been created by scientists in New Zealand.

In their first year of life, two or three in every hundred infants are allergic to a whey protein in milk called BLG. The researchers engineered the cow, called Daisy, to produce milk that doesn't contain the protein. While the genetic alteration slashed levels of BLG protein in the cow's milk to undetectable levels, it more than doubled the concentrations of other milk proteins called caseins.

Most of the differences between cow and human milk do not cause problems for people who consume it, but BLG or beta-lacto globulin protein, which is found in milk from cows and other ruminants, is a major cause of allergic reactions. Stefan Wagner, a scientist on the team, said they now plan to investigate whether or not the BLG-free milk causes allergic reactions. The work also drew on a technique that gives scientists precise control over which genes are active in an animal, and gives fresh momentum to plans to engineer cows, pigs and sheep that are more resilient to diseases. To make Daisy, scientists took a cow skin cell and genetically modified it to produce molecules that block the manufacture of BLG protein. The nucleus of this cell was then transferred into a cow egg that had its own nucleus removed. Details of the experiments are published in a report in proceedings of National Academy of Sciences.

More banks, financial institutions sharing details on NPA source.com

Indian banks and financial institutions, which had cumulative non-performing assets (NPAs) worth about ₹1.25 lakh crore by March 2012, are seeking help from a dedicated portal for resolution of their NPAs. Public sector banks such as State Bank of India, Bank of India, Indian Overseas Bank and others including IDBI Bank and Nabard, have started posting their NPA recovery notices on the portal NPA-source.com in the hope of an early resolution. Mr. Devendra Jain, Chairman of Atishya Group, which floated the dedicated portal last year, told between March 2011 and March 2012, the cumulative NPAs of banks and financial institutions (FIs) in India increased from ₹94,000 crore to ₹1.25 lakh crore, he said. Banks and FIs post their advertisements and notices on the portal, for a fee, expecting a global response to their efforts at resolution unlike newspaper advertisements which have a short-time, local exposure. “We also track the developments on these NPAs.”

Punjab tops in grain wastage; Bengal, Gujarat follow

An estimated 36,000 tonnes of grain has gone bad at the various storage facilities of the State-run Food Corporation of India (FCI) since 2008, enough to feed 80 million people at a per capita consumption of 440 grams, fresh data reveals. Ironically, the maximum wastage is

accounted in Punjab, otherwise known as India's bread basket, where 19,290 tonnes have rotted during the period, according to the replies to an application filed under the Right to Information Act. West Bengal is next with 4,545 tonnes, and Gujarat follows with 4,290 tonnes, according to information available through RTI. The FCI said the damage was due to reasons such as pest attack, Leakages, Poor quality stocks, Spillages. During transportation, Floods, Human Negligance & exposure to rain in case of unscientific storage due to lack of storage space.

Another application filed earlier by activist had revealed that between 1997 & 2007, some 1,83,000 tones of wheat, 6,33,000 tonnes of Rice & 1,11,000 tonnes of rice were damaged at different FCI warehouses.

RBI Says Mobile Operators Can't Offer "Wallet" Facility

RBI Deputy Governor H. R. Khan ruled out allowing mobile network Operators from offering cash-out or mobile wallet facility unless they convert their services as banking business correspondents. "We don't want to permit cash-out facility by mobile network operators (MNOs). We are very clear that they should not bypass banking, regulations. However mobile wallet facility can be given to them if they work as business correspondents of banks," Khan told. On using mobile banking on cross-border remittances, he said there are issues because of security concerns in the quality of flow, anti-money laundering rules, and 'know your customer' rules, among others. Nothing that India is one of the four or five countries that are a major target of terrorist activities; Khan said the bank-to bank remittances model is possible and things are evolving in this space.

34 schemes identified for cash transfers, says Finance Minister

Finance Minister P Chidambaram said in a Rajya Sabha statement that the government had decided to shift to Aadhaar-enabled direct benefit transfer of funds under 34 identified central sector and centrally sponsored schemes, in a phased manner. The rollout started with 43 districts from January 1, 2013. "The central ministries concerned have set up implementation committees on Direct Benefit Transfer (DBT), which will operationalise transfers with due consultation with state governments and various stakeholders," said the minister.

The schemes amenable to the transfers were stated to include post-matric and pre-matric scholarships for Scheduled Caste students; pre-matric scholarships for children of those engaged in unclean occupations; merit upgradation for SC students; the national overseas scholarship schemes for SCs; post-matric scholarships for OBCs; national overseas scholarships for OBCs; post-matric scholarships for

economically backward class students and for students with disabilities; scholarships for top-class education for students with disabilities; and top-class education schemes and scholarships to universities and college students. Other schemes on the list are fellowship schemes of the UGC and AICTE, subsidies on fees to students, national means-cum-merit scholarships, national schemes for incentives for the girl child for secondary education,

Odisha to amend its cooperatives law in conformity with 97th constitutional amendment act

Odisha has decided to amend its cooperative law to provide more teeth to its cooperative institutions and to bring it in conformity with amended provisions of the constitution, an official said. Bishnupada Sethi, secretary, department of cooperation, said the state cabinet, chaired by Chief Minister Naveen Patnaik, cleared a proposal for amendment of the state's cooperative law. According to the proposal, the government will set up a State Cooperative Election Commission to conduct elections every five years and the election commissioner would be appointed by the governor. The board of directors of the cooperative societies is to be constituted having maximum number of 21 directors with reservation of one seat for Scheduled Castes or Scheduled Tribes and two seats for women, he said. The term of office of the elected members of the board shall be five years and interim vacancy in the board shall be filled up by nomination or election, he added.

Upto two professionals shall be co-opted to be the directors in the board and the functional director (chief executive) shall also be a director in addition to the maximum 21 elected directors. The co-opted and functional directors shall have no voting rights. Sethi said the government is likely to introduce the bill in the ongoing session of the state assembly.

