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## **EDITORIAL**

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The Supreme Court bench consisting of Justice Shri K.S. Radhakrishnan and Justice Shri A.K. Sikri in a landmark judgment on October 7, 2013, in Civil Appeal No. 9017 of 2013 held that Cooperative Societies are not Public Authority and are not legally obliged to furnish any information sought for by a citizen under the RTI Act. The Court also examined whether a citizen can have access to any information relating to a cooperative society through the Registrar of Cooperative Societies, who is a Public Authority within the meaning of Section 2(h) of Act. After examining this question in detail, the Court held that only those information the Registrar of Cooperative Societies can have access under Cooperative Societies Act from a society can be said to be information held by him or under his control as a Public Authority.

The case relates to the question whether a Cooperative Society registered under Kerala Cooperative Societies Act 1969, will fall in the definition of 'Public Authority' under Section 2 (h) of RTI Act 2005 and be bound by the obligation to provide information sought by a citizen under the RTI Act. The Registrar of Cooperative Societies of Kerala vide its circular No. 23 of 2006, stated that all cooperative societies registered under Kerala Cooperative Societies Act 1969 are 'Public Authority' within the meaning of Section 2 (h) of RTI Act and are obliged to provide information sought for. One, Mr. Sunil Kumar sought information about deposit accounts held by some individuals with Mulloor Rural Cooperative Society in Kerala. The Society denied information on the grounds of confidentiality. The applicant appealed to State Information Commission, which issued an order that by denying information, Society violated the provisions of RTI Act and was liable to be punished under Section 20 of the RTI Act, in view of the circular of RCS stating that Cooperative Societies under his control are Public Authority. Mulloor Rural Cooperative Society filed a writ petition in the Kerala High Court, challenging the above order of State Information Commission. The Single Bench of the High Court held that, Cooperative Societies regulated under Cooperative Societies Act are Public Authority and are bound by the provisions of RTI Act. The Society then filed writ appeal No. 1688 of 2009 against the verdict of Single Bench of Kerala High Court. In the meantime, a Division Bench of the Kerala High Court while considering some other writ appeals of similar nature in its judgment in April 2009 held that, compliance of RCS circular regarding applicability of RTI Act to Cooperative Societies is optional in the sense that if the society feels that it satisfies the definition of Section 2(h), it can appoint an Information Officer under RTI Act or else the State Information Commission will decide when the

matter reaches before him after examining the question whether the society is substantially financed directly or indirectly by funds provided by the Government. The Division Bench through this judgment left the disputes regarding applicability of RTI Act to Cooperative Societies to be resolved by the authorities under the RTI Act itself. When the writ appeal of Mulloor Rural Cooperative Society came to Division Bench, the Bench expressed reservations about the above judgment given by the division bench and referred the matter to the full bench to examine whether cooperative societies regulated under Cooperative Societies Act, are generally covered under the definition of Section 2(h) of RTI Act. The full Bench of Kerala High Court answered the question in the affirmative on the grounds of achieving transparency and accountability with regard to affairs of a public body.

According to the Supreme Court, as per RTI Act, any authority or body, which satisfies any of the following conditions only becomes a Public Authority.

- 1) An authority or body of State Govt established by or under the Constitution.
- 2) An authority or body or institutions of self Government established or constituted by any other law made by the Parliament.
- 3) An authority or body or institution of self Government established or constituted by any other law made by the State legislature,
- 4) An authority or body or institution of self Government established or constituted by notification issued or order made by the appropriate Govt.
- 5) A Body under control or substantially financed directly or indirectly by funds provided by the appropriate Govt.
- 6) Non-governmental organizations substantially financed directly or indirectly by funds provided by the appropriate govt.

After examining the applicability of the above definition to the Cooperative Societies, the Supreme Court came to the following conclusions.

- i) The fact that cooperative society is governed in accordance with the provisions of a statute does not mean that it is created by or under that statute and therefore, is not statutory body.
- ii) The final authority of a society vests in the General Body of its members and every society is managed by the Managing Committee constituted in terms of byelaws of a society. The final authority of a Cooperative Society therefore, is the General Body and not Registrar of Cooperative Societies or State Govt.

- iii) By exercising supervisory or general regulation under statutes over the cooperative societies by the state does not make "Cooperative Societies within the meaning of the state" or "instrumentality of the state".
- iv) The Cooperative Societies are neither owned by the Government nor controlled by the Govt. The term Control has wider meaning and is synonymous with superintendence, management or authority to direct and also includes disciplinary control, transfer, promotion etc. Mere provision of regulation by statutes or otherwise would not make a body Public Authority within the meaning of RTI Act.
- v) As per RTI Act, a body 'Substantially financed' by the Govt is a Public Authority. The expression "Substantially Financed" is not defined in the Act. The Court held that merely providing subsidies, grant, exemptions, privilege etc., as such, does not amount to funding to substantial extent. A body can be considered as substantially financed "only if its records show that the funding was so substantial to the body, which practically runs by such funding and but for such funding it would struggle to exist".
- vi) Non-governmental organizations may or may not be substantially financed. However, the burden to prove the same will be on applicant or concerned authority under RTI Act when the question comes up for its consideration.
- vii) While citizens have a right to get information, it is restricted only to information held under the control of Public Authority with limitations. Information not under the control of Public Authority, personal information disclosure of which has no relationship to any public activity or interest or would cause unwarranted invasion of the privacy of the individual cannot be accessed by citizens.

The issue of applicability of RTI Act to Cooperative Societies has been a widely debated one ever since the Act was passed in 2005. There were numerous judgement by various courts, giving varied views on this issue.

The present judgement of the Supreme Court has finally brought much needed clarity in this matter. The judgement has upheld cooperatives as autonomous and independent private bodies owned and controlled by its members. This has far reaching impact not only on the applicability of several other laws generally meant for govt and its subordinate institutions to cooperatives but also on govt's role in cooperatives.

**K. K. Ravindran**  
**Managing Editor**

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## Analysing awareness and perception of apple growers regarding amended APMC Act in Himachal Pradesh

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Dr. Ashutosh Singh\*\*

### **Abstract:**

*Indian agricultural marketing system is suffering from various problems viz. improper warehousing, lack of grading and packaging, inadequate transport facilities, presence of large number of middlemen, malpractices of traders, inadequate market information and insufficient funds etc. Long chain of middlemen decrease the producer's share in consumer rupee and exploit the farmer. Though Agricultural Produce Marketing Committees (APMCs) under the Agricultural Produce Marketing Committee Act, 1964 control and regulate buying and selling operations at all regulated agriculture marketing yards but there are lot of inefficiencies involved in practices of APMCs. However, amended APMC Act prevents anticompetitive practices. There is no compulsion on the producer to sell their produce in APMC market yards, producer are quite free to sell directly to private companies or private market yards or farmers-consumer market under amended APMC Act. The Study has analysed awareness and perception of apple growers regarding amended APMC Act. Two districts of Himachal Pradesh viz. Shimla and Kullu were selected on the basis of highest apple production. Apple growers were divided in two groups viz. Group-1 (growers who follow traditional supply chain) and Group-2 (growers who follow traditional and modern supply chain both).*

**Key words:** Amended APMC Act, agricultural marketing system, APMC market yards, direct marketing, apni mandi, private market yards, modern marketing channels, price spread and marketing efficiency.

APMC Act, 1964 has played a pivotal role in the agricultural marketing system of the country. At the time of independence total regulated market were only 286 which have been increased up to 7246 in year 2007 (**Singh 2010**). It is quite clear that regulated market yards have become biggest

platforms for marketing of many agricultural produces in country. More than 350 agriculture commodities are traded through a network of 27777 wholesale and primary rural market yards (**Agmarknet**). Despite of this, marketing system became inadequate for producers and

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ultimate consumers in country (**Planning Commission 2001**). It has been experienced through many studies that traders and wholesalers are involved in malpractices and exploit the primary producers at great extent. Due to long supply chain, producers obtain only about 53% of final prices of agricultural commodities with 31% share of middlemen and the remaining 16% as market cost. There was also the provision of multiple taxes/fee imposed in the form of commission charges, market fee, octroi/ entry & sales tax etc. However APMC Act clears that commission agents should charge the commission from buyers but in actual they charge from sellers/ producers. The rate of commission is also varied with great

extent which is highly dependent upon size of marketable surplus and negotiation ability of producers (**Saraswat 2001**). The major issue which can be argued is that once the particular area of state/UTs is declared as a market area and falls under the jurisdiction of concerned market committee, no agency or person is allowed freely to carry on wholesale marketing activities (**Gujral et al 2011**). This practice of APMCs has closed all the gates and producer could sell their produces only at regulated market yards. Thus to have 'barrier-free' agricultural marketing system in country, choice of multiple and competitive market channel to farmers, independent regulatory authority to encourage private investors and smooth license &

**Table 1.1: State/ UTs wise progresses of amendments in APMC Act**

<b>Sr. No</b>	<b>Name of States</b>	<b>Stages of Progress</b>
<b>1</b>	Andhra Pradesh, Arunachal Pradesh, Assam, Chhattisgarh, Goa, Gujarat, Himachal Pradesh, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Nagaland, Orissa, Rajasthan, Sikkim, Tripura and Uttarakhand.	APMC Act has been done for Direct Marketing; Contract Farming and Markets in Private/ Cooperative Sectors.
<b>2</b>	NCT of Delhi Haryana, Punjab and Chandigarh. Punjab and Chandigarh.	APMC Act has been done partially for Direct Marketing, Contract Farming and Private Markets Yards.
<b>3</b>	Bihar*, Kerala, Manipur, Andaman & Nicobar Islands, Dadra & Nagar Haveli, Daman & Diu, and Lakshadweep.	There is no APMC Act and hence not requiring reforms.
<b>4</b>	Tamil Nadu	APMC Act already provides for the reforms.
<b>5</b>	Mizoram, Meghalaya, Haryana, J&K, Uttarakhand, West Bengal, Pondicherry, NCT of Delhi and Uttar Pradesh.	Administrative action is initiated for the reforms.

\*APMC Act is repealed with effect from 1.9.2006.

(Source:www.farmersforum.in/post-harvest/marketing/reforming-agri-marketing-reforms, 2011)

registration of traders in regulated market yards were advised. Thus APMC Act was needed to be revised which has been evolved as amended APMC Act titled as the “State Agricultural Produce Marketing (Development and Regulation) Act, 2003” (**Farmer's Forum, 2011**). Many states have introduced reforms fully and partially in agricultural marketing, the need of the hour is to consolidate the gains of reforms through appropriate policies and plans.

Now private players are allowed to procure apple from producers directly. Companies viz. Reliance Fresh, Godrej, Adani Agri Fresh, Mother Dairy, Fresh and Healthy etc. procure apple directly from producers and offer healthy prices to primary producers but still many apple growers do not sell to private buyers in HP. They have good contacts with APMC traders and supplying apple to them. Though growers are exploited at great extent by traders and wholesalers and this intervention of intermediaries reduce the producer's share in consumer rupee (**Pandey 2013**). It was also experienced many apple growers were not aware of amended APMC act. Thus present study has analysed the awareness and perception of apple growers regarding amended APMC Act.

## **Materials and Methods**

APMC act was amended in the state in year 2005 and the districts

Shimla and Kullu have highest apple production in the state, thus districts Shimla and Kullu were purposively selected from Himachal Pradesh. Apple is grown in all blocks of district Shimla but blocks Jubbal-Kotkhai and Rohru lead the district in apple production. Therefore blocks Jubbal-Kotkhai and Rohru were purposively selected from district Shimla. On other hand Kullu and Nagar have highest apple production in district Kullu. Thus blocks Kullu and Nagar were purposively selected from district Kullu. List of revenue villages of concerned blocks was prepared and two revenue villages from each block were selected randomly. Thus villages Kiari and Jashla from block Jubbal-Kotkhai, villages Bhalara and Bijory from block Rohru were chosen. Similarly villages Nagabag and Bandrol from block Kullu, villages Puid and Raison from block Nagar were randomly selected. Prior to final survey, selected villages were visited and list of apple growers who have 10 and more bearing trees was prepared. In the next step apple growers were categorized in to two groups:

- 1) Growers who follow traditional supply chain and**
- 2) Growers who follow the traditional as well as modern supply chain.**

15% growers from both the groups were selected by adopting simple random sampling and survey was conducted. Therefore

58 respondents were selected in Group-1 and 30 respondents were selected in Group-2. Descriptive Research Design was adopted for accumulating the information about different aspects of apple growers. Secondary data was collected from concerned web sites, books, journals, concerned departments, while primary data was collected with the help of structured questionnaire. Z-Test was used for hypothesis testing for difference between proportions of sampled growers who were aware of amendments of the APMC Act. Following statistic was worked out:

$$Z = \frac{\hat{p}_1 \times \hat{p}_2}{\sqrt{\frac{\hat{p}_1 \times \hat{q}_1}{n_1} + \frac{\hat{p}_2 \times \hat{q}_2}{n_2}}}$$

Where,

$\hat{p}_1$  = Proportion of Success in Sample One

$\hat{p}_2$  = Proportion of Success in Sample Two

$$\hat{q}_1 = 1 - \hat{p}_1$$

$$\hat{q}_2 = 1 - \hat{p}_2$$

$n_1$  = size of sample 1

$n_2$  = size of sample 2 and  $\sqrt{\frac{\hat{p}_1 \times \hat{q}_1}{n_1} + \frac{\hat{p}_2 \times \hat{q}_2}{n_2}}$  =  
the standard error of difference

between two sample proportions.

Then rejection region(s) was developed depending upon the  $H_a$  for a given level of significance and

on its basis significance of the sample result was judged for accepting or rejecting  $H_0$ . Besides this, composite weighted score was calculated by using five point rating scale for evaluating the perception of apple growers about amended APMC Act.

## Results And Discussion

The results of the survey have been discussed in detail under following sections.

### 1. Awareness of respondents regarding amended APMC Act

Table 1.2 shows awareness of respondents regarding amended APMC Act. Three modern marketing channels viz. Direct procurement by companies, Private market yards and Apni Mandi were taken in to consideration which came in to existence after implementation of amended APMC Act.

It is evident from the table that 98.28% respondents in Group-1 and 100% of respondents in Group-2 were aware of direct procurement by private players. It is also clear from the table that 64% of respondents in Group-1 and 56.67% of respondents in Group-2 were aware

Table 1.2: Awareness of respondents regarding amended APMC Act

Sr. No.	APMC Act Amendments	Remarks	Respondents			
			Group-1 N= 58	percentage	Group-2 N= 30	percentage
1	Direct Procurement by Companies	Yes	57	98.28	30	100.00
		No	1	1.72	0	0.00
2	Private Market Yards	Yes	37	63.79	17	56.67
		No	21	36.21	13	43.33
3	Apni Mandi	Yes	19	32.76	16	53.33
		No	39	67.24	14	46.67

of Private market yards. Table shows that 32.76% of respondents in Group-1 and 53.33% of respondents in Group-2 were aware of Apni Mandi. During the survey it was found that maximum respondents in Group 1 (67.24%) and 46.67% of respondents in Group-2 were not aware of Apni Mandi.

### **1.1 Hypothesis testing for difference between proportions of success**

The Z-test was employed to test the difference between proportion of success is significant or not.

#### **A. Awareness regarding direct procurement by companies**

$H_0$ : Proportionally equal number of respondents in Group-1 and Group-2 are aware of direct procurement by companies.

$H_1$ : Respondents in Group-1 and Group-2 aware of direct procurement by companies are significantly different in their proportions. The calculated value of z is -1.17 and as  $H_1$  is the two sided, it has been determined the rejection region is applying two tailed test at 5% level of significance and it comes to under normal curve area table:

$$R: z < 1.960$$

The calculated value falls in the acceptance region thus  $H_0$  has been accepted and  $H_1$  has been rejected and it has been concluded that proportionally equal number of respondents of both the groups are aware of direct procurement by companies.

#### **B. Awareness regarding private market yard**

$H_0$ : Proportionally equal number of respondents in Group-1 and Group-2 are aware of private market yards.

$H_1$ : Respondents in Group-1 and Group-2 aware of private market yards are significantly different in their proportions. The calculated value of z is 0.64 as  $H_1$  is the two sided, it has been determined the rejection region applying two tailed test at 5% level of significance and it comes to under normal curve area table:

$$R: z < 1.960$$

The calculated value of z falls in acceptance region thus  $H_0$  was accepted and it can be concluded that proportionally equal number of respondents of both the groups are aware of private market yards.

#### **C. Awareness regarding Apni Mandi**

$H_0$ : Proportionally equal number of respondents in Group-1 and Group-2 are aware of Apni Mandi.

$H_1$ : Respondents in Group-1 and Group-2 aware of Apni Mandi are significantly different in their proportions.

The calculated value of z is -2.01 as  $H_1$  is the two sided, it has been determined the rejection region applying two tailed test at 5% level of significance and it comes to under normal curve area table:

$$R: z < 1.960$$

The calculated value falls under acceptance region thus  $H_0$  was accepted and it was concluded that proportionally equal number of respondents of both groups are aware of Apni Mandi.

## **2. Perception of respondents regarding amended APMC Act**

The perception of respondents regarding amended APMC act was analysed on the basis of awarding the weights to the factors identified as important in apple marketing system. Respondents were asked to reveal their perception regarding traditional as well as modern marketing channels viz. Channel-1 (APMC Market yards), Channel-2 (Direct Procurement by Companies), Channel-3 (Private market yards) and Channel-4 (Apni Mandi). 10 factors including fair grading and sorting, time consumed in transaction, transportation cost, packaging cost, proximity from orchards, timely payment, price awareness before sale, fair price realization, facilities for loans and advances and rejection rate were identified and analysed. Four steps were followed to assess the perception of respondents. In the first step, importance of each factor was asked from respondents by using five points scale. In the second step, average satisfaction level of respondents against factors in each channel was calculated. Weighted score and composite weighted score were calculated in the third and fourth steps respectively.

