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EDITORIAL

Core Group for Reform Initiatives (CGRI) constituted by State Cooperative Agriculture & Rural Development Banks (SCARDBs) in 2013 as per guidelines of the Federation brought a lot of changes in the working of ARDBs in the last one year. These Core Groups act as an effective forum in these banks for internal reforms. CGRI consists of Chairman, CEO and two other members of the Board of Directors, 2 outside persons with expertise in banking/finance/management and heads of all functional departments of the bank. MD Federation also attends its quarterly meetings as special invitee. The presence of outside experts helps CGRI to approach issues faced by the bank differently from the way SCARDBs used to handle them before and to suggest innovative solutions to address them. CGRI played an important role in the remarkable improvement in the key areas of loans, deposit mobilisation and recovery registered in 2013-14 by 13 SCARDBs which are fully functional. Total loans disbursed by these banks increased to ₹4498 crores from ₹3711 crores during 2012-13. More than 50% of funds used for advancing loans during 2013-14 were mobilised from sources other than NABARD. This is a major shift in the funding pattern of lending operations of SCARDBs from the past when NABARD was the only source of funds. Aggregate loan recovery of these banks as on 30.6.2014 stood at 53.13% compared to 46.85% as on 30.6.2013. There was significant improvement in recovery both in terms of percentage to demand as well as in the amount collected, resulting in reduction of aggregate outstanding overdues by ₹1188 crores from ₹5489 crores on 30.6.2013 to ₹4301 crores as on 30.6.2014. This is not a small achievement especially during an election year when loan recovery of cooperatives tends to decline. ARDBs have powers to sell land mortgaged as security to recover bad loans without intervention of court, though this power has been restricted in some States through directives of State Govt. However, such directives of the Govt do not cover borrowers who wilfully default repayment in spite of having sufficient income and repaying capacity. Banks have now developed objective norms to identify wilful defaulters whose loans can be recovered through legal recovery measures. Recovery climate has improved with strict action against wilful defaulters and by bringing flexibility in the terms of repayment in the case of non wilful defaulters. Banks have also started fixed monthly/quarterly instalments for repayment of loans in the place of yearly/half yearly instalments and introduced graduated instalments

instead of equated or equal instalments. Graduated instalments involves fixing higher instalment amount in early years of loan when income from the project is high and maintenance cost of assets are low. The instalment amount can be substantially brought down in later years when assets become old and maintenance costs are high under the new system. Increased frequency of contacts with the borrower through deposit schemes for members and diversification of loan products to meet their short term credit needs also contribute to better loan recovery. Revamping of recovery system in ARDBs on the above lines is an important achievement of CGRI. Deposit mobilisation was another area where ARDBs presented impressive performance during 2013-14. Earlier deposit mobilisation was confined to SCARDBs mainly from public and institutions. Exclusion of rural sector from deposit schemes was the main drawback of earlier scheme. The scope of deposit mobilisation has now been widened by launching deposit schemes for members. Acceptance of member deposits through PCARDBs through fixed, recurring, thrift and other saving products resulted in growth in deposits as well as reduction in the average cost of deposits. Total deposits have increased from ₹790 crores as on 31.3.2013 to ₹1190 crores as on 31.3.2014. Considering the momentum gained in the last few months, total deposits are expected to cross ₹2000 crores by the end of current financial year. Enhanced level of support and patronage of NABARD during the last one year including resolution of most of the outstanding issues relating to refinance also contributed significantly in improving the performance of SCARDBs during 2013-14.

Though there was improvement in the functioning of ARDBs during 2013-14 their overall position continues to be far below industry standards. In spite of improvement at aggregate level, SCARDBs in some States could not perform well in key areas. While NABARD restored refinance support to Gujarat during 2013-14 after a gap of seven years, NABARD funds are still not available to Tamil Nadu, Pondicherry, Tripura and Jammu & Kashmir mainly for want of govt guarantee. SCARDBs continues to be sick and defunct in the major States of Bihar-Jharkhand, Orissa, Assam, Madhya Pradesh and Maharashtra. Unless these banks are revived and banks which are fully functional substantially step up lending, the structure cannot hope to regain its market share and relevance in the rural financial system.

K. K. Ravindran
Managing Editor

हरी खाद

वर्तमान समय में खेती में रसायनिक उर्वरकों के असंतुलित प्रयोग एवं सीमित उपलब्धता को देखते हुये अन्य पर्याय भी उपयोग में लाना आवश्यक हो गया है तभी हम खेती की लागत को कम कर फसलों की प्रति एकड़ उपज को भी बढ़ा सकते हैं, साथ ही मिट्टी की उर्वरा शक्ति को भी अगली पीढ़ी के लिये बरकरार रख सकेंगे ।

रसायनिक उर्वरकों के पर्याय के रूप में हम जैविक खादों जैसे गोबर की खाद, कम्पोस्ट, हरी खाद आदि को उपयोग कर सकते हैं । इनमें हरी खाद सबसे सरल व अच्छा प्रयोग है। इसमें पशु धन में आई कमी के कारण गोबर की उपलब्धता पर भी हमें निर्भर रहने की आवश्यकता नहीं है। अतः हमें हरी खाद के यथासंभव उपयोग पर गंभीरता से विचार कर क्रियान्वयन करना चाहिये।

हरी खाद, मिट्टी की उर्वरा शक्ति बढ़ाने के लिये एवं फसल उत्पादन हेतु जैविक माध्यम से तत्वों की पूर्ति का वह साधन है जिसमें हरी वानस्पतिक सामिग्री को उसी खेत में उगाकर या कहीं से लाकर खेत में मिला दिया जाता है। इस प्रक्रिया को ही हरी खाद देना कहते हैं।

भारत वर्ष में हरी खाद देने की प्रक्रिया पर लम्बे समय से चल रहे प्रयोगों व शोध कार्यों से सिद्ध हो चुका है कि हरी खाद का प्रयोग अच्छे फसल उत्पादन के लिये बहुत लाभकारी है।

हरी खाद का वर्गीकरण

हरी खाद को प्रयोग करने के आधार पर दो वर्गों में बांटा जा सकता है .

1. उसी स्थान पर उगाई जाने वाली हरी खाद

भारत के अधिकतर क्षेत्र में यह विधि अधिक लोकप्रिय है इसमें जिस खेत में हरी खाद का उपयोग करना है उसी खेत में फसल को उगाकर एक निश्चित समय पश्चात पाटा चलाकर मिट्टी पलटने वाले हल से जोतकर मिट्टी में सड़ने को छोड़ दिया जाता है। वर्तमान समय में पाटा चलाने व हल से पलटाई करने के बजाय रोटा वेटर का उपयोग करने से खड़ी फसल को मिट्टी में मिला देने से हरे पदार्थ का विघटन शीघ्र व आसानी से हो जाता है।

2. अपने स्थान से दूर उगाई जाने वाली हरी खाद की फसलें

यह विधि भारत में अधिक प्रचिलित नही है, परन्तु दक्षिण भारत में हरी खाद की फसल अन्य खेत में उगाई जाती है, और उसे उचित समय पर काटकर जिस खेत में हरी खाद देनी रहती है उसमें जोत कर मिला दिया जाता है इस विधि में

हरी खाद के लिये प्रयुक्त होने वाली मुख्य फ़सलों का विवरण

क्र	साधारण नाम	वान्स्पतिक नाम	आकार व वृद्धि	सूखा के प्रति	जलाक्रान्ति में
1	सनई	क्रोटोलेरिया जुन्शिया	सीधा व तीव्र वृद्धि	सहनशील	सवेदनशील
2	ढैचा	सेस्बेनिया एक्यूलिएटा	सीधा व लम्बा	सहनशील	सहनशील
3	ग्वार	साइमोप्सिस सोरेलाइडीज	सीधा	अत्यधिक	सवेदनशील
4	लोबिया	विग्ना कैटजग	सीधा, तीव्र वृद्धि	संवेदनशील	संवेदनशील
5	मूंग	फैजिओलस रेडियएटस	सीधा, तीव्र वृद्धि	सहनशील	अत्यधिक सवेदन
6	उडद	फैजियोलस मूगो	सीधा, तीव्र वृद्धि	सहनशील	सवेदनशील
7	जगली नील	टेफ्रोसिया परप्यूरिया	सीधा	सहनशील	साधारण

* सौजन्य – भारतीय कृषि अनुसंधान, क्षेत्रीय स्टेशन, करनाल (वेब द्वारा)

जंगलों या अन्य स्थानों पर पेड़ पौधों, झाड़ियों आदि की पत्तियों, टहनियों आदि को इकट्ठा करके खेत में मिला दिया जाता है।

हमारे देश में आमतौर पर हरी खाद के उपयोग के लिये दलहनी फसलें उगाई जाती है। फसलें और दलहनी फसलों में सनई व ढेंचा आदि फसलें ही विशेष रूप से हरी खाद के लिये प्रयोग की जाती हैं।

हरी खाद की फसलों का प्रयोग मुख्य फसल के रूप में बोकर लवणीय क्षारीय भूमि के सुधार या

भारत के विभिन्न राज्यो में हरी खाद के लिये उपयोग की जाने वाली फ़सलें		
क्रमांक	राज्य	उपयोग की जाने वाली फ़सलें
1	केरल	सनई एवं ढेंचा
2	मध्यप्रदेश	सनई, ढेंचा, कोदोगिरि
3	महाराष्ट्र	कुल्थी, नाइजर, ढेंचा, जंगली नील, सनई
4	उत्तर प्रदेश	सनई, ढेंचा, लोबिया, मूंग
5	पंजाब	ग्वार, क्लस्टरबीन, ढेंचा, बरसीम, सनई, सैंजी, मटर
6	राजस्थान	ग्वार, ढेंचा
7	बिहार	सनई, ढेंचा
8	पश्चिम बगाल	ढेंचा, सनई, उर्द, लोबिया
9	कश्मीर	मटर, मसूर, सरसों
10	कर्नाटक	बैलवेट बीन, सनई

दलहनी फसलों की जड़ों में गांठे पाई जाती है तथा इन ग्रन्थियों में विशेष प्रकार के सहजीवी जीवाणु रहते है। जो कि वायुमंडल में पाई जाने वाली नाइट्रोजन का स्थरीकरण कर मिट्टी में नाइट्रोजन की पूर्ति का कार्य भी करते हैं अतः यह स्पष्ट है कि दलहनी फसलें मिट्टी की भौतिक दशा सुधारने के साथ–साथ जीवांश पदार्थ एवं नाइट्रोजन की भी पूर्ति भी करते हैं। जबकि बिना फलीवाली फसलों में वायुमंडल की नाइट्रोजन का यौगिकीकरण करने की क्षमता नहीं होती है। उपरोक्त सारिणी में दी गई फसलों के अतिरिक्त भी कई फसलों का प्रयोग हरी खाद के लिये किया जाता है जिनमें दलहनी व बिना दलहनी फसलें शामिल हैं। जब हरी खाद के लिये फसल किसी विशेष कारण की वजह से उस खेत में उगाना संभव न हो तो वृक्षों और झाड़ियों की पत्तियों और टहनियों को हरी खाद के लिये उपयोग किया जा सकता है। परन्तु उपरोक्त सभी फसलों में दलहनी बिल्कुल बलुई भूमि के सुधार के लिये भी प्रयोग किया जाता है। हरी खाद के लिये एक उपयुक्त फसल की निम्न विशेषताये होनी चाहिये .

1. फसल ऐसी हो जिसमें शीघ्र वृद्धि करने की क्षमता हो, जिससे न्यूनतम समय में कार्य पूर्ण हो सके।
2. चयन की गई दलहनी फसल में अधिकतम वायुमंडलीय नाइट्रोजन का यौगिकीकरण करने की क्षमता होनी चाहिये जिससे जमीन को अधिक से अधिक नत्रजन उपलब्ध हो सके।
3. फसल की वृद्धि होने पर अति शीघ्र अधिक से अधिक मात्रा में पत्तियां व कोमल शाखायें निकल सकें जिससे कि प्रति इकाई क्षेत्र से अत्यधिक हरा पदार्थ मिल सके तथा आसानी से सड़ सके।
4. फसल गहरी जड़ वाली हो जिससे वह जमीन में गहराई तक जाकर अधिक से

अधिक पोषक तत्वों को खीच सके। हरी खाद की फसल के सड़ने पर उसमें उपलब्ध सारे पोषक तत्व मिट्टी की ऊपरी सतह पर रह जाते हैं जिनका उपयोग बाद में बोई जाने वाली मुख्य फसल के द्वारा किया जाता है।

5. फसल के वानस्पतिक भाग मुलायम होने चाहिये।
6. फसल की जल व पोषक तत्वों की मांग कम से कम होनी चाहिये।

हरी खाद की बुवाई का समय

हमारे देश में विभिन्न प्रकार की जलवायु पाई जाती है अतरू सभी क्षेत्रों के लिये हरी खाद की फसलों की बुवाई का एक समय निर्धारित नहीं किया जा सकता। परन्तु फिर भी यह कह सकते है कि उपरोक्त सारिणी के अनुसार अपने क्षेत्र के लिये अनुकूल फसल का चयन करके, बुवाई को वर्षा प्रारम्भ होने के तुरन्त बाद कर देना चाहिये तथा यदि सिंचाई की सुविधा उपलब्ध हो तो हरी खाद की बुवाई वर्षा शुरू होने के पूर्व ही कर देनी चाहिये। हरी खाद के लिये फसल की बुवाई करते समय खेत में पर्याप्त नमी का होना आवश्यक है।

बीज दरः हरी खाद वाली फसलों की बुवाई हेतु बीज की मात्रा बीज के आकार पर निर्भर करती है जिन फसलो के बीज छोटे होते है उनमे बीज दर 25–30 किग्रा तथा बड़े आकार वाली किस्मों की बीज दर 40–50 किग्रा हैक्टर तक पर्याप्त होता है।

उर्वरक की आवश्यकता

यद्दपि हरी खाद की फसल को उर्वरकों की आवश्यकता बहुत कम मात्रा में होती है परन्तु फसल को शीघ्र बढाने हेतु, जिससे कि मिट्टी को अधिक से अधिक हरा पदार्थ मिल सके व आगे की फसल की उपज को बढाने हेतु, 50–60 किग्रा फास्फोरस की मात्रा देना पर्याप्त होता है। यदि हरी खाद के लिये किसी बिना दाल वाली फसल जैसे . सरसों, मक्का या सूर्य मुखी का चयन किया गया हो तो उसमें नत्रजन की मात्रा भी 40–50 किग्रा हैक्टर देना लाभप्रद होता है।

फसल की पलटाई का समय

फसल को एक विशेष अवस्था पर ही खेत में पलटने से भूमि को अधिकतम नाइटोजन एवं जीवांश पदार्थ की मात्रा प्राप्त होती है। इस अवस्था से पहले या बाद में फसल पलटने से अपेक्षित लाभ नहीं मिल पाता है। यह विशेष अवस्था उस समय होती है जब फसल कुछ अपरिपक्व अवस्था में हो तथा फूल निकलना प्रारम्भ हो गये हों। इस समय वानस्पतिक वृद्धि अधिक होती है तथा पौधों की शाखायें व पत्तियां मुलायम होती हैं तथा फसल का कार्बनः नाइट्रोजन अनुपात भी कम होता है । सनई की फसल में 50 दिन बाद तथा ढेंचा में 40 दिन बाद

हरी खाद की फ़सलों की औसत उत्पादकता एवं उनके उपयोग से मृदा में जीवांश पदार्थ एवं नाइट्रोजन का संभावित योगदान

क्र	फ़सल का नाम	हरे पदार्थ की उपज कुन्टल / हैक्टर	जल की मात्रा (प्रतिशत)	जीवांश पदार्थ की मात्रा (प्रतिशत)	नत्रजन की मात्रा किग्रा / हैक्टर
1	सनई	212.0	75.0	0.43	83.8
2	ढैचा	200.0	75.0	0.43	83.8
3	उर्द	120.0	83.0	0.43	77.5
4	पिल्ली पसेरा	180.0	70.0	0.40	42.7
5	मूंग	80.0	75.0	0.53	50.0
6	ज्वार	200.0	54.0	0.34	38.0
7	लोबिया	150.0	86.4	0.49	56.7
8	मसूर	56.0	65.0	0.70	36.9
9	मटर	210.0	83.0	0.36	67.1
10	सैंजी	286.0	82.0	0.51	135.0
11	बरसीम	155.0	87.0	0.43	60.0
12	नील	100.0	44.7	0.78	67.3

यह अवस्था आती है। बरसीम की फसल में 3–4 कटाई के बाद फसल को पलटना लाभप्रद रहता है।

फसल को पलटने के लिये पुरानी पद्दति में पाटा चलाकर फिर मिट्टी पलटने वाले हल से फसल को मिट्टी में दबा दिया जाता है। परन्तु अब रोटावेटर की उपलब्धता व प्रयोग से यह कार्य अधिक बेहतर तरीके से किया जा सकता है क्योंकि इसमें फसल को सीधे छोटे छोटे टुकड़ों में काटकर मिट्टी में मिलाने की प्रक्रिया एक बार में ही पूर्ण कर दी जाती है। जिससे समय की बचत के साथ साथ हरे पदार्थ का सड़ाव जल्दी पूर्ण होता है।

मृदा एवं जलवायु की विभिन्न दशाओं के अनुसार हरी खाद की फसलों की औसत उत्पादकता एवं उनके उपयोग से मृदा में निम्नानुसार जीवांश पदार्थ एवं नाइट्रोजन का योगदान संभावित होता है।

यदि हम उपरोक्त तथ्यों पर विचार कर हरी खाद की उपयोगिता व महत्त्व को समझ कर कुछ हद तक ही इसका प्रयोग करना प्रारम्भ करें तो हमें मुख्य रूप से निम्न लाभ होगें।.

1. मृदा में जीवांश पदार्थ एवं उपलब्ध नाइट्रोजन की मात्रा में वृद्धि होती है।
2. मृदा सतह में पोषक तत्वों का संरक्षण होता है तथा अगली फसल को तत्व पुनः प्राप्त हो जाते हैं।
3. पोषक तत्वों की उपलब्धता में वृद्धि होती है एवं मुख्य फसलों की उत्पादकता में वृद्धि होती है।
4. जीवांश पदार्थ हरी खाद द्वारा मिट्टी में मिलकर रेतीली व चिकनी मिट्टी की संरचना को सुधारता है।
5. हरी खाद में कार्बनिक अम्ल बनने से पी,एच को कम करके मृदा की क्षारीयता को कम करता है।

मिट्टी की उपजाऊ शक्ति को बनाये रखने के लिए हरी खाद एक सस्ता विकल्प है । सही समय पर फलीदार पौधे की खड़ी फसल को मिट्टी में ट्रेक्टर से हल चला कर दबा देने से जो खाद बनती है उसको हरी खाद कहते हैं।

आदर्श हरी खाद में निम्नलिखित गुण होने चाहिए

- उगाने का न्यूनतम खर्च।
- न्यूनतम सिंचाई आवश्यकता।
- कम से कम पादम संरक्षण।
- कम समय में अधिक मात्रा में हरी खाद प्रदान कर सके।
- विपरीत परिस्थितियों में भी उगने की क्षमता हो।
- जो खरपतवारों को दबाते हुए जल्दी बढ़त प्राप्त करे।
- जो उपलब्ध वातावरण का प्रयोग करते हुए अधिकतम उपज दे।

हरी खाद बनाने के लिये अनुकूल फसलें

- ढेंचा, लोबिया, उरद, मूंग, ग्वार, बरसीम, कुछ मुख्य फसले हैं जिसका प्रयोग हरी खाद बनाने में होता है । ढेंचा इनमें से अधिक आकांक्षित है ।

- ढैंचा की मुख्य किस्में सस्बेनीया ऐजिप्टिका, एस. रोस्ट्रेटा तथा एस. एक्वेलेटा अपने त्वरित खनिजकरण पैर्टन, उच्च नाइट्रोजन मात्रा तथा अल्प ब्रूछ अनुपात के कारण बाद में बोई गई मुख्य फसल की उत्पादकता पर उल्लेखनीय प्रभाव डालने में सक्षम है।

हरी खाद के पौधो को मिट्टी में मिलाने की अवस्था

- हरी खाद के लिये बोई गई फसल ५५ से ६० दिन बाद जोत कर मिट्टी में मिलाने के लिये तैयार हो जाती है ।

- इस अवस्था पर पौधे की लम्बाई व हरी शुष्क सामग्री अधिकतम होती है। ५५ से ६० दिन की फसल अवस्था पर तना नरम व नाजुक होता है जो आसानी से मिट्टी में कट कर मिल जाता है ।
- इस अवस्था में कार्बन–नाईट्रोजन अनुपात कम होता है, पौधे रसीले व जैविक पदार्थ से भरे होते है इस अवस्था पर नाइट्रोजन की मात्रा की उपलब्धता बहुत अधिक होती है
- जैसे जैसे हरी खाद के लिये लगाई गई फसल की अवस्था बढ़ती है कार्बन–नाइट्रोजन अनुपात बढ़ जाता है, जीवाणु हरी खाद के पौधो को गलाने सड़ाने के लिये मिट्टी की नाइट्रोजन इस्तेमाल करते हैं । जिससे मिट्टी में अस्थाई रूप से नाइट्रोजन की कमी हो जाती है ।

हरी खाद बनाने की विधि

- अप्रैल–मई माह में गेहूँ की कटाई के बाद जमीन की सिंचाई कर लें। खेत में खड़े पानी में ५० कि० ग्रा० प्रति है० की दर से ढेंचा का बीज छितरा लें।
- जरूरत पढ़ने पर १० से १५ दिन में ढेंचा फसल की हल्की सिंचाई कर लें ।
- २० दिन की अवस्था पर २५ कि० प्रति ह०की दर से यूरिया को खेत में छितराने से नोडयूल बनने में सहायता मिलती है।
- ५५ से ६० दिन की अवस्था में हल चला कर हरी खाद को पुनः खेत में मिला दिया जाता है । इस तरह लगभग १०.१५ टन प्रति है० की दर से हरी खाद उपलब्ध हो जाती है।
- जिससे लगभग ६०–८० कि०ग्रा० नाइट्रोजन प्रति है० प्राप्त होती है। मिट्टी में ढेंचे के पौधो के गलने सड़ने से बैक्टीरिया द्वारा नियत सभी नाइट्रोजन जैविक रूप में लम्बे समय के लिए कार्बन के साथ मिट्टी को वापिस मिल जाते हैं।

हरी खाद के लाभ

1. हरी खाद को मिट्टी में मिलाने से मिट्टी की भौतिक शारीरिक स्थिति में सुधार होता है।
2. हरी खाद से मृदा उर्वरता की भरपाई होती है।
3. न्यूट्रीयन् टअस की उपलब्धता को बढ़ाता है
4. सूक्ष्म जीवाणुओं की गतिविधियों को बढ़ाता है।
5. मिट्टी की संरचना में सुधार होने के कारण फसल की जड़ों का फैलाव अच्छा होता है ।
6. हरी खाद के लिए उपयोग किये गये फलीदार पौधे वातावरण से नाइट्रोजन व्यवस्थित करके नोडयूल्ज में जमा करते हैं जिससे भूमि की नाइट्रोजन शक्ति बढ़ती है ।
7. हरी खाद के लिये उपयोग किये गये पौधों को जब जमीन में हल चला कर दबाया जाता है तो उनके गलने सड़ने से नोडयूल्ज में जमा की गई नाइट्रोजन जैविक रूप में मिट्टी में वापिस आ कर उसकी उर्वरक शक्ति को बढ़ाती है ।
8. पौधो के मिट्टी में गलने सड़ने से मिट्टी की नमी में जल धारण की क्षमता में बढ़ोतरी होती है । हरी खाद के गलने सड़ने से कार्बनडाइआक्साइड गैस निकलती है जो कि मिट्टी से आवश्यक तत्व को मुक्त करवा कर मुख्य फसल के पौधो को आसानी से उपलब्ध करवाती है।
9. हरी खाद दबाने के बाद बोई गई धान की फसल में ऐकिनोक्लोआ जातियों के खरपतवार न के बराबर होते है जो हरी खाद के ऐलेलोकेमिकल प्रभाव को दर्शाते हैं।

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 & Purpose	Period	Scale of finance
1.	Minor Irrigation	9 Years	₹75,000 to ₹4,00,000
2.	Land Development	-do-	90% of the actual cost
3.	Farm Mechanisation	5-9 Years	85% of the actual cost
4.	Purchase of Agriculture Land	10 Years	Upto ₹12.00 Lacs
5.	Horticulture/Farm Forestry	5-10 Years	₹25,000 to ₹3,55,000 per Hectare
	Medicinal & Aromatic Plants	-do-	90% of the actual cost
6.	Animal Husbandary	5-7 Years	90% of the actual cost
7.	Construction of Rural Godowns	Upto 9 Years	90% of the actual cost

Non Farm Sector

Sr.No.	Name of the Scheme/Purpose	Period	Scale of finance
1.	Rural Housing	Upto 10 years	Upto ₹6.00 lacs
2.	Marriage Palaces	Upto 10 years	90% of the actual Cost
3.	Community Halls	Upto 10 years	90% of the actual Cost
4.	Village Cottage Industry	Upto 10 years	90% of the actual Cost
5.	Public Transport Vehicles	Upto 5 years	85% of the actual Cost
6.	Rural Educational Infrastructure	Upto 10 years	90% of the actual Cost
7.	Other SSI units	Upto 10 years	90% of the actual Cost

Rate of Interest

The rate of interest to be charged from the ultimate borrowers has been reduced to 13.5% P.A. w.e.f. 9.6.2014 for all type of loans advanced by the DPCARDBs in the state of Haryana.