The Constitution (Ninety-Seventh Amendment) Act 2011 has come into force with effect from 15th February 2012. As per the constitutional amendment, forming of co-operative societies has been made a fundamental right for the citizens of India. In keeping with the provisions of the Act, it becomes mandatory for the state government to carry out necessary amendment of the Odisha Cooperative Societies Act, 1962 to bring it in conformity with the amended provisions of the constitution, Sethi said. Odisha has about 5,000 cooperative societies with a total of about 65 lakh families as members.

Income Tax: Jan Kalyan Coop Credit Society's claim for deduction U/S 80P(2)(a)(i) upheld

Jan Kalyan Nagrik Sahakari Pat Sansthan Ltd, claimed a deduction under section 80P(2)(a)(i) of the Income Tax Act for the year 2007-08.

However, the Assessing Officer denied the deduction to the assessee society on the ground that the assessee was Primary Cooperative Bank referred to in section 5(c)(i) of the Banking Regulation Act, 1949 which is referred to in Explanation below Sub-section (4) of Section 80P.

The Assessee challenged the assessment order before the Ld (ITCA) and was allowed the claim, giving the following reason. "In view of the (above) provisions in Part V of the Banking Regulation Act; it is clear that cooperative society is not regarded as "Cooperative Bank". Further it has also been laid down in Section 56 (cc ii) part V of Banking Regulation Act that "Cooperative Credit Society" means a cooperative society, the primary object of which is to provide financial accommodation to its members and includes a cooperative land mortgage bank. In view of this provision, it is clear that the meaning of cooperative credit society is separately given and it does not include cooperative bank other than cooperative land mortgage bank".

It was further clarified that the deduction u/s 80P withdrawn by Finance Act 2006 w.e.f. 1/4/2007 was in respect of cooperative banks only. The Revenue went in appeal against this order (IT Appeal No 568 (Pune) of 2011 ITAT Pune Branch 'B' Income Tax Officer Ward (4) vs Jankalyan Nagrik Sahakari Pat Sansthan Ltd. The ITAT ruled, "In our opinion cooperative credit society is district and separate from the cooperative bank nor it can be said as a Primary Cooperative Bank within the meaning of Banking Regulation Act, 1949. Hence, the assessee being a Cooperative Credit Society is entitled for deduction u/s 80P(2)(a)(i) of the Act. We accordingly uphold the order of the ldCIT(A)". The Revenue appeal was thus dismissed.

Fall in Share of Co-ops in Farm Credit a Concern: RBI Governor

The declining share of co-operatives in agriculture credit is a cause for concern, RBI Governor D. Subbarao has said. "Until the early 1990s, cooperatives provided almost 62% of the agriculture credit in the country. But over the years, their share has declined, going down to 16% by 2009-10," Shri Subbarao said at a conference on co-operatives in Pune. Co-operatives are institutional set-ups where people come together and pool their resources to attain mutually profitable outcomes. He said that land holding patterns, which have become fragmented to a large extent over the decades, have left a number of small and marginal farmers out of the ambit of institutional credit. "The declining share of cooperatives in rural credit is worrisome especially since they are often the only source of support for small and marginal farmers."The market share of rural cooperative banks in India has been continually receding from 7.2% in 2001 to 3.7% in 2010. If the share of

cooperatives declines further, they may lose their role as an important player in rural credit," he cautioned.

RBI Governor said that too much state intervention and politicisation of cooperatives have adversely affected their health. Subbarao said that the "substantial" reach and knowledge of co-operatives can be leveraged to further the aim of financial inclusion. However, he said that co-operatives must focus on upgrading their technology and improving the quality of member participation if they are to be used to provide financial inclusion. There is a need to treat depositors and borrowers equally, he said, referring to the overwhelming bias of cooperatives towards borrowers. "Only borrowers can become members of the cooperative. Depositors are either non-members or 'nominal' members with no voting rights," he said. There is also a need to professionalise both the governance structure and the functioning of these institutions, he added.

₹210 cr for rural infra in Karnataka

The National Bank for Agriculture and Rural Development (Nabard) has sanctioned ₹210.08 crore as loan assistance to Karnataka under the Rural Infrastructure Development Fund (RIDF XVIII) by the project sanctioning committee at its meeting in December 2012. With these sanctions, the cumulative sanction to the State under RIDF XVIII has touched ₹474.75 crore. The assistance extended for construction of 299.84 km length of road projects and 1,670.8 meters of rural bridge projects is expected to benefit more than 10.73 lakh rural population in 24 districts of the State. The road/bridge projects is expected to connect 683 villages with 258 marketing centres and generate non-recurring employment to the tune of 41.05 lakh man days and recurring employment of 411 jobs per year.

How Bank Loans turn Bad

An account is termed as a bad loan or NPA when a borrower fails to pay his bank monthly-equated installment. According to banking rules, a loan is classified as an NPA when the EMI, principal or interest component, is not paid within 90 days from the due date. When an asset ceases to generate any income, it's termed as a bad loan. There are classifications of loans standard, sub-standard, doubtful and loss assets. In order to ensure that banks are not affected due to defaults, regulator RBI has mandated them to make provisions or set aside money when an account turns bad.

If a borrower pays his dues regularly, it is classified as a standard account. The RBI has asked banks to make provisions also for standard loans. Provision on all types of standard loan is 0.40% of the loan amount. An asset is sub-standard when it remains as

a bad loan for a period less than or equal to 12 months. In such loans, the net worth of the borrower or the market value of the security charged is not enough to ensure entire recovery of the dues. The provision to be set aside for sub-standard loan is 15% of the overdue amount. When an asset remains in the sub-standard category for 12 months it is classified as doubtful asset. Recovery of the full value of the overdue is highly questionable and mostly improbable. A loss asset is when a bank acknowledges that there is little or no value in retaining the account on its book and ideally, such loans should be written off. The RBI has mandated banks to provide 100% for the outstanding dues.