### **2.1 Ranking of the factors on the basis of their importance**

Table 1.3 shows the factors ranked on the basis of their weights. It is evident from the table that among all the factors, respondents have given the first rank to facility for loans and advances (F9). It was observed that mainly small growers seek loans and advances from traders. Commission agents generally provide the loans both for productive and non-productive purposes. Fair price realization (F8) is the second most important factor next to F9. Growers follow those marketing channels where they perceive that price realization is fair. It was evident from the study that price realization is higher in modern marketing channel than traditional channels. Price awareness before the sale (F7) plays an important role in apple marketing. Table 1.3 shows that F7 is the third most important factor. During the survey it was observed that maximum respondents bring their produce to market yards with no awareness about the prevalent market price. They depend either on telephonic conversation or words of mouth communication with the peer group. It was also analysed that information gap between growers and buyers regarding price is one of the biggest problem in apple supply chain in Himachal Pradesh. Respondents have given fourth rank to rejection rate (F10). It was analysed that big

volume of apple is rejected because of the produce which does not match with the required standards. It was observed during the study that the produce is procured by the private players in bulk and no quality test has been conducted at farm level at the time of procurement. These quality tests are made at the time and place convenient to procurer. In case, if the sample fails the whole lot is rejected. Now the growers don't have any option but to make a distress sale which ultimately brings huge loss and exploitation of growers. It is clearly shown in table that respondents have given fifth rank to the transportation cost (F3). It was observed that small and medium growers approach local market yards while large growers generally go for distant market yards to get the better prices for their produce. Table elicits that respondents have given sixth rank to timely payment factor (F6). Growers seek those channels where

they can receive the cash and kind in the shortest time period. It was observed that growers sometimes sell their produce to village person for getting immediate hard cash. However village person give the lower prices than other established buyers. Respondents have given seventh rank to time consumed in transaction (F2). Huge time is consumed in transportation, auction, loading and unloading operations. Respondents have given eighth rank to packaging cost (F4).

It was observed that maximum growers of both the groups are conscious about packaging and pay all possible efforts to keep apple free from scratches and external pressure. Maximum growers use CFB carton followed by wooden basket and plastic crates. Growers who sell C grade apple to processing units viz. HPMC use gunny bags. Plastic crate needs huge investment but its durability save the large amount of money of

**Table 1.3: Ranking of the factors**

Particulars	Factors	Weights	Rank
F9	Facilities for Loans and Advances	3.01	I
F8	Fair Price Realization	2.67	II
F7	Price Awareness before Sale	2.21	III
F10	Rejection Rate	2.07	IV
F3	Transportation Cost	2.03	V
F6	Timely Payment	2.00	VI
F2	Time Consumed in Transaction	1.93	VII
F4	Packaging Cost	1.86	VIII
F5	Proximity from Orchards	1.70	IX
F1	Fair Grading and Sorting	1.66	X

growers and they do not need to incur cost on packaging materials every time. Table 1.3 elicits that respondents have given ninth rank to this factor (F5). Proximity saves the time and money for grower. It plays the prominent role where produce is procured directly by companies from orchards because proximity provides the ease in transportation and loading for buyers. Respondents have given tenth rank to fair grading and sorting (F8). Apple is graded in various grades viz. A, B, and C and packed accordingly. Graded apple is sold at higher price and increase net income for orchardists.

## **2.2 Importance of the factors in different channels**

Table-1.4 has revealed the importance of the factors in different marketing channels adopted by respondents in Group-1 and Group-2. Table has elicited that F1 has got the highest weighted score in channel-2 (6.42) followed by channel-3 (5.43), channel-4 (3.54) and channel-1 (3.12). This analysis has shown that respondents perceived fair grading and sorting is the most important factor in channel-2 followed by channel-3, channel-4 and channel-1. Data pertaining to time consumed in transaction has revealed that F2 has got highest weighted score in channel-2 (5.98) followed by channel-3 (5.40), channel-3 (5.02) and channel-1 (4.03). It is quite clear that F2 is found to be the most important in

channel-2 followed by channel-3 and channel-1. Thus respondents have perceived that minimum time is consumed in transaction under channel-2 while huge time is consumed in transaction under traditional marketing channel (Channel-1). Table has further elicited that F3 has got highest score in channel-4 (7.31) followed by channel-2 (6.96), channel-3 (5.28) and channel-1 (4.16). Thus F3 is found to be the most important in channel-4 followed by channel-2, channel-3 and channel-1. During the survey it was observed that respondents have to incur low cost on transportation in channel-4 (Apni Mandi) because these local yards are situated nearby the orchards and growers bring produce either by animal or small vehicles. However growers face high transportation cost for distant market yards. It is evident from the table-1.2 that F4 has received highest weighted score in channel-2 (7.94) followed by channel-4 (7.57), channel-3 (5.45) and channel-1 (3.78). Thus packaging cost is perceived to be the most important in channel-2 followed by channel-4, channel-3 and channel-1. It was analysed that growers have to incur comparatively higher cost on packaging in channel-1 while growers who follow the supply chain of Adani, do not incur any cost on packaging because Adani distributes plastic crates to its member apple growers. It was also

observed that growers, who approach Apni Mandi, bring their produce in gunny bags or wooden basket which is relatively lower cost packaging method.

Data pertaining to Proximity from Orchards revealed that F5 has got highest weighted score in channel-4 (6.51) followed by channel-2 (5.90), channel-3 (4.30) and channel-1 (3.49). It was observed that respondents approach Apni Mandi because of ease in access and lower transportation cost than other channels. Therefore proximity is perceived to be the most important in channel-4 followed by channel-2, channel-3 and channel-1.

Table-1.4 further shows that Timely Payment (F6) has got highest weighted score in channel-2 (7.66) followed by channel-4 (7.54), channel-3 (6.20) and channel-1 (4.04). Thus F6 is perceived to be the most important in channel-2 followed by channel-4, channel-3 and channel-1 respectively. It was also observed that private players make the payment within 7-15 days while lead time of making the payment is 1.5-2.5 month in traditional channel. Private market's commission agents also cash the bill within 10 days while in Apni Mandi only cash sales are made. Table-1.4 has further shown that F7 has got highest weighted score in channel-2 (7.29) followed by channel-3 (6.78), channel-4 (4.93) and channel-1 (3.51). Therefore

price awareness before sale is found to be the most important in channel-2 followed by channel-3, channel-4 and channel-1.

It was observed that respondents were aware of price of their produce under modern marketing channel while they were unable to get any information regarding price before sale in traditional marketing channels. Announcement of price before 5-10 days by private players make the growers able to take decision that where they should sell their produce. Private commission agents also declare price before the maturity of produce. However most of the time growers become unaware of price before sale under traditional marketing channel. Data pertaining to fair price realization has elicited that F8 has received highest weighted score in channel-2 (9.69) followed by channel-3 (9.00), channel-1 (6.30) and channel-4 (5.61). Thus F8 is found to be the most important in channel-2 followed by channel-3, channel-1 and channel-4. Findings are evident from survey where it was observed that fair price realization is one of the important factors. It was also observed that growers have received highest price in channel-2 where companies procure apple directly from growers. Facilities for Loans and Advances are perceived to be the most important among the all factors. Table has revealed that F9 has got highest score in channel-1 (10.26) followed by channel-3

(7.43), channel-2 (4.73) and channel-4 (4.30). Analysis has shown that F9 is perceived to be the most important in channel-1 followed by channel-3, channel-2, and channel-4.

During the survey it was observed that commission agents of APMC market yards provide the productive and non-productive loans and advances to primary growers. However growers have become liable to sell their produce to commission agents though they offer comparatively lower price than private players. During the survey it was also observed that few private commission agents also provide the loans and advances to apple growers. Few processors who produce C grade apple from Apni Mandi provide loans and advances to growers for short time. Table-1.4 has shown that Rejection rate of produce (F10) has got the highest

weighted score in channel-1 (7.00) followed by channel-4 (6.77), channel-3 (6.48) and channel-2 (4.08). Thus F10 is perceived to be the most important in channel-1 followed by channel-4, channel-3, and channel-2. During the survey it was analysed that private companies reject the produce at higher rate than APMC commission agents. It was observed that private players procure A grade apple. Few boxes are selected randomly from whole lot and grading and sorting is conducted if apple matches the standards, lot is accepted otherwise companies reject the produce.

### Conclusion

It was found that many respondents in both the groups were unaware of amended APMC Act. It was also concluded that direct procurement by companies was known by maximum respondents while minimum

**Table 1.4: Composite weighted score of different apple marketing channels**

	Factors	W	Ch. 1	WS	Ch.2	WS	Ch. 3	WS	Ch. 4	WS
F1	Fair Grading and Sorting	1.66	1.88	3.12	3.87	6.42	3.27	5.43	2.13	3.54
F2	Time Consumed in Transaction	1.93	2.09	4.03	3.10	5.98	2.80	5.40	2.60	5.02
F3	Transportation Cost	2.03	2.05	4.16	3.43	6.96	2.60	5.28	3.60	7.31
F4	Packaging Cost	1.86	2.03	3.78	4.27	7.94	2.93	5.45	4.07	7.57
F5	Proximity from Orchards	1.70	2.05	3.49	3.47	5.90	2.53	4.30	3.83	6.51
F6	Timely Payment	2.00	2.02	4.04	3.83	7.66	3.10	6.20	3.77	7.54
F7	Price Awareness before Sale	2.21	1.59	3.51	3.30	7.29	3.07	6.78	2.23	4.93
F8	Fair Price Realization	2.67	2.36	6.30	3.63	9.69	3.37	9.00	2.10	5.61
F9	Facility for Loans and Advances	3.01	3.41	10.26	1.57	4.73	2.47	7.43	1.43	4.30
F10	Rejection Rate	2.07	3.38	7.00	1.97	4.08	3.13	6.48	3.27	6.77
<b>Composite Weighted Score</b>		-	-	<b>49.69</b>	-	<b>66.66</b>	-	<b>61.76</b>	-	<b>59.09</b>

W- Weight, WS- Weighted Score, Ch.-Channel

numbers of respondents knew about Apni Mandi. It was also observed that maximum respondents did not know that these new patterns of marketing came in to their existence after implementation of amended APMC Act. Perception level of all respondents was assessed by taking 10 factors viz. Fair Grading and Sorting (F1), Time Consumed in Transaction (F2), Transportation Cost (F3), Packaging Cost (F4), Proximity from Orchards (F5), Timely Payment (F6), Price Awareness before Sale (F7), Fair Price Realization (F8), Facilities for Loans and Advances (F9) and Rejection Rate (F10) in to consideration. Four marketing channels including APMC Market yards (channel-1), Direct procurement by companies (channel-2), Private market yards (channel-3) and Apni Mandi

(Channel-4) were considered. Composite weighted score was calculated on the basis of weights and satisfaction level against the factors in four channels. It was concluded that composite weighted score is highest for channel-2 (66.66) followed by channel-3 (61.76), channel-4 (59.09) and channel-1 (49.69). Thus according to respondents marketing channel-2 is the most preferred channel followed by channel-3, channel-4 and channel-1. Factors were also ranked on the basis of their weights and it was found that respondents have given first rank to loans and advances (F9) followed by fair price realization (F8), price awareness before sale (F7), rejection rate (F10), transportation cost (F3), timely payment (F6), time consumed in transaction (F2), packaging cost (F4), proximity from orchards (F5), fair grading and sorting (F1).

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**M. Venktesh Gowda, K.C.S.**  
Managing Director

**Genesis**

Financial inclusion is imperative to accelerate inclusive growth envisaged in Eleventh Five Year Plan. It is indeed a critical input for inclusive growth. The empirical evidence shows that countries with large proportion of population excluded from the formal financial show higher poverty rates and higher migration. If we are keen to ensure economic stability, financial stability and inclusive growth, it is not possible without financial inclusion (Chakrabarty 2005). Financial inclusion has great significance in India where vast number of people with low incomes do not have access to formal financial sector (Krishna Kumar 2012).

**Conceptual Framework**

According to the RBI "Financial Inclusion is the process of ensuring access to appropriate financial products and services needed by all sections of the society in general, and vulnerable groups such as weaker sections and low income groups in particular, at an affordable cost in a fair and transparent manner by regulated mainstream institutional players".

Accordingly, availability of appropriate services and products to all the sections of society, at reasonable cost, through regulated

institutional frame. Appropriate financial services/ products required are generally saving, credit remittances and insurance (Krishna Kumar 2012).

**Early Initiatives**

The concept of financial inclusion system is not new in India. It has been in vogue since 1904 with Enactment of Co-operative Societies Act 1904. Subsequently in 1955, State Bank of India came into existence to purvey formal credit in rural areas. However nationalization of 14 major commercial banks was the first bold step to augment credit in rural areas in general and to agriculture sector in particular. A number of measures were taken to augment credit in rural areas. Important among these measures were introduction of lead bank scheme, to take up credit planning, at district level, stipulation of priority sector lending targets introduction of DRI advances scheme opening of branches in rural and semi urban areas establishment of RRBs to weaker sections promotion of SHGs to provide micro finance etc. As a result of all these measures share of the formal credit in rural debts outstanding increased from 7.3% in 1951 to 66.3% in 1991 however, the share witnessed set back in 2002

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and dwindled to 61.1%. Similarly population branch ratio declined from 60,000 in 1969 to 16,000 in 2001. However rural urban divide in terms of coverage and credit was further accentuated sharp Inter and Intra regional imbalances in banking sector were also noticed. Incidentally, during 1990s financial sector reforms were taken up in a big way. Although these measures paved the way for financial inclusion lee-way remained far-off. In this context the Rangarajan committee in 2008 noted that 51% of farmer households did not access credit, either from institutional or non-institutional sources. Further, despite the vast network of bank branches, only 27% of total farm households were indebted to formal sources (of which one-third also borrow from informal sources). Access to formal institutional credit amongst farm households was as low as 4.1% in North-Eastern, 18.2% in Eastern and 22.4% in Central Regions. The vast and wide spread geographical area of the country, urban orientation of formal financial sector, high incidence of illiteracy, lack of appropriate cost-effective banking technology absence of viable delivery mechanism and absence of viable business model frustrated the efforts of the formal financial sector (Sinha 2012).

### **Recent Initiatives**

In order to accelerate the process of financial inclusion Reserve Bank of India initiated

appropriate steps much before launching the Eleventh Five Year Plan. While announcing credit policy for the year 2005-06 RBI advised banks to open no-frill accounts (since renamed as Basic Saving Bank Deposits Account in August 2012). Later on, SLBCs were advised in each of the states to identify at least one district to achieve 100% financial inclusion on a pilot basis. Banks were also advised to;

- (i) Initiate ICT based Business correspondent model (BC model) to provide low cost banking services at door step in remote villages
- (ii) Board approved financial inclusion plan (FIP) for 3 years commencing from 2010.
- (iii) Roadmap to cover all the villages having population above 2000 by 2012 and all the villages having population between 1000 to 2000 by 2013
- (iv) Availability of at least four banking products and
- (v) Opening of at least 25% of new branches in unbacked rural areas.

### **1. No Frill Accounts**

No frill account is one of the important pillars of financial inclusion. Services of BCs have been used for opening of these accounts in the remote villages not having brick and mortar branch. KYC norms have been relaxed in majority for opening these accounts. Most of these accounts have been opened to make pay-

ments under MNREGA or to pensioners. The number of no-frill accounts by banks aggregated to 105.5 million by March 2012 but three-fourths of those accounts are dormant. Those accounts have hardly served the objectives of financial inclusion.

Of late Reserve Bank has advised banks to provide small overdraft to provide small overdrafts facility which may go a long way in activating these accounts. This apart banks has been advised to at least provide wide range of banking services. Banking services means availability of minimum of four products viz.;

- (a) A basic No-Frills banking account with Overdraft Facility.
- (b) A Remittance product for electronic benefit transfer and other remittances.
- (c) A pure savings product ideally a recurring or a variable recurring deposit.
- (d) Entrepreneurial Credit such as General Credit Card Kisan Credit Card.

## **2. Financial Inclusion Plans**

All the public and private sector banks were required to prepare their Board approved financial inclusion plans (FIP) to roll out in 3 years from April 2010 to March 2012. Initially a goal of providing banking services to an identified 72800 villages with population of over 2000 by 2012 and all villages with population between 1001 to

2000 by 2013 was envisaged and thereafter progressively to all the villages in a phased manner. A cursory look at Table-I indicates that by end March 2012 all the villages having population over 2000 have banking outlets. Incidentally these FIPs contain self-set targets in respect of opening of rural brick and mortar branches deployment of business correspondents coverage of unbanked villages through various modes, opening of no-frill accounts Kisan Credit Cards and General Cards to be issued. An indepth analysis of information presented in Table-I reveals that as compared to 2011 there was a slow down in majority of parameter in 2012 yet somewhat satisfactory performance of FIPs was noticed.