Note:-

For further details, kindly contact The Haryana State Coop. Agri. & Rural Dev. Bank Ltd., Panchkula or the District Coop. Agri and Rural Dev. Banks at District level and its branches at Tehsil & Sub-Tehsil level in the State.

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Financial Inclusion in U.P. and Co-operatives Consideration as Game Changer: Issues and Challenges

Anil Kumar Tiwary*

Introduction

Until recently, banking services in India were nothing short of an ordeal. An average consumer would take half a day off from work to manage simple transactions, like creating a demand draft or sending an outstation cheque. Today, with internet banking, ATMs and mobile banking facilities, such a situation would be considered unthinkable. The banking sector in India has grown heaps and bounds in recent past but the need is to grow it inclusively.

According to available data only 40% of Indians currently have access to basic banking facilities whereas U.P. has only 30 % population might have access to basic banking facilities. In the mapping of state scenario, we will find wide disparity across geographies, socio-econmic categories and the wide urban-rural divide complemented by visible gap in Eastern U.P. and Western U.P. Such exclusion is a result of a combination of factors such as physical inaccessibility, cost of access, lack of awareness and a trust deficit.

Co-operative banks in U.P. with 49 DCCBs and about 8000 PACS in rural areas as well 70 Urban Co-operative Banks and its branches in urban areas have covered almost all the small and big cities of the state, are better equipped than commercial banks to address these issues, with their wide spread reach, lower operating cost, flexibility and deep rooted connections with each village and family of the state, can play an inclusive role in driving social inclusion through co-operative banking.

Financial Inclusion

Financial Inclusion means delivery of banking services at an affordable cost to the vast sections of disadvantaged and low income groups. In other words, unstressed access to public goods and services will be efficiently realized by the society. Banking services as product shall become available without discrimination to the entire population.

Objective of Financial Inclusion

- Access to banking services.
- Access to affordable credit.
- Access to free face-to-face money advice.

Credit Delivery and Financial Inclusion

Improving credit delivery and

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financial inclusion have remained key priorities of Reserve Bank of India. In this direction, one major step was the introduction of biometric smart card system for Kisan Credit Card (KCC) to be used in ATMs and hand held devices.

The Financial Inclusion plan (FIP), under which the commercial banks set their targets for financial inclusion activities, has been making substantial progress. Recently, the Reserve Bank of India has issued guidelines on the implementation of Electronic Benefit Transfer (EBT) and its convergence with FIP. This simple and convenient model is expected to further boost financial inclusion efforts. Apart from the priority sector lending, policy sector which has been in existence for a long time, a host of initiatives have been taken in recent years which include the rollout of financial inclusion plans and expanding the scope of the Business Correspondent (BC) model, improving credit delivery procedures for the micro and small enterprises (MSE) sectors and encouraging the adoption of information and Communication Technology (ICT) solutions.

Current Status of Financial Inclusion in U.P.

So far current status of financial inclusion in U.P. is concerned, it is well taken by Commercial Banks through its urban and rural branches in the state. The RRBs spread over rural pockets of the state has also been playing an impressive role in implementation of financial inclusion. NABARD is promoting and rely more on RRBs. In this process, these banks have established its own Financial Literacy and Credit Counseling Centre (FLCC) to provide free financial literacy, education and credit counseling.

Since its inception financial inclusion fund in any form has not diverted into cooperative credit structure in the state, reason may be sliding confidence of RBIs/NABARD in its functioning. The part of FITF and FLCC development somehow till date not visible practically in the cooperative credit structure. In future consideration, as of late RBIs/NABARD have now listed cooperative as eligible institutions under the BF/BC model for Financial Inclusion. Undoubtedly, now in U.P. also it will reap the benefit through cooperatives.

Cooperatives and Financial Inclusion

To ensure financial inclusion through cooperative banks little innovation can be made for counter management in the office management of the banks. But if the bankers move in the field, they will be able to innovate products and services on the basis of observing clients, households, markets and workplaces to tailor the financial services to suit the needs of this segment. Thus, to perform this challenging task of offering inte-

grated financial services to the poor people, deprived & weaker section of the rural-urban society and empowering poor women with financial resources, the Co-operative Banks are a comfort-zone for availing financial products. Experiences in the developing nations have only reinforced the need for co-operative banking to bring inclusion of this segment in the mainstream economy.

Co-operative Movement in U.P.

In U.P. initial formation of co-operative was as credit institutions in 1904. In the later stage of phased development it has covered endless areas of services. They served in credit and non-credit areas. They deliver credits for agriculture and non agriculture purposes. There are approximately 8000 primary agricultural and credit cooperatives serving almost all agricultural / rural producers. They work for milk producers, agricultural producers, weavers, consumers, fishermen and many others.

Diversified segment of cooperatives in U.P.

- Agricultural credit cooperatives both for production and investment.
- Non agricultural credit cooperatives (Urban Banks)
- Cooperative Marketing
- Consumer cooperatives
- Sugar cooperatives
- Weaver cooperatives
- Industrial cooperatives
- Dairy cooperatives
- Fisheries cooperatives
- Housing cooperatives
- Labour cooperatives

Above types of cooperatives most importantly serve the weaker section and unorganized segments of society and above all they are the root level functioning organizations familiar to effectively operate in each village wherever one can approach in the state. Obviously, cooperatives have their exclusive customer band in the state with many success stories. These cooperatives are offered technical, financial and administrative assistance by the government. The legal framework and support by the government enables them to generate sufficient capital investments for their business operations with least effort.

Challenges faced by Cooperatives in U.P.

Despite the phenomenal outreach and volume of operations, the health of a very large proportion of these rural credit cooperatives has deteriorated significantly. The PACS irrespective of their presence in every house of the village are beset with problems like low resource base, high dependence on external sources of funding, excessive government control, dual control, huge accumulated losses, imbalance, poor business diversification, low recovery, etc. Around 50% of PACS and more than half of

the intermediate tier, viz. DCCBs are loss making. As a consequence these grass-root level institutions do not, inspire confidence among their existing and potential members, depositors, borrowers and lenders.

Emerging Opportunities for Financial Inclusion in U.P.

U.P. Govt. has recently set a target for its official to ensure opening of 3000 bank branches in the state by end of March 2014. Availing of this opportunity, against the set target of 750 branches the state had managed an establishment of 645 branches by June 2013. According to State Govt. the involving banks are advised to open branches in the backward areas of the state.

Cooperatives Consideration as Game Changer

Revival of Rural Co-operative Credit Structure based on the recommendations of the Task Force on STCCS in U.P., the package had received by the State Govt. which has in some extent improved the health of the system in co-operative sector. An already introduced legal and institutional reforms in STCCS has been positively improving its democratic, self reliant and efficient functioning and initiated measures to reckon with the quality of management. With the Central Government and the NABARD assisted package more than 70 % of the STCCS units in U.P. have been shining.

Available Strategic Opportunities as Game Changer

- In order to prepare Co-operative Banks to adopt appropriate technology and migrate to Core Banking Solution (CBS) for better customer services. the Co-operative Department with the APEX Bank have been implementing technology up gradation in 49 DCCBs, its on and average 25-30 branches in each district linked with 8-10 PACS with each branch of DCCBs.
- Considering wide reach and out-reach areas in the state, the administrative and legal environment needs to become enabler for linkage of SHGs with cooperatives which has been demonstrated in several districts such as Bidar in Karnataka, Chandrapur in Maharashtra and Mandsaur in Madhya Pradesh. Legislation in U.P. needs to be enacted, admitting SHGs as members of PACS to enable the emergence of cooperatives as effective SHPIs.
- In U.P. to the outmost remotest rural areas except PACS there are no other financial services outlets, can be made as Business Correspondent could provide valuable services to their members by a professional banking environment. These PACS could originate credit proposals, disburse

loans, collect repayments and even collect savings on behalf of the parent banks. They could also act as payment channels. RBI has already listed cooperatives as eligible institutions under the BF/BC Model.

- Micro-enterprises, in order to be successful, require larger funding, it will, therefore, be necessary to develop/ test a new form of community based organization other than SHGs which may be more appropriate to support members who engage in micro-enterprises. Cooperatives as answer to Micro-enterprises promotion in rural areas can adopt group approach for financing excluded groups across the state.
- CBS implementation is in the process in all DCCBs and its branches in the state, once the core banking in place, the cooperative banks can introduce "Banking on Wheels" model to connect with the unbanked populace in the remote areas. This mini-van will be equipped with a banking counter enabling customers to deposit cash in their Saving Account. Fixed Deposits and Recurring Accounts, pay loan installments; and withdraw money. In short, it will facilitate customers to perform most of the banking activities on wheels.

Financial Inclusion in Urban Cooperative Banks in U.P.

There are over 70 UCBs with its 8-10 branches in one city of the state. As far as financial inclusion is concerned, ignoring the value of these institutions would be a grave mistake. Since, they have traditionally played a important role in mobilizing resources from lower and middle-income groups and in providing direct finance to small entrepreneurs and traders. UCBs, in their deep-rooted connections with specific communities, can easily inspire the trust of small savers and borrowers. By being local in nature and intricately interwoven with the local community, the UCBs have a clear advantage over commercial banks. It is easier for the UCBs to break the psychological barrier that proves prohibitive in the last mile of financial inclusion, create trust for the bank among its target community and bring customers within its fold.

While a large section of the financially excluded population inhibits rural areas, financial exclusion is widespread in urban and semi-urban areas as well. Generally farmers, small vendors, agricultural and industrial labourers, people engaged in unorganized sector, the unemployed women, older and physically challenged people are the most commonly excluded segments. These segments can be best addressed by the UCBs, the labour costs of UCBs are considerably less than that of

commercial banks and generally the operating costs are also minimal.

Conclusion

It is beyond any doubt that no financial inclusion institutions can match the unmatched reach of the cooperatives in the state. Cooperative banking as an institution is still pertinent and can play a very constructive role in meeting the objective of greater degree of financial inclusion in the state.

With regard to financial education, it is crucial to harness the power of women. Just as it is said that a women getting educated would educate the family, a woman being financially literate and included, would pave way for inclusion of all family members.

Banking on cooperative institutions both in urban and rural areas will provide a new lease of life to this sector. Given this opportunity, Cooperative Banks have a duty to rise up to meet these aspirations, and strengthening their deeply penetrated existence viable for financial inclusion in the largest state of the country.

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Sr. No.	Details	31.03.2012	31.03.2013
1	Owned Funds	477.03	511.94
2	Loans Disbursed	178.62	190.09
3	Fixed Deposit Outstanding	152.14	205.59
4	Profit	37.25	37.52
5	Dividend	12%	12%

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Emerging marketing challenges for dairy cooperatives- A success story of Madhur Dairy

V.K. Pandey*
Dr. Indra Sen Singh**

Abstract

Since time immemorial dairying has been a part and parcel of Indian culture and civilization and remains so even today. The need for dairy development in countries like India arise due to low per capita availability of milk, staggering unemployment, yearning for improvement in living conditions of rural people, and achieving self-sufficiency in milk production etc. Dairying is one of the most effective tool for supplementing farmer's income and generating employment in the rural areas. Contribution of co-operative dairy sector to achieve these objectives is impeccable. One of the most successful dairy co-operatives in entire state of Gujarat "The Gandhinagar District Co-operative Milk Producers Union" popularly known as "Madhur Dairy" is scaling new heights with each passing day. With co-operation and contribution from 116 village level Primary Milk Producers Co-operative Societies and individual members (farmers) numbering about 40600, the union is contributing immensely towards socio-economic growth of all member farmers in the district. Madhur dairy has came a long way since its inception in February 1971.

This paper is an attempt to study the development of Dairy Cooperatives in India in general and state of Gujarat in particular with focus on one very successful dairy co-operative federation " The Gandhinagar District Milk Producers Co-operative Union" and its marketing strategies to achieve its goals of development. The contribution of this dairy could be a part of whole India's co-operative dairy sector driving India as top of the nations in milk production all over the world.

Key Words : Cooperative,Dairy, Milk Union, Members, Rural Employment

Introduction

The idea of dairy cooperative originated first in Switzerland in the village of Kasen in 1815. Later on it spread over Denmark, Europe, and the USA. In India the seed of Cooperation was sown in1904 with the passage of first Cooperative Act. The Indian Dairy Cooperatives are organized on three-tier structure. The Primary Milk producers' Cooperative Societies work at the village level followed by the District Milk Cooperative Union works at the district level. A state level Cooperative Milk Federation supports and guides district unions. All the unions in a state are normally

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members of a federation whose prime responsibility is the marketing of milk and milk products outside the state. There are 14 state level Milk Marketing Co-operative Unions/or federations in the country with over 96000 individuals membership (village milk co-operatives). About 7 crore individual farmer members are the part of this gigantic co-operative sector in India.(Source: Dudh Sagar Patrika, March 2014 (Mehsana Dairy))

There is also a fourth tier, the National Cooperative Dairy Federation of India (NCDFI), which is a national level body that formulates policies and programmes designed to safeguard the interests of all milk producers.

Dairy Cooperative in India

In India the first dairy co-operative society was registered in 1913 at Allahabad in U.P. and was called "Katra Cooperative Dairy Society"(Source: Hajela TN, "Principles, Problems and Practice of Co-operation,Page. 587). Thereafter during the Second World War, the increased demand for milk and milk products for the army and acute shortage of milk in various urban areas gave a new push to the organization of milk co-operatives. As a result numbers of milk supply societies were registered as consumer oriented societies in different parts of the country. The Kaira District Co-operative Milk Producers Union at Anand (AMUL) was the first producer oriented union formed in1946 and constituted an important landmark in the development of the dairy co-operative movement. Inspired by the success achieved by the Kaira District Co-operative Milk Producers Union, Anand (AMUL), the Ministry of Agriculture constituted a National Dairy Development Board (NDDB) on 26th September 1965 to organize and execute dairy development programmes in the country. In 1969-70, NDDB developed an ambitious integrated scheme for development of the dairy industry and marketing of milk, which is commonly known as 'Operation Flood'. Operation Flood was initiated in three phases and this programme is primarily responsible for establishing India on the map of largest milk producing countries in the world. After India four major milk producing countries in descending order are United States, Russia, Germany and France.

Although milk production has grown at a fast pace during the last 3 decades thanks to Operation Flood programme launched by NDDB, milk yield per animal in India is very low. The main reasons for low yield are as under: Inadequate availability of fodder even during rainy season. Inadequate veterinary services in most of the states in India., and Lack of good technology in Milching. Large emerging economies, e.g., India and China, have complexities that range from

development of markets (where the largest segment of population is the one which has low purchasing power) to integration of low cost suppliers who are predominantly very small. For firms that aspire to conduct substantial business in such markets, such complexities have to be recognized and then overcome. The challenge is to understand the linkages between markets and the society. This would also require development of a new business model that helps a firm grow in such environments.

This paper is about one such successful model-the Gandhinagar District Milk Cooperative Union or Madhur Dairy in Gujarat (India) is an example of how to develop a network of primary milk producers co-operative societies at village level and overcome the complexities of a large fragmented market by creating value for suppliers as well as the customers.

This article provides insights into management of a large supply chains by adapting and integrating a variety of strategies and techniques. This includes building networks, developing trust & values in the network, developing fair mechanisms for sharing benefits across the supply chain, coordination for operational effectiveness, innovation and new technology for gaining competitiveness.

Brief profile of GCMMF

Gujarat Co-operative Milk Marketing Federation (GCMMF) is India's largest food product marketing organization. It is the state level apex body milk co-operative in Gujarat, which aims to provide remunerative returns to the farmers and also serve the interest of consumers by providing quality product, which are good value for money.

EXHIBIT-01

Members	16 district co-operative milk producer's union
No. of Producer Members	2.7 million
No. of Village Societies	13,141
Total Milk handling capacity	10.21 million litres per day
Milk collection (Total 2009-10)	2.70 billion litres
Milk collection (Daily average 2009-10)	7.5 million litres
Milk Drying Capacity	626 Metric Tonnes Per day
Cattle Feed Manufacturing Capacity	3090 Metric Tonnes Per day

(Source: Annual Report of Madhur Dairy-2012-13)

Madhur Dairy- A Profile

Operation Flood (1970-1996) created a strong foundation to transform India's Dairy sector into a vibrant business activity. It paved the way to take up new initiatives and create new condition to firm up India's world leadership in milk production. The new challenge for the Dairy industry was to explore

ways to emerge stronger using the network created under Operation Flood.

The Gandhinagar District Co-operative Milk Producers Union Ltd. popularly known as Madhur Dairy Gandhinagar was set up and registered on 6th. February 1971 under Gujarat State Co-operative Societies Act 1961. Madhur Dairy sources its entire requirement of liquid milk from primary dairy cooperatives. Similarly, Madhur Dairy sources snacks, farsans (Gujarati salted items), mixtures from local vendors and contributes to the cause of women cooperatives. The first own processing plant was setup in 1983 at Capital of Gujarat State, Gandhinagar city with the help of IDA and NDDB with the capacity of 30,000 LPD of milk processing plant. In 1996 the plant capacity was expanded up to 60,000 LPD and in 2002-2003 the plant capacity was again expanded 2, 00,000 LPD (Source: Annual report of Madhur Dairy 2012-13).

The main stake holder of Madhur Dairy is the farmer members for whose welfare the Union and its processing plant exist. Consumers of its products are stake holder or beneficiaries who expect good quality products at competitive prices and that too in adequate quantities during all seasons including large festivals.

Gandhinagar District Milk Producers Co-operative Unions has115 village Milk producers' co-operative societies as members and 40,600 individual milk producers who are members of village milk societies. Normally in districts there is 2 tier of milk co-operatives as seen in Madhur Dairy case. However, if State Federation is taken into account it becomes 3 tier and 4 tier if, National Level Federation is taken into consideration. However co-operative being a state subject we say there are a 3 tier structure in all sectors i.e., Primaries, District level federations and Apex or State Level federations.

Gandhinagar Co-operative Milk Producers Union (GCMPU) has an ISO 9001-2000 Certificate. The Union is bestowed with ISO-22,000 food safety certificate. Union is also famous as "MADHUR DAIRY" in entire Gandhinagar District with brand name "MADHUR". 95% consumers are covered by this union in Gandhinagar city. Union is paying highest rate of milk to its members (milk producers societies) i.e., ₹300/- Per Kilo Fat. Many facilities are being provided to its members, like: Medi-claim, Loan for purchase of milk animals, Welfare Fund for individual members, supply of calcium, fodder for animals, fodder cutter, Insurance coverage for both members as well as their animals etc. The Union has latest technology and machinery for milk processing and packaging. Nearly 2,00,000 litres milk is collected everyday from milk producers through primary milk Co-op. societies. Main products marketed

by this organization are pasteurized Cow-milk, Buffalo-milk, Curd, Butter- milk, Cow-Ghee, Buffalo-Ghee, Milk-sweets, Ice-cream etc. (earlier rose flavoured toned milk was also marketed through its various outlets and milk parlours). Madhur dairy has been awarded best productivity and performance award by National Productivity Council in 1994-1995 for its liquid milk plant located in sector 25 of the city under GIDC. In 1994-1995 award for best performance. Same year it was given Udyog Ratna award also (Source: Annual Report of Madhur Dairy-2012-13). But that was not the end of awards, in coming years the dairy has added many more feathers to its hat in the form of 4 various awards in 2008:

- National Industrial Excellence Award was presented by Indian Economic Progress Society by Hon. Minister of State for Science & Technology, Govt. of India on the occasion of National Seminar in the year 2008.
- Same year the Indian Economic Development and Research Association, New Delhi (India) has bestowed the **"KOHINOOR OF INDIA AWARD"** on Madhur dairy for outstanding contribution in the field of milk production, collection, processing and marketing.
- Udyog Ratna Award was presented to Madhur dairy on 11-8- 2008 at New Delhi.
- Lifetime Achievement Award was given to Madhur Dairy at New Delhi again in the same year.

In the year 2002-2003 the Management of Gandhinagar District Milk Co-operative Union decided to bring the latest technology in the processing plant popularly known as Madhur Dairy Plant located in Sector 25 of this capital city of Gujarat. The capacity of the new plants is now 2, 00,000 litres per day. The new plant is spread over a stretch of 5 hector land. In 2003-2004 there were 87 milk producers co-operative societies with 26,800 individual members. Presently there are 116 milk societies in the district with 40,600 members in Madhur dairy (Source: Annual Report of Madhur Dairy-2012-13)

Contribution of Women in Co-operative Dairy: Business in Gandhinagar District

In co-operative dairy societies functional in the district of Gandhinagar woman are actively participating in the business of milk production, collection and marketing as well as animal husbandry. This is helping rural women ameliorate their economic condition as well as realise the dream of women empowerment in the country.Women are engaged in all types of activities concerning to dairy co-operatives such as collection of milk both during morning-evening milking times , conduction

of fat test , calculation of milk price and carrying out various transactions related to milk co-operatives. Presently there is lot of awareness among the rural woman regarding various expenses related to production and marketing of milk.

Thus women are also playing important role in the development of dairy business as compared to men. By witnessing development of dairy co-operative business in Gujarat, other states are also making good strides in this field. Most of activities are carried out by women in the village milk societies. They use milk very carefully and the excess portion they will divert for dairy business. By doing this, they can manage saving. They use this saving for the family and for increasing the members of milk animals. So that their source of income continuously increases. Madhur dairy is helping women members get latest education and awareness concerning to management of dairy societies and works and responsibilities associated at village level.

In Gandhinagar District, 21 dairy co-operatives are exclusively run and managed by women co-operators (Source:Annual Report of Madhur Dairy-2012-13)Co-operative dairy industry is providing impetus to women empowerment and achieving economic freedom in the district .

Procurement and Marketing of Dairy Products

Of the three A's of marketing - availability, acceptability and affordability, Madhur Dairy is already endowed with the first two. Its availability is not a limitation because of the ample scope for increasing milk production, given the prevailing low yields from dairy cattle. It leaves the third vital marketing factor affordability. How to make milk affordable for the large majority with limited purchasing power? That is crux of the challenge.Current theories of strategy and organization suggest that Madhur Dairy benefit from related diversification and tight coordination of the multidivisional structure. This study aims to probe into this issue by using the theoretical framework of “strategy, structure and performance”. Following 3 issues will be addressed :

a) What strategies and structure does Madhur Dairy adopt in a constantly changing andturbulent developing economy?
b) Does the influences of Madhur Dairy have interaction effects on the socio-economic development of the members?
c) How does Madhur Dairy make milk affordable for the large majority with limited purchasing power?

Marketing Department

The distribution centres of Gandhinagar city milk consumers' societies, Kamdhenu centres of Gandhinagar District Co-operative

Milk Union, Madhur Parlours, Kamdhenu Agency Centres and Rural Regional Milk Distribution Centres have collectively marketed "Madhur Brand" liquid milk at an average of 76,475 litres per day during the year 2011-12 along with allied milk products an average 87403 litres of milk was sold per day. On demand of GCMMF "AMUL" brand milk was packaged at daily average of 40281 litres. Sale of Madhur brand butter milk was 14217 litres per day. Annual sale of Madhur brand sweets recorded all time high of 159030 Kgs during the year. Buffalo and cow ghee sale during the year registered at 593800 kgs. The sale of Madhur ice-cream, Maadhur Masti Dahi, Madhur Paneer, and Madhur Namkeen was registered at 75484 litres, 295835 kgs, 40434 kgs and 300 kgs respectively. The Annual sale of Madhur Shrikhand was 18608 kgs. Madhur shrikhand, a new entity, has became very popular among the consumers in a short span of time and is expected to register a big share in the shrikhand market in days to come. (Source: Annual Report of Madhur Dairy 2012-13).