RBI asks banks to migrate to latest version of web protocol

The Reserve Bank asked the banks to migrate to the latest version of Internet Protocol IPv6 from IPv4, preferably by December 2012. "Since migration to IPv6 is an eventuality that has to be accepted and managed proactively, government wants it to be done in a planned way rather than against time," RBI said in a notification.

Internet Protocol version 6 (IPv6) is the latest Internet Protocol (IP), the primary communications protocol upon which the entire Internet is built. It is intended to replace the older IPv4, which is still employed for the vast majority of Internet traffic as of 2012. RBI further added that, "they (government) have expressed that the migration of all payment gateways, banks, financial institutions, insurance companies, etc. including their websites should be completed preferably by December 2012."

Changes in ARDBs

i) Shri Shakeel Ahmed, has assumed charge as Managing Director of the Rajasthan Rajya Sahakari Bhoomi Vikas Bank Ltd., w.e.f. 27th December 2012.

ii) Shri A.R. Shivaram, has assumed charge as President of the Karnataka State Cooperative Agri. & Rural Dev. Bank Ltd., w.e.f. 1st October 2012.

iii) Shri George Kuriakose, has assumed charge as Addl. Managing Director of the Kerala State Cooperative Agril. & Rural Dev. Bank Ltd., w.e.f. 17th October 2012.

THE WEST BENGAL STATE CO-OPERATIVE AGRICULTURE & RURAL DEVELOPMENT BANK LTD.

REGISTERED OFFICE

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MADHYA PRADESH STATE COOPERATIVE AGRICULTURE & RURAL DEVELOPMENT BANK LTD.

8, Arera Hills, Old Jail Road, Bhopal - 462 004.

- The MPSCARDB provides long term loans to agriculturists through its affiliated Dist. ARDBs in the State for various agricultural and rural development activities like Minor Irrigation Schemes, Dry Land Farming, Land Development, Wasteland Development, SGSY, Organic Farming Horticulture Development, Aromatic & Medicinal Plants, Farm Mechanisation, Diary Development, Fisheries, Poultry, Bio gas Plants etc.
- The Bank also disburses long term loans under Non-Farm Sector mainly for setting up of Cottage and Village Industries, SRTO, Establishment of Milk Chilling Plant, various service sector activities in rural areas, SRTO, Establishment of Milk Chilling Plant, various service sector activities in rural areas, for Clinic, Nursing Home and Pathology, Radiology etc.
- To facilitate availability of loans to farmers at nearby place, the affiliated 38 Distt. ARDBs have opend 272 Branches in the State.
- The Bank has, so far disbursed long term loans of ₹2898.07 crores to 9.54 lakhs farmers from its inception in 1961.
- The Bank also accepts Term Deposits from Individuals & Institutions for the period of one year and above. All Distt. ARDBs in the State accept FD on behalf of MPSCARDB in various Schemes i.e. Fixed Deposit, Double Deposit, Recurring Deposit etc.

FINANCIAL PARTICULARS OF THE BANK AS ON 31ST MARCH 2012

(₹ in crore)

1.	Paid up Share Capital	:	41.24
2.	Reserve and other funds	:	463.26
3.	Debentures in circulation	:	846.86
4.	Fixed Deposit	:	91.23
5.	Loan disbursed During the year	:	56.03
6.	Loan outstanding	:	1129.23
7.	Investment	:	13.27
8.	Working Capital	:	1550.17

Prakash Khare
Managing Director

Kishan Singh Bhatol
Chairman

AGRICULTURAL NEWS

New Dark Red Onion Variety

The National Horticultural Research and Development Foundation (NHRDF), Sangvi, has developed a dark red onion variety suitable for growing during Rabi season. The variety named Nhrdf-red (L-28) has been tested all over the country through the All India Coordinated Vegetable Research Project and the Central Variety Release Committee, Ministry of Agriculture, and approved it for cultivation in the Northern, Central and Western zones. The institute has also developed practices for its cultivation. It is popular because of its higher yield, attractive dark red colour of bulbs and better storage performance, suitable for Rabi season.

It matures in 115-120 days after transplanting and average yield is about 25 to 30 tonnes per hectare. Seeds are generally sown in raised nursery beds (1522 cm height) for transplanting in the main field. October-November is the best time for seed sowing. Sowing should be done in lines in proper spacing at 5-7 cm row distance. Before sowing, seeds should be treated with 2.0 gms of thiram per kg of seeds to avoid infestations. Application of 20-25 tonnes of FYM/ha in soil is considered adequate. A dose of NPK (100:50:50 kg/ha) can be applied for better bulb development.

Whole quantity of phosphorus, potash and half of nitrogen should be mixed in the soil before transplanting. Rest half doses of nitrogen should be given as top dressing in two equal split doses, first dose at 30 days after transplanting and second dose at 45 days after transplanting. The top dressing must be completed before initiation of bulbing. 7-8 weeks old seedlings are recommended for transplanting in main field. The best time of transplanting in Northern and Eastern India is end of December to first week of January. About 12-15 irrigations, 3.5 liters of stomp per hectare applied three days after transplanting and one hand weeding at 45 days gives better results.

Poor marketing infra, promotion impacting horticulture crop expansion, says report

Poor marketing infrastructure, slow promotion and low productivity are some of the factors adversely impacting the expansion of horticultural crops in the country, an independent assessment report of the National Horticultural Mission (NHM). The assessment done by the Agricultural Finance Corporation, a consultancy firm promoted by Nabard, EXIM bank and state-owned banks, also noted that lack of technical manpower at grassroots level, inadequate quantities of

quality planting material such as hybrid seeds and lack of technologies are key weaknesses hampering growth of the sector.

Mainly attributed to the NHM launched in 2005, the production of horticultural crops (mostly fruits and vegetables) had increased from 145 million tones in 2001-2002 to 247 million tones during last fiscal. The area under horticulture crops has increased from 16.6 million hectare in 2001- 2002 to 22.25 mh during 2011-12. India at present is the second-largest producer of fruits and vegetables in the world, contributing 11% and 13% of the total global production of fruits and vegetables.