In the context of Table-1 following observations are worth noting;

1. Of the total 1,47534 banking rural outlets as many as 120355 (forming 81.5%) have been under BC model.
2. There were as many as 65234 banking outlets or 12.8% in about 5 lakh villages with population less than 2000.
3. Of the total 105.5 million no frill accounts only 520 million accounts (constituting 49.4%) were covered under BC Model.
4. During 2011-12 there were as many as 119.3 million transaction under these 52.1 million accounts under BC model Average transaction per account during the year

**Table-I. Progress Of SCBs In Financial Inclusion Plan (excluding RRBs)**

Particulars (1)	March_2010 (2)	March_2011 (3)	March_2012 (4)	(Amount in ₹ Billions)	
				% Variation March 2011 over 2010 (5)	% Variation March 2012 over 2011 (6)
No. of BCs/Bc Agent deployed	33042	57329	95767	73.5	67.0
Number of banking outlets in villages with population over 2000	27353	54246	82300	98.3	51.7
Number of banking outlets in villages with population less than 2000	26905	45937	65234	70.7	42.0
<b>Total number of Banking Outlets in Villages</b>	<b>54258</b>	<b>100183</b>	<b>147534</b>	<b>84.6</b>	<b>47.3</b>
Of which					
a) Through Branches	21475	22662	24701	5.5	9.0
b) Through BCs	32684	77138	120355	136.0	56.0
c) Through other Models	99	383	2478	286.9	547.0
Urban Location covered through BCs	433	3757	5875	767.7	56.4
<b>No-Frill Accounts</b>					
Number (Millions)	50.3	75.4	105.5	49.9	39.9
Amount (₹ Billions)	42.6	57.0	93.3	33.8	63.7
<b>Overdraft availed in no-frill accounts</b>					
Number (Millions)	0.1	0.5	1.5	400.0	200.0
Amount (₹ Billions)	0.1	0.2	0.6	100.0	200.0
<b>Kisan Credit Card (KCC)</b>					
Number of Accounts (Millions)	15.9	18.2	20.3	14.5	11.5
Outstanding Amount (₹ Billions)	940.1	1237.4	1651.5	31.6	33.5
<b>General Purpose Credit Card (GCC)</b>					
Number of Accounts (Millions)	0.9	1.0	1.3	11.1	30.0
Outstanding Amount (₹ Billions)	25.8	21.9	27.3	-15.1	24.7
<b>ICT Based Accounts through BCs</b>					
Number of Accounts (Millions)	12.6	29.6	52.1	134.9	76.0
Number of Transactions during the year (Millions)	18.7	64.6	119.3	245.5	84.7

Source: Annual Report RBI 2011-12.

worked out to around 2 only.

5. About one fifth of No-frill rural accounts have credit card facility.
6. Number of No-frill accounts per rural banking outlet worked out to be 586, while the number

per rural banking outlet operated by BC was about 430.

7. About 1% of No frill accounts got overdrafts facility. Average balance of overdrafts per account amounted to ₹400 only.

### **3. Business Correspondent Model**

Among all these measures most revolutionary and innovative measures towards financial inclusion is BC model. Under the scheme, banks have been allowed to enlist the services of ICT based business correspondents to ensure door step delivery of financial products and services. Prominent among these individuals and entities to be deployed as BCs include NGOs, SHGs, MFIs, Cooperatives, Retired government and bank employees, teachers, ex-servicemen fair price shops individually owners of kirana and medical shops PCOs, Agents of small savings schemes of govt. organizations and Insurance companies, petrol pump owners etc. Though list of the individuals entities eligible to be appointed as BCs has been enlarged from time to time most of the banks have appointed companies societies of section-25. Interesting entities of those section 25 corporates have been floated by technology service providers who provided smart card or biometric solution for account opening at village level they use the services of local fellow as business facilitators, or BC agents on commission basis.

The BC Model is expected to be more cost-effective than brick and mortar branch model. The number of BCs employed by banks aggregated to about one lakh which is far from satisfactory in view of about 6 lakh villages in the country. As most of BC transactions are cash

based they involve high cost and handling risks of handling of large volumes cash. Since majority of clients are illiterate they consider these business correspondent as bank and their agents as bank employees. As a result some instances of frauds have taken place leading to litigations (Sinha, 2012). Moreover remuneration to BC agent is related to transactions making. In order to provide support to BCs banks have been advised recently to open intermediate brick and mortar branch between the present base branch and BC locations serving 8 to 10 BCs with in 3 to 4 km area. This may improve better monitoring of BC model. There is high turnover of BC agents (Surbhi Agarwal, 2012). Apparently the BC model in the present form is not an effective tool for mainstreaming financial inclusion (RBI 2012).

### **4. Special Dispensation Scheme For North Eastern Region**

With a view to improving branch network in North-Eastern Region a special dispensation scheme has been implemented. Under the scheme Reserve Bank under takes to reimburse capital cost and recurring expenses for setting up branches at allotted places. Subject to providing premises, security resulted accommodation for staff.

### **5. Financial Literacy**

The importance of financial literacy for financial inclusion cannot be over-emphasized. In this

context banks have been advised to set up financial literacy centres in more than 630 offices of Lead District Manager. In addition to this 35000 rural branches of SCB has been identified to undertake financial literacy activities. These conduits will impart financial literacy in vernacular language. Efforts are being made to include financial literacy as a part of school education.

As suggested by the Rangarajan Committee on financial inclusion two funds viz., (1) Financial Inclusion Fund for meeting the cost of development and promotion or intervention of financial inclusion; (2) Financial Inclusion Technology Funds for meeting cost of technology adoption were set up at NABARD in 2007-08 with a corpus of ₹500 crore for each (NABARD 2012). Needless to say that assistance under these funds will go a long way in promotion of financial inclusion with technology.

### **Challenges**

1. The mainstreaming and upscaling financial inclusion is a big challenge. It is a gigantic. Covering all the villages and entire adult population is a costly proposition particularly when transactions are far and few. There is however a silver lining of overdrafts facility in otherwise dark cloud. In case banks are encouraged or mandated to provide reasonable overdrafts facility to each

and every No-frill account, at least by their own brick and mortar branch if not serviced by BCs. This will improve the viability of their rural operations on the one hand and go a long way in replacing informal credit, i.e. money lender.

2. As BC model suffers from number of drawbacks such as poor viability, operation risk, violation of KYC Norms, frauds high turnover of customer service providers, misrepresentation as bank staff etc, more and more reliance should be on post offices as BC to instill confidence and viability.
3. Emphasis on geographical coverage in FIP is a worthy complimentary but financial inclusion will remain half way through unless and until FIP includes targets for coverage of all the sections of society, such as very very poor, unorganized labour class maid servants, women etc., as well as all the sectors of the economy. Linking financial inclusion with Aadhar card holders should be tried with advantages. Alongwith imparting financial literacy, efforts should be made to upgrade the skills of masses in general and users in particular of the products and processes
4. Without financial literacy, financial inclusion may do more harm to rural masses

than help. Each and every brick and mortar branch of banks should have a full-fledged financial literacy centre to ensure financial literacy in the area. Services of print and electronics media should also be utilized for the purpose. Services of management institutions, school and universities teachers may also enlisted to improve the financial literacy in the country.

5. Financial products and processes should be revisited to suit the requirements of illiterate customers, in rural areas. Insurance products to cover both life and general risks should be provided by banking channels. Knowledge of investment in capital markets, products of stock and commodity exchanges should be imparted.
6. There is urgent need to adopt customer centric approach rather to achieve the interested objectives of financial inclusion.

### **Conclusion**

Efforts made earlier to purvey formal credit through co-operatives, commercial banks (district credit planning, priority sector stipulations, weaker sections lending by regional rural banks) have improved financial inclusion in better off areas. However these efforts did not make much dent in remote rural areas in

general and poor section of society in particular. It goes without saying that inclusive growth approach necessitated main streams and up scaling of financial inclusion with renewed force.

In this context, enlisting services of Bank correspondents (BC model) is an important innovation in purveying whole gamut of financial services including credit saving insurance and remittances. BC model has made its presence felt but still suffering from teething troubles. The close and effective monitoring, adequate support from brick mortar branch network, introduction of overdrafts facility to no-frill accounts etc may give soothing effect. BC model has potential of becoming cost effective channel in remote and far flung rural areas of country. This will indeed provide an opportunity to banks in the country to harness the saving potential of rural areas on the one hand and replacing the informal credit on other. Without adequate financial literacy financial inclusion will be a risky proposition.

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- क्योंकि पशुचारे के साथ जो खरतवारों के बीज होते हैं वह बिना गले बाहर आ जाते हैं। यह बीज कच्ची खाद के साथ खेतों में प्रवेश कर जाते हैं। इस लिए अच्छी गली सड़ी खाद को ही खेतों में डालें।
- सिंचाई की नलियों, और गेहूं के खेतों की मेड़ों को साफ रखें ताकि खरपतवारों के बीज व वनस्पति भाग सिंचाई के पानी के साथ मुख्य खेत में प्रवेश न कर सकें।
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लें, इससे खरपतवारों के बीज वितरण को रोका जा सकता है।

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गेहूं की ऐसी किस्म का चुनाव करे जिसकी बढ़त उधमी हो जो शीघ्रता से जमीन को ढक लें और प्रारम्भिक अवस्था में उगने वाले खरपतवारों को अच्छी प्रतिस्पर्धा दे।

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- बीज उपचार
- उचित खेत की तैयारी
- उचित नमी
- उचित बीज मात्रा
- उचित गहराई पर बीज की बुआई
- उचित विधि द्वारा बुआई

गेहूं की फसल के साथ उगने वाले खरपतवार अधिकतर मौसमी हैं। जिन का जमाव निश्चित तापमान पर ही होता है जैसे महूंसी का जमाव आमतौर पर नवम्बर के आखिरी सप्ताह से शुरू होता है। कुछ खरपतवार गेहूं के बीजों के साथ-साथ ही अंकुरित हो जाते हैं कुछ खरपतवार पहली सिंचाई के बाद ही अंकुरित होते हैं। इसलिए गेहूं की बुआई को नवम्बर १५ तक पूरी कर लें क्योंकि इस समय का तापमान महूंसी के जमाव के अनुकूल नहीं होता। जिससे महूंसी का प्रकोप कम रहता है।

फसल चक्र अपनाएं विभिन्न प्रकार की फसलों को फसल चक्र में शामिल करने से खरपतवारों का जीवन चक्र टूटा है। फसलों के बदलने से उनकी शास्य क्रियाएं बदलती हैं, उनमें प्रयोग होने वाले

खरपतवारनाशी बदलते हैं। उदाहरणतः धान, गेहूं फसल चक्र में बरसीम, मटर, सब्जियां, तोरिया, सूरजमुखी जैसी फसलों को गेहूं के बदले में उगाकर महूंसी के प्रकोप व खरपतवारनाशी की प्रतिरोधी क्षमता के विकसित होने से बचा जा सकता है। बुनियादी खाद को बीज से २-३ से.मी.गहरा डालें। जीरो टीलेज़ से गेहूं की बिजाई करने से गेहूं का जमाव जल्दी होता है और मिट्टी की उपरी सतह को न छोड़ने की वजह से महूंसी का जमाव कम होता है।

स्टेलबेड विधि से खाली खेत की सिंचाई करके खरपतवारों को जमने का मौका दिया जाता है। इन उगते हुए खरपतवारों को जुताई करके या नान सलेक्टीव खरपतवारनाशी जैसे गलायफोसेट का १ प्रतिशत घोल स्प्रे कर के खत्म किया जा सकता है फिर इस खरपतवार मुक्त खेत में गेहूं की बिजाई की जा सकती है।

रासायनिक तत्वों के पोषण व पानी का विभाजन खरपतवार व फसल में होता है इसलिए खाद का प्रयोग खरपतवार नियंत्रण के बाद करें ताकि इनका लाभ गेहूं को मिले, न की खरपतवारों को।

### रासायनिक खरपतवार नियंत्रण

खरपतवारनाशी आधुनिक कृषि विज्ञान की परम आवश्यकता है। खरपतवारनाशी द्वारा खरपतवार प्रबंधन करना मज़दूरों द्वारा यंत्रों द्वारा शारीरिक शक्ति से अधिक मितव्ययी है।

गेहूं में खरपतवारनाशी का प्रयोग दो तरह से किया जा सकता है;

- ▶ फसल-खरपतवार जमने से पहले (प्री इमरजेन्स)
- ▶ खरपतवार जब २-४ पत्ती अवस्था में हो (पोस्ट इमरजेन्स)

### प्री इमरजेन्स खरपतवार नाशी

गेहूं बिजाई के तुरन्त बाद पैण्डीमैथलीन ३.३ लीटर प्रति हैक्टेयर की दर से ५०० लीटर पानी में घोल कर स्प्रे करने से उगती हुई खरपतवारों का नाश किया जा सकता है। पैण्डीमैथलीन से शुरूआती पहले फसल की महूंसी व बाथू का नियंत्रण किया जा सकता है।

### पोस्ट इमरजेन्स खरपतवार नाशी

गेहूं में पोस्ट एमरजेन्स खरपतवारनाशी का प्रयोग पहली सिंचाई (बुआई के २१ दिन) के ७-१० दिन बाद जब खेतों में पैर टिकने लगे और खरपतवार २-४ पत्ती अवस्था में हो तभी किया जाता है।

क्लोडीनापोष तो पत्तियों द्वारा ही सोखा जाता है इसलिए स्प्रे के समय गेहूं की फसल में खरपतवार २-४ पत्ती अवस्था में होने से ही स्प्रे का लाभ मिलता है।

प्रायः यह भी देखा गया है कि गेहूं की इस अवस्था में तापमान बहुत कम होता है कम तापमान में खरपतवार पत्ते खरपतवारनाशी को अपने अन्दर अवशोषित करने की क्षमता नहीं रखते जिस के कारण खरपतवारनाशी का लाभ नहीं मिलता।

**रसायनिक खरपतवार प्रबंधन के लिए कुछ ध्यान योग्य बातें:**

- ▶ खरपतवार के प्रकार व संख्या को ध्यान में रख कर खरपतवारनाशी का चुनाव करें।
- ▶ स्थिति का मूल्यांकन करें।
- ▶ खरपतवार व फसल की अवस्था का ध्यान करें।
- ▶ रसायनिक खरपतवारनाशी उगने से पहले या उगने के बाद का प्रयोग करें जब मिट्टी में नमी हो।
- ▶ खरपतवार उगने के बाद (पोस्ट एमरजेन्स) के खरपतवारनाशी का प्रयोग तभी करें जब खरपतवार २ से ४ पत्ती अवस्था में हो।
- ▶ खरपतवारनाशी का प्रयोग करते समय फलेट फैन नोजल का प्रयोग करें।
- ▶ खरपतवार उगने के बाद खरपतवारनाशी (पोस्ट एमरजेन्स) को रेत, यूरिया या मिट्टी के साथ न मिलाएं।
- ▶ सल्फोस्फ्यूरोन को मिश्रित फसल जैसे गेहूं, सरसों या गेहूं अन्य फसलों में प्रयोग न करें।
- ▶ खरपतवारनाशी चक्र का अनुसरण करें ताकि खरपतवारों की प्रतिरोधी क्षमता विकसित न हो सके।
- ▶ महूंसी की रोकथाम के लिए स्प्रे किए गए खरपतवारनाशी से घास कुल जाति के खरपतवारों का नियंत्रण हो जाता है परन्तु चौड़ी पत्ती के खरपतवारों जैसे जंगली पालक, मालवा या दूधी

जैसे खरपतवारों में बढ़ोतरी हो रही है। मिश्रित खरपतवारों के नियत्रण के लिए पीनाक्साडीम +

कारफेट्राजोन १००० + ५० ग्राम / हेक्ट. की दर से बुआई के ३५-४० दिन पश्चात स्प्रे करें।

### गेहूं में खरपतवार नाशियों का प्रयोग

खरपतवारनाशी का वैज्ञानिक नाम	खरपतवारनाशी का व्यापारिक नाम	उत्पाद/हैक्टै	प्रयोग का समय (दिन बाद)	खरपतवार प्रकार के लिए सिफारिश
मेटस्लफयूरोन मिथाइल	एलग्रिप	२० ग्राम	बुआई के ३५-४०	चौड़ी पत्ती
पैन्डीमेथिलीन	स्टाम्प	३ लीटर	बुआई के तुरन्त बाद	चौड़ी पत्ती व घास जाति
सल्फोसल्फयूरोन	लीडर फतेह	३३ ग्राम	बुआई के ३५-४०	चौड़ी पत्ती व घास जाति
कारफेट्राजोन	ऐम	५० ग्राम	बुआई के ३५-४०	चौड़ी पत्ती
क्लोडीनोपोप	टोपिक	४०० ग्राम	बुआई के ३५-४०	घास कुल
फिनोक्सोप्रोम	प्यूमासुपर	१००० ग्राम	बुआई के ३५-४०	घास कुल
सल्फोसल्फयूरोन	लीडर	१२५० ग्राम	बुआई के ३५-४०	घास व चौड़ी पत्ती
पीनोक्साडीम	एक्सिल	१००० ग्राम	बुआई के ३५-४०	घास कुल

### गेहूं में खरपतवार प्रबंधन - एक नज़र

	खरपतवारनाशी	मात्रा*	टिप्पणी
मदूसी	क्लोडीनोपोप (टोपिक) पैन्डीमेथिलीन (स्टाम्प)	४०० ग्राम ३३३० ग्राम	३५-४० दिन पश्चात बुआई के एक दिन बाद
बाथू	पैन्डीमेथिलीन (स्टाम्प) मेटस्लफयूरोन मिथाइल	३३३० ग्राम २० ग्राम	बुआई के एक दिन बाद
जंगली जई	कारफेट्राजोन (ऐम)	५० ग्राम	बुआई के ३०-३५ दिन पश्चात
जंगली पालक	मेटस्लफयूरोन मिथाइल	२० ग्राम	३०-३५ दिन पश्चात
गोबी घास (मालवा पर्खीफलोरा)	कारफेट्राजोन (ऐम)	५० ग्राम	३०-३५ दिन पश्चात
कंडेली	मेटस्लफयूरोन इथाइल; (एलग्रिम) कारफेट्राजोन (ऐम)	२० ग्राम ५० ग्राम	३०-३५ दिन पश्चात
हिरण्याखुरी	मेटस्लफयूरोन इथाइल (एलग्रिम) कारफेट्राजोन (ऐम)	२० ग्राम ५० ग्राम	३०-३५ दिन पश्चात
मटरी (जंगली मटर)	मेटस्लफयूरोन इथाइल (एलग्रिम) कारफेट्राजोन (ऐम)	२० ग्राम ५० ग्राम	३०-३५ दिन पश्चात
दूधी	कारफेट्राजोन (ऐम)	५० ग्राम	३०-३५ दिन पश्चात
पीट पापड़ा (कोरनोपस डीडेमस)	मेटस्लफयूरोन इथाइल (एलग्रिम) कारफेट्राजोन (ऐम)	२० ग्राम ५० ग्राम	३०-३५ दिन पश्चात

\* ५०० लीटर पानी / हेक्ट.