Procurement of Milk by Madhur Dairy during 5 years (from 2008-09 to 2012-13):

From Table-1 it appears that despite increase in the number of individual membership of the primary societies the average procurement of milk per society, per annum and per day has seen lot of ups and downs during last five years. In fact 2011-12 has seen substantive fall in comparison to their preceding or following year. (The milk union could not provide the exact data for the year 2013-14 as annual report of the Union is yet to be prepared). When enquired about the reason for the fluctuations the marketing department came out with a bizarre explanation that average milk production had came down due to shortage of green fodder and non purchase of new milk cattle during the year 2011-12 by the members. However the procurement picked up again in the next year for no apparent reason given by the union. However one thing is clear procurement of liquid milk presents a rosy picture for the Gandhinagar District Milk Co-operative Union.

Marketing of various products by Madhur Dairy during 5 years (from 2008-09 to 2012-13)

The figures regarding sales of various products marketed by society outlets provide by the marketing department of the Union gives figures which are fluctuating in nature. It may be due to seasonal nature of milk procurement more in winter and less in summer seasons. Madhur parlours and milk centres are mainly within the city limit of Gandhinagar and a few within the urban semi urban areas of the District. The sale of liquid milk, after a dip in 2009-10, 2010-11 exhibits a remarkable upward trend in coming two years. Sale of

TABLE-01

Particular/Product	2008-09	2009-10	2010-11	2011-12	2012-13
Fresh Milk Collection (KGs Per Year)	54085141	56807673	50730011	45283657	50408496
Average Fresh Milk Collection (KGs Per day)	148178	155637	138986	123453	138105
Average Milk Collection Per Society (in KGs)	1372	1365	1209	1083	1200
Number of Societies	108	114	115	114	115
Individual Members	38700	40600	41350	42500	42635

(Source: Annual Report of Madhur dairy 2008-09 to 2012-13)

butter milk came down in the year 2010-11 and again went up in during coming years.

However one discouraging fact is seen concerning to marketing of sweets and ice-cream by the union. The reason cited by the marketing department is once again classical cause of increasing competition from the private dairies. There is no denying the fact that some private dairies are more popular among city dwellers when it comes to purchase of packaged cow milk. One Gujarat/Rajasthan border based Pathmeda Dairy sales only cow milk @ ₹46/- per KG (₹6/- more than Madhur brand cow milk and still has a good customer base due to its credibility in selling pure cow milk and cow milk products). This single example is suffice to prove that customer wants quality product even if it is charged higher price. Similarly the sale of Madhur paneer is witnessing a down ward trend due to its price and dryness of the product in comparison to Amul

TABLE-02

Particular/Product	2008-09	2009-10	2010-11	2011-12	2012-13
Fresh Milk (Litres Per day)	119207	108275	109988	127684	143418
Chass (Butter Milk Litres Per day)	14471	14833	13307	14219	15656
Ghee (KG Daily)	1625	1797	1872	1627	1618
Sweets (KG Per year)	159458	148267	160345	159030	150097
Ice Cream (Litres Per Day)	86912	87968	101819	75484	60224

(Source: Annual Report of Madhur dairy 2008-09 to 2012-13)

brand and panner sold by private dairies like one Gopal dairy and Patel dairy within the city. No doubt pricing is a factor and ever increasing costs of fodder procurement is one of the main reason for increase in prices of Madhur products, but at the same time Madhur dairy can beat the competitors by keeping the prices of other products viz., sweets, paneer, butter milk and of course ice cream, a little lower than the others. Paneer supplied by Gopal dairy and Patel dairy is costlier than that of Madhur Dairy but still its customer base is increasing day by day. That is a big challenge for Madhur dairy.

The main aim of the dairy industry is only to better manage the national resources to enhance milk production and upgrade milk processing using innovative technologies.

Potential for investment in the dairy industry

Some areas of Co-operative dairy industry can be toned up by the evocation of differentiated technologies and equipment from overseas. These include:

1. **Raw Milk Handling:** The raw milk handling needs to be elevated in terms of physiochemical and microbiological properties of the milk in a combined manner. The use of clarification and bactriofugation in raw milk processing can aid better to the quality of the milk products.
2. **Milk Processing:** Better operational ratios are required to amend the yields and abridge wastage, lessen fat/protein losses during processing, control production costs, save energy and broaden shelf life. The adoption of GMP (Good Manufacturing Practices) and HACCP (Hazard Analysis Critical Control Points) would help produce milk products adapting to the international standards.
3. **Packaging:** Another area that can be improved is the range of packing machines for the manufacturing of butter, cheese and alike. Better packaging can assist in retaining the nutritive value of products packed and thus broaden the shelf life. A cold chain distribution system is required for proper storage and transfer of dairy products.
4. **Value-Added Products:** There's vast scope for value-added products like desserts, puddings, custards, sauces, mousse, stirred yoghurt, nectars and sherbets to capture the dairy market in India.

The Co-op. dairy industry has aimed at better management of national resources to enhance milk production and upgrade milk processing involving new innovative technologies. Private dairies are already in the arena if multinational dairy giants like Parle, Britania, Nestle can make substan-

tial foray in the Indian dairy market in this challenging scenario and create a win-win situation for both themselves as well as renowned co-operative Brands like Amul, Sumul, Doodhsagar, Sabar, Banas, Parag, Sudha, Milma, Verka, Vita, Warna and of course Madhur brand of dairy products in Gandhinagar.

Strength of Gandhinagar District Milk Co-operative Union (Madhur dairy) for better Marketing of its products

Madhur Dairy had its main objective as carrying out activities for the economic development of agriculturists by efficiently organizing marketing of milk and dairy produce in raw and produced form and other allied milk produce through following activities:

a. Common Branding (only one brand Madhur)
b. Centralized Marketing of liquid Milk as well as all allied products under one brand (Madhur) through Madhur Parlors, Centralized outlets, Service Centers and Milk Marketing Centers.
c. Centralized quality control (especially in Cow Milk and Ice Creams).
d. Centralized Purchase and,
e. Pooling of Milk efficiently through village milk co-operative societies in the district.
f. Ensure that milk producers and farmers are offered regular market price from consumers by providing quality liquid milk and other milk products as well as other food products marketed by Madhur parlours.

The real strength of Madhur Dairy is the trust it has created in the minds of its customers regarding quality and affordability of its all type of products (Liquid Milk prices are determined by mainly declaration of new prices by Amul/Mother dairy). The trust that adequate availability of its products and purity beyond doubt is the main strength of Madhur Dairy.

Marketing Strategy to be adopted by Madhur dairy for widened Customer Base

Madhur dairy of late is focussing on what is called Smart Marketing in business parlours. Management of Madhur dairy says that it is trying to focus on its products campaigns, widening it reach to far flung areas within the district and high level of communication with all stake holders. For instance the campaigns do not talk about the obvious benefits of Milk as good for health but rather tying up with Gujarat Livelyhood Promotion Company through its Brand Mission Manglam for better supplement of Calcium to grown up children by consuming more milk. It also emphasises on the adage "country needs you grow faster." Earlier Madhur dairy campaign was focussed on inculcating habit of drinking of Milk among children and youth by offering rose flavoured

milk in 150 ML pouches for throw away prices. However for some unknown reasons this campaign has been stopped for some years now. Madhur need to restart this all time popular product not only for the benefit of the children but also for its own effective marketing strategy i.e. reaching out to Children and the youth in the district. Madhur dairy should also start Pizza Parlours ala Amul which is very popular among the youth as well as all age group customers. For that Madhur should start production of Cheese and butter on large scale.

CONCLUSION

From the above analysis it is evident that since 1971, the year in which Gandhinagar District Milk Producers Co-operative Union alias Madhur Dairy came into being, much water has flown down the rivers all over the country. Despite some ups and downs witnessed in a 42 years long journey finally Madhur Dairy has established its own stamp in the area of dairy business. There had been tremendous growth in the net profit of the Union from ₹30.02 lakhs in 2007 to ₹87.65 lakhs in 2011-12. However in succeeding year (2012-13) the net profit has again came down to ₹80.68 lakhs which is corresponding with the procurement and marketing of liquid milk and milk based products. It is for the management of the Dairy to find out the reason behind the decrease in its profit. So far as the view of the author is concerned the increased expenses on cost of management and increasing income tax and other taxes are the main reason behind decrease in its net profit. Professionalization of management and impetus on Human resource Development are the areas in which more attention of top management is required. However the top brass of the dairy federation has to urgently address the most worrisome problem and that is the problem of lesser procurement leading to lesser marketing which further lead to decrease in the profit of the Federation.

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• Deposits	: ₹ 118361.93 lakhs	₹ 133496.14 lakhs
• Loans & Advance	: ₹ 42223.38 lakhs	₹ 61498.25 lakhs
• Investments	: ₹ 47239.12 lakhs	₹ 53578.70 lakhs
• Money at Call & Short Notice	: ₹ 41609.52 lakhs	₹ 36055.34 lakhs
• Net Profit	: ₹ 1117.82 lakhs	₹ 1451.51 lakhs
• Working Capital	: ₹ 145392.22 lakhs	₹ 163452.92 lakhs

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Analysis of Primary Co-operative Agricultural and Rural Development Banks (PCARDBs) in Tumkur District of Karnataka (India)

Ganesh Prasad T.S[1]
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Abstract

Credit acts as a facilitator and it performs the important function of providing the farmers with requisite control over the resources affecting production. In order to meet the farmers credit needs in rural areas, at present there are 177 primary cooperative agricultural and rural development banks (PCARDBs) spread over 220 taluks in Karnataka state and 17.50 lakh families benefited from PCARDBs in Karnataka and about ₹4500 *crores of term loans were distributed. In order to manage these PCARDBs more efficiently to serve the farming community needs at their best, a comprehensive study on these banks performance was felt indeed important during the present days. Hence an attempt is made to evaluate the performance of PCARDBs in Tumkur district of Karnataka state. Financial ratio analysis was used to analyze the bank performance in the study area. The results of financial ratios analysis relevant to PCARDBs are explained under different categories namely, liquidity ratios, solvency ratios, test of strength, profitability ratios and efficiency ratios and are further discussed explicitly in the study area context. At the end, based on the study conducted in 2009-10.* T*he paper ends with a policy suggestion for improvement of PCARDBs financial performance.*

Key words: Credit, mortgage, share capital, rural development banks, old debt.

INTRODUCTION

Credit acts as a facilitator and it performs the important function of providing the farmers with requisite control over the resources affecting production. Credit is essential more so in less developed countries like India agriculture is mostly managed by poor (58% of the total farmers are marginal farmers) and modern agricultural requires good amount of inputs for production therefore majority of farmers are submerged in debt. In Indian rural areas, Primary Co-operative Agricultural and Rural Development Banks (PCARDBs) provide credit for variety of purposes such as redemption of old debt, improvement of land, purchase of costly agricultural equipments, sinking of wells and installation of pumps and so...on. Among these, redemption of old

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debt was the most important purpose for which majority of the farmers approached PCARDBs in recent year; farmers have been borrowing loan for land development activities including sinking of wells (56%) and purchase of agricultural machinery (39%) in fact. The RBI insists on PCARDBs issuing at least 90 % of their total loans for productive purposes of which 70 % should be for easily identifiable purposes (Anand, S. K., 1981).

In Karnataka land mortgage bank was established during 1929 (Mysore State Cooperative Land Mortgage Bank). At present there are 177 primary cooperative agricultural and rural development banks (PCARDBs) spread over 220 taluks in the state. The 26 branch offices of the Karnataka state cooperative agricultural and rural development banks (KSCARDB) at district level are supervising the activities of the PCARDBs in their jurisdiction thus there is a federal set up where loaning is made in two tiers. Till today about 17.50 lakh families benefited from PCARDBs in Karnataka and about ₹4500 crores of term loans were distributed.

PCARDBs have been assigned a vital role in agricultural development of our country. It is through the branches of these banks that various programmes of the government are being implemented in the agricultural sector. The basic task of these banks is to develop agriculture sector, which is the main occupation of the majority of people in our country and a major contributor to the national income. In order to manage the PCARDBs more efficiently so as to serve at best the farming community needs, a comprehensive study on these banks performances was felt indeed important. An effective research every now and then in the evaluation of performance of PCARDBs can alone provide an answer in this view. Keeping this in view an attempt is made to evaluate the performance of PCARDBs in Tumkur district of Karnataka state (Reddy Indrasena, 1994).

The study was undertaken in Tumkur district, lies in plain region of Karnataka with geographical area of 10.65 lakh hectares falls under semi arid zone. The district accounts 6.1 % of total population of the state of which about 83.42% of the total population of the district lives in villages against the state average of 69%. Ranks 4th in respect to area among the district of the state and has 10 taluks, but the study was conducted in selected five taluks. The taluks were selected based on the recovery performance of loans during the study period. Moreover, Tiptur and Gubbi taluks were selected because they represented the coconut belt and Sira and Koratagere taluks represented the groundnut and sericulture belt and Tumkur taluk is the central place of Tumkur district. Totally five PCARDBs were selected from respective Taluks.

METHODOLOGY

The data relating to all the five PCARDBs of the study area were collected from the Annual Report Tables maintained by office of the Registrar of cooperative societies. The data relating to the share capital, working capital, borrowings, loans advanced, loans recovered, loans overdue, loans outstanding, cost of management, profit and loss position and purpose-wise loans were collected from the various records. In the study area, the performance of PCARDBs for the study period was studied and assessed by physical and financial indicators using financial ratio analysis (MohsinG., 1977).

Financial ratio analysis is one of the most significant internationally used techniques for evaluating the performance of enterprise. Ratios are nothing but relative figures expressing the relationship between the variables. Balance sheet and profit and loss account (income statement) are the basic financial statements of every business enterprise. These statements furnish a summarized view of the financial as well as operating status of an enterprise. However, obsolete figures alone in the financial statements convey no meaning unless those figures are studied in relation to other figure, hence; a careful examination of the financial statements is felt intrinsic to know about the performance. The financial ratios relevant to PCARDBs are analysed under different categories namely, liquidity ratios, solvency ratios, test of strength, profitability ratios and efficiency ratios.

1. Tests of Liquidity

Liquidity ratios indicate the continuous operation of the bank. These ratios are used to measure the ability of an enterprise to posses' adequate cash to meet immediate obligations (Pathania, 1997).

1.1 Current ratio

This ratio measures the degree of liquidity of the bank in the short term. It indicates whether the current assets are sufficient to repay the current liabilities.

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

The current assets included in this study were cash on hand, balance with other banks (in current account), and bills receivable. The current liabilities included borrowings and bills payable.

A very high current ratio is not desirable as it would mean less efficient use funds, on the other hand a low current ratio would mean too much of strain on working capital resources. It is generally believed that a good current ratio should be between 1.5: 1 and 2: 1, generally a higher value of this ratio implied better margin and financial solvency.

1.1 Liquid assets to total assets ratio

The degree of liquidity preference adopted by the bank has been

depicted by this ratio and was computed as follows,

$$\text{Liquid assets to total assets ratio} = \frac{\text{Liquid Assets}}{\text{Total Assets}}$$

The liquid assets include cash in hand and cash at banks. Total assets include cash and balances, balances with banks, investments, advances, fixed assets and other assets.

2. Acid -test ratio

This is called quick ratio or near-money ratio. This represents the ratio between quick liabilities and computed as follows,

$$\text{Acid Test ratio} = \frac{\text{Quick Assets}}{\text{Quick Liabilities}}$$

The ratio indicates the extent to which the capital is financing the current assets, which carries a low degree of liquidity. The quick assets include cash in hand and cash at bank. While quick liabilities include bills payable, interest accrued other provisions and interest paid.

3. Solvency

These ratios indicate owners' involvement in the total resources and provide basis for measuring leverage ratio. The long-term solvency position of the bank business was assessed by these ratios. The various ratios employed were as follows.

3.1 Debt-equity ratio [Leverage]

This ratio is also called as leverage. This ratio compares the owners' stake in the business with outside term liabilities. Lower value of the ratio indicates that the leverage effect will be restricted to the minor role of debt and the major capital being equity the bank is supposed to be trading on thick equity.

$$\text{Debt Equity Ratio} = \frac{\text{Long term Liabilities}}{\text{Net Worth}}$$

In the above ratio, debt represents only long-term liabilities and not current liabilities, while equity refers to net worth after deducting intangible assets. Net worth includes statutory reserves, capital reserves, revenue and other reserves and share capital.

3.2 Indebtedness ratio

The ratio indicates the amount owned by the bank to creditors. This ratio reflects the solvency position of the bank in a better way.

$$\text{Indebtedness ratio} = \frac{\text{Total liabilities}}{\text{Net Worth}}$$

In this case we take current and outside term liabilities. The lower ratio indicates a better solvency position. The liabilities include statutory reserves, revenue reserves, borrowings, other liabilities, and contingent liabilities and share capital.

4. Test of strength

The following measures were used to measure the real worth of selected PCARDBs.

4.1 Net worth

It indicates what the business owes to the owners of business. It measures the excess of assets over liabilities, which indicates the soundness of the bank.

4.2 Net capital ratio

This ratio indicates the degree of liquidity of the business in the long term. It measures the degree of availability of assets to pay off the long-term liabilities.

$$\text{Net capital ratio} = \frac{\text{Total Assets}}{\text{Total Liabilities}}$$

Higher the net capital ratio, greater would be the margin of safety, against decline in the prices of major assets of the bank. This ratio would throw light on the real financial strength of the bank.

5. Profitability ratios

These ratios can be used to assess the financial status and overall efficiency of the bank. These ratios were used to compare the returns over the investments. Following were the important ratios.

5.1 Net profits to total assets ratio

This ratio indicates the ratio of profit on the total assets of the bank and their employment. The ratio was computed as follows.

$$\text{Net profit to total asset ratio} = \frac{\text{Net profits}}{\text{Total Assets}}$$

An increasing trend over the years indicates the overall efficiency of the bank.

5.2 Net profits to net worth ratio

Net worth presents value (as shown in the balance sheet i.e., at cost less depreciation) of assets minus all liabilities. The ratio of net profit to net worth shows whether profitability is being maintained or not.

$$\text{Net profit to Net worth} = \frac{\text{Net profit}}{\text{Net worth}}$$

A decline in the ratio leads to a cause for inquiry.

5.3 Net profits to fixed assets

The ratio indicates whether the fixed assets are being used properly. A decline in the ratio shows either that the assets are being kept idle or the business conditions are bad.

$$\text{Net profit to fixed Assets} = \frac{\text{Net profit}}{\text{Fixed Assets}}$$

The lower ratio indicates that adequate depreciation was not written off so that the assets were not worth what they are stated to be. Further, it may mean that the assets were such that they may exist for a short period. The fixed assets consisted of land, building, furniture and fixtures and depreciations on assets.

6. Efficiency ratios

Following two ratios were

adopted to assess the efficiency of the bank and they were.

6.1 Gross ratio

This ratio helps to ascertain how efficiency of the gross income of the bank was utilized and the ratio was computed as follows.

$$\text{Gross Ratio} = \frac{\text{Total Expenses}}{\text{Gross Income}} \text{ X } 100$$

The total expenses included both interest expenses. In the same manner, the gross income of the bank comprised of both interest income and non-interest income.

6.2 Operating ratio

This ratio indicates the proportion of gross income being used for meeting the operating expenses.

$$\text{Operating Ratio} = \frac{\text{Operating expenses}}{\text{Gross Income}} \text{ X } 100$$

An increase in the ratio indicates a decline in the efficiency of the bank.

Using these methodologies the financial performance of PCARDBs was calculated hereunder to explain financial ratios in detail ultimately to know the financial position of the bank.

RESULTS AND DISCUSSION

Tests of Liquidity

Liquidity ratios were worked out to study financial soundness of the bank. The concept of liquidity has more relevance for financial institutions, which indicates the liquidity of the PCARDBs to cover their short-term obligations out of their own short-term resources. The possession of assets is expressed as their liquidity, which may at any time required to meet the liability obligation of the bank. Three liquidity ratios were computed as detailed below and are presented in Table1.

a) Current ratio

The ability to pay off debts can be measured by establishing a relationship between current assets to current liabilities. In the given context 'current' implies readily available with reference to assets and immediate or urgent in the case of liabilities, both components spread at the most for one year.

The average current ratio was higher for Gubbi (3.314) followed by Sira (2.423), Tumkur (2.134), Tiptur (1.967) and Koratagere (1.474) during the study period.

The current ratio has been regarded as an important parameter of the liquidity position of the institution. It indicates the ability of an institution to meet its short-term commitments as and when they fall due. In this ratio it happens to be greater than one. It would be presumed that the institution had sufficient current asset to meet its obligations. Generally a current ratio of two has been regarded ideal as per Foulke (1945) and Natarajan et al., (1980). It could be seen from Table 1 that during the period of study, the

Table 1. Liquidity Ratios of selected PCARDBs in Tumkur district

Ratios	Koratagere	Tumkur	Tiptur	Sira	Gubbi
Current ratio	1.474	2.134	1.967	2.423	3.314
Liquid asset to total asset	0.009	0.016	0.015	0.013	0.018
Acid test ratio	0.118	0.186	0.214	0.109	0.384

overall current ratio was the highest with respect to Gubbi bank fallowed by Sira and Tumkur bank, while Gubbi bank was able to acquire more current assets to meet the current obligations during the successive years. Thus, it is apparent that all the PCARDBs had sufficient current assets to meet their current obligations.

b) Liquid assets to total assets ratio

The ratio was found to be less than unity in the study period for all the five banks. The average ratios were observed to be 0.009 for Koratagere, 0.016 for Tumkur, 0.015 for Tiptur, 0.013 for Sira and 0.018 for Gubbi bank.

The study revealed that in all the PCARDBs the ratio was found to be little higher. This was mainly due to the consideration of the bank for current working funds in the initial period especially with respect to Gubbi and Tumkur bank, which were established during 1960. As the bank developed, the investment on fixed assets and fixtures increased, while the investment on liquid asset decreased.

c) Acid-test ratio

This ratio is a refined measure of liquidity and assesses how liquid the bank would be if business operations come to an abrupt halt. The average ratios for the study period were 0.118 for Koratagere, 0.186 for Tumkur, 0.214 for Tiptur, 0.109 for Sira and 0.384 for Gubbi bank.

This ratio is able to assess how liquid the bank would be if the business operations come to an abrupt halt. The ratio was observed to be less than unity in the study period for all the bank. But was relatively higher for Gubbi bank, which was due to higher acquisition of current assets by the bank to meet current obligations as reflected in the current ratio (Table1).

Test of solvency

Two ratios were computed to ascertain the solvency position of the bank in order to measure the share of the bank against the funds provided by its creditors and the ratios were presented in Table 2, and discussed as under.

a) Debt-equity ratio

The ratio was found to be negative for selected PCARDBs in the study period, the highest negative ratio was found with respect to Koratagere (-48.547) followed by Tumkur (-34.12), Tiptur

(-28.31), Gubbi (-12.359) and Sira (-7.475).

It represents the ratio of borrowed funds to owner's capital. This ratio indicated the PCARDBs stake in the business with outside term liabilities. Higher the ratios lower the stake and vice-versa. The optimum contribution of debt to equity vary from organization to organization, whereas in manufacturing concerns, the ratio may be 2:1 in banking organizations as in the case of PACS the ratio may be as high as 10:1.

It was observed from the Table 2 that the ratio was found to be negative in the study periods with variation in their magnitude. This indicated that these PCARDBs were not operating on their equity in which borrowed capital played a dominant role. The main reason for negative debt equity ratio for all the PCARDBs were due to their lower capital base and limited banking activities, as the PCARDBs are entirely dependent on SCARDB for their borrowing activity.

b) Indebtedness ratio

The average ratio for the Koratagere bank was -53.422 followed by Tumkur -41.42 Tiptur -32.48 Gubbi -12.916 and Sira 8.317. The ratio was found to be negative for all the five banks during the study period.

This indebtedness ratio indicates the extent of debt per rupee of owned funds. It indicated the extent of reliance on outside capital by the banks. The prescribed norm has been 3:1 which indicates, three times external funds could be used in relation to owned funds. From Table 2 it was appeared that the indebtedness ratio followed the similar trend of debt-equity ratio for all the PCARDBs in the study period. The ratio was found to be Negative for all the PCARDBs during the study period. Thus it is apparent that, PCARDBs are entirely dependent on external funds for the banking business and borrowings from State CARDB have become inevitable in order to meet the long term credit requirements of the farmers.