"There are only handful of states such as West Bengal, Uttar Pradesh and Tamil Nadu who needs to catch up with rest of the country," Sanjeev Chopra, director, NHM told. States such as Bihar, Madhya Pradesh, Karnataka, Maharashtra, Andhra Pradesh, Gujarat and Orissa have done well in terms of increasing horticultural production through cluster approach.

The commission observed that current agri-marketing information systems like AGMARKNET and National Horticultural Board depend on information received from the office of Agricultural Produce Market Committee (APMC), which is often based on information furnished by brokers.

Crop failure may not always be due to poor quality of seeds

When the seeds do not germinate and the crop fails, the blame cannot be automatically laid at the doors of the seed manufacturer held the National Consumer Disputes Redressal Commission (NCDRC) in Mahyco Monsanto Bio Tech (India) Ltd vs. Doddabasappa and Others. The seeds used by the respondent were admittedly genetically modified, and he blamed the petitioner for his misfortunes when the crop failed. His claim for ₹2,93,000 that included the cost of seeds, labour, fertilizers and pesticides was granted by the District Consumer Forum on grounds of deficiency of service and upheld by the State Commission which turned down the appeal of the manufacturer to reverse the district forum verdict.

The NCDRC, however, demurred on the ground that the onus of establishing poor quality seeds was on the cultivator. But all that he did by way of adducing this evidence was to merely quote the notification issued by the University of Agricultural Sciences, Dharwad, warning the cultivators in the districts of Bellary and Raichur that the hybrid cotton seed in dispute, MECH-12, was susceptible to sucking pest given the soil conditions in these areas and therefore they may have to take the additional precaution of spraying the seeds with pesticides. The respondent did not get the crop inspected by the State Agriculture Department or any other expert so as to be able to say definitively that the

immediate cause of the crop failure was seeds and seeds alone. Furthermore, there was no way of knowing whether the cultivator had taken the additional precaution of spraying the seeds with pesticides.

ICM's economic viability makes Kerala accept this technology

Paddy cultivation is fast becoming less remunerative for farmers owing to high cultivation cost coupled with labour scarcity. This is forcing many farmers to leave their fields fallow. "Introduction of suitable locally adoptable technology like integrated crop management (ICM) would be an ideal option to make paddy cultivation more remunerative. "ICM integrates all possible best management practices. Seed treatment is done to ensure discarding half filled and chaffy grains, and the seeds are soaked in saline water (500 gm of common salt mixed in 10 litres of water). All the floating seeds are removed and those settling down at the bottom are taken out, washed in fresh water and used for incubation. This ensures good quality and robust seedlings for planting," says Dr. C.P. Robert, Programme Co-ordinator, Christian agency for rural development, Krishi Vigyan Kendra, Pathanamthitta district, Kerala. In traditional practices the seedlings are raised in an ordinary nursery bed while in ICM the seedlings of locally adaptable varieties of rice are raised in a modified mat nursery at the rate of 10 to 12 kg of seeds /ha which saves the seed rates by 85 % as compared to 60-85 kg/ha seeds requirement for a traditional nursery. Preparation of mat nursery is very simple.

The seedlings are raised in a 4 cm layer of soil mix (80 % top soil and 20 % well decomposed manure) spread over a 300 gauge thick and 1 meter wide plastic sheet. The seeds, after sowing in the bed, are covered with a thin layer of soil mix to maintain the moisture level to avoid seed drying , the mat nursery is covered (mulched) with paddy straw or banana leaves for 3-4 days," says Dr. Robert. The bed needs watering regularly until it is ready for transplanting. In case of traditional practices the seedlings of 25-30 days age are transplanted at a very close spacing (10 x15cm) and 5 to 6 seedlings are planted per hill. The unique feature of ICM is that only 2 seedlings, which are 14-18 days old are used and are planted at a spacing of 20x20 cm.

The incubated seeds are then treated with *azospirillum*, at 500gms per 10 kg seeds and left for 30 minutes before sowing. Use of *azospirillum* and leaf colour chart for deciding the time and quantity of nitrogenous fertilizers could reduce the nitrogenous fertilizer by 25 %. The practice of intermittent irrigation will save water as well as enhancing yield. It saves over 50 % irrigation water. An integrated pest and disease management (IPDM) practice is incorporated by use of bio control agents and natural enemies for control of disease and pest. The

bacterial bio agents like *pseudomonas* can be used to effectively control different infestations affecting paddy crop. Similarly, the use of predatory insects in the field has proven to be effective to control the different pests affecting the crop.

Activating collaborative farming

The Indian agri-food system is undergoing a rapid transformation driven by the growth in organized retail and processed food segments. An important concern in this context is that while "front end" activities including wholesaling, processing, logistics, and retailing are rapidly expanding and consolidating, the "back-end" activities of agricultural production have been continuously fragmenting. The challenge lies in linking the two ends and ensuring viable business opportunities for both producers and processors. Contract farming which has expanded and has established itself as a successful model of farm-firm linkages in developed nations, will also play an important role in the transformation of Indian agri-value chain.

Contract farming accounts for around 15 % of agricultural output. For instance, in the US till 2001, contract farming accounted for 39% of the total value of agricultural production.

Contract farming is an agreement between producers/suppliers and buyers for the production and supply of agricultural products under forward agreements, frequently at predetermined prices. The basis of such arrangements is a commitment on the part of the producer to provide an agricultural commodity of a certain type, at a time and a price, and in the quantity determined by the purchaser and a commitment on the part of the company to support the farmer's production and to purchase the commodity. The intensity of the contractual arrangement varies according to the depth and complexity of the produce specification as well as market and resource provisions.