# THE GUJARAT STATE COOP. AGRICULTURE AND RURAL DEVELOPMENT BANK LTD.

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Gram: "KHETI BANK"

The Bank was established in 1951 to extend long term and medium term loans to farmers for agriculture and allied agricultural activities through 176 branches and 17 district offices located at each taluka places and district places respectively in the State of Gujarat. The Bank has significantly contributed towards rural development of Gujarat since inception by advancing ₹3159 crores long term loans to 7,73,718 farmers for agriculture and allied agricultural activities up to 31.03.13.

## THE BANK FINANCES FOR :

**Farm Mechanisation:** Tractor, Thresher set and other implements etc.

**Horticulture / Plantation:** Mango, Chickoo Plantation etc.

**Animal Husbandry :** Dairy development, Cattle rearing, Cattle sheds, Bullock cart, Sheep & Goat rearing, Poultry, Sericulture, Fisheries etc.

**Land Development :** Land levelling, Land reclamation etc.

**Non Farm Sector:** Small scale industries, Cottage industries including service sector, Rural housing, SRTOs, Rural godowns, APMCs, Cold storage, Consumerloan, Gold Loan etc.

**Minor Irrigation:** Construction/repairs of irrigation well, Shallow tube well, Deep tube well, Installation of pumpsets, Pipelines, Lift irrigation, Drip irrigation, Check dams, Sprinkler irrigation etc.

**Kissan Credit Card:** KCC for Purchase of Fertilizers, pesticides, equipments and maintenance, and payment of electricity bills etc. It is a medium term credit requirement of its borrowers who are regular in their repayment obligation to the Bank.

**Rural Housing:** Construction of new houses, repairing and renovation of old houses.

### Bank accepts FD at following rate of interest.

1 year & 2 year 9.25% p.a. 3 year and above 9.50% p.a. 3 months -5% - 6 months - 7%

Bank accepts Thrif Deposits at 5% - 0.5% additional interest for senior citizen.

## Salient Features :

1. Interest payable: Quarterly/half yearly and yearly as per demand
2. Monthly Income Scheme is available
3. FD outstanding as on 31.3.11 is within the own fund limit.
4. All the loans issued by the Bank are theoretically recoverable since they are
5. secured by registered mortgage of land and as such FDs mobilized by the Bank are fully secure.
6. Loan against FD to the extent of 75% of FD is available.
7. TDS is not deducted on maturity of FDs

**DIVIDEND ON SHARE IS REGULARLY PAID TO SHARE HOLDERS.**

**FOR FURTHER DETAILS, PLEASE CONTACT US OR THE BRANCHES OF OUR BANK IN THE STATE.**

**Shri Kanubhai M. Patel**  
Chairman

**Shri Govabhai H. Rabari**  
Vice Chairman

**Shri V. M. Chaudhari**  
Managing Director (I/C)

## Cooperatives for improving living Conditions in Slums

Dr. M.L.Khurana\*

### **Historical Perspective and Scale of Slum Problem**

When human beings were able to produce more than they consumed and had found ways of storing the surplus to provide for a large number of people, living away from the field, they settled on such areas which provided good environment, climate and soil favourable to plant and animal life, an adequate water supply, ready materials for providing shelter and easy access to other people. Concentration of population grew at the intersections of trade routes, at harbours and at the mouths of rivers with easy access to the sea. Athens, Rome was located near the sea. Mecca, Damascus and Samarkand were island cities located on caravan routes. In India all big cities were located near the banks of rivers, ports, etc. Varanasi is one of the ancient and famous cities located on the bank of river Ganges. The officials and priests lived in the main hub whereas lower classes craft persons, artisans and labourers lived around the city republics. Gradually people from fields and small settlements started moving to city republics because of lack of farm work all time of the year and safety in cities. These city republics became powerful and tapped the surpluses and other resources. In

1800 only 2% of world population lived in towns of more than 5000 inhabitants. No more than 45 cities had population over 100,000. The 19<sup>th</sup> and 20<sup>th</sup> Century saw enormous growth of urban population and cities were not able to sustain the pressure of increased population and could not provide good environment and basic services to new entrants as they were unable to afford reasonable shelter within their means. They were therefore forced to live in slums.

The word slum which first appeared in Veux's Flash Dictionary in 1812 was derived from slumber which means a sleepy unknown back alley. Slum meant 'wet mire' where working class housing was built during British Industrial revolution in order to be near the factories. These were uncontrolled settlements and lacked basic services and where only the poor lived.

According to an Expert Group of the United Nations, a slum is an area that combines to various extents the following characteristics namely; (i) inadequate access to safe water, (ii) inadequate access to sanitation and other infrastructure; (iii) poor structural quality of housing; (iv) overcrowding and (v) insecure residential status.

\*Managing Director, National Cooperative Housing Federation of India (NCHF)

In India almost all urban settlements face the unpleasant scenario of 'Slums'. Often, this has remained a vaguely defined phenomenon. Various institutions and documents have attempted to define 'Slums' largely as a measure of deficiency of basic habitat services and amenities or the absence of livable environment consisting of adequate housing and infrastructure facilities.

The latest census defines a slum as "residential areas where dwellings are unfit for human habitation" because they are dilapidated, cramped, poorly ventilated, unclean, or "any combination of these factors which are detrimental to the safety and health" and covers all 4,041 statutory towns in India. Over a third of India's slum dwellers live in unrecognised slums with some researched facts:

- ▶ By 2011, over 65 million people live in slums, up from 52 million in 2001, but slum populations have grown slower than the average urban population over the last decade.
- ▶ The average household living in a slum is no larger than an average urban Indian household, with 4.7 family members.
- ▶ The child sex ratio (0-6 years) of an average slum household is 922 girls for every 1,000 boys, compared to 905 for urban India.
- ▶ Scheduled Castes (SCs) are over-represented in slums,

with 1 out of every five slums residents belonging to SC, compared to just over one out of 10 for urban India as a whole. The proportion of SCs living in slums has risen over the last decade.

- ▶ Scheduled Castes in slums have far better sex ratios than other urban communities.
- ▶ The literacy rate in slums is now up to 77.7% but still lags behind the urban average.
- ▶ Both men and women living in slums participate at a higher rate in the workforce than the urban average, even though fewer have employment through the year.

The HABITAT report on slums says that in 2001 a total of 92,398,600 people constituting about 31.6% of the world's total urban population were living in slums. Nearly 43% of the urban population of all the developing regions combined lives in slums, 78.2% of the urban population in the Least Developed Countries lives in slums; about 6% of the urban population in Developed regions live in slum-like conditions. On the present trends, 2 billion people would be living in slums by 2030. This is because of enormous migration from rural to urban areas, new family formation and increase of population.

For the latest round, the census designated slums in three different ways - notified, recognised and identified. While the first two

are designated as slums by some official authority, identified slums do not have legal status as a slum, but must consist of at least 60-70 tenements with at least 300 people. The data shows that of the three types, identified slums have the largest sub-set of slum population, indicating that over a third of India's official slum population does not have official status as a slum, or access to legal protection and municipal services.

With over 11 million of its residents in slums, Maharashtra has the highest slum population; 4.6 million of them in 'identified' slums. Andhra Pradesh follows with over 10 million in slums, and West Bengal and Uttar Pradesh have over 6 million slum residents each. Over 1 million of Delhi's 1.7 million slum residents live in 'identified' slums.

With the new method, several states such as Haryana, Delhi, Assam, Jammu & Kashmir and

Jharkhand have identified more slum dwellers in such areas than in the notified or recognized slums. In fact, the number of towns having slums has gone up from 1,743 in 2001 to 2,613 in 2011, out of a total of 4,041 towns in India.

The proportion of slum population to urban population has fallen slightly with the slum population growing at a slower pace than urban areas as a whole. There also isn't any difference in the household size of urban areas and slums any more, about 4.7, with slums showing a higher reduction in family size.

According to a study conducted by Participatory Research in Asia and Indicus Analytics, people living in urban slums contribute over 7% to the GDP of the nation.

Our country, therefore, can ill-afford to neglect the welfare of such large number of its citizens. Adequately catering to their socio-

**States with the highest population in non-notified/  
non-recognised slums (Figures in lakhs)**

<b>States</b>	<b>Total slum population</b>	<b>Notified slums</b>	<b>Recognised slums</b>	<b>Identified slums</b>
Maharashtra	118.5	37.1	34.9	46.5
West Bengal	64.2	0.5	37	26.7
Rajasthan	20.7	0	0	20.7
Gujarat	16.8	0	0	16.8
Haryana	16.6	0.1	0	16.5
Tamil Nadu	58	25.4	19.8	12.8
Madhya Pradesh	56.9	19.0	25.3	12.6
Bihar	12.4	0	0	12.4
NCT Delhi	17.9	7.4	0	10.5
Uttar Pradesh	16.4	5.6	46.8	10
<b>India</b>	<b>655</b>	<b>225.4</b>	<b>201.3</b>	<b>228.3</b>

economic development needs should engage our immediate attention in larger interest of national development and national integration.

### **Living Conditions In Slums**

Almost all the houses in slums are in bad, and sometimes dilapidated, conditions. The houses are usually inadequately ventilated. The designs are such as to afford bare shelter, leading to acute congestion. In squatter settlements, houses are constructed using materials like mud, un-burnt bricks, tin-sheets, asbestos sheets, bamboo, gunny bags, plastic sheets etc. and are usually single-room units with inadequate space standards.

Private toilets do not exist in a majority of slum areas and even common toilets are available only in a few. Where there are no toilets, people defecate in the open which, besides being an environmental nuisance, poses hardships for, especially women. Community latrines, even where available generally remain filthy and insanitary and virtually a menace to the areas in which they exist.

Most of the houses in slum areas do not have dedicated water supply. In some slum areas, public taps do exist but the number of persons using each such tap is generally very high. Many slums, especially in the outskirts of the cities, have open wells as their only source of water for drinking, bath-

ing and cleaning. These wells are generally insanitary. No attention is paid to the maintenance of wells, or even of public taps. A considerable number of slum dwellers have to fetch water from outside the slum areas.

The drainage system in almost all the slums is very poor. With the exception of pucca buildings in old city areas, slum settlements generally do not have any drainage. Furthermore, a majority of unauthorized colonies and squatter settlements are located on low-lying lands. As a result, sewage water cannot flow away. The situation becomes particularly worse during the rainy season when storm water finds its way into these low lying settlements and get mixed-up with the sewage water, making extremely unhygienic environment.

Roads and lanes are narrow and often unpaved. Puddles and slush are common-place after every rain shower. The facility of roads and street lights is generally inadequate. This adversely affects the safety and security of residents and is generally believed to be largely responsible for high rates of night-time crimes.

There is a complex relationship between environment and health. A number of studies have shown that the unhygienic slum environments make slum dwellers more susceptible to certain types of diseases like respiratory diseases, gastro-intestinal disorders, skin diseases, malarial fever, tuberculo-

sis, etc. Unfortunately, the economic circumstances of the slum dwellers are such as they do not allow them to improve their living conditions. A majority of the slum dwellers are employed in the unorganized or informal sector. A large proportion of them works on a daily wage basis and, therefore, has little or no job security. A significant proportion is employed in construction work. Due to low income, their standard of living is also low and they are left with little surplus income for housing after meeting their families' basic needs of food and clothing.

In brief we may say that slum dwellers are faced with insecurity of tenure, lack of basic services, especially water and sanitation, unsafe building structure, over-crowding, limited access to credit and formal job markets. Normally slums exist on polluted land. They suffer from water-borne diseases. It is also believed that slums are places of high level of crimes. This is not universally true. The poverty is the main reason for slums. At the same time slums also provide low cost accommodation to poor migrants and necessary support to city.

### **Organise Slum Dwellers And Urban Poor Into Multi-purpose Urban Cooperatives & Government Intervention A Suggested Strategy**

Government alone cannot effectively resolve the multi-faceted problems of the urban poor, rather

people's participation is absolutely necessary in all the urban poverty alleviation programmes so that the development inputs reaches specifically to the targeted beneficiary. Therefore, the new strategy should **be to organize multi-purpose urban cooperatives** among the slum dwellers and urban poor in each of the slum cluster in various towns and cities. The mechanism of cooperative can be a solution because individuals come together to achieve their objectives as a collective group what they cannot achieve as individuals alone. Cooperatives can:

- Motivate people for shelter, channelize petty savings, organize and manage on democratic basis their cooperative societies and also supervise the construction of houses and post-construction maintenance of housing assets.
- Undertake various educational, cultural, economic and social activities.
- Help in income up-gradation through household micro enterprises
- Improve affordability towards housing and related services including capability for repayment of housing cooperatives.
- Motivate people to maintain the assets created (which local authorities can ill-afford as a recurring responsibility).
- Provide fresh migrants the much needed emotional security in the unfamiliar urban environment.

## **Suggested Action Plan And Broad Guidelines**

- Organize Multi-purpose urban cooperatives among the urban poor in each slum settlement.
- Land owning agencies should allot land for house construction to multi-purpose urban cooperative societies on leasehold basis at concessional rate recoverable on long term basis.
- Members would derive occupancy and ownership right which would be heritable and can be mortgaged for raising housing loans.
- Members shall be prohibited from selling their share of land or transferring it in any manner.
- When a member quits the membership of the cooperative, the land shall revert to the cooperative itself thus preventing alienation of land.
- In order to safeguard the interests of women who are the most vulnerable among the urban poor, membership will preferably be for women.
- Besides housing, multi-purpose urban cooperatives may undertake other activities like home-based industries, health and social services, rental housing, library, child care, care for elderly, distribution of building materials, publicity for the use of innovative technologies, etc.

- They can also perform thrift and credit functions among the members thereby strengthening micro credit system for urban poor.
- These additional activities will generate employment opportunities and give additional income for the members on the one hand and reduce housing costs on the other.

The Government of India has taken a number of initiatives for the development of infrastructure as well as improvement of environment in urban settlements with a view to improving the quality of life of urban poor. In this context, the Ministry of Housing and Urban Poverty Alleviation are monitoring the implementation of a few Centrally Sponsored Schemes for which, besides policy guidelines, State Governments and their development agencies are given financial support in the form of grants and loans.

The Government provides assistance to States/Union Territories (UTs) for development of urban slums through provision of physical amenities and basic services under the Basic Services to the Urban Poor (BSUP)/Integrated Housing & Slum Development Programme (IHSDP) components of Jawaharlal Nehru National Urban Renewal Mission (JNNURM). The benefits of these programmes flow equitably to members of the minority communities and to cit-

ies/slums, predominantly inhabited by minority communities. In all, 15% of the Central allocation is to be earmarked for the Minority Communities. States/UTs are required to give priority to the cities/slums, predominantly inhabited by minority communities (i.e. where minority population is 25% or more), while submitting Detailed Project Reports (DPRs) for the assistance under the BSUP/IHSDP.

Both under BSUP and IHSDP emphasis is given for integrated development of slums through projects for providing shelter, basic services and other related civic amenities with a view to provide utilities to the urban poor. Accordingly, the approved projects include physical amenities and related infrastructure such as water supply, sewerage, storm water drain, roads, multi-purpose community centres, parks etc.

More recently, in pursuance of the Government's vision of creating a Slum-free India, 'Rajiv Awas Yojana' (RAY) has been launched. The scheme envisages providing Central support to States that are willing to assign property rights to slum dwellers for provision of decent shelter and basic civic and social services for slum redevelopment, undertake reservation of land / Floor Area Ratio (FAR) / dwelling units for Economically Weaker Sections (EWS)/Low Income Groups (LIG), earmark 25% of municipal budget

for basic services to the urban poor/slum-dwellers and bring in legislative amendments and policy changes to redress land and affordable housing shortages for the urban poor. Under the RAY, 33 Pilot projects from 13 States (28 Cities) have been approved up to 31<sup>st</sup> December, 2012.

As a means of Credit Enablement of the urban poor, the Interest Subsidy Scheme for Housing the Urban Poor (ISHUP), dovetailed with RAY provides interest subsidy of 5% on loans upto ₹1 lakh, so as to reduce the cost of the loan taken to build/purchase house.

The Affordable Housing in Partnership Scheme (AHPS), which is intended to encourage public private partnerships for the creation of affordable housing stock is dovetailed with RAY. Under this scheme Central Assistance will be limited to least of following:-

- ₹50,000 per rental unit or Dwelling Unit for all dwelling units taking EWS, LIG and MIG units together which are proposed in the project, and
- 25% of the cost of all civic services (external and internal) proposed in the project.

The scheme extends to all cities covered under RAY and rental housing units as well as dormitories for new migrants are also permissible under the scheme. Under the AHPS, 11 projects from 2 States have been approved so far.

The Government of India has also approved the establishment of a Credit Risk Guarantee Fund (CRGF) Trust with an initial corpus of ₹1000 crores. This scheme proposes to guarantee the lending agencies for loans given to EWS/LIG persons up to ₹5 lakh without any third party guarantee or collateral security. The National Housing Bank is the identified agency for operationalising CRGF. The Trust has been registered. The CRGF Scheme has been notified in the Gazette and subsequently launched on 31<sup>st</sup> October, 2012.

Urban slums, particularly in the big cities of our country, are the picture of human misery and degradation. Urbanization is an inevitable phenomenon of modernization and economic development. Slums grow as a result of structural inequities in the development of the urban sector. Due to the high price of land and housing and low purchasing power, the urban poor are forced to join the existing slums for cheap shelter or to occupy any vacant land/areas wherever available in the city. With a view to paying particular attention to the needs of slum dwellers the programme titled Basti Sudhar monitors number of urban poor families assisted under the seven point charter viz. land tenure, housing at affordable cost, water, sanitation, health, education and social security.