Tests of strength

Net worth and net capital ratios were used to assess the real strength of the bank and are presented in Table 3. The net worth and net capital ratios indicate the long-term liquidity position of the business or real worth of the institution.

Table 2. Test of solvency of selected PCARDBs in Tumkur district

Ratios	Koratagere	Tumkur	Tiptur	Sira	Gubbi
Debt equity ratio	-48.547	-34.12	-28.31	-7.475	-12.359
Indebtedness ratio	-53.422	-41.42	-32.48	-8.317	-12.916

Table 3. Test of strength for selected PCARDBs in Tumkur district

Ratios	Koratagere	Tumkur	Tiptur	Sira	Gubbi
Net worth	-6.087	-7.562	-8.468	-10.542	-6.149
Net capital ratio	0.959	0.798	0.819	0.880	0.953

Table 4. Test of profitability of selected PCARDBs in Tumkur district

Ratios	Koratagere	Tumkur	Tiptur	Sira	Gubbi
Current ratio	0.002	-0.017	-0.019	-0.025	-0.013
Liquid asset to total asset	-0.125	*	*	*	*
Acid test ratio	0.314	-1.428	-1.542	-1.665	-1.133

Note: * the value is not calculated since both profit and net worth were negative.

a) Net worth

The average net worth was negative in all the five banks during the study period. The net worth were observed to -6.087 for Koratagere, -7.562 for Tumkur, -8.468 for Tiptur, -10.542 for Sira and -6.149 for Gubbi bank. This indicated the difference between assets and liabilities of the PCARDBs. A positive and higher magnitude of net worth indicated a favourable situation for the bank, it could be seen from Table 3 that during the study period the ratio was found to be negative for all the PCARDBs, due to increase in their liabilities. The increase in liabilities of PCARDBs during study period was due to increased borrowings, low recovery and negative profits of the bank.

b) Net capital ratio

The highest ratio for the study period was noticed in the case of Koratagere (0.959) followed by Gubbi (0.953), Sira (0.880), Tiptur (0.819) and Tumkur (0.798). However for all the PCARDBs, The ratio was found to be less than unity in the study period.

The net capital ratio indicates the degree of liquidity of the PCARDBs in the long term. The value was less than unity during the study period for all the banks (Table 3). The ratio of more than unity indicates that the assets were sufficient enough to cover the total liability. Due to the recent trend in increased overdues the ratio was found to be lower during the study period for all PCARDBs, thereby increased the liability. From the above discussion it is clear that, the PCARDBs were not having the sound liquidity position for long-term sustainability.

Profitability ratios

These ratios can be used to assess the financial health of the institution (Table 4). Though profitability is a secondary component for service oriented co-operative bank, yet it is a measure of success of the business. The

important profitability ratios computed include net profit to total asset, net profit to net worth and net profit to fixed assets.

a) Net profit to total assets

The ratio was found to be 0.002 for Koratagere during the study period. The ratio was negative for Tumkur, Tiptur, Sira and Gubbi banks.

The ratio of net profit to total asset was negative for Tumkur, Tiptur, Sira and Gubbi during the study period, while for Koratagere the ratio was positive. Since Tumkur, Tiptur, Sira and Gubbi banks have incurred loss due to higher expenditure compared to income, the ratio was found to be negative. Koratagere bank has earned minimum profit during the years of study period and hence this ratio was positive. Mohsin et al., (1977) suggested that the ratio should be 2% for efficient utilization of assets. But no PCARDBs had reached this ratio during study period due to their lower level of profitability in relation to assets. It also mentioned that the increase in this ratio over the years shows the overall efficiency of the organization. Thus there is a need to put in lot more efforts by PCARDBs to increase profit by reducing the cost and increasing the income so as to achieve at least standard norm of 2%.

b) Net profit to net worth

The ratio was found to be negative for Koratagere. The ratio for Tumkur, Tiptur, Sira and Gubbi banks was not computed due to negative net worth and negative net profit.

This ratio shows the extent of profitability with reference to the investment of the institution. The ratio was negative for Koratagere during the study period. This was due to low profit and negative net worth in recent years. The low level of profitability could be attributed as a proof of providing variety of loans to various beneficiaries rather than being interested in making profit. The bank seemed to have adhered more to the service motto of an ideal co-operative but by altogether sacrificing sound business principles, essential for the overall progress and prosperity of a cooperative bank (Enugandula et al., 1998). Though, this ratio is a reliable measure of the performance of a business organisation as put forth by Page et al., (1970). It is considered only as a supplementary measure in the case of service oriented institutions because of their stress on social objectives. For Tumkur, Tiptur, Sira and Gubbi the net profit to net worth ratio was not computed since the profit and net worth were negative in all the years of study.

c) Net profit to fixed assets

The ratio was found to be positive during the study period with respect to Koratagere (0.314). The ratio was negative for Tumkur, Tiptur, Sira and Gubbi for the study period.

This ratio is designated to test the utility and the importance of fixed assets in the business. The ratio captures the earning from the investments on the permanent assets like building, reserves and fixed deposits in other institutions. The net profit to fixed asset ratio of Koratagere bank was found to be positive during the study period, because it has stabilized its business at least to earn some profit. However, for other banks the ratio was found to be negative during the period of study, as these banks have incurred loss during study period.

Efficiency ratios

The results of the efficiency ratios employed in the study are presented in Table 5. Gross and operating ratios were computed to know the extent of utilization of gross income of the PCARDBs and are explained hereunder.

a) Gross ratio

The average value of the ratio was found to be higher for Sira PCARDB in the study period i.e. 147.94 followed by Tumkur 122.62, Tiptur 98.46, Koratagere 95.76 and Gubbi 90.85.

Gross ratio measures the expenses for every ₹100 income of the business. It was evident from Table that the ratio was more than 100% for Sira and Tumkur in the study period. This was mainly due to higher level of expenses over the gross income. This was also supported by higher growth of expenses compared to income during the study period. In case of Koratagere, Tiptur and Gubbi banks, the ratio was observed to be less than 100% and more than 90% during study period. The bank earned profit of ₹4.24 by Koratagere for every ₹100 of gross income, during the study period. The raising trend of expenditure during recent years increased the gross ratio of the study period. From the above discussion it was suggested to reduce the expenses of these banks. The higher proportion of the income was utilized to meet the bank expenses but from the point of view of sustainability perhaps necessitated a higher margin of profit by reducing the total expenses of the bank on one hand and increasing the gross income of the bank on the other.

b) Operating ratio

The operating ratio was found to be the lowest for Sira 6.89 compared to other four PCARDBs. This ratio indicates the operating efficiency of the PCARDBs in managing their operation and the

Table 5. Test of Efficiency of selected PCARDBs in Tumkur district

Ratios	Koratagere	Tumkur	Tiptur	Sira	Gubbi
Gross ratio	95.76	122.62	98.46	147.94	90.85
Operating ratio	15.93	16.78	18.82	6.89	24.58

results were presented in Table 5. It was observed from the table that the operating ratio was highest for Gubbi bank and the lowest for Sira bank followed by other PCARDBs during the study periods. The operating ratios were found to be lower and varied between 6 to 25% that spoke about higher operating efficiency of the PCARDBs in transacting the business. This was mainly due to less number of staff and lower pay scales to the bank staff compared to other banking institutions.

CONCLUSION

From the study it was clear that Credit is a vital agricultural input in the study area. The results of the analysis indicates that the current ratio was more than unity for all the banks during the study period, indicating that banks have maintained a reasonable level of liquidity. On the contrary, Acid test ratio was less than unity for all the banks during the study period. Debt equity ratio was found to be negative for all the selected PCARDBs during the study period. Indebtedness ratio was negative for all the selected PCARDBs during the study period. The average net-worth was negative for the study period in case of all PCARDBs.

The net capital ratio was found to be less than unity during the study period. The ratio of net profit to total assets was found to be negative for Tumkur, Tiptur, Gubbi and Sira PCARDBs due to losses incurred by them during the study period. Net profit to net worth was negative for Koratagere, which indicated the service motto of the bank in which profitability aspects was relegated to second position. Net profit to fixed assets ratio was negative for Tumkur, Tiptur, Sira and Gubbi banks due to higher losses. The average value of gross ratio was found to be higher for Sira during study period. The ratio was more than 100% for Tumkur and Sira banks during study period. The value of operating ratio was found to be less than 30% for all the PCARDBs during the study period. Thus at the outset, the PCARDBs performance in terms of profit and loss was far from satisfactory.

From the study it is also clear that, even though the PCARDBs are not promptly deposit oriented but the results clearly showed that deposits have major role in ensuring good performance. Hence, focus on the deposit mobilization should be increased within the per view of the banks operation by providing reasonable interest for deposits. This is particularly so in view of the fact that government share in the total share capital is on the decrease. Finally, it is suggested for PCARDBs to make dent in lending to more non-land based activities in the future.

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Nabard cuts interest rates on refinance by 20-50 bps

To give a boost to investments in the agriculture sector, the National Bank for Agriculture and Rural Development (Nabard) has reduced the rate of interest on their refinance facilities to banks by 20-50 basis points. The new rates of interest on refinance will now be 9.30% (9.50% earlier) for five years, 9.50% (9.70% earlier) for three-five years, and 9.50% (10% earlier) for tenures between 18 months and three years.

The new refinance rates are applicable from August 14, 2014. One basis point is equal to one-hundredth of a percentage point. In addition to this rate cut, Nabard will also cut 50 basis points in interest rates for area development projects and innovative activities that enhance production and farm productivity. These activities, among others, are production under controlled conditions, such as poly houses, water-saving drip and sprinkler facilities and precision farming.

Banks taking more than ₹500 crore in a single drawal will further be incentivised by 10 basis points, Nabard said in a statement. The Development Bank has also reduced to 10 % (from 10.5 %) the rate of refinance interest on short-term loans to State cooperative banks, and regional rural banks for financing prescribed activities other than crop loans, such as financing to weaver cooperative societies, handloom development corporations, and marketing of crops.

RRBs, Co-op banks get new gold loan norms

The Reserve Bank of India said loans sanctioned by Regional Rural Banks and State/Central Co-operative Banks for the purpose of medical expenses and meeting unforeseen liabilities should not exceed 75% of the value of gold ornaments and jewellery. Further, in order to standardise the valuation and make it more transparent to the borrower, the RBI said gold jewellery accepted as security/collateral will have to be valued at the average of the closing price of 22 carat gold for the preceding 30 days as quoted by the India Bullion and Jewellers Association Ltd.

If the gold is of purity less than 22 carats, the bank should translate the collateral into 22 carat and value the exact grams of the collateral. In other words, jewellery of lower purity of gold shall be valued proportionately.

Key Highlighs of the Union Budget 2014-15

The highlights of the Union Budget 2014-15, presented by Finance Minister Arun Jaitley in Parliament on July 10, 2014.

- Admitting a daunting task, Government has retained the interim Budget fiscal deficit target of 4.1% for FY15 and estimated at 3.6% for FY 16 and 3.0% for FY17.
- Income-tax exemption limit raised by ₹50,000 to ₹2.5 lakh. Further, to boost financial instruments under 80C raised to ₹1.5 lakh from ₹1 lakh investment limit in PPF be raised to ₹1.5 lakh from ₹1 lakh. Kisan Vikas Patra to be reintroduced, National Saving Certificate with insurance cover to be launched.
- The nominal growth rate of GDP is expected to be 13.4% for FY15, same as interim Budget. This translates into a 7.4% inflation rate, assuming a 6% GDP projection in the next fiscal.
- FDI limit in defense manufacturing and insurance hiked to 49% from 26% currently. Pledges to provide necessary tax changes to introduce real estate investment trusts and infrastructure investment trust.
- Total borrowings requirement for FY15 budgeted at ₹6,00,000 crore. Net market borrowings at ₹4,61,204 crore budgeted to finance nearly 86.8% of the fiscal deficit in FY15 (89.5% in FY14). This implies that Govt. may continue with its reliance on borrowings through short-term papers in FY15.
- The expenditure on subsidies for food, fertilizer & fuel has been pegged at ₹2,51,397 crore (2.0% of GDP), slightly higher than the revised estimates of ₹2,45,452 crore in FY14.
- Tax revenue for the current fiscal pegged at ₹9,77,258 crore (against FY14(RE) of ₹8,36,026 crore), projected to grow at 16.9% in FY15, on the back of estimated tax buoyancy at 1.40.
- The budget has proposed time bound programme as Financial Inclusion Mission to be launched on 15 August this year with focus on the weaker sections of the society. Banks to be encouraged to extend long term loans to infrastructures sector. Banks to be permitted to raise long term funds for lending to infrastructure sector with minimum regulatory pre-emption such as CRR, SLR, and Priority Sector Lending (PSL). Government in favour of consolidation of PSU banks.

No major changes in social sector spending

This year's rural development budget has gone up from ₹61,810 crore (revised estimates for 2013-14) to ₹83,696 crore, with ₹33,000 crore allocated to the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) and ₹14,389 crore to Pradhan Mantri Gram Sadak Yojana. The aim of total sanitation is expected to be achieved through Swatchh Bharat Abhiyan by 2019, the year of 150th birth anniversary of Mahatma Gandhi, at a cost of ₹1,000 crore.

A new ₹500-crore Deendayal Upadhyay Gram Jyoti Yojana will provide 24x7 power supply to rural areas. An amount of ₹50,548 crore is proposed under the Scheduled Castes plan and ₹32,387 crore under the Tribal Sub-Plan. The Shyama Prasad Mukherji Rurban Mission to deliver integrated project-based infrastructure in rural areas.

Finance Minister Arun Jaitley has announced setting up of four Ultra Mega Solar Power Projects and solar-powered pumps for agriculture and doubled the coal cess to ₹100 a tonne to enhance the National Clean Energy Fund.

The government will extend the scheme of Assistance to Disabled Persons for the purchase and fitting of aids and appliances (ADIP) to include contemporary aids and assistive devices. It proposes to establish a national-level institute for Universal Inclusive Design and Mental Health Rehabilitation and also a Centre for Disability Sports. The government plans to print currency notes with Braille-like signs. Since the Braille presses in the government and private sector are unable to meet the demand for textbooks, the government will provide assistance to the States to establish 15 new Braille presses and modernise 10 existing Braille presses in the current financial year.

About ₹50 crore will be spent on pilot testing a scheme on safety for women in public road transport. An additional ₹150 crore will be spent by the Ministry of Home Affairs on a scheme to increase the safety of women in large cities. “Beti Bachao, Beti Padhao Yojana” will be a focussed scheme to overcome the apathy to the girl child. With the aim of achieving health for all, the government proposes two key initiatives - free drug service and free diagnostic service to be taken up on priority, and universal access to early quality diagnosis and treatment for TB patients.

For the first time, the Central government will provide assistance to strengthen the States Drug Regulatory and Food Regulatory Systems by creating new drug testing laboratories and strengthening the 31 existing State laboratories. Fifteen model Rural Health Research Centres will be set

up in the States, which will take up research on local health issues concerning the rural population.

RBI to Andhra Pradesh and Telangana: No debt to write off farm loans

The Reserve Bank of India has made it almost impossible for state governments like the new Andhra Pradesh and Telengana to offer farm loan waivers. The central bank has told them they will have to reimburse banks in cash if they wish to waive loans for any segment. RBI Governor Raghuram Rajan is learnt to have informed the Telugu Desam Party-led government of Andhra Pradesh and the Telangana Rashtriya Samiti-led government of Telangana that the reimbursement to banks by the state treasury cannot be through issue of bonds which will be redeemed in future.

A source in RBI said, "The state governments will have to pay direct cash to banks on behalf of the farmers as loan repayment. There is no question of the central bank favouring a bond issue by the state governments to banks as part of loan waiver." Andhra Pradesh Chief Minister N Chandrababu Naidu had proposed it instead of direct cash payment as his government is running a revenue deficit and so is not in a position to make a cash payment.

Total farm loans in the undivided state are about ₹1.37 lakh crore with the successor Andhra Pradesh accounting for around ₹87,000 crore of it. In 2008, the UPA government came out with the Agricultural Debt Waiver and Debt Relief Scheme, under which ₹71,000 crore of farm loans were written off. The Central government compensated the banks over a period of three years by issuing bonds.

The RBI has written to the two states pointing out that a blanket loan waiver benefits only defaulters and maintained that a waiver should instead be targeted at those who are economically distressed for reasons beyond their control. The RBI letter spoke about the spoiling of credit recovery culture and impairing of the "financial soundness" of banks.

The RBI is worried about a loan waiver on several counts. One, it will impact the repayment culture in the system. Andhra Pradesh farmers have already started defaulting on their loans after the announcement on loan waiver by the current ruling party TDP in the state before the elections. Secondly, the RBI fears that similar demands will come from other states especially states which are going into polls. Thirdly, gross NPAs of banks have already hit the 4.4% mark. The RBI is also worried that it will run a massive bonds programme from the Centre and States this year and any addition like loan waiver bonds will make bond prices slip massively.

Nabard plans to Raise ₹5k cr via tax-free bonds

The National Bank for Agriculture and Rural Development (Nabard) wants to raise ₹5,000 crore through tax-free bonds as it aims to augment resources and boost lending to activities such as protected farming and to the dairy sector to help tackle food inflation.

A tax-free status would make its bonds more attractive to investors and help reduce funding cost. The previous government had allowed a few infrastructure finance institutions to issue tax-free bonds."If we look at granularly, the most stubborn inflation is in staple vegetable, tomatoes, potatoes and onions and protein based items," Nabard chairman Harsh Kumar Bhanwala said. "We need to look at sustainable agriculture and encourage protected agriculture, which minimises the use of water and fertilisers... To encourage the flow of funds for such activities, we will lend at a rate 0.5% lower than the prevailing rate," he added.

The initial expense on protected farming is high, preventing many from using such methods. For instance, in greenhouse farming, the main cost is in the initial setting up of the structure in which plants are grown in a controlled environment. Such methods require less water and fertilisers, but yields are several times that of traditional farming. Nabard wants to offer concessional rates for production as well as post-production activities. It has initiated a pilot project to fund protected agriculture in Maharashtra for onion, in West Bengal for potatoes and in Haryana for tomatoes. "Warehousing funding for efficient use of milk, eggs and meat will also be encouraged," said Bhanwala. Nabard is expecting to allocate ₹5,000 crore for these activities.

This year, the institution also plans to enhance thrust on activities, including milk production, he said. The bank is prepared to face any liquidity or funding issue that may be triggered by El Nino, a climatic condition that is associated with lower rainfall in India and which is expected to be developing this year. Since more than 60% of the country's farmland is rain-fed, any shortage in rains could leave a big impact on agriculture and farmers' income, making it difficult for them to repay loans.

RBI norm to help credit companies act swift on wilful defaulters

The RBI will soon issue guidelines for banks and credit institutions to report data on wilful defaulters on a real-time basis, including cases where lenders have filed suit against borrowers and in non-suit filed cases, directly to credit information companies (CIC) such as CIBIL and to Sebi. The idea is to ensure information about

wilful defaulters reach all credit institutions and the concerned regulators on a real-time basis, without any delay. Reporting to Sebi is to ensure the promoters of such entities are prevented from raising money through the capital market route.

Credit institutions, which will be asked to follow the new guidelines include banks, financial institutions (FI), non-banking finance companies, housing finance companies, urban cooperative banks, regional rural banks and state financial corporations. At present, only banks and FIs submit information, and that too on a quarterly basis, to the RBI a list of defaulters of ₹1 crore and above (only non-suit filed accounts, that is cases where suits have not been filed but were classified as doubtful / loss accounts) and the list of wilful defaulters of ₹25 lakh and above (non-suit filed accounts). Banks and FIs also give to CIBIL information on wilful defaulters (only suit-filed cases, where lenders have filed suit against borrowers).

Doing away with this system, the new norms will mandate all credit institutions to report data regarding wilful defaulters in suit-filed and non-suit-filed cases a continuous basis directly to the CICs of which they (credit institutions) are members as well as to Sebi, official sources told FE. This is to prevent any delay in such report reaching CICs and Sebi. The CICs currently operating in the country include CIBIL, Experian, Equifax and Highmark. The inclusion of all credit institutions besides banks and FIs is to ensure that wilful defaulters do not resort to borrowing from them after being excluded from the banking system.

The credit institutions will have to provide the current and historical data on wilful defaulters to the CICs and other authorities. The CICs then will have to ensure that the data on suit-filed cases is placed on their websites in a user-friendly manner, enabling people to search across different periods, amount of money involved and credit institutions.

Co-operative banking system in Kerala gets flexible

Rural borrowers in Kerala can now heave a sign of relief with the co-operative banking system in the State shedding the rigidity in its lending process. This is to take on illegal companies that charge unacceptably high rates of interest from hapless borrowers. The co-operative sector introduced several changes recently. These include: interest rate cuts, relaxing the lending formalities, and a sharp rise in the loan limit. Primary co-operative credit societies that work at the village level will now function from 8 a.m. to 8 p.m. and remain open for half-day on Sundays. The norms for gold loans also have been

relaxed with a reduction in interest rates. These changes are also expected to give commercial banks a run for their money. The government has launched 'Operation Kubera' to stand up to the challenges posed by companies that charge cut-throat interest rates (known in local parlance as 'blade companies' or 'blades' for short).

"The main objective of cutting interest rates and relaxing lending norms is to loosen the 'blade' companies' stranglehold on the poor rural borrowers," KV Suresh Babu, Additional Registrar in the Co-operation Department of the Kerala Government, told. Though Kerala is one of the best-banked States, there exists a strong parallel illegal credit system, too. These 'blade companies' charge extremely high rates of interest, often ranging from 120% to 300% a year. These companies often employ goondas to recover money from the borrowers. Many murders, lynching and suicides are linked to these companies. Following the suicide of a five-member family, the Oommen Chandy Government launched Operation Kubera. The family, unable to repay their debts to a blade company and fearing attack, ended their lives.

The government has asked the co-operatives to enforce a time limit: loans up to ₹10,000 should be sanctioned within two days and bigger ones within 15 days. There is no need for personal guarantee for loans of ₹5,000. The maximum interest rate is 15% instead of the 16.5% earlier. Interest rates on gold loans have been slashed to 12%. "The changes in the lending norms and the cut in interest rates will encourage borrowers to come to co-operative banks for loans and dump the blade companies," Kurian Joy, President of the Kerala State Co-operative Bank, told.

Banks can publish photos of wilful defaulters

In a move that may discourage firms from defaulting on bank loans, the Supreme Court has allowed lenders to publish names and photographs of wilful defaulters in newspapers in the larger public interest. The apex court said that the decision to resort to this measure would be taken by officers of the rank of general managers and above.

By giving the ruling on the matter, a bench headed by justice Fakkir Mohamed Ibrahim Kalifulla upheld the Bombay High Court's November 2013 order that allowed State Bank of India (SBI) to publish names and photographs of directors and guarantors of Mumbai-based defaulter firm DJ Exim (India) in newspapers on the grounds that Rule 8 framed under the Securitisation Act specifically authorised the banks to publish the names and addresses of wilful defaulters and there is also no legal bar that prohibits them from publishing such information. The

SC accepted the bank's stand that the move does not violate the defaulter's right to privacy as the same is not absolute. From the bank's point of view, the duty to maintain secrecy is superseded by a larger public interest as well as by the bank's own interest under certain circumstances, it held.

In the past, while the Bombay, Madras and Madhya Pradesh HCs had allowed banks to publish the names and photographs of defaulters, the Calcutta and Kerala HCs held such moves as unconstitutional and impermissible in law while ruling on some cases.

Nabard planning NBFC arm to support farmers

To support farmers who organise themselves under producer organisations, the National Bank for Agriculture and Rural Development (Nabard) is considering setting up a wholly-owned non-banking finance company (NBFC). This move is aimed at complementing the efforts of the apex development bank to form and scale up farmer producer organisations (FPOs) under the aegis of the Producers Organisation Development Fund (PODF), which was set up in 2011.

Pointing to the trend of declining landholding per farm household due to rising population, Harsh Kumar Bhanwala, Chairman and Managing Director of Nabard, said it is important for small and marginal farmers to join forces under FPOs to get access to latest farm technology, inputs and services, and realise better value through aggregation and sale of their produce. "We are considering setting up an NBFC to support and finance producer organisations. Our board has had one round of discussion on this," said Bhanwala.