The challenge is to identify innovative solutions base on models that are efficient & competitive and also 'inclusive' in terms of working with producers on sustainable basis in practice, there are practical problems that emerge in agricultural contracting that can result in losses to both farmers and firms.

- Higher production risks (susceptibility to pest attack and climatic adversities) and price risk.
- Lack of resources (financial assets as well as access to credit) coupled with inadequate market and crop knowledge).
- Contracting agreements are often informal in nature.
- Lack of enforceability of contractual provisions can result in breach of contracts by either party.

PepsiCo was the first company in India to start contract farming of tomatoes in Hoshiarpur district of Punjab. Since then, many companies

in India have adopted the contract farming strategy to ensure effective supply chain management. According to official estimates, there are more than 25 big and small private companies engaged in contract farming for various commodities - it includes AVT Natural Products Ltd, Escorts Ltd for Basmati rice in Punjab, Nestle for milk in Punjab, Cargill India Pvt. Ltd. for wheat, maize and soybean in Madhya Pradesh, Hindustan Lever Ltd for wheat in Madhya Pradesh.

Government regulations: National Agricultural Policy of Government of India has also recognized contract farming as an important aspect of agri-business. The GoI amended the APMC Act recognizing contract farming system and making several provisions to regulate the system. The model APMC Act 2003 provides provisions for permitting contract farming by registration of contracts with APMC's, allowing purchase of contracted produce directly from farmers and exemption of market fees on such purchases.

Orissa is betting big on bananas

It is the world's favourite fruit and India is its largest producer, contributing to 23 % of the world production. It gives an instant and sustainable boost of energy and is a good source of potassium, fiber, carrying 110 calories each and approximately six vitamins and 11 minerals. With an annual production of 4.88 lakh tonnes, Orissa is ranked at No 8 among all banana producing states. Though it has over 26,000 hectares of its area under banana cultivation, the productivity is quite low in Orissa, which now plans to raise the per-hectare harvest from the current 7-8 tonnes to the national average of 33 tonnes in the next decade.

With this in mind, the state's horticulture department is now planning to plant banana rhizomes over 1,500 hectares, up from 500 hectares last year. It is betting big on Grand Naine tissue culture bananas, which is now a rage in Maharashtra, the biggest producer of the fruit in India. Unlike the local varieties such as Champa, Patkapura and Batisa, the Grand Naine bananas are longer in shape and their skin remains green even after they ripen. "While local varieties take about a year to harvest after they are planted, the tissue culture bananas are ready for harvest at least a month before. With more than 90 % fruiting in these plants, the farmers have less risk to encounter," says Horticulture Director Shri Sanjiv Chadha.

Banana is essentially a tropical plant requiring a warm and humid climate. It also requires a lot of irrigation soon after plantation and mostly in summers when temperatures touch 40 degrees Celsius. Besides, banana being very sensitive to diseases such as Panama Wilt and Banana Bunchy Top.

As marketing is the biggest problem for farmers, the department has now started a policy of complete

buy-back arrangement, in which companies would buy all the ripe bananas from the growers. The farmers who used to get ₹3-4 per kg would get ₹6-7 per kg for their produce, with little risk of the bananas rotting away. But growing tissue culture banana is expensive as one has to spend around ₹1.2 lakh a hectare, compared to ₹60,000-70,000 per hectare for local varieties. To minimize the costs for farmers, the department is now giving ₹40,603 per hectare as subsidy.

Biological control of papaya mealy bug

Papaya mealy bug has created havoc in Tamil Nadu in the past two years. It infests nearly 60 host plants including Papaya, Tapioca, Mulberry, Bhendi, Brinjal, Tomato, Turmeric, Cotton, Jatropha, Kapak, Teak, Sugarcane etc. Because of its damage, papaya production came down by 60 80 %. Chemical pesticides have been able to provide only temporary relief and farmers went for repeated sprayings and pesticide cocktails which resulted in ecocidal effects. Natural enemies were considered the only last resort for management of this pest. Available natural enemies like *Cryptolaemus montrouzieri* and *Scymnus coccivora* were also not able to keep the pest population under check.

The National Bureau of Agriculturally Important Insects (NBAII), Bangalore took efforts in importing three exotic papaya mealy bug parasitoids such as *Acerophagus papayae*, *Pseudleptomastix mexicanaand Anagyrus loecki* from Puerto Rico during July, 2010. NBAII, Bangalore and TNAU, Coimbatore has standardized the mass production techniques of these parasitoids. Various Research Stations, Krishi Vigyan Kendras and Colleges under TNAU started mass multiplication of these parasitoids and distributed them to farmers for field release, free of cost. All the three tiny parasitoids are solitary, species specific, have good host searching capability and attack only papaya mealy bug. All these three parasitoids proved highly successful in Tamil Nadu. These parasitoids especially Acerophagus papayae, established very well and brought significant control of papaya mealy bug not only on papaya, but also on other crops.

The released parasitoids should be conserved by avoiding use of chemical pesticides and maintaining alternate hosts like weed crops such as parthenium, acalypha, plumeria etc. and tree crops like kapak, teak etc. This classical biological control programme has become popular among large sections of farmers in Tamil Nadu.

Raingun sprinkler proves economical

Rainguns are high performance impact sprinklers designed for a variety of uses and applications where relatively high flows and

extended radius of throw are desired. Rainguns are available with operating pressure of 2.0 to 7.5 kg/cm2 and flows of 3 to 30 lps usually with nozzle diameters ranging from 10 to 30 mm and with a wetting radius of 27 to 60 meter. These types of sprinklers have a spring loaded element which is forced to rotate by the flowing water jet. Raingun sprinkler irrigation is recommended for field crops such as sugarcane, pulses, oil seeds, cereals, tea, coffee and vegetables. It has also wide application in large turfs, lawns and playgrounds.