#### **Role of NGOs**

The emerging scenario of the

complex socio-economic problems of slum dwellers and the somewhat isolated, piece-meal action plans and programmes drawn up so far by the Governments amply has not effectively hit the target. Thus while on the one hand the slum population is growing and the slum conditions are worsening, on the other hand, the slum programmes usually remain only partly accomplished.

What is needed is Peoples' Participation, both in policy formulation and implementation of programmes. In this regard, Non-Governmental Organizations (NGOs) with their local knowledge, skill and practical experience can play very effective role in programmes for improving living and economic conditions of slum dwellers. Various Five Year Plan documents have explicitly recognized the importance of involving NGOs in the planning and implementation of anti-poverty and minimum needs programme, which includes environmental improvement of slum areas only.

#### **Role of Cooperatives In Slum Improvement**

The essence of cooperation is that individuals come together to achieve as a collective what they cannot achieve as individuals. Inasmuch as the means, in general, and access to land, finance and other resources for housing, in particular are even more limited in the case of slum dwellers than in other sections of the society, hous-

ing cooperatives have a substantial potential role in the attainment of the shelter goals of slum dwellers.

Another major advantage of slum cooperatives is that they provide fresh migrants much needed emotional security in the unfamiliar urban environment. In furtherance of their aim of fostering a new community life for slum dwellers, slum cooperatives can undertake various educational, cultural and social activities.

Slum cooperatives can also help in income up-gradation endeavours if, for instance, cooperative household industries in slum areas are encouraged with a view to raising incomes and, thereby affordability towards housing and related services, including capability for repayment.

An important aspect of slum improvement and up-gradation is to motivate the public to maintain the assets created. Cooperatives of slum dwellers have a major advantage in that as they can secure the much needed maintenance of assets created which local authorities can ill-afford as a responsibility. Cooperatives not only provide a forum for community action in respect of maintenance initiatives, but they also help in educating slum dwellers on the need for maintenance and thereby secure, in the long term, individual responsibility and participation.

Thus cooperatives for housing, cooperatives for water supply and sanitation, cooperatives for

schools, cooperatives for health and environment etc. or a multi-purpose cooperative in each slum settlement can effectively ensure the delivery of various development inputs directly and specifically to the targeted slum population in order to achieve the desired results.

The importance of cooperatives and cooperative like organizations has been acknowledged by the United Nations Human Settlements Programme (HABITAT). The paragraph 56 of HABITAT Agenda recognizes cooperatives as stakeholders at local level that complement and supplement the governmental efforts in meeting the housing needs of the people.

The Agenda makes specific recommendations on housing cooperatives. It particularly focuses on cooperatives' role in mobilizing financial resources for providing housing for the poor. The paragraph 82 of the Agenda states as under:

To create new housing finance mechanism, as necessary, Governments at appropriate levels should:

- a) Harness the potential of non-traditional financial arrangements by encouraging communities to form housing and multi-purpose community development cooperatives, specially for the provision of low-cost housing;
- b) Review and strengthen the legal and regulatory frame-work and institutional base for mobiliz-

- ing non-traditional lenders;
- c) Encourage, in particular, by removing legal and administrative obstacles, the expansion of savings and credit cooperatives, credit unions, cooperative banks, cooperative insurance enterprises and other non-bank financial institutions and establish savings mechanisms in the informal sector, particularly for women;
- d) Support partnerships between such cooperative institutions and public and other financing institutions as an effective means of mobilizing local capital and applying it to local entrepreneurial and community activity for housing and infrastructure development;
- e) Facilitate the efforts of trade unions, farmers, women's and consumer organizations, organizations of people with disabilities and other associations of populations concerned to set-up their own cooperatively organized or local financial institutions and mechanisms;
- f) Promote the exchange of information on innovations in housing finance;
- g) Support non-government organizations and their capacity to foster the development, where appropriate, of small savings cooperatives.

The housing cooperatives across the globe have been contributing significantly towards meeting the

shelter requirements of needy people. They are also instrumental in removing social evils. For instance the Cooperative Housing Foundation of Canada has dealt successfully with the problem of domestic violence by sensitizing their members and soliciting cooperation of Municipal Authorities and Women Organizations. German Housing Cooperative has organized low income families of 15 countries to restore 400 apartments for them. Turkey presents a unique cooperative example of low income people through a mass housing project undertaken by Kent Koop (Union of Batikent Housing Construction Cooperatives) in collaboration with Municipal Authority of Ankara and Workers' Unions. Now 43000 housing units of this project provide shelter for 190,000 families. In Africa too, housing cooperatives have been playing important role in solving the housing problem.

The Indian cooperative housing movement is well spread across the country and has developed over the years into a noble and popular movement and in a position to serve the poorest of the poor living in the slums. Today there are over 100,000 primary housing cooperatives with a membership of over 75 lakhs in the country. These housing cooperatives have constructed/financed about 2.5 million housing units in various parts of the country. So far, 75% of housing units have gone to eco-

nominally weaker sections and low income families.

### **Globalization and Slums**

In the new era of globalization of national economies there is increased movement of human resources, capital and ideas. There is also an increase in uneven distribution of wealth and poverty particularly in developing countries. Slum formation is closely linked to economic cycles, trends in national income distribution and national economic development policies. There are some positive aspects of globalization. The multi-national companies have created some job opportunities in developing countries. There is also increase of financial support to NGOs and other community based organizations from international communities and organizations for undertaking some social activities for improving the living standard of poor people.

As stated above the negative aspect of the globalization is that there is concentration of wealth and poor people are the worst sufferers. The economic crises, often triggered by pressures of globalization, and interpersonal problems have emerged as major reasons for driving vulnerable people to the edge of despair in Kerala as the State tops the suicide rates in the country. The number of suicides has increased over the years. According to the State Commission for women, Kerala is now “at the receiving end of the adverse effects

of globalization, commercialization and privatization” and this has in part contributed to the high rate of suicides in the State.

### **Conclusion And Suggestions**

In the United Nations Millennium Declaration, World leaders pledged to tackle immense challenge posed by mushrooming growth of slums world-wide thereby setting the specific goal of achieving significant improvement in the lives of at least 100 million slum dwellers by the year 2020. This means addressing not only the needs of slum dwellers for shelter but also the broader problem of urban poverty, especially unemployment, low incomes and lack of access to basic urban services.

However surprising it may appear but indeed, even the slums offer their residents better life chances, in terms of jobs, education and income ,than they had back in the village. Census 2011 says the number of slum dwellers rose 25% over a decade to touch 6.5 crore, or about 16% of India's urban population. Experts suggest this is an underestimate, due to exclusion of small slum clusters. A more realistic number would be 11.5 crore, or 30% of the urban population. This shows miserable lack of preparedness for India's ongoing structural transformation from an agrarian economy to an industrial and post-industrial one, in which large numbers of people migrate from countryside to town.

If all of migrants have to be housed in existing towns, pressure would mount on basic infrastructure and slums and slum dwellers would proliferate further. We need to build many new towns, to avoid this degradation of human life.

This requires reform that will enable release of more land to build new towns. Zones for urbanization should be identified in advance, land in which should qualify for automatic conversion from agricultural to commercial use.

New models of town planning must be introduced to increase density, reduce commutes, optimize energy use and create open spaces for sports and community gatherings. India's new towns are run by bureaucrats and authorities, and lack institutions of self-governance.

This must change. A cluster of new cities will come up when the corridor linking Delhi to Mumbai, being done in collaboration with Japan, is complete. Similarly, another extension is being planned from Mumbai to Kolkata. Such projects should materialize the vision for new, slum-free urbanization.

The Supreme Court in a recent judgement directed authorities in Delhi to discharge their statutory obligation in keeping the city "at least reasonably clean". The Court directed the concerned authorities "to take appropriate steps for preventing any fresh encroachment or unauthorized occupation of

public land for the purpose of dwelling, resulting in creation of a slum". It was further ordered that "appropriate steps be taken to improve the sanitation in the existing slums till they are removed and the land reclaimed." The Court laid down the basis for this by saying that "the density of population per square kilometer cannot be allowed to increase beyond the sustainable limit. Creation of slums resulting in increase in density has to be prevented." The judges also added: "Rewarding an encroacher on public land with free alternate site is like giving a reward to a pickpocket".

**Cooperativisation of Slums:** In view of various advantages of cooperatives as outlined above, multi-purpose cooperatives of slum dwellers should be formed by motivating and educating them about the philosophy and ideology of cooperation and self-help. The local level NGO should be given the responsibility of organizing them into a cooperative. When the cooperative society becomes experienced and self-reliant and is in a position to run their affairs on their own, the concerned NGO should withdraw from the scene and let it function from its own resources. With the experience so gained and training so acquired the NGO may shift to other area that requires their assistance/guidance in the process of cooperativisation of slum dwellers.

**Role of Cooperatives:** This multi-purpose cooperatives should raise institutional finance for improvement or construction of dwelling units and such other activity for the benefit of members, encourage habit of thrift and to make provision for the credit to needy people within the cooperative for employment generation, run ration shops, kerosene and allied commercial activities to provide daily needs at affordable cost and at their door steps, undertake educational, hygienic and other health and community related activities, undertake repair and maintenance of common space, arrange group insurance, general insurance and other social security measures.

**Security of Tenure to women:** In India, women in urban slums live in dire poverty and are prone to violent crimes and limited employment opportunities and contribute substantially to the growth of the family. As such only the women should be admitted as members of the cooperatives. This will give status and respect to the women in the family and improve their contribution to the community. The title of the land should be given to the women members and selling of their right should be prohibited and if at all they want to leave they should surrender their right to the cooperative.

The U.N. Habitat campaign for 'secured tenure' is very note-worthy as it is the most important element for attracting institutional and

individual investment in order to improve the living conditions of slum dwellers. Hernando de Soto - a well known economist from Peru also advocates for giving formal title deeds to the poorest slum dwellers. It is legal proof of their ownership which will enable them to raise loans for improving their houses and environment and starting business. The Peruvian Government has issued one million titles to slum dwellers thereby improving their living conditions by raising loans from various sources and by contributing themselves.

**Poverty Alleviation Programmes:** As stated above poverty is the main cause of slum formation. The multi-purpose cooperatives should undertake activities like thrift and credit, health and social services, rental housing, library, child care, care for elderly, distribution of building materials, etc. This will generate additional income for cooperatives and employment opportunities for their members.

The Government has been implementing various schemes of poverty alleviation through DRDA, DWACRA, Indira Awas Yojana, etc. These agencies may be impressed upon to involve cooperatives in the implementation of such schemes.

**Basic services:** Cooperatives should sensitize slum dwellers about the constant threat posed by lack of basic services. Further the cooperatives should be entrusted for providing basic amenities like water, electricity, sanitary services

for their members with the help of local bodies. These cooperatives will ultimately transform them into new communities wherein "each is for all and all are for each".

**People's participation and city management:** The Second HABITAT campaign is for good urban governance. It advocates transparency, responsibility, accountability, just, effective and efficient governance of towns, cities and metropolitan areas. The cities create jobs and they are strong holds of economic development and provide better quality of life to different socio-economic groups. Cities have remained the backbone of national economies and will continue to be so in future. It is, therefore, pertinent that these cities are managed properly by professionals and with people's participation. We should accept people as part of the solution and they should feel they are part of the city. In Britain, Generalist Administrators do not run local governments. The management of the cities has been given to specialists from traffic management to garbage removal. The City of Curitiba, one of the fastest growing cities in Brazil, has set an example of innovative urban management by creating a sustainable urban environment and a strong sense of citizenship in its people. Housing provision is an integral part of urban development.

These ideas should be implemented in Indian cities to rebuild

our civilization. Good governance also means involvement of residents including poor people in the decision making of the urban governance. The multi-purpose cooperatives can play a very important role in this direction.

**Infrastructure Development:** There is a paramount need to invest in infrastructure to enhance economically productive activities of urban centres like electricity, access to water, sanitation, roads, footpath, waste-management, etc. This will ultimately improve the quality of life in the slums. City managers, State and national Governments should earmark substantial funds for infrastructure development thereby improving the living conditions in slums.

**Reversing Urbanization:** There is also an emergent need to discourage migration into urban centres and reverse this trend through speedy development of rural areas and small cities in order to effectively deal with mushrooming growth of slums. Instead of encouraging people to come where infrastructure is available, the infrastructure for adequate employment opportunities, better sanitation and hygienic conditions, sufficient facilities of health and family welfare, affordable housing, access to safe drinking water, transport and communication facilities, education, etc. should be made available to the poor needy people where they live. The findings of a recent study also show

that 22% of the slum dwellers want to go back to their native places. In 1997-2000 Hungary saw a slowdown trend of rural urban migration because of development of rural areas.

Rural Development schemes like National Programme for Rural industrialization with active involvement of Khadi and Village Industries Commission and involvement of Panchayats to promote local initiative in the area of primary health care units, Gram Samridhi Yojna, Employment Assurance Scheme and Swarna Jayanti Gram Swa-Rozgar Yojna will go a long way in cheering the upgradation for rural areas. All these schemes and projects need proper integration and proper implementation with the motive to develop rural areas. Some of these jobs can be entrusted to village panchayats, as they would be in a better position to monitor their implementation.

Secondly, the Indian farmers use ancient tools and farm technologies. Further the size of holdings does not afford economics of scale and the infrastructure to deliver their goods to the market is non-existent when compared to the developed World. We should bring modern technologies; remove restrictions on storage, processing and movement of farm products by the farmers or traders, liberal and

cheap finance and availability of the latest planting materials and other farm inputs to farmers. This will create lot of jobs in rural areas and improve the financial position of farmers. The example of China can be quoted where agricultural reforms provided more jobs and freedom to farmers to sell their produce in open market thereby bringing prosperity to them.

Strengthening of housing activities in rural areas will not only improve living conditions of farmers, but also create employment opportunities. This is an area of huge unmet demand and also a labour intensive activity. The experience of Grameen Bank Housing Programme in Bangladesh, have set an example, in alleviating poverty in rural areas by way of making the credit a powerful instrument for socio-economic change to enable the rural poor to fight their ways out of the vicious circle of poverty and live with human dignity. These findings are based on the basis of a study conducted by the author on the working of World Habitat Award Winning Project of Grameen Bank Housing Programme in Bangladesh.

The slums are reality of today and cities are collective future of human beings. We should take collective responsibility for their future development.

**CIRCULARS****CIRCULAR/Ref.No.72/2013-14/354 Dated - 23 September 2013**

This is to inform that the Meeting of the reconstituted Board of Management of the Federation held on 21 September 2013 at Federation's Office, Navi Mumbai elected unanimously the following persons as office bearers of the Federation for the next five years.

<b>CHAIRMAN</b>	<b>SHRI SUKHDARSHAN SINGH MRAR</b> (Chairman, Punjab State Cooperative Agricultural Development Bank Ltd.)
<b>VICE CHAIRPERSONS</b>	
<b>SOUTH</b>	<b>SHRI K. SIVADASAN NAIR, MLA</b> (Director, Kerala State Cooperative Agricultural & Rural Development Bank Ltd.)
<b>CENTRAL &amp; WESTERN</b>	<b>SHRI KISHAN SINGH BHATOL</b> (Chairman, Madhya Pradesh State Cooperative Agriculture & Rural Development Bank Ltd.)
<b>EAST &amp; NORTH EAST</b>	<b>SHRI BIJAY KUMAR SINGH</b> (Chairman, Multi State Cooperative Land Development Bank Ltd. - Bihar-Jharkhand)

The position of Vice Chairman (North Zone) remains vacant in the absence of nominations from non official representatives of member banks from North Zone.

Yours faithfully,

-sd-  
(K. K. Ravindran)  
Managing Director

**CIRCULAR/Ref.No.72/2013-14/353 Dated - 23 September 2013**

This is to inform that the General Body Meeting of the Federation held on 21 September 2013 at Federation's Office, Navi Mumbai elected unanimously the following persons to the Board of Management of the Federation.

<b>Sl. No.</b>	<b>Name</b>	<b>Representing Organisation</b>
1.	SHRI K. VEERA REDDY	President Andhra Pradesh State Cooperative Bank Ltd.
2.	SHRI BIJAY KUMAR SINGH	Chairman Multi State Cooperative Land Development Bank Ltd. (Bihar-Jharkhand)
3.	SHRI R. S. DAHIYA	Managing Director Delhi State Cooperative Bank Ltd.
4.	SHRI SATBIR SHARMA	Managing Director Haryana State Cooperative Agriculture & Rural Development Bank Ltd.
5.	SHRI K. SHADAKSHARI, MLA	Director Karnataka State Cooperative Agriculture & Rural Development Bank Ltd.
6.	SHRI K. SIVADASAN NAIR, MLA	Director Kerala State Cooperative Agricultural & Rural Development Bank Ltd.
7.	SHRI KISHAN SINGH BHATOL	Chairman Madhya Pradesh State Cooperative Agriculture & Rural Development Bank Ltd.
8.	SHRI W. K. KYNDIAH	Chairman Meghalaya Cooperative Apex Bank Ltd.
9.	SHRI SUKHDARSHAN SINGH MRAR	Chairman Punjab State Cooperative Agricultural Development Bank Ltd.
10.	SHRI ASHOK KUMAR FAUJDAR	Chairman Rajasthan Rajya Sahakari Bhoomi Vikas Bank Ltd.
11.	SHRI B. SHAHUL AMEED	Chairman Tamil Nadu State Cooperative Land Agriculture & Rural Development Bank Ltd.
12.	SHRI RAM JATAN YADAV	Managing Director Uttar Pradesh Sahakari Gram Vikas Bank Ltd.