Initially, Nabard, which facilitates credit flow for promotion and development of segments such as agriculture, small-scale industries, cottage and village industries, will start the NBFC as a wholly-owned venture. Later, it will rope in banks as equity partners. Bhanwala said the proposed NBFC could have a seeding effect, encouraging other NBFCs to extend timely credit to producer organisations.

India has over 12.5 crore farmer households, of which, over 85% are small and marginal farmers with landholdings of less than two hectares. FPOs are important in the context of declining landholdings. The 2014-15 Union Budget has proposed to supplement Nabard's PODF with a sum of ₹200 crore which will be utilised for building 2,000 producer organisations across the country over the next two years. So far Nabard has financed 91 producer organisations to the tune of ₹236 crore.

"In the 1970s, the average size of landholding was 2.70 hectares. Now it is 1.16 hectares. This will

further decline...with landholdings getting fragmented, the production at the individual level is going to be small. "The farmer will find it difficult to establish linkages with the market and get a remunerative price for his produce due to the small quantity. So, farmers have to mobilise into groups at the village level to share resources and business activities," said the Nabard chief. Meanwhile, Nabard has signed a Memorandum of Understanding with Small Farmers' Agri-business Consortium (a society promoted by the Department of Agriculture and Cooperation) to jointly work for the development of producer organisations.

RBI issues draft guidelines for small and payment banks

The Reserve Bank of India (RBI announced draft guidelines for setting up of payments banks and small banks. A payments bank will only be allowed to accept deposits and transfer money from one account to another (undertake remittances) but will not be allowed to undertake lending activities. "Given that their primary role is to provide payments and remittance services and demand deposit products to small businesses and low-income households, payments banks will initially be restricted to holding a maximum balance of ₹1 lakh per customer," the RBI said.

A small bank, on the other hand, will be allowed to accept deposits as well as lend but its operations will be restricted to a select category of customers, such as small farmers and unorganised sector entities. Also, a small bank's operations will be limited to a well-defined area geographically, such as a State or a Union Territory, to give a very "local feel." Both the payments bank and the small bank promoters will have to keep their other financial and non-financial services separate. A payments bank and a small bank can be set up with an initial capital of at least ₹100 crore, each.

It said existing pre-paid instruments providers, non-banking finance companies, corporate Business Correspondents, mobile telephone companies, super-market chains, companies, real sector cooperatives and public sector entities can apply for a payments bank licence. Resident individuals/professionals with 10 years of experience in banking and finance, companies and societies will be eligible to set up small banks. In addition, existing NBFCs, Micro Finance Institutions (MFIs), and Local Area Banks can also opt for conversion to small banks, the RBI said.

Small banks may need at least ₹200 cr of capital: RBI

According to the central bank's new guidelines on new bank licences, the minimum capital requirement to set up a full-fledged bank is ₹500 crore. In the fresh guidelines for small banks, the

emphasis will be on providing basic banking facilities to customers. Smaller banks will help improve penetration in un-banked areas and mobilise resources. Also, as these won't need substantial infrastructure and staff, their operating expenses will be low.

While these entities will have to maintain a particular statutory liquidity ratio and cash reserve ratio, these might face restrictions on wholesale lending and foreign exchange business. To start with, restrictions could be put on the number of branches and the asset size; relaxation could be provided after a review of their performance. Also, the exposure limits for small banks could be lower than those offering full-fledged banking services. While the previous guidelines on local area banks brought under their jurisdiction two-three contiguous districts, small banks are likely to have restrictions in this regard. For instance, a small bank might not be allowed to expand beyond a large state, though it could be allowed to operate in multiple states in case these states are relatively small, such as those in the Northeast.

Following an announcement in the Budget in 1996, RBI had licensed six local area banks, of which two were shut, primarily due to mismanagement. The overall performance of existing local area banks hasn't been satisfactory, as these have become high-cost structures. As of March end, 2012, the cost-income ratios of the four local area banks ranged from 58.24% to 87.2%, according to RBI. In a discussion paper on banking structures in India released last year, RBI said it was open to allowing cooperative banks to function as local banks. Two urban cooperative banks Saraswat Bank and Shamrao Vithal Co-operative Bank have already started groundwork in this regard. As of March-end, 2013, there were 1,606 urban cooperative banks in India.

However, entities applying for such licences will be subject to stringent fit-and-proper criteria. Under the new bank licence norms, RBI has said banking aspirants should have a successful track record of at least 10 years. In the recent round of bank licences, the central bank had ignored entities facing investigations by various agencies. It had granted in-principle licences to only two entities infrastructure finance company IDFC and mircolender Bandhan.

GM crops may be allowed only if it is very essential: Agriculture Minister

India's new government will allow genetically modified (GM) crops into the country only if they are "very essential", agriculture minister Radha Mohan Singh said "I have spoken to government officials and feel GM technology is important. If it is very essential then

we will implement it," Singh said.

BT cotton, introduced in India in 2002, was the first GM crop to be grown in the country. In February this year, trials for GM crops were opened when the then environment minister Veerappa Moily cleared field trials for rice, wheat, maize and castor. Former agriculture minister Sharad Pawar, too, has been outspoken in stating that the use of bio-technology and field trials of GM crops with crop-specific dedicated monitoring protocols system was necessary for the country.

Radha Mohan Singh also said that his government will soon launch a "Gramin Sinchayi Yojana" (rural irrigation scheme) to extend irrigation coverage and reduce dependence on monsoon rains. At present, only 44% of India's 140 million hectare arable land is irrigated, the minister said. "This year, we are looking at a weak monsoon. It is not very worrisome as only few states might get deficient rainfall. However, we are geared up to face any eventuality," said Singh. To monitor and address the situation, the government was in touch with states to ensure availability of drought resistant seeds, provide weather updates and advisories for farmers, added Singh.

Muktsar to become district with 'zero' of straw burning

The National Bank for Agriculture and Rural Development (Nabard) has chalked out a comprehensive plan to make Muktsar in Punjab a district with 'zero burning' of paddy straw or crop residuals. The NGO 'Jawala Bai Trust' will be channel partner with Nabard in this endeavour.

Under the project, Nabard would launch a concerted awareness campaign to motivate the peasantry against burning the paddy straw and other crop residuals in 79 villages of district. Nabard had completed its pilot project successfully in 12 villages of district. Results of pilot project proved that farmers can save up to ₹5,000 per acre by not burning a paddy. The NGO will organize awareness camps where demonstrations of latest eco-friendly and money earning techniques of paddy straw management would also be given to farmers. Punjab government has been providing 50 % subsidy on purchase of Bailer machine to make bales of paddy straw. He said the burning of crop residual not only causes detrimental effect on the environment but it also burns lots of micro and macro nutrients from soil.

McKinsey's revival mantra for FCI finds little favour

Two key measures, the creation of a grain regulator and direct procurement from farmers, suggested by McKinsey for the Food

Corporation of India (FCI) seem to have failed to impress the government body. The consultancy firm was hired by the FCI to improve its functioning in 2005.

McKinsey had suggested the creation of an integrated grain regulator for ensuring a level-playing field for government agencies and private players and direct procurement of grains from the farmers, bypassing the mandis. Due to high taxation rate on grain procurement in mandis of Punjab and Haryana, the biggest contributor to central grain pool, the consultancy firm had suggested an incentive of ₹10 a quintal for direct procurement at the FCI godowns, bypassing taxes as high as 14.5% imposed at the mandis in Punjab and Haryana. "The direct procurement was not a success as farmers still prefer to bring their produce to mandis," FCI had stated in its status report.

An official with the food department of Punjab said middlemen in the mandis extend credit and other support to farmers for carrying out agricultural activities thus farmers prefer the mandi routes to sell their produce to the procurement agencies. Punjab and Haryana levy more than ₹10,000 crore on grain procurement, which is reflected in the food subsidy budget. McKinsey's suggestion for a grain regulator has not progressed further as the FCI, in collaboration with state agencies, purchase major chunk of grain from mandis in states such as Punjab, Haryana, Madhya Pradesh, Chhattisgarh and Orissa, driving out private players from grain trade.

"Reorienting the entire food security complex, from open-ended procurement to stocking and distribution through highly leaky PDS, needs to be revisited. It is a big-ticket item and needs some cool thinking within the government," said Ashok Gulati, chair professor (Agriculture), Indian Council for Research on International Economic Relations and former chairman of Commission for Agricultural Costs and Prices said. Some of the measures suggested by McKinsey had been implemented by FCI include refinancing of buffer stocks and receivables through issue of bonds, introduction of management information system, outsourcing of manpower in non-critical activities to private sector, decentralised procurement states and creation of price monitoring cell.

RBI eases address proof norms for opening bank accounts

In a relief to thousands of migrant workers and employees with transferable jobs, the Reserve Bank of India has said that a bank account can be opened with just one address proof, which can be either permanent or local. The banks, if they need to check the

address, can do so from a variety of sources including a receipt of a registered letter to even a "telephonic conversation". The relief makes the dream of walking into a bank and opening an account with just personal identification a reality for even the poorest of the citizens. Recently, the RBI had allowed minors of ten years and above to open full fledged bank accounts in their name independently.

"Henceforth, customers may submit only one documentary proof of address (either current or permanent) while opening a bank account or while undergoing periodic updation," the RBI said. This means a person from, say Bihar can open a bank account in Kerala using the address proof in his home state. Hitherto, banks used to insist on address proof of the place where the customer is residing. Essentially, the RBI has declared it will not bother with checking address proof once another agency, usually the government, has issued a certificate.

The Damodaran committee on customer service in banks, which submitted its report to the RBI in August 2011, had suggested simplification on these lines. "The poorer sections of people, migrants etc., with whom the committee interacted in different places in the country, desired a simple account which can be opened with a self attested photograph and address proof. This account may be upgraded to a basic account if the customer fulfills Know your customer (KYC) requirements. Wherever UID (Unique Identification) is introduced, it should be possible to open a no-frills account purely on the basis of (Aadhaar) with necessary validation.

The RBI has gone one step further, after a delay of three years. It has done away with even the requirement of producing an Aadhaar certificate in such cases. According to the central bank, in case a proof of address furnished by the customer is not the local address or the address where the customer is currently residing, the bank may take a declaration of the local address on which all correspondence will be made by the bank with the customer. "No proof is required to be submitted for such address for correspondence/local address" the RBI notification to banks read.

The address may be verified by the bank through 'positive confirmation' such as acknowledgment of receipt of letter, cheque books, ATM cards, telephonic conversation or visits. In the event of change in this address due to relocation or any other reason, customers may intimate the new address for correspondence to the bank within two weeks of such a change, it said.

Success story of Bihar's Sudha cooperative in NCERT book

The success story of Bihar's Sudha milk cooperative, which markets its products under the label "Sudha Dairy", has found place in the NCERT textbooks. Bihar State Cooperative Milk Producers' Federation (COMPFED) Managing Director Harjot Kaur said Sudha's success story has been published by the National Council of Educational Research and Training (NCERT) in its geography textbook for Class 8. "In a chapter on cooperative sector, Amul and Sudha are mentioned as shining examples of success in India," she said. Harjot Kaur said it is a positive development that a chapter on cooperatives has highlighted the achievements of Sudha in the textbooks.

The COMPFED was established in 1983, and is an enterprise of the Bihar government. The cooperative facilitates the procurement, processing, and marketing of the dairy products of Sudha, provides education to the unions on successful dairy processing, and assists in animal care, including artificial insemination, vaccination, and feeding.

Pilot scheme to allow drawals from semi-closed mobile wallets

The Reserve Bank of India has kicked off a pilot project that will allow a few mobile payment providers to test cash withdrawal facilities for a small portion of their semi-closed mobile wallet users. If the pilot goes smoothly, the central bank may permanently allow cash withdrawals, a move that could jump-start the slowly-growing mobile payments space.

Mobile wallets are digital products that can be loaded with cash, usually through a mobile payment provider or telecom operator such as Airtel or Vodafone, and can be used to purchase goods electronically. Semi-closed mobile wallets, which were once hailed as weapons of financial inclusion as they do not require the user to have a bank account, have one noticeable drawback: a user can add cash but can't draw it out.

The Reserve Bank has long-held the view that letting telecom operators to offer cash-out facilities for their mobile wallet users would allow the companies to bypass the banking system. According to people with direct knowledge of the matter, a number of pre-paid payment issuers (PPIs) have been petitioning the central bank to allow cash withdrawal facilities. The central bank has, therefore, decided to start a pilot that would allow pre-paid payment instruments such as mobile wallets to proliferate and in order to see whether it would throw up any security problems.

“The pilot has started, close to a month ago, along with seven other participants. What happens is that the sender and beneficiary's wallet

will be seeded with Aadhaar number. When the money transfer happens, the receiver, who does not have a bank account, can walk to a mRUPEE outlet and receive the cash after authenticating his identity with the biometric [fingerprint scanning],” Pradeep Kumar Sampath, COO-MMPL, a subsidiary of Tata Teleservices Limited, told. Tata Teleservices' mobile wallet payment-based service mRUPEE is one of the eight participants in the RBI pilot.

IMD to upgrade monsoon forecast model in India by 2017

In its quest to improve monsoon forecasting, the India Meteorological Department (IMD) will fully integrate the advanced dynamical model into its system over the next couple of years. Part of the government's ₹400 crore monsoon mission, the Met department has been concurrently using the dynamical as well as the existing statistical model for providing long-term monsoon rain forecast since 2012.

The department plans to use only the dynamical model for long as well as short range forecast by 2017, thus replacing the statistical model which had been proven to lack consistency and reliability. “This is an experimentation stage and last year, the dynamical model's forecast was accurate. We are building our capacities for operating the dynamical model at present,” Shailesh Nayak, secretary, ministry of earth sciences, told. Nayak said that last year, while the statistical model had predicted monsoon rains to be 98% of the long period average (LPA), calculated on the basis of a 50-year average rainfall of 89 cm, the dynamical model had predicted monsoon rains to be 106% of LPA, which was right on target.

This year, the dynamical model has predicted rains to be 96% of LPA in its second stage forecast, while the statistical model has predicted the monsoon to be 93% of LPA. IMD, in its second stage forecast, has predicted monsoons to be 95% of LPA. The statistical model makes seasonal climate forecast using data generated using information received from agencies in the US, Europe and Australia. Dynamical model of prediction involves mathematical simulation of the atmosphere on a computer, which needs skilled manpower.

The government had decided to upgrade the monsoon forecast system following IMD's inability to predict the severity of the deficiency in monsoon rains in 2009. In 2009, the IMD had given a forecast that monsoon would be 'normal' at 96% of LPA in its first prediction in April. In its second prediction, the department had said rainfall would be 93% of LPA, which was far off the mark.

RBI limits users' hit to ₹10k in online frauds

All those who have fought long, painful battles with their banks over online fraud through access to passwords can take some comfort. Victims should henceforth be much better protected from financial disaster, thanks to a new directive. Customers of such fraud will only be liable to the extent of ₹10000 the bank has to make good the rest of the amount. While the banks aren't too keen on the change and most are yet to formally accept it, they don't seem to have a choice. The Reserve Bank of India has the last word on banking rules and the directive is part of the code prepared by its Banking Codes and Standards Board of India (BCSBI) unit, which seeks to ensure that customers do not get a raw deal.

Banks are usually implacable when it comes to redressing such losses, asking customers to prove their innocence before restitution is made. The new code says that for any unauthorized internet banking transactions, the customer's liability is limited, irrespective of the funds moved out of the account. An unauthorized transaction is one that doesn't have the express and implied approval of the account holder.

"Where the customer has divulged the password or colluded directly or indirectly, the customer cannot disown the debit and is responsible for the transaction," said AC Mahajan, chairman, BCSBI. However, where he has neither contributed nor caused the debit or where he has notified or informed the bank about an unauthorized debit, the customer's liability is limited to maximum of ₹10000. Also, after notifying the bank he will not be liable for any unauthorized deals thereafter.

He added that third party manages to get hold of the user ID or password in an unauthorized manner and any debt takes place and which he notifies the bank, the maximum loss will be ₹10000. Also, the code says that the customer will not be liable for any loss due to unauthorized fund transfers taking before they receive the password for internet banking transactions. If the customer says that the unauthorized transfer of funds has been on account of a security breach by the bank and this is established, there will be no loss of money. Further the onus will be on the banks to establish that customers have compromised the secrecy of their password.

In some instances, the liability could be lower than ₹10000. The new code says that in the event of any unauthorized transactions this would be lower of the following options: the actual loss at the time of notifying the bank; the limit set for such transactions; the balance available for withdrawal; a maximum of ₹10000. For instance, if a customer has a balance of

₹5000 but the fraudster transfers ₹2500 by taking a temporary overdraft, the loss would be limited to the minimum balance of ₹5000 in the account.

Poverty definition immaterial for financial services, says RBI Governor

As the debate over the definition of poverty rages on, Reserve Bank of India (RBI) Governor Raghuram Rajan said descriptions didn't matter when it comes to financial services, which were unavailable for a large number of people. "It doesn't matter that we have a precise definition. There's so much demand for financial services in the country that we don't need to delineate 'you get it, you don't'. Everybody needs it," Rajan told.

"Just creating an environment in which it can expand is enough. We have to work on creating that environment. But we don't need to choose between people. Whoever can benefit, they should get it," Rajan added.

Some estimates pegging the percentage of the population untouched by financial services at nearly 50% have prompted the government and the RBI to start affirmative action through financial inclusion programmes. Former RBI governor and ex-chairman of the PMEAC Dr. C Rangarajan submitted a report on the Suresh Tendulkar Committee's methodology of estimating poverty to the Planning Commission. The report is expected to clear the ambiguity over the number of poor in the country.

Rural job scheme not creating labour shortage in agriculture: Govt

Using Census and other data, the Union Rural Development Ministry is defending itself against complaints that the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) has led to labour shortage, affecting agriculture. The data available with the Ministry say that during the peak agriculture season, just 2.57% of the total agricultural labourers were involved in MGNREGS activities. The data says that between August and September of the last two financial years, 13.46 crore person days were generated in the rural job guarantee scheme on an average in a month. Says Government, is just 2.57% of the total agriculture work in rural areas created in a month.

During the slack agriculture season, the scheme created 21.78 crore person days a month on an average, which is only 4.16% of the total person days. According to the 2011 Census, there are 34.85 crore workers in rural areas. Of these, 26.20 crore are involved in agriculture and allied activities and 72% of these are agriculture workers. The Census data also

showed that 524 crore person days are available for agriculture per month in rural India.

In the last two financial years, the MGNREGS had generated 230 crore and 220 crore person days respectively per month. "There is an issue that labourers are shifting from agriculture to other areas because agriculture has become unviable due to a variety of reasons, including higher input cost. The allegation that MGNREGS reduces labour supply for agriculture is from some groups of rich farmers. It is baseless," a senior officer in the Ministry told.

India has 100 million more poor: C Rangarajan Committee

The number of India's poor may rise by 100 million if the recommendations of the C Rangarajan committee on poverty are accepted by Govt. The Rangarajan committee, which has retained consumption expenditure as the basis for determining poverty, has pegged the total number of poor in the country at 363 million or 29.6% of the population against 269.8 million (21.9%) by the Suresh Tendulkar committee.

The previous UPA government had set up a technical expert group under Rangarajan in 2012 after all-round criticism that the poverty line had been pegged much lower than it should have been by the Tendulkar committee amidst demands to revisit the methodology. The poverty line is significant as social sector programmes are directed towards those below it and will be something that will factor into. The Rangarajan committee raised the daily per capita expenditure to ₹32 from ₹27 for the rural poor and to ₹47 from ₹33 for the urban poor, thus raising the poverty line based on the average monthly per capita expenditure to ₹972 in rural India and ₹1,407 in urban India.

The earlier methodology, devised by Tendulkar, had defined the poverty line at ₹816 and ₹1,000, respectively, based on the National Sample Survey Office (NSSO) data for 2011-12. Thus, for a family of five, the all-India poverty line in terms of consumption expenditure, as per the Rangarajan committee, would amount to ₹4,760 per month in rural areas and ₹7,035 per month in urban areas. The Tendulkar committee had pegged this at ₹4,080 and ₹5,000.

As per the Rangarajan committee, the percentage of people below the poverty line in 2011-12 was 30.95% in rural areas and 26.4% in urban areas as compared to 25.7% and 13.7%, according to the Tendulkar methodology. The respective ratios for the rural and urban areas were 41.8% and 25.7%, respectively, and 37.2% for the country as a whole in 2004-05. It was 50.1% in rural areas, 31.8% in urban areas and 45.3% for the

country as a whole in 1993-94. Experts said the difference could be explained by variations in assumptions, such as increased expenditure on health and education or following the system of developed countries where the poverty line is defined as a fraction of the average expenditure level or purely going by normative expenditure, thus ignoring actual expenditure on health and education.

RBI relaxes norms for Business Correspondents

To accelerate the flow of credit to those at the bottom of the pyramid, the Reserve Bank of India permitted banks to engage non-deposit taking non-banking finance companies (NBFC-ND) as Business Correspondents (BCs). Further, to enlarge the catchment area of BCs, the central bank has done away with the stipulation regarding the distance criteria between the place of business of a retail outlet/sub-agent of BC and the bank's base branch.

BCs usually offer services such as disbursal of small value credit; recovery of principal/collection of interest; collection of small-value deposits; sale of micro insurance/mutual fund products; pension products; other third-party products; receipt and delivery of small-value remittances; and other payment instruments. The RBI said banks can engage NBFC-ND as BCs only if they fulfil certain criteria, including ensuring that there is no co-mingling of bank funds and those of the NBFC-ND. Further, there should be a specific contractual arrangement between the bank and the NBFC-ND to ensure that all possible conflicts of interest are adequately addressed. Banks should also ensure that the NBFC-ND does not adopt any restrictive practices such as offering savings or remittance functions only to its own customers, and forced bundling of services offered by the NBFC-ND and the bank.

Over 5k bank officials face action in loan waiver scam

The government has initiated action against more than 5,400 bank officials related to irregularities in the agricultural debt waiver scheme. At least 6,823 ineligible beneficiaries have been detected so far and ₹627 crore recovered from them. In response to a question in Lok Sabha, finance minister Arun Jaitley said 6,823 ineligible beneficiaries were detected in the 2008-09 agriculture debt waiver scheme. He said action was initiated against 5,411 bank officials and 22 FIRs were registered. The minister informed the House that 80,299 cases were looked into and in about 6,823 cases, benefits of the scheme went to ineligible beneficiaries.

"All direct agricultural loans disbursed to farmers between

March 31, 1997 and March 31, 2007, overdue as on December 31, 2007, which remained unpaid until February 29, 2008 were covered under the scheme," Jaitley said. The farm debt waiver scheme was announced in the 2008-09 budget by the UPA-1 government. Implemented by RBI through public sector and local cooperative banks, the scheme benefitted more than 3.73 crore farmers to the extent of ₹52,259 crore. However, the Comptroller and Auditor General (CAG) carried out a performance audit, and in its sample study, it found irregularities which almost put a question mark on one-third of the total disbursements. After the CAG report was tabled in Parliament, the government asked RBI to take action against banks and officials who violated guidelines of the debt waiver scheme.

Crony capitalism a big threat

Reserve Bank of India governor Dr. Raghuram Rajan has warned against crony capitalism which he said creates oligarchies and slows down growth. "One of the greatest dangers to the growth of developing countries is the middle income trap, where crony capitalism creates oligarchies that slow down growth. If the debate during the elections is any pointer, this is a very real concern of the public in India today," said Rajan.

Rajan extolled the virtues of India's democracy before turning to its darker aspects. "An important issue in the recent election was whether we had substituted the crony socialism of the past with crony capitalism, where the rich and the influential are alleged to have received land, natural resources and spectrum in return for payoffs to venal politicians. By killing transparency and competition, crony capitalism is harmful to free enterprise, opportunity, and economic growth. And by substituting special interests for the public interest, it is harmful to democratic expression. If there is some truth to these perceptions of crony capitalism, a natural question is why people tolerate it. Why do they vote for the venal politician who perpetuates it?"

Rajan continued by saying, "One widely held hypothesis is that our country suffers from want of a 'few good men' in politics. This view is unfair to the many upstanding people in politics. But even assuming it is true, every so often we see the emergence of a group, usually upper middle class professionals, who want to clean up politics. But when these 'good' people stand for election, they tend to lose their deposits. Does the electorate really not want squeaky clean government?

Let the cloud help you on rainy days

Over the last few years, the term "cloud computing" has percolated to common parlance, but not everyone is still clear about what it means. Will one's data get wiped out if there is a storm in these "clouds"? So just to clarify, a "cloud server" basically means a remote network computer application, called the server, usually accessed through the internet. That's it. One of the earliest examples of a cloud server is Gmail, which lets you maintain quite a lot of data in your Gmail account which is saved on its servers across the world.