A raingun may be permanent or portable. In a permanent raingun the gun riser stands are permanently fitted on the pipeline network. It can also be supported by cement concrete block around the riser. In portable rainguna, the entire pipeline network along with the gun riser stand can be shifted from one location to another. One raingun can cover up to 4 hectare (10 acre) of land. With raingun water saving of 30 to 50 % has been reported in different crops.

It saves labour and electricity. Pests and insects get washed away during raingun irrigation. In one and half hours about 0.50 acre can be irrigated by this sprinkler.

The new orchid

Located on the State highway linking Imphal to Dimapur in Nagaland, Hengbung is a village in Senapati district of Manipur. A peep inside throws up a visual treat, with several varieties of exotic orchids creating a riot of colours. The cluster opened in 2010 and houses the Centre for Orchid Gene Conservation of Eastern Himalayan Region, which runs under the Department of Science and Technology of the Government of India.

The centre has recently identified as many as 25 new species of orchids. Among these is an entirely new variety, christened as Ione Kipgenii. Ione Kipgenii has received peer verification from the board of trustees at Royal Botanic Gardens, Kew (London), and has been published in the Kew Bulletin, says head scientist and researcher at the centre Dr R K Kishore. "There are 280 reported species of orchids in Manipur that we know of. In the Northeast, Arunachal Pradesh has so far the highest number of orchid species at 600, while Sikkim has 500. We have also found the Thinia species, which is widely found in Myanmar and other parts of Southeast Asia. It has been spotted for the first time in Manipur," says Kishore.

Orchids last up to a month, even longer, after being plucked. One of the main aims of the centre, says founder Haokholet Kipgen, is to transfer the technology of commercial farming of orchids as an alternative livelihood for poor farmers of the region.

When does Govt. declare Drought ?

The Indian Meteorological Department defines a drought year as one in which the overall rainfall deficiency is more than 10% of the long-period average and more than 20% of the agricultural area is affected.

There are three types depending on the impact.

I. Meteorological: - This happens when the rainfall in an area is less than 25% of long-term average.

II. Hydrological: - A marked depletion of surface water causing very low stream flow and drying of lakes, rivers and reservoirs.

III. Agricultural: - Inadequate soil moisture is resulting in fall of agricultural productivity.

Traditionally, in India district collectors recommend the declaration of a drought after obtaining crop production estimates. Generally areas with less than 50% normal sowing are considered to be affected by a drought. The other markers of drought conditions include rain deficiency, normal difference in vegetarian index and moisture content in the soil. The Government initiates planning and implementation of relief measures to provide employment, food, drinking water, and fodder for the livestock.

A drought impacts virtually all spheres of economic activity. Farm produce dips, water levels go down and the mortality rate of livestock and wildlife goes up. The economy takes a hit as farm income falls, food prices accelerate, consumption demand plummets and farm loan defaults rise. Its social costs include unemployment and migration.

Tips for managing rodents in the fields

The breeding rate of most field rodents is minimum during summer with lowest numbers occurring during May-June and hence the acceptability of baits will be maximum as there is a paucity of natural food. Dig burrows and kill the rodents manually. Plough the soil deeply two times a year to a depth of 45 cm so as to break the underground burrows. Maintain burrow bunds around the field so that there will be inadequate space for the rat to construct its burrows. Avoid keeping hay stacks near the fields as they provide excellent harbor age for the rodent. Inundate the fields to submerge the burrows and kill the rats by asphyxiation. Infuse carbon monoxide poison gas in to the burrows by smoking jute cloth. Set up bamboo bow traps at 25 numbers per acre to capture the rodents in their pathways. Rodent control operation should be taken up before sowing the seeds. Active burrows are to be surveyed and pre baiting is to be done on the first and third day to avoid bait shyness by the rodents. The baiting formula should contain cereal/flour/grains and nuts 97 parts and vegetable oil 3 parts in the form of one gram ball or lump and this is to be placed at the

rate of six grams at mouth of active burrows.

On the fifth day Zinc Phosphide with bait material at rate of 1: 49 (2 %) is added to this lump and the poisoned bait is placed at the burrow entrance as usual. This will take care of 70-80 % of the field rodents. Remaining residual population (20-30 %) can be controlled by fumigation in the burrows. On the sixth or seventh day all burrow openings must be closed manually and on the eight day 1.5 Gms of Aluminium Phosphide tablets must be dropped at the mouth of newly dug burrow openings. This operation must be done at the beginning of Khariff and Rabi season.

Mushrooming in the Valley

Mushroom cultivation is picking up fast in Kashmir. Officials of the agriculture department attribute this to the introduction of low-cost technology and government-sponsored schemes. Good dividends have drawn more farmers towards mushroom farming. The state produced 5,051quintals of mushroom last year. A separate Department of Mushroom Development has been established to increase the production.

"We have seen an increasing interest among farmers in mushroom cultivation since 2008 because they are becoming aware about its benefits and the easy schemes available for them. There is also an increase in the local demand," says Abid Khan, a mushroom cultivator in the agriculture department. Among the schemes introduced by the government is the Rashtriya Krishi Vikas Yojana (National Agriculture Development Programme), under which local growers are being provided ₹30,000 per 100 trays of mushroom. Each tray grows 4-5 kg.

Mushrooms are not grown in open fields like other crops but they require open fields for preparing the compost. The compost is then spread on wooden trays, which are installed in a closed room where a particular temperature is maintained. Hundreds of trays could be deposited in a single room. The maximum temperature needed for growing mushrooms should ranges between 22 and 24 degrees Celsius. In Kashmir, mushrooms are grown under natural conditions twice a year in spring crop (mid-January to end of June) and autumn crop (mid-July to end of November).

To encourage mushroom cultivation on a large scale, besides giving ₹30,000 for 100 trays, the agriculture department also provides the growers with spawns on subsidized rates and imparts training in cultivation. In India, Kashmir has gained distinction in the production of white button mushrooms due to conducive agro-climatic conditions and easy availability of resources.