Yours faithfully,

-sd-

(K. K. Ravindran)  
Managing Director



## THE MEGHALAYA CO-OPERATIVE APEX BANK LTD.

HEAD OFFICE : SHILLONG  
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### FINANCIAL HIGHLIGHTS

(As on 31.03.2012)

(As on 31.03.2013)  
 (Tentative)

• Paid up Share Capital & Reserves	: ₹ 7425.37 lakhs	₹ 8963.22 lakhs
• Deposits	: ₹ 118361.93 lakhs	₹ 133496.14 lakhs
• Loans & Advance	: ₹ 42223.38 lakhs	₹ 55418.49 lakhs
• Investments	: ₹ 47239.12 lakhs	₹ 53541.53 lakhs
• Money at Call & Short Notice	: ₹ 41609.52 lakhs	₹ 36055.34 lakhs
• Net Profit	: ₹ 1117.82 lakhs	₹ 1900.31 lakhs (Before Tax)
• Working Capital	: ₹ 145392.22 lakhs	₹ 163397.26 lakhs

### Our Banking Products & Services

- *Current Deposits*
- *Savings Bank Deposits*
- *No Frills Savings Deposits*
- *Fixed Deposits*
- *Recurring Deposits*
- *Monthly Income Deposits*
- *Double Benefit Scheme*
- *Cash Certificates*
- *Fixed Deposit linked with RDs*
- *Housing Loan Linked Deposits*
- *Children Education Deposits*
- *Crop Loans for Agriculture through KCC / SHG / JLG Cooperatives*
- *Term Loans for Agril. & Allied Agriculture*
- *Aquaculture Development One Thousand Ponds Scheme*
- *Loans for Housing / Housing Complex*
- *Loans for SRTO*
- *Consumer Durables Loans*
- *Loans to Technocrats & Professionals*
- *Loans to educated unemployed youths*
- *Cash Credit & Overdraft Facilities*
- *Loans for Children Education*
- *Loans for women through WDC Cell*
- *Integrated Village Development Scheme*
- *Term Loan for Tourism Development*
- *Personal loan to salary earners*
- *Bank Guarantee*
- *Safe Deposit Lockers & Other Ancillary Services*
- *Loans to Tribals under NSTFDC Schemes*
- *Loans to Physically Challenged under NHFDC*

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"A Bank of the people, by the people & for the people"

*Please bank on us for all your banking needs*

**D.F. War**  
 Managing Director

**M. Rahman**  
 Vice-Chairman

**W. K. Kyndiah**  
 Chairman

### **Priority Sector Lending reporting format for commercial banks: RBI defines “disbursement”**

In a notification dated July 24, 2013 addressed to all Scheduled Urban Cooperative Banks, RBI has defined “Disbursement” to be reported in the monthly and yearly reporting formats for Priority Sector Lending, as follows:

(i) Cash credit/over draft account and running accounts of similar nature: Debit summation minus

interest and other charges or sanctioned limit, whichever is lower for the particular period under consideration (monthly / quarterly / half yearly / yearly).

(ii) Term Loans: Debit summation minus interest and other charges for the particular period under consideration (monthly / quarterly / half yearly / yearly).

### **Maharashtra Govt to decide fate of land development bank by next year**

With Land Development Banks in the state facing the default of repayment of loans by over two lakh farmers, the Maharashtra government is weighing various options, including their merger. The options under consideration of the Maharashtra government are - to merge these banks with the district banks, ask the employees to take VRS, and to sell the properties of these banks to disburse the salaries of the employees who would be asked to take VRS.

A final decision on the issue will have to be taken by March 31, 2014, state co-operative minister Harshavardhan Patil said. "We are contemplating merger of these banks with the district banks. Other options are whether the properties of these banks can be sold to disburse the salaries of

employees who will be asked to take VRS," Patil said. A core group has been formed to take a decision on the fate of these banks, which comprises legislators from both state Legislative Assembly and Council, he said. However, he was doubtful whether banks will agree to merge with 28 district land development banks, which are running into a loss of ₹1,800 crore.

"In order to merge these banks with the district banks the Capital to Risk (Weighted) Assets Ratio (CRAR) should not be below 4% as per the guidelines issued by the RBI. As many as 1,300 employees would be asked to take VRS and by selling the property, the government will receive around ₹500 crore, he said. "₹150 crore will be spent on disbursing the salaries of these employees," he added.

## RBI approves reforms in primary co-ops

The Reserve Bank of India (RBI) has accepted the recommendations of an expert committee on primary agricultural cooperatives to ring in far-reaching reforms in the three-tier short-term cooperative credit structure.

Assets and liabilities of primary cooperatives will now stand transferred to central/state cooperative banks. In States where the central/state cooperative banks are fully computerised and on core banking systems, primary cooperatives will function as their business correspondents. A circular from the head office of National Bank for Agriculture and Rural Development (Nabard) unveiled the reforms to state and central cooperative banks.

Nabard has told state cooperative banks that the assets of primary cooperatives will stand transferred to the books of central/state cooperative bank along with related liabilities.

### NABARD circular on PACS

A NABARD circular on winding up the role of primary agriculture cooperative societies (PACS) as lenders to farming community in the rural co-operative banking structure has triggered unrest in this sector. The Gujarat State Cooperative Union (GSCU) has said the move threatens the very existence of over 93,000 PACS in India, which offer short-term loans for seasonal agricultural operations (SAO) to farmers.

Similarly, all deposits collected will be transferred to the state cooperative bank. Share capital mobilised from members by way of share-linked capital of the loans provided will now stand transferred to the books of state cooperative banks and will form part of their share capital. Borrowing members and depositors will have to become members of the state cooperative bank.

Primary cooperatives will not accept deposits on their account anymore and will not do lending operations of any kind on their behalf henceforth. However, they may carry out these services for cooperative banks. They can also facilitate the issuing of RuPay debit cards (to be issued by cooperative banks having core banking systems). They would also work on loan recovery and canvas for deposits on behalf of state cooperative banks on a pre-decided commission or fee basis.

PACS, owned by farmers, rural artisans etc, are the bottom-tier of the short-term cooperative credit structure functioning at the grassroots (Gram Panchayat) level. "It aims to end existence of PACS, whom we have nurtured and groomed over last 100 years. The move will bring back officers' rule and farmers will be deprived of timely credit," said GSCU president Ghanshyam Amin. He said if PACS are disbanded the farmers will be

subjected to exploitation as they will have no option but to borrow from private money-lenders. "Such scenario would adversely impact the agri production of country," Amin said.

As per RBI, the short term credit cooperative structure (CCS) comprised about 93,000 PACS, 370 CCBs and 32 state cooperative banks as on March 31, 2012. The National Bank for Agriculture and Rural Development (NABARD) circular dated July 22, 2013 stated that PACS will not accept deposits in their accounts and will not carry out lending operation of any kind on its behalf forthwith. "However, they (PACS) will carry out the services, both in the respect of lending operations and collection of deposits viz, collection and compilation of normal credit limit (NCL), facilitating issuance of

Rupay/KCC debit cards, recovery of loans and canvassing for deposits etc. on the behalf of central cooperative banks (CCBs)/SCBs on pre-decided commission on fee basis," the circular said.

A three-tier system of rural credit consisting of the state co-operative bank at state-level, CCBs, at the district-level and PACSs at the village level is currently in place to meet the short-term and medium-term credit requirements of agriculture and rural economy. An expert committee on the short-term CCS, set up by Reserve Bank of India under NABARD Chairman, had proposed that PACS may function as business correspondents (BC's) of CCBs among other recommendations. The NABARD's circular comes in line of the apex bank's advise to it on the issue.

### **RRBs asked to take membership of at least one Credit Information Company**

The RBI in a notification addressed to RRBs has said, "RRBs are also Credit Institutions as defined in sub-section (f) of Section 2 of the Act, they would be required

to take membership of at least one credit information company and provide credit data in the format as required by the Credit Information Company (CIC)".

### **NABARD's largesse takes rural poor for ride**

New evidence reveals a pattern of grants by the National Bank for Agriculture and Rural Development (Nabard) to dubious NGOs that are profiting from the rural poor instead of uplifting them. These NGOs have all been found to be connected to those managing Nabard's affairs, either in the board

room or in the Finance Ministry. Janhit Foundation, Lucknow, and its banking partner Shivalik Mercantile Cooperative Bank (SMCB), which are linked to Former Secretary, Department of Financial Services (DFS), Ministry of Finance, D.K. Mittal who, in his official capacity, was a strong influence in

Nabard's decisions until recently have been found to be the biggest beneficiaries.

Investigation reveals that Mr. D. K. Mittal's brother, Dr. Sanjeev Kumar Mittal is on the Board of Shivalik Bank. During his tenure as DFS Secretary, Mr. Mittal permitted Urban Cooperative Banks, which are under the RBI's supervisory jurisdiction, to promote and finance Joint Liability Groups (JLGs) in rural areas. Shivalik Bank went on to become the lone beneficiary of this concession. Of total grants of ₹7.88 crore disbursed to 303 NGOs in Uttar Pradesh in 2012-13, Janhit Foundation alone secured ₹6.01 crore. A meagre ₹1.87 crore accounting for an average grant size of between ₹8,000 to ₹80,000 was disbursed to the remaining 302 NGOs.

Janhit-Shivalik's abnormal commercial appetite is laid bare by a Nabard Inter Office Memorandum which documents the fact that Shivalik Bank mobilises the savings of the poor at a meager interest rate of 3%-4% while lending this money to an urban clientele at a whopping 24%. Despite its lucrative business model, loans to its associated and poor Self Help Groups (SHG's) which are collectively called Joint Liability Group (JLGs) are disbursed at a high 18%, while its group members bear a staggering 24% interest rate, including the 6% service charge paid to Janhit.

"This arrangement has been made without consulting Nabard

and the clients concerned," the memorandum states. It further observes that "99% of the groups promoted and credit linked has been with SMCB only, limiting the clients choices with such overdependence on one bank" and that the members are not even aware that they are being charged unnaturally high interest rates. Documents and Nabard file notings relating to requests for grant of funds by Janhit Foundation, further reveal an inexplicable urgency to fasttrack the approval process and release funds to the NGO, admitting that the "office was kept open on Saturday in view of the urgency of the matter".

Overlooking this exploitation, as well the serious discrepancies documented in the claims made by Janhit, funds were still released to the NGO. "Photographs, as an evidence of conduct of programmes not submitted for all the programmes for which the claims have been made. The dates of the photographs and the date of programme conducted differ. NGO has been advised. Name of the district also does not match with the claim.... There seems to be a contradiction in the claims as the NGO has submitted claims for training of Group leaders of SHGs, which far exceeds number of SHG formed by the agency so far in the district. If SHG's have not been formed, training for their group leaders cannot be conducted". The Memorandum further observes, "that the quality of group

functioning, viz, book keeping, credit decision by groups and other operations needs close attention of the partner NGO".

While charging crippling interest rates from the rural poor, being an urban mercantile bank, Shivalik Bank, onlends those funds to an urban clientele at lucrative interest rates, further reversing the flow of funds from rural to urban areas. The Nabard report itself acknowledges that while its performance in mopping up rural savings is high (saving linkages were 64% in Unnao and 100% & 76% in projects of Saharanpur, U.P.), it is very slow to provide loans to the groups (credit linkages were 2.5% in Unnao and 8.6% & 55% in Saharanpur).

Responding to detailed questions by a Daily Newspaper 'The Hindu', emailed to its Chairman, Prakash Bakshi, Nabard said it "is working with 460 NGOs including Janhit Foundation for promotion of SHGs in UP. Janhit Foundation has been partnering with Nabard since 2010". Documents additionally establish a clear rise in Janhit's fortunes since 2010, after Mr. Bakshi took over as Chairman in June 2010 and D.K. Mittal took over as Secretary, DFS. Nabard granted ₹5.85 crore to Janhit within 18 months of Mr. Mittal's tenure (August 2011 to January 2013). The discovery of other major sources of funding to Janhit from grants and contributions under Corporate

Social Responsibility schemes of companies like IOC, ONGC, Petronet, SAIL and NHPC, in the Nabard report, are further co-terminus with Mr. Mittal's stint in the Ministry of Corporate Affairs, Department of Commerce and other ministries.

Another case of conflict of interest arises from grant of funds by Nabard to the Centre for Collective Development (CCD), Hyderabad. The NGO, which provides support to farmers engaged in groundnut cultivation in Andhra Pradesh, has IIM Bangalore Professor and Independent Director, Nabard, Trilochan Sastry as its secretary. Interestingly, CCD, which has a turnover of just ₹3 crore, was sanctioned soft loans with a subsidy for two projects worth ₹2 crore each during 2011-12 and 2012-13 for procurement and marketing of agricultural commodities by Cooperatives.

Nabard told The Hindu, "Prof. Sastry came on the Board of Nabard in October 2011. As per information with us, Prof. Sastry is an 'Authorised Signatory' for the NGO and does not draw any financial benefits from it. A loan was sanctioned to the NGO for 2012-13 by the Projects Sanctioning Committee and the fact that Prof. Sastry is associated with the NGO was brought to the notice of the Board of Directors of Nabard and duly recorded. All these loans were sanctioned at an interest of 10% per

annum as per UPNRM guidelines. Nabard has no business relation with CCD based at Hyderabad". When contacted, Professor Sastry did not deny that CCD was getting funds from Nabard but stated that he "agreed to join the Board because of some initiatives which one is trying to get Nabard to take that will help all small and marginal farmers, not CCD".

Regarding the conflict of interest

### **Inclusion Main Focus of New Bank Licenses: Anand Sinha**

Applicants for new banking license will have to be committed to financial inclusion and meet all the criteria proposed in the guidelines, says RBI. The Reserve Bank of India has mandated that aspirants for a banking licence will need to open 25% of their branches in unbanked areas, as part of its criteria for a bank licence apart from meeting priority sector lending target of 40%. New bank licences have the central focus on financial inclusion programmes, said Anand Sinha, Deputy Governor, Reserve Bank of India. New banks which are going

represented by his being a member of the Nabard Board, Professor Sastry added, "I read through the documents and did not find any conflict of interest since there is no personal or organizational financial benefit to CCD. Even if you get technical, the written terms show there is no conflict of interest. Then I informed Nabard. They also asked the Ministry of Finance and they cleared it".

### **Inclusion Main Focus of New Bank Licenses: Anand Sinha**

to come up should be committed on inclusion right from the beginning.

In the recent past, some of the NBFCs have sought selective dispensation in certain requirements like SLR, a chunk of deposits held in the form of government securities, and increasing the number of days before an asset can be classified as nonperforming from 90 days (as per the requirement for a banking licence), which is currently 180 days for NBFCs. We expect all applicants to comply with all the requirements, Sinha said.

### **Plastic Money**

As per of its clean note policy initiatives, the Reserve Bank of India is planning to introduce ₹10 plastic notes on a trial basis. RBI has said, it considered various options in consultation with the Government before deciding to introduce one billion ₹10 banknotes on plastic substrate for field trials. The five cities that have been identified for introduction of plastic notes are Jaipur,

Bhubaneswar, Kochi, Shimla and Mysore. These cities have been identified because of their geographic and climatic diversity, RBI said. "The spoilage is less in plastic compared to paper, and is more cost effective as they last longer", the RBI said.

RBI engaged The Energy and Resources Institute (TERI) to conduct a study on the carbon footprint of cotton based banknote

paper substrate vis-a-vis plastic based substrate to estimate the overall environmental and life cycle assessment impact. The result indicated that the polymer/plastic note (and the waste from production) could be granulated and recycled into plastic products

### **NABARD targets to disburse ₹1.35 lakh cr in 2013-14**

The National Bank for Agriculture and Rural Development (Nabard) proposes to disburse over ₹1.35 lakh crore for its business initiatives this fiscal. Of this, refinance of production credit (crop loan) would be about ₹ 80,000 crore and investment credit refinance, at ₹17,000 crore. Disbursement for rural infrastructure development fund and warehousing are expected to be about ₹25,000 crore. Other business segments would receive ₹11,500 crore, a Nabard release said.

Nabard financed banks, State Governments and other agencies ₹1.07 lakh crore in FY13 as against ₹81,000 crore disbursed in FY12. The rise is due to increased support to cooperative banks and regional rural banks for production (crop loan) credit support and

### **Why banks need to follow KYC rules?**

Banks undertake know your customers exercise to verify the identity of their customers. The KYC exercise aims to prevent banks from being used, intentionally or unintentionally by criminal elements, for money laundering. KYC is applicable to every individual who wants to have any business relationship with the

such as compost bins, plumbing fitting and the like. Australia, incidentally was the first country to introduce polymer notes, way back in 1988. Since, then over 30 countries have introduced them. Canada is the latest entrant.

maintenance of the growth trajectory in other business verticals. In refinance, the production credit (short-term loans) to co-operatives and RRBs was ₹66,180 crore (₹48,000 crore) in FY13. The state co-operative banks and RRBs in Punjab, Rajasthan, Madhya Pradesh, Maharashtra, Andhra Pradesh, Uttar Pradesh and Karnataka received a major share of this refinance.

Investment credit for capital formation in agriculture and allied sectors, non-farm sector activities and services sector accounts for ₹17,674 crore (₹15,424 crore). Rural infrastructure loans disbursed to State Governments was ₹16,292 crore (₹14,970 crore) in 2012-13.

bank. This means, any individual wanting to open an account (savings or current account and recurring or fixed deposit), get a bank draft, open a locker, receive any benefits on account of financial transactions, remittance or wire transfer, and apply for a loan. The KYC norm has been validated under Section 35A of the Banking

Regulation Act, 1949, and Rule 7 of the Prevention of Money-Laundering Rules, 2005. Any violation of these norms could attract severe penalty under the BR Act.

KYC has two components: identity and address. While PAN and voter card, driving licence and any other identity document that satisfies the banks requirements serve as proof of identity, a copy of passport, electricity or phone bill or bank account statement are accepted as proof of address.