There are dual advantages: for one, you can share content, be it photos or presentations or even movie files. Secondly, you can use a cloud storage space to back up your files, which you can then access on the move via internet, and across devices. But the catch is also two-fold: one, you need a data plan. And the abysmally slow connectivity speeds make the whole experience extremely forgettable. Let us look at a couple of solutions for saving and backing up content, with a good mix of the physical disks and a network.

An external hard disk drive (HDD) is a great place to start your backup storage. With 500GB HDDs coming for as little as ₹ 3,500, the ₹7 per GB cost is so low that one should not think twice about it. But HDDs have their own problem you need to remember to back up in the first place, for even a hard disk drive can crash. This is where Crashplan comes in. Go to www.crashplan.com and download their free software (available both for Windows and Mac). Set up the program, defining what kind of files are backed up, how often, etc. If you buy the paid version, backup is done instantly, otherwise the maximum is daily. With the help of the software, the backup is done to the external HDD connected to your computer. But the programme also lets you take a backup of the backup on another computer, even a machine across the world.

What if you don't want your content on the cloud (remote Internet server), but still want to access it from anywhere? That too without keeping your computer switched on? Can you build your own personal cloud? You can. First, get a network-attached hard disk, such as Seagate Central or WD My Book Live. These connect to your home network over Ethernet (local area network technology). The advantage is that you can back up your computer from wherever you are in the house, and moreover, you can back up multiple computers to the same hard disk.

Recovering cheque-bounce money to get more tedious

Recovering money if a cheque bounces will now be a lot more tedious and costly. In a landmark judgment, the Supreme Court has

changed the ground rule under Section 138 of Negotiable Instruments Act to prosecute a person who had presented the cheque which bounced for insufficiency of funds. Earlier, a case under Section 138 could be initiated by the holder of the cheque at his place of business or residence. But, a bench of justices TS Thakur, Vikramjit Sen and C Nagappan ruled that the case has to be initiated at the place where the branch of the bank on which the cheque was drawn is located.

This means, if a man from Delhi gave a cheque drawn on a Delhi bank for buying something in Chennai and it bounced for insufficiency of funds, then the aggrieved person will have to travel all the way from Chennai to Delhi to initiate prosecution under Section 138. And the judgment would apply retrospectively. This means, lakhs of cases pending in various courts across the country would witness a interstate transfer of cheque bouncing cases.

Writing the judgment for the 3-judge bench, Justice Sen said: "We are quite alive to the magnitude of the impact that the present decision shall have to possibly lakhs of cases pending in various courts spanning across the country." However, the court said that in those cases where recording of evidence has started after issuance of summons to the accused, would continue to be tried at the place they were instituted.

Too-big-to-fail: RBI to start announcing D-SIBs from Aug '15

The Reserve Bank of India (RBI) released the framework for dealing with domestic systemically important banks (D-SIBs) the equivalent of too-big-to-fail banks names of which will be announced in August every year from 2015. Based on the data as of March 31, 2013, RBI expects about four to six banks to be designated as D-SIBs under various buckets.

The central bank said during the recent global crisis, it was observed that problems faced by certain large and highly interconnected financial institutions hampered the orderly functioning of the financial system, which in turn, affected the economy. “The government's intervention was considered necessary in many jurisdictions to ensure financial stability. Cost of public sector intervention and consequential increase in moral hazard require that future regulatory policies should aim at reducing the probability of failure of systemically important banks (SIBs) and the impact of the failure of these banks,” RBI said. The indicators which would be used for assessment of D-SIBs are size, interconnectedness, substitutability and complexity.

“Based on the sample of banks chosen for computation of their systemic importance, a relative composite systemic importance

score of the banks will be computed. RBI will determine a cut-off score beyond which banks will be considered as D-SIBs," RBI added. RBI also said that based on their systemic importance scores in ascending order, banks will be plotted into four different buckets and will be required to have additional common equity tier 1 capital requirement ranging from 0.20% to 0.80% of risk-weighted assets, depending upon the bucket they are plotted into. "D-SIBs will also be subjected to differentiated supervisory requirements and higher intensity of supervision based on risk they pose to the financial systems", the Central Bank said.

Skimming at ATM on the Rise

The next time you use an ATM, just tap it mildly before inserting your card. It could have a skimmer that would steal data from your card. There has been sharp rise in interstate gangs who target ATMs in different cities, warn police. One such gang was nabbed recently, bringing to light their modus operandi. Hi-tech skimmers (card readers) are inserted into ATM sockets, and tiny cameras are kept above the keypads to record all the action. Once this is done at a particular ATM, the fraudsters wait for four to five hours. "In busy hours/locations, about 50 customers would use cards in this time. After obtaining the data, the fraudsters print them on duplicate cards to draw money from other States/cities", the official explained.

RBI recognizing E-Aadhaar as an 'Officially Valid Document' under PML Rules

RBI/2013-14/660 DPSS. CO.AD. No. 2646 / 02.27.005 / 2013-14 June 20, 2014.

RBI has advised all System Providers, System Participants and Prepaid Payment Instrument Issuers to revise their KYC Policy by Recognizing E- Aadhaar as an 'Officially Valid Document' under Prevention of Money Laundering Rules. The circular states as under:

1. "Please refer to our circular DPSS.CO.AD.No.919/02.27.005/2013-14, dated October 25, 2013, advising the acceptance of e-KYC of UIDAI as a valid process for KYC verification under the Prevention of Money Laundering (Maintenance of Records) Rules, 2005.
2. In this regard, we are enclosing a copy of circular DBOD.AML.BC.No.100/14.01.001/2013-14 dated March 4, 2014 (ref. RBI/2013-14/510) issued by Department of Banking Operations and Development, Central Office on the above subject.
3. It is advised that the instructions contained therein with

respect to e-Aadhaar downloaded from UIDAI website may be followed by all payment system participants/operators. They should note the contents of the circular and ensure strict adherence. The Payment System Operators authorized under the Payment and Settlement Systems Act, 2007 (PSS Act) may revise their KYC policy accordingly and ensure strict adherence.

RBI plans 'on tap' bank licensing

The Reserve Bank of India (RBI) plans to offer banking licences 'on tap' after it revises and issues guidelines on setting up banks in the country. The banking regulator has been issuing licences in a bunch at periodic intervals. "We are working on the guidelines on new bank licensing. The new guidelines on types of banks, universal, differentiated, etc, will be issued shortly. After these are issued, we intend to offer licences on tap, said " RBI's deputy governor R Gandhi.

RBI notifies The Depositor Education and Awareness Fund Scheme, 2014

The Depositor Education and Awareness Fund Scheme 2014 was finalized by RBI and forwarded to Government of India for notifying in the Official Gazette. It had earlier advised all banks to prepare themselves to take necessary action as the scheme would be effective on the date of Notification in the Official Gazette. The scheme has been notified in the Official Gazette on May 24, 2014. Under the Scheme, the amount to the credit of any account in India with any bank which has not been operated upon for a period of ten years or any amount remaining unclaimed for more than ten years, shall be credited to the Fund, within a period of three months from the expiry of the period of ten years. The Fund shall be utilized for promotion of depositors' interest and for such other purposes which may be necessary for the promotion of depositors' interest.

Banks shall calculate the cumulative balances in all accounts along with interest accrued, as on the day prior to the effective date, i.e, May 23, 2014 and such amounts due should be transferred to the Depositor Education and Awareness Fund (Fund) on June 30, 2014 before the close of banking hours. Subsequently, the banks shall transfer to the Fund the amounts becoming due in each calendar month, (i.e., proceeds of the inoperative accounts and balances remaining unclaimed for ten years or more) as specified in the Scheme, and the interest accrued there on the last working day of the subsequent month. banks shall remit the amounts due

(as defined in the Scheme), in electronic form through portal facility of the E-Kuber (Core Banking Solution) of Reserve Bank of India (RBI), to a designated account created for the Scheme, viz., "DEAF Account 161001006009". All banks are advised to generate a single entry for remitting the amounts to the Fund. Accordingly, the amount required to be transferred to the Fund as per the Scheme, can be credited to the Depositor Education and Awareness Fund (DEAF) Account specified above, maintained with RBI (within banking hours) on the last working day of the month. Further each bank has been allotted a unique "Bank DEAF Code" by the RBI, for operating the Fund. Every bank remitting amount to the DEAF Account should indicate its unique "Bank DEAF Code". RBI has issued the operational guidelines to the bank in this regard. These guidelines are available on RBI website (http://notifics.org.in)

Nabard microfinance arm in expansion mode

The National Bank for Agriculture and Rural Development (Nabard) will scale up the business of its microfinance arm Nabard Financial Services (Nabfins) to become a national-level player. Nabfins, a 68% non-banking finance subsidiary of Nabard, consolidated its operations in southern states such as Tamil Nadu and Karnataka and expanded in Maharashtra in 2013-14.

Harsh Bhanwala, Chairman, Nabard, said, "Nabfins would become an all-India organisation. It has identified areas in Odisha, Jharkhand, Rajasthan and Madhya Pradesh for starting operations". Nabfins lends money to self-help groups and works on thin margins, with lending rates in the range of 15-16.75% against the RBI cap of 26%. The microfinance company reported net profit of ₹18 crore in FY14 up from ₹8.42 crore in 2012-13. Its outstanding loan book grew to ₹644 crore by March-end this year from ₹412 a year ago. It plans to grow book to ₹1,000 crore over the next two years, the Nabard chief said.

An agricultural school named after an exemplary farmer

In many agricultural Universities and colleges it is common to see buildings named after some illustrious personalities. But in a small village called Settukkunnu in Pozuthana Grama Panchayat, Wayanad, a farming school has been named after a progressive farmer called Mr. Eldho Baby. The M.S. Swaminathan Research Foundation in Kalpetta, Wayanad, realised the potential of Mr. Baby who through his contagious positive attitude towards natural system of farming, was able to influence several farmers in the

area to take up organic cultivation. As an honour for him we decided to construct a school in his land, and named it after him. "Till date nearly 2,000 people have visited the farm school including visitors from foreign nations such as Britain, Estonia and Russia. The school is operating with the financial support provided by a nationalised bank," says Mr. N. Anil Kumar, Director of the Institute.

With just an acre bordered by thick forests on all four sides, Mr. Baby is able to generate ₹40,000 a month from his farm. Major crops cultivated are coffee, areca nut, pepper, ginger, turmeric and cardamon. Annual crops like broccoli, cauliflower, cabbage, carrot, cow pea, brinjal, tomato and amaranths generate daily income. In addition the farmer maintains thirteen cows, three goats, eight units of rabbits and 20 poultry birds. The waste generated from the dairy and goat units are used for biogas generation. An electric pump is using to pump the biogas slurry to the fields. Since the farm is surrounded by thick forests, attack from wild animals like elephants, monkeys and boars are a regular occurrence.

Every farmer has to find his own marketing strategies to sell his products, otherwise farming will not be easy, according to him. "In my farm I am selling 3-4 weeks old poultry chicks instead of eggs. This fetches me a good income as an egg gets only three rupees but a chick gets ₹50. I start planting vegetables only after ascertaining that there is a good market for them." The farmer has been successful in creating a name called Eldho Baby farm products in the surrounding areas and buyers readily purchase the products at premium prices.

RBI authorises three non-bank entities for white label ATMs

The Reserve Bank of India has recently issued Certificates of Authorisation to the following three non-bank entities for setting up and operating White Label ATMs (WLAs) in India:

1. BTI Payments Private Limited, Bangalore
2. Srei Infrastructure Finance Limited, Kolkata
3. RiddiSiddhi Bullions Limited, Mumbai

This is in addition to the four entities already authorised to operate as WLAs, viz Tata Communications Payment Solutions Limited, Mumbai, Prizm Payment Services Pvt. Ltd., Mumbai, Muthoot Finance Limited, Kochi and Vakrangee Limited, Mumbai.

It may be recalled that in June 2012, the Reserve Bank of India had issued policy guidelines permitting non-bank entities to set up and operate WLAs in the country after seeking authorisation under the Payment and Settlement Systems Act, 2007. Till then only banks were permitted to set up and operate ATMs in India. The primary objective of permitting non-banks

to operate WLAs was to enhance the spread of ATMs in semi-urban and rural areas, mainly tier III to VI areas, where bank owned ATM penetration was not growing. Under the new guidelines, certain minimum number of WLAs need to be installed in these areas in three years as per the scheme opted by the respective operator.

Alert customers on fraud remittance schemes: RBI

To ensure that customers do not fall prey to fraudulent schemes promising cheaper funds from abroad, the Reserve Bank of India wants banks to consider prominently displaying messages cautioning them about the schemes on their websites as well as branch/ATM locations. The central bank also said banks could consider incorporating a column on "reason/ purpose for payment" in pay-in slips so that officials could advise customers not to remit money to fraudsters who float fraudulent schemes. The fraudulent schemes are floated under different names such as money circulation scheme or remittances for the purpose of securing prize money/awards.

The RBI said it has come across a spate of fictitious offers of cheap funds in recent times from the fraudsters through letters, e-mails, mobile phones, and SMS. Communications on fake letterheads of the RBI and purportedly signed by its top executives / senior officials are also being sent to targeted people. Fraudsters are seeking money from the gullible people, under different heads, such as, processing fees/ transaction fees/ tax clearance charges/ conversion charges, clearing fees, etc. The victims of the fraud have also been persuaded to deposit the amount in accounts with banks in India, and such amounts have been withdrawn immediately. The RBI has been alerting the public about such fictitious schemes/ offers, through the print and the electronic media and other public education campaigns.

The central bank has cautioned that any person resident in India collecting and effecting/remitting such payments directly/ indirectly outside India would make himself/ herself liable to be proceeded against with, for contravention of the Foreign Exchange Management Act, 1999 besides being liable for violation of regulations relating to Know Your Customer (KYC) norms/Anti Money Laundering (AML) standards.

Give up control in State Banks: Nayak panel to Govt

A Reserve Bank of India (RBI)-appointed panel, headed by former Axis Bank chairman PJ Nayak, has recommended radical reforms for Indian banks. It suggested the government to transfer all its stake

and powers in public sector banks (PSBs) to a separate entity, to be known as bank investment company (BIC).

The panel suggested the government either privatise or merge the banks it owned, or design a radically new governance structure to allow PSBs to compete successfully and avoid excessive dependence on government recapitalisation. It also recommended all existing laws governing the lenders - the Nationalisation Act, the State Bank of India Act, etc - be repealed and banks be governed by the Companies Act.

The committee proposed the BIC be constituted as a core investment company under RBI regulations and the character of its business "make it resemble a passive sovereign wealth fund for government banks". It added the entity should be headed by a professional banker or a private equity investment professional, to be appointed after a search process. Investment returns should be the yardstick to evaluate the BIC chief's performance, the panel said.

It has also recommended the government cut its stake in PSBs to less than 50% so that there was a level playing field for these banks in matters of vigilance enforcement, employee compensation and applicability of the Right to Information. Stake dilution was also recommended keeping in mind the government's increasing fiscal burden. For private banks, a special category of investors, authorised bank investors (ABIs), was recommended. This segment, it was proposed, would have diversified investors and be discretionally managed by 'fit and proper' fund managers. ABIs could hold up to 20% stake in a bank, without prior approval, and 15% with voting rights, it was said.

Any entity should be allowed to own 10% stake in private banks without RBI approval, compared with the current 5%, the panel said. Promoters should be allowed to hold 25%, compared with 15% under the new bank licence norms, it added. "The principle of proportionate voting rights should constitute part of the regulatory bedrock that fosters good governance," the report said, adding for distressed banks, private equity funds, including sovereign wealth funds, should be allowed to take a controlling stake of up to 40%.

RBI circular on Treatment of RIDF and certain other funds under priority sector

RBI/2013-14/591 RPCD.CO.Plan. BC 101 / 04.09.01 / 2013-14 May 15, 2014. "Outstanding deposits placed by scheduled commercial banks under Rural Infrastructure Development Fund (RIDF) and some other funds with NABARD, on account of their shortfall in lending to priority sector as part of indirect agriculture under priority sector classification, RBI said in a notification. Accordingly,

the outstanding deposits as on March 31st of the current year under RIDF, Warehouse Infrastructure Fund, Short Term Co-operative Rural Credit Refinance Fund and Short Term RRB Fund with NABARD will be treated as part of indirect agriculture and will count towards overall priority sector target achievement. The outstanding deposits under the above funds with NABARD as on preceding March 31st will form part of Adjusted Net Bank Credit.

These guidelines are applicable with effect from March 31, 2014. The paragraph (II) (iii) of the master circular RPCD.CO.Plan.BC 9 /04.09.01/2013-14 July 01, 2013 on computation of ANBC is amended accordingly.

Shri S.S. Mundra takes over as RBI Deputy Governor

Shri S.S. Mundra Chairman and Managing Director, Bank of Baroda, has been appointed Deputy Governor of the Reserve Bank of India for a period of three years. As Deputy Governor, Shri Mundra will look after banking supervision, currency management, financial stability, rural credit, customer service, as also, the Reserve Bank's human resources and security.

Changes in ARDBs

i) Shri Nityananda Rout, has assumed charge as Managing Director I/C of the Odisha State Cooperative Agricultural & Rural Development Bank Ltd., w.e.f. 21st August 2014.

More than just honey

Beekeeping has come to mean more than producing honey in Punjab, the country's largest producer in any case. Some 33,000 beekeepers have diversified into allied products such as royal jelly, bee venom and beeswax, besides breeding queen bees and renting bee colonies for pollination of crops. And these have been fetching them returns several times what honey does, they say. The average honey yield in Punjab is 35 kg per bee colony per year, with a maximum 80,000 bees. The average national yield is 15.32 kg per colony per year and the average international yield 28 kg per colony per year.

It is in producing other high-value products that Punjab has ground to cover. Apart from Punjab Agricultural University (PAU), the agriculture department and Krishi Vigyan Kendras disseminate beekeeping techniques. The government formed in August 2013 the Punjab Beekeeping Development and Promotion Board, chaired by CM Parkash Singh Badal, and which has trained around 2,200 beekeepers. Sarwan Singh Chandhi, winner of a state award for honey production, has been breeding and supplying queen bees to many states. "I imported a queen bee producing kit from UK and started producing queen bees. There is only one queen bee in a colony, which can have a maximum 80,000 bees," says Chandhi, also president of Progressive Beekeepers Association. A colony comprises the queen, worker bees and some drones, which mate with the queen and die. The queen has a lifespan of two to five years, a worker bee of 45 days and a drone of two to three months.

A "queen kit" can produce 200 to 300 queen bees in 20 days and each can fetch ₹200 to ₹500 depending on the season, spring being the best. This means the farmer can earn ₹40,000 to ₹1.5 lakh from the queen bees bred. "If we can earn ₹2,000 per year per box from honey, we can earn lakhs per box per year from queen bees and royal jelly," says Chandhi. For honey producers, the government has asked its horticulture department to add a 25% subsidy to the 50% given under the National Horticulture Mission. But Chandhi says, "We need imported equipment which is costly. The government should subsidise imports too."

Royal jelly is used in medicine, cosmetics and as a dietary supplement. Its price from country to country varies from ₹4,000 to 5,000 a kg, and ₹1.5 lakh to 1.8 lakh if processed or frozen. Half a kilo royal jelly can be extracted from a box per year. China and Taiwan are major exporters. Madan Sharma, general secretary of Progressive Beekeepers Association, who started producing bee venom for the first time in the

state, says he bought the equipment for ₹40,000 and can produce half to one gram venom a day but would need more equipment and government support to improve. Bee venom's price varies from ₹10,000 to ₹12,000 a gm and it is used to treat 64 ailments, says Dr Vashisht.

Sharma says everyday around 25 gm pollen can be collected from one colony and they sell at $ 900/kg, said experts. Propolis is used in human and veterinary medicine and its price varies from ₹500 to ₹2,000 a kg. Pawan Kumar of Hajipur village in Hoshiarpur district, who produces beeswax along with honey, says the former is used in making candles, shoe polish, cosmetics, crayons, metal casting, vehicle and floor polish, varnish, gum, carbon paper, electrical appliances, fabric industry, and food processing and packaging. It sells at ₹300 to 350 per kg. It can be eaten too, he says. He also provides 175 boxes of bees to farmers in Rajasthan for pollination. Honey bees are good pollinating agents. In India, there is a great demand of bee colonies for pollination of apples, other fruits and hybrid vegetables and oilseeds. "Bee pollination results in a yield appreciation for citrus, guava, litchi, sunflower, berseem and raya," says Dr Naresh Gulati, deputy director, Agriculture Development and Technology Agency.

Rearing ducks in polythene pond proves rewarding

It is usual for landless labourers or small farmers who rear ducks to herd the flock everyday towards some water source in the morning and return during evening. But a new model of duck rearing promises to be different. The model has been tested in Sambalpur, Mayurbhanj, Keonjhar and Khurda districts of Odisha among 150 farmers and can be successfully replicated in other places.

A rectangular (6ft x 4ft) or square (5ft x 5ft) pit of 1.5-2.0 ft depth is dug on the ground and the inner sides completely lined with a thick polythene sheet of 7-8 feet width. The outer edge of the sheet should be properly secured using large stones so that the sheet doesn't slip inwards when the pit is filled with water. About 300 litres of water is required to fill the pit of this size. Once every 10 days about half the water needs to be changed. A small duck house of 10ft x 5 ft is built using locally available materials. About 25 day-old ducklings (Khaki Campbell breed for laying) are introduced inside the duck house.

In other States, farmers can take the help of the local veterinarians to know what breeds are suitable for them. One 100 watt electric bulb must be provided to maintain brooding temperature. Dry rice husk or sand is used to line the floor of the house. Duck mash/feed

(wheat based) soaked in water is kept as feed in a plastic bowl. Clean drinking water is made available daily. After 10 days of brooding, the ducklings are left to roam outside the duck house in order to make the birds accustomed to the environment within a confined area where water in a trough and feed are available.

At 3-4 weeks of age, grown up ducklings are allowed to enter the polythene pond. Leftover food and kitchen waste, mixed with water can be offered to the ducks daily. But this should be kept in bowls and not thrown into the pond. Soaked, half-boiled broken rice and wheat in the ratio 1:1 at the rate of 50-60gm per bird needs to be supplemented as additional nutrition for the birds. There is no need to provide any commercial feed for the birds.

Adult ducks are allowed to graze outside and utilise the pond when they want to use it. At about five months the females start laying eggs. During this time a few wide-mouth earthen pots are placed inside the duck house. The birds are to be let loose during late morning so that eggs will be laid inside the house only and not anywhere else. Ducklings hatch in 24 days and from the 10th day onwards need to dip their heads inside the water kept in the bowls or pond so as to clean the eyes. "It is a natural habit among the birds to prevent blindness. So it is important that care is taken to maintain the water purity and it is cleaned well. Drakes (male ducks) can be sold for their meat between 3 and 4 months. This spares the feeding resources to laying ducks," says Dr. Giri.

Vaccination against plague and cholera is to be done within the first two to three months. Protection against snakes and predators must be taken by the concerned farmer. Regarding the investment Dr. Giri says, "all it requires is about ₹1,000 for setting up such a unit. Cost of polythene (3mt/pond at ₹55 per metre) comes to ₹155, cost of purchasing 25 ducklings (at ₹15 per day old ducklings is ₹375.) Feed cost during brooding at 10 kg for ₹24 per kg is ₹240. Other miscellaneous costs come to about ₹250 (₹10 per bird). Total expense is ₹1,020.

Income from selling male live bird (10 nos at ₹300 each) is ₹3,000. Eggs are sold at ₹5 each (about 240 eggs from 10 birds) comes to ₹12,000. Income from sale of female birds at ₹200 each is ₹2,000. Totally the gross income is approximately ₹17,000 within a year and half. Net profit is ₹15,980. A duck can lay eggs for three years with a certain gap between every year. However, farmers are advised to dispose of the birds after one year and go in for new ones.

Management of pigeonpea podborer

Pigeonpea is one of the most important pulse crops in India. Despite the fact that a large number of high yielding varieties have been released, productivity of this crop remains stagnant at around 700 kg/ha as compared to its potential yield (1500-3000 kg/ha, early long duration).