Going Organic

Showing a way to the farming community trapped in the vicious circle of chemical fertilizers, pesticides and debts, a small group of farmers in 21 villages of Roopnagar (Ropar) district has come out of this net and is gradually shifting to organic farming. Called the 'Granary of India', Punjab contributes 50 % wheat and 35 % rice to the Central pool and also has the record of highest wheat (4,462 kg) and rice (4,062 kg) yield in the country. But there is another fact about the state, it has highest consumption of pesticides (around 19 % of the total pesticide used in the country) and fertilizers (223 kg per hectare). This is much higher than the average national consumption rate.

Started with five farmers in 2008, over 250 small and marginal farmers owning 2 to 3 acres of land each are now doing organic farming on 105 hectares (around 265 acres) in the 21 villages of Roopnagar. They are growing wheat, maize, paddy and vegetables, and raising nurseries following organic methods. The farmers were roped in for organic farming by an NGO, Ambuja Cement Foundation, under its corporate social responsibility, and the National Bank for Agriculture and Rural Development (NABARD).

Didar Singh, 52, a farmer from Alipur village, says he had done intensive chemical farming for decades on his 5-acre land, on which he used to grow wheat, paddy, maize, sugarcane, vegetables and fodder. "I realized that there was no logic behind use of fertilizers and pesticides for paddy, which is from the grass family. Does grass need chemicals? I started with one acre and used natural products like neem oil, ash, cow urine and dung etc instead of chemical fertilizers and pesticides," says Didar.

Didar now sells organic wheat at the rate of ₹2,100 per quintal against the government rate of Rs 1,170 in the open market. "I am getting much higher price for my organic products and also raised a poplar nursery last year and get an income of ₹50,000 from it," he claims. "It is important to first allow the land to stabilize and recover (from the effects of pesticides)," says Didar, who has become a role model of sorts for organic farmers in the area. Gurnam Singh, 45, from Dakala village does organic farming on his 2.5 acres of land. He had started with one acre growing wheat, fodder and vegetables. "The yield had come down to half and other farmers would say I had gone mad. But the same farmers are following my path now," he says, adding: "We cannot afford to upset the natural balance." Satnam Singh, 50, of Gunomajra village has a 4-acre land. He raised a poplar nursery last year and grew over 25,000 good quality saplings on 1.5 acres. He was able to find a market and got booking for over 15,000 plants at a cost of ₹16 per plant.

In the beginning, farmers were getting just 50 % of the yield after

shunning chemicals, the NGO compensated them by providing them with free seed and other help. The NGO also opened around 250 units of vermicomposts in all 21 villages to help the farmers get organic manure, he adds.

Growing Rice in Soil, poor in Phosphorus is possible

A gene present in a specific (aus-type) rice variety, Kasalath, which has its origin in eastern States of India, holds the key to improving yield across the world. This includes soil deficient in natural phosphorus, a mineral essential for food crops. Rico Gamuyao from the International Rice Research Institute, Manila, Philippines and his colleagues has successfully identified the gene that provides phosphorus-deficiency tolerance in rice. The results are published today (August 23) in Nature. Though the locus of phosphorus-deficiency tolerance in the aus-type variety, Kasalath was identified a decade ago, the specific gene (PSTOL1) that provides the tolerance remained elusive.

The gene encodes for a protein kinase enzyme that vastly improves rice yield even when the crop is grown in soils deficient in phosphorus. If the expression of PSTOL1 is pronounced in the roots of rice that have the phosphorus uptake (Pup1) genomic region, it becomes all the more enhanced when the rice is grown in phosphorus-deficient soil conditions.

To understand and quantify the effect of PSTOL1 in rice grown in phosphorus-deficient soil, the scientists inserted the gene into two rice varieties that naturally lack the gene. The two rice varieties chosen represent two distinctly different types of modern irrigated varieties. The field trials were conducted in soil that was phosphorus deficient. What they observed was a truly significant effect of the gene the yield improvement was as high as 60 %. They also found that "expression" of PSTOL1 above a "certain threshold" was essential to "confer tolerance to phosphorus deficiency."

PSTOL1 expresses itself at high levels in the roots of the plants. This results in these plants having a "significantly higher" total root length and root surface area. PSTOL1 expression also leads to increased root growth and root proliferation.

High Density planting increases Banana yield

Today apart from rubber, banana is the most popular crop grown by farmers in Kerala. According to latest statistics available, the crop is grown in an area of 4,642 hectares. The steady demand for banana due to its varied uses and wide adaptability to different farming situations makes it the small farmer's favorite crop. The dwindling farm holdings also make this a practical alternative to other crops. Compared to varieties as Grand Nain (golden yellow coloured) that can produce bunches weighing

more than 45 kg, Nendran variety produces bunches with an average weight of 7-10 kg only, pushing down productivity and profits.

Several research institutes developed different technologies for pushing up productivity. High density planting developed by Kerala Agricultural University helps the farmer to earn better. According to Mr. Rajan Nair Vavolil, Naranganam, the technology helped him obtain a yield of more than 27t/ha while his fellow farmers got only 8tonnes per hectare.

"From the small demonstration plots of 0.25 ha in 2007, the technology has spread rapidly and in 2012 occupies more than 150 hectares under cultivation involving more than 1,500 farmers in the Pathanamthitta district alone.

In high density planting, banana rows are made at a distance of 3mts and pits of 50 cm x 50cm x 50cm size are taken at a spacing of 2mts in each row. Then banana plants are planted in each pit at a spacing of 30-45 cm, perpendicular to the direction of rows. The modified plant spacing reduces pit numbers to 1,666 hectares but increases the total number of plants planted to 3,332 in a hectare of land.

Mr. Mohanan Pillai Varikolil, an award-winning farmer says, "Double planting helps the plants to utilize water and fertilizer more efficiently through increased root density. It also helps the plants resist winds more effectively and cost for staking was considerably reduced."