To ensure financial inclusion, a low-income group customer without identity and address proofs can open a bank account with an introduction from another account

holder who has fulfilled the bank's KYC procedure. However, the balance in all his accounts taken together is not expected to exceed 50,000 and the total credit in all the accounts taken together is not expected to exceed ₹1 lakh. The introducer's account with the bank should be at least six months old and should show satisfactory transactions. Banks can ask customers to re-submit fresh identification and address proof to update their records. They can also ask for additional documents if they have doubts about some transaction in order to prevent the account from being used for money laundering, terrorist or criminal activities.

### **IGNOU offers course on rural development**

The Indira Gandhi National Open University (IGNOU) is offering a masters programme on rural development from the 2013 session, an official said Monday. The Master of Arts in Rural Development (MARD) is a two-year programme, which can be pursued

by graduates of any discipline. "Apart from freshers the course will be useful to personnel working in various government departments, agencies, NGOs, cooperative banks and other institutes engaged in rural transformation," the official statement said.

### **Supreme Court checked the control of State Govt over Coop Banks**

In a judgment, the Supreme Court has freed the management of cooperative banks from the unwritten control of political masters in states despite being brought under the supervision of the Reserve Bank of India through a 1965 law. A bench of Justices K S Radhakrishnan and Dipak Misra told the supervisory body that it would be personally liable for

succumbing to political pressure to supersede elected board of directors of cooperative banks.

"Registrar/joint registrar shall not act under political pressure or influence and, if they do, be subjected to disciplinary proceedings and be also held personally liable for the cost of the legal proceedings," the bench said. The apex court's judgment came on

a petition which related to a decision of Registrar Cooperative Societies, Sagar division, which superseded the board of directors of District Cooperative Central Bank Ltd, Panna, holding it responsible for discrepancies of the previous management.

The bench reinstated the board of directors, which was superseded on September 30, 2011, but also found it strange on the part of the Madhya Pradesh State government to take keen interest in the litigation and pursue it till the Supreme Court. "We fail to notice why the state government, department of cooperative societies, has taken so much interest in this litigation," the bench said and slammed the state for spending public money by

### **Farmers' suicide rates soar above the rest**

Suicide rates among Indian farmers were a chilling 47% higher than they were for the rest of the population in 2011. In some of the States worst hit by the agrarian crisis, they were well over 100% higher. The new Census 2011 data reveal a shrinking farmer population. And it is on this reduced base that the farm suicides now occur.

Apply the new Census totals to the suicide data of the National Crime Records Bureau (NCRB) and the results are grim. Sample: A farmer in Andhra Pradesh is three times more likely to commit suicide than anyone else in the country, excluding farmers. And twice as likely to do so when compared to

pursuing appeals till the apex court.

Dismissing the appeals against the HC judgment and directing immediate reinstatement of the board of directors, the bench said, "We also direct the state of Madhya Pradesh to pay an amount of ₹1 lakh to MP Legal Services Authority within a period of one month by way of costs and also impose a cost of ₹10,000 against the joint registrar, cooperative societies, the officer who passed the order, which will be deducted from his salary and deposited in the Panna District Cooperative Bank within two months." Justices Radhakrishnan and Misra laid down a series of guidelines that will check state governments' control over cooperative banks.

### **Farmers' suicide rates soar above the rest**

non-farmers in his own State. The odds are not much better in Maharashtra, which remained the worst State for such suicides across a decade.

Five States account for two-thirds of all farm suicides in the country, as NCRB data show. These are Maharashtra, Andhra Pradesh, Karnataka, Madhya Pradesh and Chhattisgarh. The share of these 'Big 5' in total farm suicides was higher in 2011 than it was in 2001. At the same time, the new Census data show that four of these States have far fewer farmers than they did a decade ago. Only Maharashtra reports an increase in their numbers.

Nationwide, the farmers' suicide rate (FSR) was 16.3 per 100,000 farmers in 2011. That's a lot higher than 11.1, which is the rate for the rest of the population and slightly higher than the FSR of 15.8 in 2001. In Maharashtra, for instance, the rate is 29.1 suicides per 100,000 farmers ('Main cultivators'). Which is over 160% higher than that for all Indians excluding farmers. Such gaps exist in other States, too. In as many as 16 of 22 major States, the farm suicide rate was higher than the rate among the rest of the population (RRP) in 2011.

These figures are obtained by

applying the new farm population totals of Census 2011 to farm suicide numbers of the NCRB. The Census records cultivators. The police count suicides. In listing suicides, the State governments and police tend to count only those with a title to land as farmers. At least 270,940 Indian farmers have taken their lives since 1995, NCRB records show. This occurred at an annual average of 14,462 in six years, from 1995 to 2000. And at a yearly average of 16,743 in 11 years between 2001 and 2011. That is around 46 farmers' suicides each day, on average. Or nearly one every half-hour since 2001.

### **Inflation-indexed bonds**

It's a bond that guarantees a real return, or a return higher than the rate of inflation. Such bonds are indexed to inflation rate, or in simple words, they're bonds with their capital appreciation and coupon payments linked to inflation rates.

Investors who seek safe returns, which is above the inflation level, can go for such bonds. Another aim of the Reserve Bank of India and the government is to incentivise household sector to save in financial instruments rather than buy gold, which is now the favourite hedge of Indian consumers against inflation. The IIB issue would target various points of the maturity curve in order to have benchmarks. To begin with, these bonds will be issued for tenor of 10 years. Each tranche of IIBs will be

for ₹ 1,000 - ₹ 2,000 crore and total issue would be for about ₹12,000 - ₹15,000 crore in 2013-14. The first such tranche would be issued to institutional investors regularly through auctions on the last Tuesday of each subsequent month during 2013-14.

Second series of bonds, exclusively for retail investors, will be issued in second half of the financial year. First series of the IIBs will help in determining the coupon rate for the bonds through auction. This will help in benchmarking IIBs. Based on the experience in the initial issuances, second series of IIBs for the retail investors is proposed to be issued around October 2013.

IIBs will be having a fixed real coupon rate and a nominal principal value that is adjusted

against inflation. Periodic coupon payments are paid on adjusted principal. Thus these bonds provide inflation protection to both

### **Design banking products for rural people: Nabard chief**

With tiny landholdings in rural India growing, there is a need to develop banking products for farmers that will help in capital formation, according to the Nabard Chairman. "Rural and urban banking require different kinds of products and processes," Chairman, Nabard, said.

Referring to fragmentation of landholdings in the country, he said that the farmland in the country, which was around 141 million hectares four decades ago, has remained almost the same. However, the number of farmers

principal and coupon payment. At maturity, the adjusted principal or the face value, whichever is higher, will be paid.

### **NABARD chief says cooperative banks not involved in laundering**

Amid allegations of cooperative banks being used as conduits for money laundering, the National Bank for Agriculture and Rural Development (Nabard), which jointly regulates such lenders, has said that it has found no shortcoming pointing towards any such activity. "Every year we do an inspection and we have not found anything like that," Nabard chairman said, when asked about the controversy over money laundering.

A probe launched by the Reserve Bank of India following allegations of non-compliance with anti-money laundering measures and know your customer (KYC) norms by top

has increased from seven crore then to 14 crore now. This means that the landholdings have come down. Stating that more than 65% of farmers own less than one acre of land, he said they cannot own any agriculture implement or take up any projects. He said that there would be shortage of foodgrains in 20 years' time. It will not be because of the lack of land, but because of the tiny landholdings. In such a situation, there is a need to develop different kinds of banking products for rural people. These should lead to capital formation.

### **private banks has reportedly found that cooperative banks are used as conduits. Cooperative banks can accept cash under ₹50,000 from customers (the limit at which reporting to tax authorities sets in). They usually earn commission from larger banks for providing services.**

When asked about the misuse of the system and if this amounts to regulatory arbitrage, he said, "It is the same regulation for everybody. Banking Regulation Act is same for everybody." Online portal Cobrapost had in March 2013 made public a sting operation purportedly showing some executives at three top private banks ICICI Bank, HDFC Bank and Axis

Bank allegedly agreeing to receive unverified sums of cash and put them in their investment schemes

### **New debt recast rules to shield banks, put promoters on hook**

India's banks may think long and hard before they recast loans with the Reserve Bank of India (RBI) making it costlier for them to do so. The central bank mandated that, from June 2013, banks will need to set aside 5% as provisions for fresh restructuring. For the existing pool of restructured assets, banks will need to raise provisioning to 5%, but gradually over the next two years, the central bank said in the final guidelines.

To ensure that they have enough skin in the game, the RBI has insisted promoters cough up at least 15% of the reduction in the fair value of the loan or 2% of the restructured debt, whichever is higher. As for promoters, who have been getting away with relatively lenient terms, a personal guarantee is now a must. A corporate guarantee can be accepted only where the promoters are not individuals but other corporate bodies or where individual promoters cannot be clearly identified, the central bank clarified. To safeguard banks' interests, the RBI has insisted that, under the right to recompense clause, banks must recover 75% of the amount restructured. In the event that the restructured loan attracts a rate below the base rate, 100% needs to be recovered. The RBI said that infrastructure

and accounts in violation of anti-money laundering laws.

projects must become viable within eight years while other projects must be viable in five years.

In the case of infrastructure project loans, where the date of commencement of commercial operations has been delayed due to external circumstances, the asset can be classified as a standard asset and not an non-performing asset (NPA). Total restructured loans rose a whopping 58% in 2011-12 to an outstanding of ₹ 2.18 lakh crore. Corporate debt restructuring formed the bulk of recast loans; in 2012-13, the CDR cell alone restructured loans worth ₹ 76,479 crore with bilateral restructuring also a large amount.

The central bank has said that banks can upgrade a bad loan only when all the outstanding loans of the borrower perform satisfactorily within one year after the first payment of principal following the moratorium. Further, this first payment of principal or interest must be on the loan having the longest moratorium, the RBI said. The RBI has also tightened the definition of "specified period" in which the performance of the borrower determines the classification of the restructured loan into a standard asset or a bad loan. Further, the RBI said that rollover of short-term loans for more than three times would get a

tag of restructuring. On promoter sacrifice, the RBI observed that "This stipulation is the minimum and banks may decide on a higher

### **Finance Minister asks banks to lend more against warehouse receipts**

The Finance Ministry has directed banks to set internal targets for lending against Negotiable Warehouse Receipts and increase servicing of such receipts, according to Dinesh Rai, Chairman, Warehousing Development and Regulatory Authority.

The Food Ministry has recognised over 125 agricultural commodities, 26 horticultural produces and registered over 374 warehouses that can issue such receipts which can be transacted without physical transfer of stocks from the warehouse or used as collateral to raise loans, he said.

A warehouse receipt is a document that provides proof of ownership of commodities that are stored in a warehouse for safekeeping. Small and marginal farmers can raise loans at seven per cent interest on these receipts as against 11 per cent for others. Soon electronic receipts will be issued to speed up the process, Rai said.

The National Bank for Agriculture and Rural Development

### **OIL plans dairy cooperative**

Oil India Ltd. (OIL) plans to tie-up with the Assam government to start a co-operative dairy business along the lines of Gujarat's successful 'Amul' model. The project named 'Kamdhenu'

sacrifice by promoters depending on the riskiness of the project and promoters' ability to bring in higher sacrifice amount," the RBI said.

hopes to register over 10,000 warehouses under the cooperatives by the year-end. The authority has sought food infrastructure status for agricultural and horticultural storage and the Planning Commission was open to the idea. Also, once the Goods and Services Tax regime is rolled out, investments in warehouses will come into the mainstream.

K.V. Thomas, Union Minister of State for Food and Consumer Protection, said the Ministry hopes to encourage investments in storage spaces. Over two million tonnes of modern silos are planned for food grain storage across the country. M.P. Nirmala, Food Secretary, Tamil Nadu, said the Primary Agricultural Cooperatives have warehouse capacities. The cash-strapped cooperatives have been rejuvenated but have huge accumulated losses. This is a handicap when it comes to getting accreditation to issue negotiable receipts. The conditions have to be relaxed, she said.

envisages setting up of a milk production facility in Upper Assam to establish the dairy business in 3-5 years, OIL said.

"Assam is a milk-deficient state. Availability of good milk is a big

issue here. So, as part of our corporate social responsibility, we have decided to join hands with the state government to start a co-operative dairy business here," OIL Chairman and Managing Director

### **To recover bad loans, banks will now shame the guarantors too**

With bad loans or non-performing assets (NPAs) rising sharply, banks have hit upon a new strategy to force borrowers to pay their dues besides publishing photographs of defaulters in newspapers, they have also decided to put alongside pictures of those who stood guarantee for those loans.

Public sector banks have been publishing photographs with names and addresses of willful loan defaulters in newspapers and on notice boards of their branches. These banks have now decided to give the same treatment to the guarantors of borrowers and initiate recovery measures against

### **Current account deficit**

A country's current account consists of merchandise trade (exports and imports of goods) and the invisible trade income and expenditure from export and import of services, profits earned on investments and remittances by workers. A deficit would occur when total imports are greater than exports. A deficit implies that the country is a net debtor to the world.

India's current account deficit is likely to increase to 3% of the GDP from 2.9% last fiscal. This is largely because of the rising and high trade

Sunil Kumar Srivastava said. The company was assessing options such as giving cows to farmers in villages, setting up collection centres, and establishing a distribution network, he said.

### **To recover bad loans, banks will now shame the guarantors too**

them for loans that have gone sour. The move comes on the heels of 39 listed banks reporting a 36% rise in gross NPAs to ₹1,79,431 crore as on March 31, 2013.

A Supreme Court order earlier this year specified that if a borrower defaulted on repayment to a bank, the guarantor was responsible for making good the entire loan. Banks say there is no minimum loan limit below which they cannot go to enforce the new name-and-shame rule. Banks are enthusiastic about this new method as recoveries have already shot up with the publication of pictures of just the defaulters.

deficit excess of merchandise exports over imports. It stood at 23-month high of \$13 billion in August. The full year could see a trade deficit of around \$135 billion, which is about 10% of the country's GDP, the highest in recent years.

The current account deficit is financed by a combination of portfolio investment inflows, long-term capital inflows, remittances from non-residents and overseas borrowings. An increasing current account can pose serious problems for an economy. Payments are

dependent on long-term capital inflows, which, in turn, depend on the growth prospects of an economy. A pause in these flows

### **Know your credit score before applying for a loan**

A credit score computed by credit information companies like CIBIL, Experian or Equifax, indicates your credit-worthiness to the lender. Most lenders today rely on credit scores and credit reports while reviewing loan applications and those with higher scores are given preference. As per data released by CIBIL recently, over 90% of new credit is sanctioned to people with scores of 700 and above. According to CIBIL, the credit score is calculated after taking into account defaults made by the individual, amount of credit being used, number of loan applications, loan mix and so on. Simply put, default on repayment is just one of the factors that determine your credit score. "Borrowers tend to assume that having a clean repayment history alone can ensure a good credit score.

Repayment history gets the maximum weightage (35%) while computing the scores. The second-most important fact is the credit utilisation, which accounts for 30% of the score. That is, how much of your available credit you have utilised. The third factor would be vintage of credit - for how long you have been using credit which gets a weightage of 15%. The fourth factor is account mix the composition of

can lead to payment problems and pressures on the local currency. It can then encourage outflow of foreign capital.

### **Know your credit score before applying for a loan**

the secured and unsecured loans in your credit profile. However, the weightage could vary as per the credit information company.

Even if you are diligent with your E M I (equated monthly installments) payments, the fact that you have obtained multiple loans could work against you. Lenders, for obvious reasons, see borrowers with a higher share of secured loans as more reliable. Now, this may come as a surprise to you, as an average Indian believes in disposing of a liability as soon as possible. However, the fact is that frequent foreclosure of loans can bring down your credit score. "Once you have availed of a loan, it is advisable to keep it for at least 12 months before closing it.

"Lenders will definitely ask why loans are being taken and repaid so frequently. It is important to ensure that the money is not being invested in stocks or for speculative purposes. Also, the lender would like to see, if the customer is revolving by taking a new loan to repay an existing one, which is not good. However, if the borrower is an entrepreneur borrowing to finance his/her working capital needs, or is engaged in a seasonal business where there is a short-term demand, - it will not be a cause for concern," Finally, checking your

credit report at regular intervals will help you alert CIBIL or other credit information companies like Equifax and Experian about errors that may have crept in. "If the lender has committed any mistake

### **B.S. Baviskar: A cooperative man**

The eminent sociologist, B.S. (Baburao) Baviskar, who died in Delhi recently, was one of the pioneers of the study of cooperatives in India. A former professor of sociology at the University of Delhi, Baviskar had been president of the Indian Sociological Society and held visiting appointments in the U.K., the Netherlands, Egypt and Canada.

At Delhi, Baburao studied under M.N. Srinivas and M.S.A. Rao who were both giants in the field. For his PhD, he chose the dynamic new cooperative sugar factories in Maharashtra, and selected the Kopargaon factory, as his research site. He was fascinated by the intense political competition among the leaders, their business savvy, and their easy command over State officials. Two generations earlier, these villagers had been like those in his home village: mostly illiterate, subsistence farmers. By 1963, leaders in the Kopargaon area were

### **Nabard to extend ₹ 5,000cr funding to private grain players**

With the food security law likely to put pressure on grain storage requirement, private bodies will also be able to avail of soft loans from the ₹5,000-crore corpus for

in reporting or there is a case of identity theft, one should bring it to the notice of such lender and correct the report. Such timely action will help in improving the score," adds Kulkarni.

### **B.S. Baviskar: A cooperative man**

among those taking charge of district and State politics. His PhD research was eventually published as *The Politics of Development: Sugar Cooperatives in Rural Maharashtra* (1980).

His other team research projects resulted in *Who Shares? Cooperatives and Rural Development* (1988), followed by *Finding the Middle Path: The Political Economy of Cooperation in Rural India* (1995).