As pigeonpea is grown under a wide variety of agroclimatic conditions and under varied cropping systems of different maturities, it is susceptible to many pest attacks. About 250 species of insects attack this crop. Early or vegetative pests do not cause huge damage. However, those which attack the flowers and pod borers are the major pests. Major pod borings pests are: grampod borer, plume moth, spotted pod borer, spiny pod borer, field bean pod borer, redgram podfly or Tur pod fly.

Grampod borer larva feeds on pods. Plume moth's green or greenish brown spiny larva enters the pod partially, and eats the seeds. Spotted pod borer larva is dull white or yellowish caterpillar that feeds on the leaves. Spiny pod borer cause shedding of flowers and young pods. Older pods are marked with a brown spot (rotten patch) due to the buildup of faeces inside the pod. If the pods are split open the larva can be seen. Field bean pod borer larva is green coloured and bores holes on the pods; Pale greenish or yellowish flat larva of blue butterflies feed on flower buds, flowers and young pods, Podfly causes the pods to shrivel and partially eaten seeds are signs of this infestation.

- Remove the weeds.Collect and destroy the egg masses and pupae.
- Set up bird perches at 50 perches for a hectare. Set up a light trap to monitor, attract and kill the pod borer moths.
- Set up pheromone traps at 12 traps/ha to reduce grampod borer. Mechanically collect grown up larva. Release egg parasite, Trichogramma spp and egg larval parasite.

Apply any one of the following insecticides like Azadirachtin 0.03% WSP 2500-5000 g/ha.

Maximum crop varieties increase income from small farms

A farm whether in one acre or a few acres must encompass as many crop varieties as possible and also some animals to be remunerative. Monocropping (growing only one crop) is now a fading practice among several farmers since they are realising that for their economic safety and better returns it is important to grow additional crops. “In some areas in Madhya Pradesh farmers grow a main crop in a major area and other short term vegetable crops in smaller areas. Others equally divide the fields and grow different varieties. Some like Mr.

Chander Singh having four acres along with regular crops like maize and soya also grow mangoes and trees like teak," says Dr. I.S. Tomar, Programme Coordinator, Krishi Vigyan Kendra, Jabhua, Madhya Pradesh.

Mr. Chander Singh had approached the Jabhua KVK in his region for proper guidance. The farmer wanted to know ways to make his four acre productive and profitable. Today, thanks to the institute's intervention, Mr. Singh is well known in the region for getting a bumper harvest in ginger. "I was advised to try growing ginger initially in my two acres. The KVK guided me on ways to ready the fields, labour, seeds and other inputs. I spent ₹50,000 for all the work and harvested the crop in six to seven months. I earned a net profit of ₹2.80 lakhs from selling the fresh rizhomes in the local market.

"The KVK staff also advised me to store some of the rhizomes to be sold later as dry ginger when prices rise, since dry ginger has got a good export market. I did so accordingly and benefited," says the farmer. The farmer is also growing mallika, aamrapali, keshar, and neelam mango varieties in two acres. Vegetables like onion, cauliflower, cabbage, chilli etc are grown as intercrops in the orchard. "For orchards especially, it takes a minimum of 4-5 years for the trees to start bearing fruits so in the meantime it is remunerative to grow some short term vegetables as intercrops for generating income," says Mr. Singh.

Today the farmer is able to earn more than a ₹1 lakh a year from the intercrops and about ₹ 2 lakhs from his mangoes every alternate year. The farmer planted teak trees in three rows on the border of his four acre field. The trees act as wind breakers and protect the crops against heat waves and stormy winds. Under the shade of the teak trees he grows cucurbit crops. The trees, apart from providing shade, provide revenue after some years when they can be cut for wood.

"The speciality about the farmer is that not even a small space in his field is left free. Crops are practically grown in all the available space to generate income. Before the intervention the farmer's annual income was not consistent, sometimes he used the leave his fields fallow too," says Dr. Tomar. The Indian Council of Agricultural Research, (ICAR), New Delhi invited Mr. Singh for a national seminar where he was asked to speak about his experiences to scientists and farmers who had come from different states.

The Madhya Pradesh State Biodiversity Board, Bhopal conferred on him the "Best Biodiversity Horticulturist" award in 2011. The best progressive farmer award in the district was also conferred on him by the Government.

Management of bacterial blight of Rice

Bacterial blight is a major disease of rice. The disease is observed in both seedlings and older plants. On seedlings, infected leaves turn greyish green in colour and roll up. Appearance of a milky or opaque dewdrop on young lesions early in the morning is one sign of infestation. The entire plant wilts. The infected field should be kept well drained soon after infection is detected (in conventionally flooded crops). Apply potassic fertilizer in two split doses at tillering and pre-flowering stages.

Avoid using high doses of nitrogenous fertilizers. Go for judicious application. Apply nitrogen fertilizer in three split doses, 50% basal, 25% in tillering phase and 25% nitrogen in panicle initiation stage. Use fresh cow dung slurry at 2kg/10 litres of water, strain it in fine cloth and spray at an interval of 7-10 days 3-4 times at 500 litres/ha. Keep fields clean remove weed hosts and plough well.

Use of resistant varieties like ajaya, asha, biraj, CO-43, gobind, IR-64, janaki, PR-4141, radha, sona mahsuri, sujata, suraj, swarna, udaya, swarna radha, prasad gobind and pant dhan 4 IR-20 prevents this infestation. Reduce the disease spread by careful handling of seedlings during transplanting, maintain shallow water in nurseries.

Use only disease free seedlings. *Pseudomonas fluorescens and Bacillus* strain 3 FZB42 are found effective against this infestation.

Soak the seeds with a solution of plantomycin 10gms or streptocyclin 1.5gms and copper oxychloride 25gms in 10 litres of water. Spray the affected crop with the same chemicals at 500 litres /ha at 7-10 days intervals 2-3 times on need basis.Streptomycin sulphate and copper oxychloride have been found superior for reducing the infestattion and increasing grain and straw yield.

Regulating genetic modification

It is 61 years since the beginning of new genetics based on the discovery of the double helix structure of the DNA molecule. It is also 31 years since the production of transgenic plants. The first patent for a living organism went to Dr. Anand Chakraborty who, through recombinant DNA technology, developed an organism to clean up oil spills. The fields of medicine, industry, environment and agriculture have reaped the benefits of the science of molecular genetics. In medicine, it has led to new vaccines, insulin and genetic medicine. The major concern in medical genetics is one of ethics, an example being the application of recombinant DNA technology for reproductive cloning.

Therapeutic cloning, on the other hand, has been welcomed. Growing pollution of ground and

river water has created great interest in bioremediation methodologies in the field of environmental biotechnology. It is only in food and agricultural biotechnology that there are concerns about biosafety, environmental safety, biodiversity loss and human and farm animal health.

In technologies which share benefits and risks, it is important to have regulatory mechanisms which can help to analyse risks and benefits in an impartial and professionally competent manner. It is the same in the case of nuclear energy. This is why the government introduced a Biotechnology Regulatory Authority Bill in Parliament.

The Agricultural Biotechnology Committee which I chaired in 2003 and which submitted its report early in 2004 had recommended a Parliament approved regulatory agency as well as the necessary infrastructure for conducting all India coordinated trials with genetically modified organisms (GMO). The necessary precautions, such as the needed isolation as well as demonstration of the importance of refuge, should be undertaken under this project. As 10 years have passed since this recommendation was made, we should lose no further time in implementing it. There must be a trial and safety assessment system which answers the concerns of anti-GMO non-governmental organisations. The present moratorium on field trials with recombinant DNA material is a handicap as well as a disincentive in harnessing the benefits of the wide array of transgenic material available with various research organisations and universities. Many of the GMOs in the breeders' assembly line have excellent qualities for resistance to biotic and abiotic stresses as well as improved nutrition. Much of this work has been done in institutions committed to public good. Also, much of the work has been done by young scientists, discouraged now because of the lack of a clear official signal on the future of genetic modification.

As agriculture is a state subject, State agricultural universities and State departments of agriculture should be involved in the design and implementation of field trials. It takes nearly 10 years time for a new variety to be ready for recommendation to farmers. Therefore, speed is of the essence in organising field trials and getting reliable data on risks and benefits.

The return from investments in biotechnology research is very high. Bt cotton research might have resulted in a profit of over ₹50,000 crore, as compared to the total expenditure of about ₹100 crore in such research. Public sector institutions should concentrate on the development of high yielding and disease resistant varieties, while obviously the private sector will only produce hybrids whose

seeds will have to be brought every year by farmers. A joint strategy by public and private sectors will help to ensure the inclusiveness of access to improved technologies among all farmers.

Nutrition security involves paying attention to balanced diets (both macro and micronutrients), clean drinking water, sanitation, primary health care and nutrition literacy. While the Food Security Act 2013 will ensure that all needing social protection against hunger will be able to get the needed calories, other nutritional problems such as protein hunger and hidden hunger caused by the deficiency of micro-nutrients will need similar attention. Thus, while working for nutritional security, both food and non-food factors, particularly drinking water and sanitation will require concurrent attention.

Biofortification also needs our attention. Naturally biofortified crops like yellow flesh sweet potato, drumstick, amla, breadfruit, etc should be popularised in nutrition gardens and agro forestry systems. Biofortified crops developed by selection and breeding like iron rich bajra should also become available.

There is need for a pan-India political support to promote genetic engineering research. Every research institution should have a project selection committee to examine whether recombinant DNA technology is necessary to achieve the desired breeding goal. In many cases, marker assisted selection would be adequate for developing a variety with the necessary characters. Recombinant DNA technology should be resorted to only when there is no other way of achieving the desired objective.

Translational research needs greater attention for converting scientific know-how into farmers' do-how. Culinary and organoleptic characteristics of new varieties should be examined with the help of home science colleges. There is increasing interest in organic farming. Organic farming certification procedures permit the use of marker assisted selection.

Several States want to become organic farming states. ICAR should explain the pre-requisites for successful organic farming, such as the availability of adequate organic manure and plant protection measures which do not need synthetic pesticides. There has to be a methodology to face the challenge of the unholy triple alliance of pests, pathogens and weeds on organic farms.

Biodiversity is the feedstock of the biotechnology industry. Therefore, the conservation and sustainable and equitable use of biodiversity should be a major concern of biotechnologists. Krishi Vigyan Kendras should have the capability of offering scientifically credible advice to farmers on GMOs. The academy should set up two committees on the public understanding of science and the

political understanding of science on the pattern of such committees set up by the Royal Society of London.

Media resource centres should be set up to give up-to-date scientific information to media representatives. Village knowledge centres should be utilised for spreading correct information on GMOs.

Countries like the United States have effective regulatory mechanisms supported by scientific infrastructure. In the U.S., three agencies The Environmental Protection Agency (EPA), Food and Drug Administration (FDA) and Agricultural Plant Health Inspection Service (APHIS) are concerned with regulations and work as a team while examining and clearing the safety aspects of GMOs. It is time to have a professionally managed and coordinated efficient regulatory mechanism. The academy should facilitate the early removal of the moratorium on field trials by ensuring that such trials will be conducted under safe conditions.

Improved white ponni rice variety

Ponni variety has been popular among Tamil Nadu farmers for a long time but the origin and source from which it was developed is still not known. The variety is resistant to leaf yellowing (tungro virus), blast and bacterial blight diseases. Though the grain yield is less (4 - 4.5 tonnes from a hectare) than other commercial varieties, farmers preferred this variety owing to its fine quality and premium price in the market.

Initially, called “mashuri kuttai” the yield realised by farmers was very low due to admixtures and segregated population with the variations in crop duration ranging from 90 to 140 days. Plant breeders at Tamil Nadu Rice Research Institute (TRRI), Aduthurai had collected 300 samples of seeds, from various locations in state, screened and finally selected three improved lines for further selection.

After strenuous efforts the new improved white ponni was released in 1986 and even today finds ready acceptance from farmers. It is a 130-135 duration variety and suitable for late samba/thaladi season in Cauvery delta. The improved variety was tested in 11 districts of which in eight districts it recorded higher yield of 5.8% than IR 20 variety.

It recorded 300 kg/ha more yield than traditional ponni and has yield potential up to 7.4 tonnes per hectare. It is suitable for raw and parboiled rice consumption. Besides excellent grain quality, other special features include its resistance to many diseases such as tungro virus, leaf yellowing, blast and bacterial leaf blight.

It grows tall and well under restricted fertilizer use especially nitrogen application which should be limited to 75-100 tonnes per

hectare depending upon the soil fertility and climate. Organic farmers mostly prefer this variety as it responds well under natural nutrients supply.

ICRISAT to launch new hybrid Tur

The International Crops Research Institute for the Semi-arid Tropics (Icrisat) is set to release its high breed short duration pigeon pea (tur dal) seed variety ICPH 3672 on a large scale in Karnataka, Maharashtra, Madhya Pradesh and Andhra Pradesh.

The institute has tied up with Andhra Pradesh Seed Corporation, National Seed Corporation, State Farms Corporation of India and a few private seed companies to ensure there is enough supply of seed in the market, when farmers take up sowing. Icrisat expects the 150-165 days hybrid crop to be covered on one lakh hectares this year. The pigeon pea hybrid technology was developed by the institute in collaboration with the Indian Council of Agricultural Research using natural out-crossing and cytoplasmic-nuclear male sterility systems.

CL Laxmipathi Gowda, Deputy Director General-Research, Icrisat, said the pigeon pea seed has been tested for its yield and resistance power on 1.4 lakh hectares over the last four years in all the States that it is being introduced to. "The new pigeon pea commands a yield of 1.6 to 2 tonnes/hectare against the present average of 1.2 tonnes. It is well suited for medium black soil," he said.

On the cost of cultivation, Gowda said farmers may have to spend a little more for growing this hybrid as compared to the normal variety available in the market. However, he added, that the enhancement in yield would more than make up for the rise in cost. "It should be noted that the hybrid seeds are produced by the farmer group themselves and there is much labour and cost involved in it," he said. The institute has been working on various pulses crop to help farmers overcome fast changing climatic conditions. Extreme weather events such as the recent floods and severe cold weather have made farmers vulnerable.

The institute, along with the Indian Council of Agricultural Research, has developed 40 chickpea varieties which accounts for 49% of the total indent of chickpea breeder seed in India for 2014-15, said Gowda. The new varieties are grown in about 90% of the chickpea area covered in Andhra Pradesh.

Weather forecasts with crop-specific advisories

Suresh Sadhu Phantangre of Varudi Pathar village, around 170 km from Pune, is spending less and harvesting more tomatoes than he used to. Till last year, he used to spend ₹20,000; this year, he spent

₹12,000. Besides, his produce has jumped 50% and he says its quality too is better. Around a year ago, they were introduced to agro-advisories, which are weather-based, crop-and-locale-specific and include management recommendations. The advisories, in Marathi, were put up twice a week in the summer and more frequently in the agricultural season as a wallpaper in the village.

"About three weeks earlier, I had read there was a chance of tomato crops catching a disease called karpa," says Phantangre. "I noticed my plants had the disease, at an early stage. The advisory carried a recommendation about the type of pesticide that will work against the disease. Thanks to timely action, 75% of it came under control."

It was about a year ago that Watershed Organisation Trust (WOTR) launched its agro-advisories in 31 villages in Sangamner and Akole regions as part of a climate change adaptation project. Automated weather stations have been installed in each village, linked directly to WOTR's server, which sends hourly weather data to the Indian Meteorological Department, which in turn sends out a three-day forecast for the project area. Using these forecasts, agriculture experts with WOTR prepare the agro-advisories, with help from Central Research Institute for Dryland Agriculture, and Mahatma Phule Krishi Vidyapeeth. These advisories are also sent through SMS to farmers.

"This helps the farmers respond better to pest attack, dry spells, delayed rains, heavy rains and so on, and thereby decrease the chances of losses," says Ganesh Kakade, coordinator of the project at Varudi Pathar.

The advisory has three sections, dealing with each crop, its stage, and the corresponding advice. "The advisory covers almost all the crops that are grown by the farmers of that village," says Kakade, adding around 60% of the farmers of the 31 villages are following the advisory. Bharat Jadhav, who grows pomegranates, says, "Earlier, we depended on our own predictions. Now, since the pesticide and its quantity is recommended and we can see the result too, we go as per the advisory."

Bio inputs give better yield for brinjal growers in Chittoor

There is a general view that agriculture is not a remunerative profession. But for those who continue to do farming, there seems to be no choice. Either they leave the fields fallow or sell the lands for quick money. “Reasons for being unremunerative are many like high cost of inputs, inability to break even in profit, marketing etc. But in spite of all these problems there are people like Mr. P. Muniratnam Naidu in Kasturikandriga village, Tirupati Rural Mandal, Chittoor district for whom agriculture is lucrative.

Mr. Muniratnam owns about two acres and in the last two years he has been able to construct a new pucca house from the income he got from his land by growing brinjals (common variety available in the market). "This is considered big news among many farmers in the region. In fact, after getting to know Muniratnam's details, several farmers started getting into brinjal cultivation. Today an entire street in Muniratnam's locality is named as Brinjal Street," says Dr. K. Gangadharam, General Secretary, Welfare Organisation for Rural Development (Word) an NGO in Tirupathi in Chittoor.

"The crop was initially grown in 60 cents which was later extended to an acre. In the remaining one acre, groundnut, onions and some vegetables were grown. The income from brinjal was quite noteworthy for me. I harvested nearly 12 tonnes in three months earning about ₹96,000 as gross income while the net income was ₹60,000.

"In a year I earned ₹2,40,000 from brinjal alone. I make my own inputs after getting trained by Word and hardly spent much protecting the crop against the dreaded fruit borer that affects it," says a smiling Muniratnam. Presently more than 300 farmers in the region are using the indigenous bio inputs such as jivamrita, agniastra and neem astra, according to Dr. Gangadharam. "Our organisation has been trained by Mr. Subash Palekar, in zero budget farming and in turn we are teaching our farmers to practise the same," he says. Jivamrita is a growth enhancer which is used for almost all crops like paddy, vegetables and flowers. It is made by adding 10 kg of desi cow dung and 10 litres of urine dissolved in 200 litres of water. To this two kg of jaggery (or four litres of sugarcane juice) and pulse flour each (any pulse) is added and stirred well. The solution is kept under a shade for a week to ferment well and then allowed to mix with the running irrigation water. For the fruit borer pest farmers have been trained to use agniastra or neemastra.

Agniastra is made by soaking one kg of crushed tobacco leaves in 10 litres of desi cow urine. To this, 500 grams of chilli and garlic pulp (ground into a paste) each and 5kg of crushed neem leaves are added. This is diluted in 100 litres of water and sprayed. Neemastra is made by mixing five litres of cow urine, two 2kg of dung and five kgs of crushed neem leaves in 100 litres of water and allowed to ferment for 24 hours. Later after filtering it is diluted in water and sprayed on brinjal to control the pests.

Sweet corn-A promising crop for Kerala farmers

Sweet corn cultivation is not very demanding and requires very little attention from the grower except during the harvesting stage. Being a short duration crop, it takes three months to mature for harvesting

and needing to be weeded just once during this period, it can easily fit into any sequential cropping system. For the first time in the state, Regional Agricultural Research Station (RARS), Kumarakom, Kerala Agricultural University, have successfully initiated cultivation of sweet corn in its farm.

The outcome of the research proved that a net profit of ₹18,700 is achievable within a span of 90 days. The farmers who took up the cultivation recently, found twin advantages: good yield and post-harvest fodder to cattle. In addition Women SHG of Kumarakom panchayath, have taken up the cultivation as a field trial. The crop is a warm-season crop that requires high temperatures for optimum germination and growth. It prefers well drained fertile soil which is rich in organic matter. Raised bed planting is preferred method of planting. Sowing should be done in lines by placing the seed 3-5 cm deep with row-to-row spacing of 60 cm and plant-to-plant spacing of 30-45 cm.

Seed rate is 5- 8 kg/ha. Sweet corn hybrid seeds are available in Bangalore, Hyderabad, Pune and Belgaum at a cost which varies from ₹2,500-3,000 per kg. The seeds germinate in 3-5 days and starts flowering from the 45th day after sowing. The cobs can be harvested when the thread like silk gets dried. Response to applied organic manures is notable and hence integrated nutrient management (INM) is an important nutrient management strategy in this crop.

Organic manure and phosphorus fertilizers are given as basal and nitrogen and potassium fertilizers in two splits. Soil moisture must be continuous throughout the growth period and is especially critical from silking through kernel growth.

Managing false smut disease in Rice

False smut infestation in rice has been reported from many places in the State in an alarming proportion. In Cauvery delta zone, the disease has been reported to an extent of 10-20 % during kharif and rabi seasons. Also known as Lakshmi disease, it is caused by a fungus and was believed to be an indication of a bumper crop in the year.

Due to the infection, individual grains of the panicle get transformed into greenish spore balls of velvety appearance. Spore balls are small at first growing gradually to reach one cm or more in diameter. They are slightly flattened, smooth, yellow and are covered by a membrane. The membrane bursts as the result of further growth and the colour of the ball turns orange and later yellowish-green or black.

Under congenial conditions like high moisture or rainfall accompanied by cloudy days

during the period between flowering and maturity of grains, the development of false smut is rapid and causes considerable loss. Yield loss is not only due to the occurrence of the smut balls but also due to increased sterility of kernels adjacent to the smut balls.

The disease not only reduces the yield but also affects the quality of grains or seeds. Prominent high yielding rice varieties like CO 43, CR 1009, ADT 38, ADT 39 and BPT 5204 are found susceptible to this infestation. Late planting of rice during kharif and rabi seasons,are more susceptible to this problem.

- Healthy disease free seeds alone should be used for sowing.
- Seeds should not be taken from false smut affected fields.
- At the time of harvesting, infected plants should be removed and destroyed
- Field bunds and irrigation channels should be kept clean.
- Excess application of nitrogenous fertilizer should be avoided.

Regular monitoring is very essential. Spraying of copper hydroxide at 2.5 gm per litre of water or propiconazole at 1.0 ml per litre will be more useful.

All you wanted to know about El Nino

El Nino, Spanish for 'The little boy', is a weather disturbance first noticed (and named) by fishermen off the coast of South America centuries ago. Under normal weather conditions, trade winds ferry warm ocean currents westwards, from the eastern and central Pacific towards Indonesia and Australia. Warmer ocean waters in these regions then heat up the air above, leading to cloud formation and triggering the prodigious monsoon.

But in the years where the El Nino takes shape, eastern and central Pacific regions experience abnormal warming of the sea. This leads to increased cloud formation and torrential rains in Peru and some sections of America. The ocean currents in the western Pacific remain cool, which means weak monsoon rains in Indonesia and Australia and sometimes in India.

The El Nino usually occurs once in every 3 -7 years. Its effect tends to be felt in India around August, bang in the middle of the south-west monsoon. As a munificent south-west monsoon is critical for India's main kharif crop, El Nino is a dreaded word for Indian farmers.

A weak monsoon directly impacts agricultural output. The government may be forced to raise support prices of crops to incentivise farmers to plant more. In 2002, an El Nino year, average rainfall dropped 20% below normal and foodgrain production dropped almost 18 %. Usually, lower farm output feeds directly into inflation.

Then lower agricultural production results in slower GDP growth too, as agriculture makes up 18% of GDP. Rural incomes may also moderate, in turn reducing demand for everything from two-wheelers to shampoos. In the previous 10 El Nino years, India suffered a rainfall deficit of 10% or more only in six. 1997, for instance, was a year where the El Nino was strong, but the monsoon gods were generous; rainfall was 2% higher than normal.

A new online software disburses farm loan details

Getting a crop loan from a bank and after repaying the entire amount getting back the land or house papers submitted as collateral security for availing the loan are not easy tasks. The new online calculator, based on scale of finance concept, can help farmers know their loan eligibility and help banks to easily estimate crop loan limit.

"Farmers know well how hard it is to get a bank loan today. In several cases they are often in the dark about their eligibility for applying or interest calculated on their loan amount disbursed. "As an answer for this our specialist team has developed a new farm loan calculator called www.farmextensionmanager.com," says Dr. P.V. Habeeburrahman, Professor and Head, KVK (Krishi Vigyan Kendra) Malappuram.

Agricultural credit falls under two major categories, one, crop loan and the other, investment loan. Crop loan is to meet the expenses for cultivation, maintenance and repair of pumps, agriculture machineries etc and investment loan is sanctioned for developing a new enterprise like fertilizer or seed shop that may not give immediate return.

Usually during the sowing season, farmers approach their local bank for crop loan disbursement. The bank officials after necessary verification work out the amount for disbursal using scale of finance as base. Scale of finance in simple terms is the expenditure incurred for growing the particular crop. The cost of labour, chemicals, irrigation, marketing etc. falls under this category. There is a district level technical committee in every district which decides the loan amount to be disbursed. The committee meets every year and decides the loan limit for the different crops grown in that area.