Management of Anar butterfly in Pomegranate

Cultivation of high yielding varieties of pomegranate with intensive care and management in the recent past under irrigated condition led to certain severe pest problems. Among them, infestation by Anar butterfly (fruit borer), Deudorix isocrates results in reduction of pomegranate fruit yield and heavy loss for growers. The farmers suffer loss in terms of quantity and quality of fruits.

Adult butterflies lay eggs at the time of fruit setting on flowers and fruits. Larvae develop inside the fruit and these larvae bore out of the fruits. Black excreta of caterpillars are commonly seen on fruits. Its damage is noticed in thirty to fifty days old fruits of pomegranate and the adults prefer thirty to fifty days old fruits for egg laying and most of the eggs are laid on the calyx portion of the individual fruits. Fourth and fifth in star larvae caused the maximum damage to fruits and total rejection of fruits is not uncommon on infestation by these insects.

The major constraint in increasing export potential is the quality of pomegranate fruit in terms of size, colour, freedom from blemishes and pesticide residue levels.

Pest Management

➤ Application of physical barriers such as covering the thirty to fifty days old fruits with bags of butter

paper in isolated and small scale.

- Removal and destruction of all the damaged fruits showing exit holes.
- Clipping off calyx cup of flowers immediately after pollination will help to reduce the egg load on the fruits and damage level.
- Clipping off calyx cup immediately after pollination and two rounds of spraying with neem oil at 3 % also controlled pest infestation effectively.
- Two sprays of Emamectin benzoate 5 SG at the rate of 0.25 gms/lit or Spinosad 45 SC at the rate of 0.20ml/lit has recorded highest reduction in the fruit damage, with maximum benefits to the growers.

An MoU to help overcome fodder shortage, generate income

The Tamil Nadu Veterinary and Animal Sciences University (TANUVAS) have introduced a new project called a Public Private Partnership (PPP) model for dairy farmers. MoUs are being signed with farmers who desire to grow fodder grasses like Bajra Napier (Co-4), Guinea grass (Anjan grass), Fodder sorghum (CoFS-27), Multi cut fodder Sorghum (CoFS-29), African tall maize, Legumes (Desmanthus, Stylo, Cowpea) and 3 fodder varieties (Sesbania, Subabul, Glyricidia).

So far, 58 farmers from eight districts (Namakkal, Dharmapuri, Salem, Karur, Vellore, Tiruchi and Villupuram) have signed the memorandum to grow and supply green fodder. Demonstration units are being maintained at the University's KVK farm at Namakkal for farmers to visit and learn things firsthand. "This model hopes to address three problems that the farming sector today faces. One is the availability of green feed to the animals. Two, the seed shortage for fodder can be overcome, and three is revenue generation for the farmers," explains Dr. Prabhakaran, Vice-Chancellor. Once planted the fodder varieties can be maintained for a period of three years.

"The first harvest can be done five months after planting. The seeds can be sent through good parcel services to our KVK office and after quality checking, the money is sent through ECS to the farmer's account," says Dr. Mohan, Head, Krishi Vigyan Kendra, Veterinary College and Research Institute Campus, Namakkal. The seeds are procured, tested for purity and germination, and then sold to Department of Animal Husbandry, Dairy Co-operatives, and progressive farmers.

Laser Leveller for Minimizing Water

About 80 % of the irrigation water in India is spent for paddy cultivation. After the introduction of SRI (Systematic Rice Intensification), it has been reduced due to adoption of alternate wetting and drying. Though SRI has been adopted in vast areas in the country, proper water

management is not done due to the improperly levelled land.

Not only in case of paddy, but also other crops require properly levelled field for water efficiency during irrigation. When a field is levelled properly, the plant population maintenance, fertilizer use efficiency, power requirement for irrigation and many other key components involved directly on productivity and economics of cultivation are regularized. Recent addition to modern agriculture, the laser guided land leveler gives hand for achieving 100% table top levelled field.

The machinery laser guided land leveller consists of a laser transmitter, receiver, control panel, automatic hydraulic unit and a bucket scraper. The laser transmitter produces a laser beam which on rotation forms a continuous plane which is received by the receiver fixed to the bucket scraper. The topography of the land is first surveyed by measuring the high and low spots. The mean of the readings gives the height at which the bucket scraper should be positioned.

The control panel interrupts the laser beam from transmitter to receiver and operates the automatic hydraulic unit accordingly. The tractor should then be driven in a circular motion from the high spot towards the low spot. In the higher spot in order to keep the receiver in line with the laser beam from the transmitter, the control panel lowers the hydraulic unit and hence the soil is filled in the bucket scraper.

As the tractor moves towards the lower spots, the hydraulic unit is shifted upwards accordingly to maintain the receiver in the laser plane from the transmitter. A minimum of 10 % irrigation water can be saved using this technique. Weed problem and its management become easier. Time and labour requirement for crop management is reduced.

Alternative crop pattern for rain-deficient states

In the shadow of the monsoon deficit, the Union agriculture ministry has drafted a contingency plan for states that have received scanty rainfall, focusing on alternative or short-duration crops. The Indian Council for Agricultural Research (ICAR) blueprint includes a shift, wherever possible, to alternative crops like bajra, groundnut, and pigeon peas from water-intensive maize, cotton and paddy. State-specific plans have been prepared for parts of Karnataka, Maharashtra, Rajasthan, Gujarat, Bihar and Haryana.

However, the plan doesn't include any change in cropping pattern for the key paddy-growing states of Andhra Pradesh, Chhattisgarh, Jharkhand, West Bengal and Orissa, where monsoon rainfall has been 'adequate' so far. In Bihar where rainfall has been scattered and deficient, upland farmers have been advised to sow sesame and black gram in place of paddy while in low-land areas, short-

duration paddy has been recommended. For eastern Rajasthan which received adequate rainfall in the last leg of monsoon, maize sowing is in progress and for areas which did not receive adequate rains, the contingency plan has suggested alternate crop such as bajra, sesame, green gram and cluster beans.