"The scale of finance is not fixed. It is variable and differs in different districts even for the same crop grown and keeps changing annually. To cite an example, paddy cultivation per hectare in Kasargod is ₹63,000 while in the nearby Kozhikode district is ₹35,000. "Similarly, all crops included in a district may not find a place in another district. Betel vine is a commercial crop in Malappuram, while it is not in Thiruvananthapuram," explains

Dr. Habeeb. All the required information has been collected from 14 districts from NABARD for the year 2013-14, the data validated and fed into the calculator.

As soon as a farmer selects a district, the list of crops cultivated in that district will pop on the screen. And once the cultivated crop is selected, the scale of finance for that crop is displayed. This is followed by a request for entering the farmer's particulars and choice of crop he wishes to cultivate. Once this is done the minimum and maximum eligible finance will be shown on the screen at the click of the mouse. Since a number of intercrops are being cultivated in Kerala, the calculator has been designed to accommodate a maximum of five crops to arrive at the eligible loan amount. In some cases a farmer may not be interested in availing the whole loan amount immediately.

He would prefer to utilise a portion first and after some months take the remaining loan, and in such a case the online programme calculates only the interest rate for the loan amount he wishes to utilise. Once he takes the entire loan then principal is also calculated. Similarly the interest charged for the loans may also differ among banks. The software effectively takes care of all these problems and gives the interest and principal part to be repaid at the end of the crop season. Thus, by using the tool, farmers can have an estimation of the eligible loan amount without going to the bank.

Bolting in onion

Onion crop performance varies in different seasons or in different areas for the same seed and many times due to farmers' unawareness. In many cases the defects are considered to be only due to seed, which is not always true. Based on literature available on onion cultivation and as experienced by us in this region while working on this crop, the types of defects which are commonly seen are premature bolting, doubling or splitting of bulb at initial stages of crop growth as well as after bulb development. All these defects lead to economical losses to the growers.

Early transplanting i.e. for rabi crop if done before middle of December there is more likelihood of premature bolting. Use of growth hormones for flower initiation may lead to premature bolting. Farmers should take care to avoid above factors and also remove the premature bolters as soon as they are seen in the field to avoid contamination in adjoining fields as onion is a highly cross pollinated crop.

Wider spacing, excessive use of fertilizers or delayed application of fertilizers i.e. after initiation of bulbing process, irrigation after prolonged dry spell, heavy irrigation at the time of maturity, injury to

bulbs during weeding or insect attack, and delayed harvesting are some of the reasons attributed for this.

Farmers should adopt the planting recommendation and fertilizers application practices properly. Many times the splitting of bulbs after harvesting or in storage is noticed which is due to forcing of bulbs for more size by applying heavy fertilizers or growth promoting chemicals.

Proper spacing and fertilizer application is to be managed. As bulbing initiation is the effect of sunlight, when adequate sunlight is not available bulb initiation is hampered. It may lead to other defects such as pest or disease attacks. Farmers should take care to see they do not use spurious fertilizers or heavy doses of growth enhancers during initial stage of crop growth.

Uttarakhand farmer's seed saving movement holds promise

Jardhar village comprises of nearly 26 small hamlets in Uttarakhand. Like hundreds of villages in the country agriculture is a major occupation here. But the village is known for more than just agriculture. It houses some of the country's best and 'lost' ancient seed varieties. This is thanks to Mr. Vijay Jardhari, a small farmer and founder of seed saving movement called Beej Bachao Andolan (seed savers movement), who has managed to save some hundreds of ancient seeds from different crops till date. Presently, in his collection are about 350 varieties of paddy, eight varieties of wheat, four of barley, 220 varieties of kidney beans (rajma), eight of cowpea and 12 varieties of navrangi dhal.

The farmer is also credited with discovering an old tradition in Uttarakhand called Barahnaja (also called Bara anaaj in some places) meaning 12 grains/seeds. Some of these are resistant to droughts, floods and pests, thus ensuring some output even at times of major distress or natural calamity.

"As a practice, after these 12 Barahnaja is harvested, the fields are left fallow for some time and then rice or barnyard millet is grown. After this wheat is sown and the same procedure is repeated Thus a proper crop rotation is ensured," says Mr. Jardhari. "I was into chemical farming initially and the yield did increase. But I was able to notice that the soil fertility was decreasing in the second year itself. This high intensive farming and the input costs can only go up gradually and not scale down. "During the third year I found that the seeds planted from the previous harvest did not yield well and I harvested only a small quantity for seed requirement. These were hybrid seeds designed to break the chain of cultivation that has come through to us for hundreds of years," he says.

"The modern agricultural cartel,

in their intention to corporatise agriculture pushed for mono crops, mostly non food crop that were totally alien to this part. That is how, in these parts they pushed for Soya. "So we had to jump in again to the rescue of farmers. We asked the government as to who will process the bean into oil or milk? And for whom was the rich protein and cash they were drumming about. "So our save our seed campaign caught up with and farmers and farming was saved and old traditional seeds and practices returned including this Barahnaja," says Mr. Vijay, with a smile of pride.

Today Mr. Vijay has not only been able to change the mindset of people in Uttarakhand but also of the Government. The agri dept professes about his Barahnaja system which is being popularised all over the region. Persons like Mr. Vijay Jardhari hold much promise for better agricultural practices in today's fast eroding farming sector.

Management of red hairy caterpillar in groundnut

During active growth stage, groundnut crop is infested with sucking pests and defoliators. Among the defoliators, groundnut red hairy caterpillars, cause devastating effect on the crop by devouring the leaves.

Adult moths emerge from the soil with the onset of the monsoon. A female moth lays about 600-700 cream coloured eggs in groups mostly on the under surface of the leaves and occasionally on other vegetation. Incubation period ranges from 2-3 days.

Grown up caterpillar is reddish brown with a black band on either end having long reddish brown hair all over the body. It is the destructive stage of the pest. Larval period lasts for 40-50 days. Pupation takes place along field bunds or in moist soil at a depth of 10-20 cm where they undergo pupal diapause for about 10-12 months. Adults are medium sized moths having white wings with brownish streaks.

Early instar larvae feed voraciously by scraping the under surface of the tender leaves. Grown up larvae feed voraciously on entire foliage, flowers and growing points. They often migrate from field to field in search of food after devastating the foliage in the field where they have hatched. Severely damaged crop gives the appearance of having been grazed by cattle.

Control measures

- Collect and destroy the egg masses and voracious early instar larvae.
- The pupae may be collected at the time of summer ploughing and destroyed.
- Set up bonefires or light trap up to 11.00 P.M. after receipt of summer showers to attract and kill the moths.
- Dig the trench around the field at 30 cm depth and 25 cm width to check the movement of

migrating larvae.

- To check early instar larvae spray phosalone 35 EC at 300 ml/ac.
- For grown up caterpillar spray fenitrothion or chlorpyriphos at 600 ml/ac in 300 lt of water.

Using bio fuel to run an irrigation pump for five acres

At a time when farmers in Tamil Nadu are facing a big problem in cultivation due to frequent load shedding, a farmer, Mr. Mr. C. Rajasekaran, from Vettaikaran Irruppu of Kilvelur taluk in Nagappattinam district does not seem to worry much. The reason is not far to seek he is using oil from Punnai (Tamil name) tree seeds (*Calophyllum inophyllum*) to operate his five hp motor pump for irrigating his five acres.

His garden, which was once considered to be unfit for any cultivation, since the soil became barren after the tsunami struck, is now home to nearly 35 different tree varieties. Mango, Guavas, Lime, Teak, Cashew, amla, tamarind, and jack are all flourishing well today in what was once considered a wasteland.

While the farmer says that he was able to turn the land fertile only through organic practices, he is well known in the region for propagating the usefulness of punnai seeds. "If a farmer has two punnai trees on his land, he can reduce the diesel cost considerably. I run the motor for about five months using the oil during summer," he says.

The tree grows well in coastal regions. Cattle or goats do not eat the leaves thus making it easier for a farmer to grow it. Capable of growing in any type of soil it can withstand heavy winds and produce seeds within five years after planting.

"A farmer can get four to 20 kg of seeds a year from a five year old tree. After 10 years, a tree will yield 10 - 60 kg in a year and the seed yield will be on the increase as the trees grow older. From my experience, a 25 year-old tree yields a minimum of 300 kg and a maximum of 500 kg of seeds," says Mr. Rajasekaran. The trees attract lot of honey bees and bats. While the bees help to pollinate the bats eat the fruits and the seeds scatter all over the area through their droppings.

"My daily job in the morning is to collect the seeds and dry them for a week, after which they are broken open to expose the kernel. The kernel is further dried for 10 days before oil extraction," he adds. From one kg of seed kernel about 750 to 800 ml of oil can be extracted and the cost of producing a litre of oil works out to ₹10. "I operate the pump only during summer, for about five months in a year to be precise and for that my requirement is 600 ml of oil for an hour every day. Previously while

using diesel my requirement was 900 ml for the same duration of time. In a year I am able to get 75 litres. The surplus oil is sold to other farmers at ₹42 a litre. After extracting the oil, the cake is used as manure for crops," he explains.

According to the farmer there is no rust formation in the engine and it emits little noise during operation. For the last four years he has been using this oil to run his motor and till date seems to have not faced any problem with the engine. "I find there is no remarkable difference between a punnai oil and diesel run five Hp motor engine. Both pump 750ml of water in a minute. In fact the engine running on the oil emits less smoke unlike the diesel operated one," he says.

Unlike casuarina or teak, punnai trees are not normally planted by farmers. The few trees found in some places have been growing there for years similar to the palm trees one finds on the rural roadside. Every day his farm draws several visitors who are eager to know more about the oil and its use for their machines.

Controlling blast infestation in rice

Blast infestation in rice has been reported from many places of Andhra Pradesh State. In Telangana, Andhra and Rayalaseema zones, the disease has been reported to an extent of 10-20% during this season. There are broadly three types of blast. The first is called as leaf blast. Infested crop leaves exhibit spindle shaped spots with brown margin and grey dots.

This type has been prevalent in Warangal, Karimnagar, Khammam, Krishna, East Godavari, West Godavari, Nellore, Srikakulum and other districts of Andhra Pradesh for the last few weeks. The second type is node blast. Caused by a fungus, the symptoms are crop turning black in colour and panicles breaking easily. The third type is called neck blast. This starts during panicle emergence initiation of the crop period. The neck region is blackened and shrivelled. Grain set in ears is completely or partially inhibited.

Out of the three, neck blast is more severe and results in yield losses to a great extent. Favourable environmental factors such as prolonged dry periods, cool nights, low night temperature, high relative humidity, cloudy, drizzling weather and high nitrogen supply increase all the three disease incidences.

Management:

- Healthy disease free seeds alone should be used for sowing.
- Use disease resistant or tolerant rice cultivars
- Seed treatment with tricyclozole 75 WP at 2.0 g or carbendazim at 1.0g per kg seed as wet seed treatment or

carbendazim at 3.0 g per kg as dry seed treatment.

- Seeds should not be collected from infested fields.
- Remove weeds and collateral hosts from field and bunds. Balanced fertillizer application is a must.
- At the time of harvesting, infested plants should be removed and destroyed.
- Field bunds and irrigation channels should be kept clean. Avoid excess application of nitrogenous fertilizers.

Spraying of fungicides like tricyclozole 75 WP at 0.6 g or isoprothiolane 40EC at 1.5 ml or kasugamycin 3 L at 2.5 ml will be more effective.

Semi-intensive system for backyard poultry fetches good dividends

Most rural households in India have backyard poultry. "Although farmers mostly maintain native birds or improved varieties leading to greater number of eggs as well as meat, there is no denying the fact that backyard poultry provides a good source of supplementary income" says Dr. R. Unnikrishnan, Veterinary Surgeon, Animal Husbandry Department, Govt of Kerala.

Compared to commercial poultry, backyard poultry rearing is simpler because there is no great investment involved in it. The birds are let loose and forage on whatever they can find, thus curtailing feeding expense for a farmer. In a significant departure from the traditional way of rearing backyard poultry an entrepreneur-cum-farmer, Srinivas, from Anchipuram village in Kunigal taluk, Tumkur district in Karnataka, devised a semi intensive system of rearing.

In this system of rearing, the birds are kept inside sheds for the first four months and later are allowed to forage in the morning till they attain good weight after which they are sold. "If the birds are let out before a four month window, chances of being attacked by predators such as eagles and large birds are quite high. When I let them outside for foraging in the morning hours I place a mirror on the ground and also tie dark coloured plastic bags on poles placed around the area to scare away predator birds," says the farmer.

Due to this system of foraging there is a great deal of saving on feed costs, and the meat of the birds is leaner and better in taste than in the case of confined broilers. Especially in Tumkur region this type of semi intensive poultry farming is emerging as a good model.

"Advantages of this system are low investments and higher returns, significant savings in feed costs, better meat quality, the meat

being lean and fat free compared to broilers grown in confined cages, and better returns to the entrepreneur," says Mr. K.T.Shivshankar, Livelihood Extension Co-ordinator, Initiatives for Development Foundation (IDF) an NGO in Bangalore working in Tumkur and Belgaum districts. Mr. Srinivas took up this activity in his two-acre land. He purchased day-old chicks mostly of the indigenous variety/improved variety from nearby hatcheries and provided them heat and extra care for the first two weeks, as done in commercial farms.

Initially, for the first four weeks he fed them with commercially available starter feed, after which he switched to locally available feed materials. As in commercial poultry rearing, vaccinations for all diseases are given as per schedule and deworming done at regular intervals. The meat being to a large extent organic, commands a premium price in the market.

Initially he started this technique with about 800 birds with which he made a net profit of ₹25,000 in four months. Sensing the good profitability he increased the holdings and today he has nearly 2,000 birds in a two- acre farm. From a flock of 1,000 birds he makes a profit of around ₹50,000-60,000 in four months.

Booster to increase groundnut yield

Research findings says that majority of the soils of Tamil Nadu are deficient in zinc, boron, iron (micronutrients). Apart from the basal application of major nutrients especially, nitrogen, phosphorus and potassium the groundnut crop also needs some micronutrients at minimum dose.

A technology has been formulated by the Oilseeds Research Station, Tindivanam (TNAU) to supply micronutrient mixture as foliar application during the flowering stage to boost the yield. The main objective of this spray is to increase the number of flowers, speed up photosynthesis, arrest flower drop and supplement the required micronutrients at a faster rate compared to soil application.

The components of the micronutrient mixture are one kg of diammonium phosphate, about 400 gm of ammonium sulphate, 200 gms of borax and ferrous sulphate each, 175 ml planofix, and 500 gm of zinc sulphate. All the above nutrients are readily available in the local market and are cost effective. The nutrient mixture should be mixed thoroughly in 10 lit of water and filtered. The clear solution is then diluted in 190 litres of water and sprayed for an acre. Spraying must be done during evening especially at 25 and 35 days after sowing. The cost of entire spraying comes to around ₹750 per spray.

The increased yield ranges from three to four bags (40kgs/bag) of dry pods per acre coupled with high

shelling percentage. Many farmers in and around Villupuram districts are practicing this technology and call it "Tindivanam tonic." Recently Department of Physiology, TNAU, Coimbatore has come out with instant nutrient mix spray named "Groundnut rich" which consists of all required micro nutrients for the plant growth. The cost of the groundnut rich tonic is ₹120/kg.

The recommended dose is 2.3 kg/spray. This groundnut rich instant mix can be obtained from the Department of Crop Physiology, TNAU, Coimbatore. Otherwise farmers can make their own tonic by mixing the above ingredients in the correct proportion.

An experiment proves that small farming is economically feasible

Thottiankulam village on the Sevaiyur-Tuticorin highway in Virudhunagar district is bone dry all through the year. Farmers, mostly small and marginal, have either left the place seeking work in towns or have moved to other vocations. In the midst of the vast expanse of empty fields dotted with palm trees here and there, a small patch of greenery catches attention. A group of people are busy tending to the green patch of vegetables, all grown organically.

The green patch which has been attracting a number of visitors driving on the highway has been made possible by an organisation called Saal (Sustainable Agro Alliance Limited) in Madurai, which has been encouraging struggling small farmers to take up short-term vegetable cultivation. This programme, supported by an organisation called Christian Aid with technical support from Change Alliance, is fast proving to be a significant intervention in terms of gathering adequate and robust evidences to confirm that small-holder agriculture is feasible.

"The key mantra behind successful production lies in creating better environment. The first step in this process is to focus on the soil and not on plants. A healthy soil gives good yield. And in our system we take care to conduct soil analysis, enrichment using cow dung, cow urine, and humus obtained from dried leaves, agriculture wastages etc to make the barren land productive," says Mr. B. Jeyabala Murugan, Chief Executive Officer, Saal. The next step revolves around building an immune system for the plants. The seeds and seedlings are treated with good fungicides and bacteria to form a layer around the roots. This protective layer bestows immunity against soil borne diseases.

Border crops, inter crops, trap crops and multi cropping are also taken up. Farmers are taught to prepare herbal pest repellent using locally available materials. "Our organic process is all about maths. We can predict yield as long as we

follow the guidelines for vegetable variety, field size and plant population. It guides us to achieve desired production," says Mr. S.Henry Joe, Operations Officer.

The final step is helping in marketing the produce. Effective marketing is the ultimate step for success in any agriculture work. With all the hard work done in the farm, if the produce is not fetching the due price then everything is a waste. Saal has facilitated some innovative, transparent and reliable market access to the growers. "Local production, local consumption is our motto and our value chain process encompasses farmers, consumers and traders. Our pricing policy is based on a mix of conventional and niche market segments to increase consumption and thereby achieve higher demand, which help operate supply chain efficiently," says Mr. John Suresh Kumar, Senior Programme Officer.

Already in three adjoining districts the organisation has established a supply chain for organic vegetables. The balancing of supply and demand is done through an online programme to track, trace and synchronise production and marketing and communication strategy. "We provide the farmers with live education in the farm, offer them bio inputs in initial stages of process, provide expert guidance in their field and attend to emergency situations. Those who have adopted this process have noticed that their plants are not only immune to diseases, they are better tolerant to changing weather conditions. The plants are better drought tolerant (could survive for more than seven days without water.)," explains Mr. John.

Managing pod borer in blackgram

Blackgram, commonly known as urdbean is cultivated in about 3.30 million hectares in the country. Among the various pests and infestations attacking the crop, insect pests are a major problem affecting the yield. Spotted pod borer is a widespread problem. Webbing together of pods, inflorescence and leaves by a dull white or yellowish caterpillar, presence of frass on pods, stem and shoot near the larval entry holes are common symptoms.

Blue butterflies are another major pest. The larvae of these butterflies chew on the leaves, but preferably feed on buds, flower and young pods. The infested pods show irregular or oblong boreholes. The caterpillar looks like a slug. Small, blue, beautifully sculptured eggs are laid singly on buds. Larvae are medium in size green in colour, oval and flat in shape.

Pupation occurs inside the soil or on plant debris. One generation is completed in about five weeks. A female lays about 120 eggs. Gram

pod borer is popularly called as American boll worm. The borers feed on leaves, flower buds, flower and pods. They bore round holes on pods. The larva can be seen feeding with the head alone thrust inside and rest of the body hanging out of the pods.

A single larva can destroy 30-40 pods before it reaches maturity. Owing to feeding on developing grains, the yield of pulses is considerably reduced.

Integrated Pest Management

- Apply 50 kg potash per hectare to crop raised with closer spacing (20x10cm) to reduce the incidence.
- Remove weeds as and where found . Collect and destroy the egg masses and pupae.
- Set up light traps. Set up pheromone traps @ 12 nos per hectare to reduce gram pod borer incidence.
- Release egg parasite, Trichogramma spp., and egg larval parasite, *Chelonus blackburnii* for control of gram pod borer.

Apply any one of the following insecticides like Emamectin benzoate 5% SG 220 g per hectare, or Neem Seed Kernel Extract (NSKE) 5% twice.

A new method for growing Shiitake mushroom

Among various cultivated species of mushrooms, Shiitake variety has a good demand among consumers for its taste. Particularly in Northern India consumers prefer this mushroom since it is believed to be medicinal in quality. Presently, China and Japan are the bulk producers of this prized mushroom variety.

Till some time there was no proper technology to grow this variety on a successful commercial scale but recently the Directorate of Mushroom Research (DMR), situated at Chambaghat in Solan district and Indian Institute of Horticulture Research (IIHR), at Hassargatta near Bangalore have developed new techniques for growing this crop.

A farmer, Mr. Vikas Banyal, from Solan district, Himachal Pradesh, has further refined the growing technology by using willow wood as a substrate. He is the first farmer in the country to use willow tree wood as a substrate to grow Shiitake variety. According to Mr. Vikas this method gives a better and greater yield. Initially Mr. Vikas was growing Shiitake on sawdust but was not able to get a good production. He got some scanty reference in literature about using willow tree logs as a medium for growing. He contacted the University which provided him willow logs for trying this as substrate.

"The substrate that is the medium is very important for mushroom cultivation. Just as a healthy soil helps good plant crop a

good medium alone can help get a good yield. "My initial attempts failed because I used sawdust that was poor in quality. It was then that some mushroom cultivation experts from the U.S. visited my farm and while interacting with them I got to know that they use logs from trees to grow mushrooms. They also advised me to try out the method on some popular growing trees in my region," he says.

The farmer started his search for the same through several literatures and got in touch with Dr. Y. S. Parmar of the University of Horticulture and Forestry in his region. The University was quite impressed by his dedication and perseverance and supplied him about 100 willow logs initially. From then on there was no looking back for Mr. Vikas. With an investment of just ₹6,000 some years back today he has established a company worth nearly ₹4 crores all earned from mushroom cultivation.

Explaining the procedure the enterpreneur says, "willow logs of 40 inch length and three to four inch diameter are ideal. Holes are drilled into the logs and spawns (in the form of bullets) are inserted into the holes and sealed with wax. The logs are kept in the open under shade. Fruiting of shiitake starts in just three months and continues for four to five years. The technique is cost effective and also consumes less time." In addition to the logs he also used the sawdust of the willow tree to grow the mushroom which proved even more effective as harvesting of the crop started in just 45 days.

He could harvest on an average 750 gm of mushroom from one kg of willow sawdust. The harvested mushrooms are fresh and fetch ₹200-500 per kg in the local market. "This mushroom has a good shelf life and dried Shiitake is fetching up to ₹2,000 per kg in the market. It can be grown in those places where temperature remains below 25 degree celsius. It can be easily grown in the hilly regions of northern, eastern and southern parts of the country.

In southern parts, cultivation can be done at Ooty, Coonoor, Chickmagalur, Kodagu and Kodaikanal, Munnar, Vagamon, Kudremukh," says Dr. Harender Raj Gautam, Senior Scientist, Department of Plant Pathology, Dr. Y. S. Parmar University of Horticulture and Forestry, Nauni, Solan, Himachal Pradesh.

Integrated rice-fish cultivation for East India

Rice is the major staple food crop of India which is being cultivated in about 41 million hectares. However, its productivity is poor in India when compared to several other nations like South Korea, China etc.

The scenario is more alarming in Eastern India where farmers end up with very low productivity of rice. At the same time, the ecological situation of rice fields in Eastern

India facilitates the inclusion of fish component especially in saucer shaped lands, lowlands and waterlogged ecosystems.

There exists a huge potential for integrated rice-fish farming which can generate additional net returns to the farmers along with higher crop and water productivity. Though there is a scope for implementing integrated rice-fish farming in about 23 million hectares, the existing area under this farming system is below 1 million hectares.

There is a need to analyse the reasons for low adoption of this technology and to formulate the management strategies. Integrated rice-fish farming results in mutual benefit to both rice and fish. Rice is benefited in the form of additional nutrients which come from fish excreta. In addition, the aquatic weeds of rice also get reduced due to fish presence. In turn, fish gets benefit in the form of favourable micro climate due to presence of rice plants. However, rice requires a majority of nutrients in the form of inorganic fertilizers whereas fish needs nutrients in the form of organic form.

Hence, the optimum nutrient schedule of inorganic and organic components is required for obtaining maximum yield of rice and fish. Such fertilizer combinations also help in maintaining a healthy soil and aquatic environment. Field experiments conducted at Central research farm of Directorate of Water Management (ICAR), Bhubaneswar revealed that the average rice equivalent yield in rice-fish farming system was estimated at 6.57 tonnes per hectare. It can be concluded that the productivity and income could be augmented by introducing fish in rice field.