Baburao along with his colleagues at the Delhi School, A.M. Shah and E.A. Ramaswamy edited a five-volume collection of papers in honour of M.N. Srinivas: *Social Structure and Change* (1996-1998). With George Mathew, the Director of the Institute of Social Sciences, Baburao organised a research project on the impact of the 73rd amendment, which was published as *Inclusion and Exclusion in Local Governance: Field Studies from Rural India* (2009).

warehousing, managed by Nabard. "We have not had many states accessing the facility created in the Budget. Therefore, we have now decided to allow private parties to

avail of the loans," Nabard board member D B Gupta told. As the food security law becomes a reality, there will be more pressure for adequate storage facilities for the additional demand, he said. Private sector can play an important role in meeting the expectations, he added. Gupta cited the findings of a report prepared earlier which talked about

### **Are farmers not keen on growing hybrid rice varieties?**

Farmers in Andhra Pradesh and other paddy-growing States are not accepting hybrid rice, as there is only a marginal yield hike in comparison with high-yielding fine varieties. Also, it is much easier for them to produce the seed in the case of varieties, according to A. Padma Raju, Vice-Chancellor of Acharya N.G. Ranga Agricultural University, Hyderabad.

"Paddy is grown on 40 million hectares in the country and one-fourth of the area is covered by varieties developed in our university. We have also developed hybrid rice, but our farmers are not keen on hybrid rice," he said. "There is only a marginal yield hike and the seed becomes a problem in hybrid rice. Therefore, our farmers are opting for varieties."

He further said people in Andhra

### **Jump in rural branches and business correspondents**

The number of banking outlets in villages, which was 67,694 during 2009-10, crossed the 2.6-lakh mark by March 2013. These outlets include brick-and-mortar branches and business

the need to create storage facilities for 35 million tonnes additional grain during the 12<sup>th</sup> Plan. "On an average, an investment of ₹4,000 is required for creating 1 tonne storage space," said Gupta, who also serves as the Principal Secretary in Rajasthan government's Agriculture Department.

### **Are farmers not keen on growing hybrid rice varieties?**

Pradesh and other States were "opting for fine varieties of rice and there has been a drastic decline in the production and consumption of millets. Therefore, we have taken up a campaign to increase millet cultivation and consumption." The Vice-Chancellor said millets were of great importance for a balanced diet and nutritional security and also to curb the incidence of diabetes and other diseases. Moreover, as water was scarce, rice cultivation should be reduced and millets grown in rain-fed conditions should be preferred.

He also felt rice exports could be allowed within limits to secure a good price for the paddy farmer. He stressed the importance of using IT for agricultural extension and the necessity of taking the fruits of agricultural research to farmers.

correspondents (BCs).

The annual report of Reserve Bank of India for 2012-13, said nearly 7,400 rural branches were opened during 2010-13. However, the country had witnessed a

reduction of about 1,300 rural branches during the past two decades. The number of BCs in villages, which was 34,174 in 2010, increased to 2.21 lakh by March 2013. While 447 BCs served unbanked people in urban locations in 2010, their number increased to 27,143 during 2012-13.

Business correspondents are the agents appointed by banks to provide basic banking services in un-banked areas. The number of basic savings bank deposit accounts under the financial inclusion plan was 7.34 crore in March 2010, and these accounts mobilised deposits of around ₹5,502 crore. By March 2013, the number of these accounts

### **Most transactions still done through cash and cheques**

Despite Reserve Bank of India's efforts to promote electronic banking, almost 90 % of payments are estimated to be collected through cash/cheque, according to RBI's annual report. A very small share of electronic payments is done through Electronic Clearing Service (ECS), an electronic mode of funds transfer from one bank account to another.

“Despite availability of a wide range of payments instruments and channels, there are significant operational and cost inefficiencies in the bill collection processes. It is estimated that over 30,800 million bills are generated each year in just the top 20 cities in the country,” RBI research quoted in the report said. A central bank committee, in its

increased to 18.2 crore and the deposits mobilised stood at ₹18,292 crore.

Equipped with information and communication technology (ICT), the BCs transacted ₹692 crore in 2.65 crore transactions during 2009-10. The technology helped them transact ₹23,388 crore in 25.04 crore transactions during 2012-13.

The annual report noted that the number of transactions through ICT-based BC outlets, though increasing, is still very low when compared with the manifold increase in the number of banking outlets and the number of accounts.

report released in April 2013, noted the gaps in the bill payments ecosystem. These gaps included lack of inter-operability, high cost of cash collection, and poor accessibility in semi-urban and rural areas.

The key challenges to putting in place payment and settlement systems were the predominant usage of cash as mode of payment, low per capita non-cash transactions, concentration of modern electronic payment systems in Tier I and II cities, low penetration of acceptance for electronic payments and government receipts done predominantly through cash/cheque, according to the report.

According to a vision document by the RBI, developing accessibility, availability, affordability and assurance among other things are needed. In addition, simplifying documentation requirements, increasing role of non-banks in the payment systems, innovation and competition, uniformity, addressing risks could facilitate more usage of the electronic mode of fund transfer.

On the positive side, the Real Time Gross Settlement System (RTGS) processed transactions to a settlement value of around ₹ 8 lakh crore at the end of March, 2013, which is the highest value settled through RTGS on a business day,

the annual report said. The National Electronic Funds Transfer (NEFT) handled a record volume of 47 million transactions valued at around ₹360,200 crore in March 2013.

As at end March 2013, 55 banks with a customer base of around 23 million were providing mobile banking service in India compared to 49 banks and a 13 million customer base at the end of March 2012. During 2012-13, 53 million transactions valued at around ₹6,000 crore were transacted, thus registering a growth of 108 % and 229 %, respectively, over the previous year.

### **Maharashtra stops auction of sugar factories run by cooperative sector**

The state government has taken a policy decision to disallow sale of loss-making sugar factories run by cooperative societies. The decision comes in wake of growing unrest in rural Maharashtra, as sugar cooperatives are increasingly being privatized without adequate compensation to farmers, who have given their land and hold stakes in the units.

Minister for Cooperation Harshvardhan Patil said, "The decision was inevitable to salvage the cooperative sector and arrest the backlash from farmers and people in rural Maharashtra." The takeover of existing units by private players leads to conflict and unrest, he admitted. "If anybody wants to set up a separate private unit, it is

alright. But to auction the existing ones to private players creates problems."

He added, "Of 168 sugar factories, 26 have been auctioned and 22 that are up for auction will be provided some way out to ensure financial stability. Of these, seven have been given out on a long-term lease basis to neighboring cooperatives and will be handed over to farmers once they become profitable."

He said, "We want the ownership of these factories to remain with farmers. We are working out a long-term policy wherein these sick factories can be leased out for a long period and once the debt is cleared, they can be handed back to farmers. In no condition will sick sugar

factories be auctioned to private entities by state or district cooperative banks."

The minister claimed, "Despite a rough phase in the cooperative sector, 70 % of sugar production is through factories owned by cooperatives." Seven cooperative sugar factories in Satara, Kolhapur and Osmanabad have been rented out for a lease period between 11 and 19 years.

In 2013-14, 640 lakh metric tonnes of sugarcane production is expected, which would be 20 % less than last year. Of this sugarcane, 73.4 lakh metric tonnes of sugar

will be produced. He added that in the next five to seven years, all sugarcane cultivation will be brought under drip irrigation to stop the declining production of sugarcane in Maharashtra compared to other states. Of the 168 cooperative sugar factories in the state, 26 have been auctioned; 40-45 of them are sick while 80 are financially very strong.

Overall, 105 are run by cooperative societies and there are 79 private sugar factories in the state. The sugar crushing period will start from November 1 and will last for 120 days.

### **Rajya Sabha nod to Land Bill**

Rajya Sabha passed the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Bill, 2013. The proposed law, which will replace the Land Acquisition Act, 1894 that suffers from various shortcomings, including silence on the issue of resettlement and rehabilitation of those displaced, stipulates mandatory consent of at

least 70 % of landowners for acquiring land for Public Private Partnership (PPP) projects and 80 % for acquiring land for private firms.

The Bill, which was passed in Lok Sabha on August 29, was passed in Rajya Sabha after the government agreed to some last-minute amendments pushed by Madhya Pradesh Chief Minister.

### **Changes in ARDBs**

i) Shri B. Shahul Ameed, has assumed charge as Chairman of the Tamil Nadu Coop. State Agri. & Rural Dev. Bank Ltd., w.e.f. 17<sup>th</sup> July 2013.

ii) Shri M. Venkatesh Gowda, K.C.S. has assumed charge as Managing Director of the Karnataka State Coop. Agri. & Rural Dev. Bank Ltd., w.e.f. 1<sup>st</sup> July 2013.

iii) Shri V. Giridhar, has assumed charge as Managing Director/CEO of the Andhra Pradesh State Coop. Bank Ltd., w.e.f. 31<sup>st</sup> July 2013.

iv) Shri Gopabandhu Satpathy, has assumed charge as Managing Director of the Orissa State Coop. Agril. & Rural Dev. Bank Ltd., w.e.f. 3<sup>rd</sup> September 2013.



## THE HARYANA STATE COOPERATIVE AGRICULTURE AND RURAL DEVELOPMENT BANK LTD.

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

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

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

### Scale of finance and periodicity of Major Sectors

#### **Farm Sector**

Sr.No.	Name of the Scheme	Period	Scale of finance
1.	Minor Irrigation	9 years	₹1,00,000 to 3,50,000
	i. WCS/UGPL	-do-	90% of the project cost
2.	Farm Mechanisation	5-9 Years	85% of the cost of the Machinery
3.	Purchase of Agriculture Land	10 Years	Upto ₹10.00 Lacs
4.	Horticulture/Plantation	5-10 Years	₹ 40,000 to 1,55,000 per acre
	i. Medicinal & Aromatic Plants	-do-	90% of the project cost
5.	Animal Husbandry	5-7 Years	90% of the project cost
6.	Rural Godowns	Upto 9 Years	90 % of the project cost

#### **Non Farm Sector**

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

#### **Rate of Interest**

The Loans for the purpose of Non-farm Sector, Rural Housing and Purchase of land are being advanced @ 15.00% p.a. w.e.f. 3.8.2012. All other loans are being advanced @ 14.00% p.a. w.e.f. 3.8.2012 and a rebate of 5% is allowed on all slabs to regular pay masters.

#### **Note:-**

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

**Shakuntla Jakhu, IAS**  
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## AGRICULTURAL NEWS

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### **Boron foliar spray increases crop yield**

Foliar application of boron is also known to enhance crop growth, number of fruits, fruit size and yield of many crops. This technology was tested in some farmers' fields in Bangalore on ash gourd, Pumpkin, and bitter gourd. In addition to boric acid, urea was dissolved in the spray solution at 0.5% to enhance absorption of applied boron.

A progressive farmer Mr. Umesh of Gopalpur, Hessaraghatta obtained 28-36% increased production at an expense of ₹50/ha on boric acid and urea in each crop. Another farmer Mr. Bhadradev Kumar of Muthkur region also adopted foliar application of 25 ppm boric acid along with one per cent urea 25 days after planting to flowering (45 days). He obtained an average increase of two fruits per vine from one and five ashgourds

from three in a vine. Against an estimated yield of 56 tonnes from a hectare Mr. Kumar got 49 tonnes per hectare by adopting this technology.

This substantial increase in production is attributed to an increased fruit set caused by improved health of the pollen. A favourable boron status of the cucurbit vine caused:

(i) proper growth of pollen tube after fertilization leading to an enhanced of fertilization of eggs in the ovary leading ultimately to enhanced the fruit set in each vine; and

(ii) substantial growth or enlargement of the fruit since every fertilized egg in the ovary releases growth hormones responsible for fruit enlargement leading to a significant increase if its weight.

### **Fertilisers to be sold in smaller packs**

The Fertiliser Ministry has recently allowed the sale of non-urea fertilisers DAP, MOP, complexes, fortified fertilisers and customised fertilisers in smaller packs of 5 kg, 10 kg, 25 kg and 40 kg besides the conventional bag size of 50 kg. The latest move is in response to the demands from various quarters as a

sharp rise in non-urea fertiliser prices had led to decline in sales and an imbalance in consumption. It is also expected to encourage the balanced fertiliser application and promote the fertiliser use in low consumption and in-accessible areas.

### **Drip irrigation powered by the sun**

Punjab in the month of April 2013 started giving farmers a 70% subsidy on solar-powered submersible pumps for drip irrigation, which

would help save 40 to 60% water, besides electricity when demand peaks. Officials say the combination of drip irrigation (directing water and

fertilisers to the roots through pipes slowly and by regulating the flow through valves, thus preventing wastage) and solar pumps would enhance the summer crop yield. The Punjab Energy Development Agency (PEDA) distributed among farmers 100 solar-powered submersible pumps with a 70% subsidy, shared 30:40 between centre and state. PEDA has received hundreds of applications for submersible solar pumps from

farmers using drip irrigation, and the horticulture department will select the beneficiaries.

Punjab Agricultural University (PAU) has conducted a demonstration of solar pump-driven drip irrigation in poly houses as well as fields. Poly houses growing capsicum, cabbage, papaya, flowers like rose, gerbera have shown better growth and fruit health with drip irrigation.

### **Citrus greening : A deadly fruit disease**

Citrus greening disease is an important disease of citrus which greatly affects the production of the fruits in several parts of India. Characteristic symptoms include yellowing of leaf veins and adjacent tissues, followed by premature defoliation, dieback of twigs, decay of feeder rootlets and lateral roots.

Infected fruits are small, lopsided with bitter taste. Such fruits may fall prematurely; while those that remain on the tree do not colour properly, remaining green on the shaded side. Routinely scout citrus for signs of greening so that infected trees can be removed. Scouting should be done at least four times a year, or more in areas known to have infected trees. October & March is the best time for scouting, but symptoms can be present at other times of the year. For effective management remove infected trees. This is the only way to ensure that they won't remain a

source of infection for other trees. Pruning symptomatic limbs is often ineffective since other parts of the tree may be infected, but do not show symptoms.

Before removing, the tree should be sprayed with a foliar insecticide to kill any psyllids in order to keep them from moving on once the tree is removed. Focus Integrated Pest Management (IPM) efforts on using disease-free nursery trees, reducing infection sources (inoculum) by frequent surveys and diseased tree removal, and suppressing Asian citrus psyllid through area-wide management

Spray foliar insecticide prior to tree removal. Increase frequency of scouting in areas where infected trees have been removed. The complex of natural enemies attacking ACP around the world usually includes various species of ladybeetles, syrphid flies, lacewings, spiders. Use soil-applied

systemic insecticides on young trees. Foliar sprays of fenpropathrin (Danitol 2.4 EC),

chlorpyrifos (Lorsban 4EC), petroleum oil (2% rate).

### **Farm ponds play big role in tiding over droughts**

The Central Research Institute for Dryland Agriculture (CRIDA), Hyderabad, is actively involved in popularising farm pond concepts for farmers in Andhra Pradesh. The farm ponds are constructed at the lower side of the fields and the runoff from the higher side of the fields are channelised into the pond.

“Water, the most crucial resource for sustainable agricultural production in the dry land/rain fed areas, is not being used fully. Much of the rainfall runs off the ground. The runoff does not only causes loss of water but it also washes away precious top soil,” says Dr. Mohammed Osman, Principal Scientist (Agronomy) and Head of the Institute. Apart from digging some new ponds those already dug under the scheme were re-modelled and about 30 ponds of higher dimension and capacity were dug. Sixteen ponds out of the total 30 retained water for some months and few of them throughout the year. The success led to huge demand from all farmers in the region for more such big ponds and today the district alone has about 195 farm ponds.

### **Eco friendly measure to control papaya mealybug**

Chemical measures to control the outbreak of papaya mealybug in Tamil Nadu did not yield success because of wider host range including many weed species and

The National Agriculture Innovation Project (NAIP) under Indian Council of Agricultural Research (ICAR), New Delhi bore the expense for the work. Several tribal farmers in the region have now realised the importance of rainwater harvesting and are able to save ₹2000 to 2,500 on fetching of water (hiring of bullock cart and drum) for spraying pesticides for their crops. The institute is encouraging the farmers to fence the ponds and harness the multiple benefits of water by rearing fish and growing vegetables for meeting nutritional security.

The availability of water in most of the ponds is the silver lining for improving cropping intensity and diversity. Adilabad is mainly a black soil district and receives good rainfall that offers scope for rainwater harvesting and recycling on a large scale. Since continuous water availability is a must for agriculture work, preserving and maintaining a perennial source is of utmost importance.

### **Eco friendly measure to control papaya mealybug**

trees, presence of thick protective waxy coating over the body and mainly development of resistance to the chemical insecticides.

Based on the lesson learnt from

other countries like Guam, Palau, Mexico, Puerto Rico, Dominican Republic, U.S. (Florida) etc where the pest was suppressed successfully by classical biological control programme, National Bureau of Agriculturally Important Insects (NBAII) Bangalore functioning under Indian Council of Agricultural Research (ICAR) imported three effective exotic parasitoids namely *Acerophagus papayae*, *Anagyrus loecki* and *Pseudoleptomastix mexicana*, mass multiplied and released them in hot spot zones jointly with Agricultural Universities of different states as well as Central Silk Board. The pest was completely brought under control.

A survey in Tamil Nadu indicated reappearance of papaya mealybug in a few areas of Salem, Namakkal, Erode, Coimbatore, Virudunagar

### **Maintaining health of dairy animals during winter season**

Though reasons such as water shortage, shrinking space, maintenance expense, and low price for milk at the cooperative milk societies are some reasons attributed to the decline in cattle rearing among several farmers in southern states, in Haryana, farmers have been able to cope with these problems. "In Haryana, presently there are 6,000 cooperative milk societies out of which 1,300 units are being entirely run by women. In Haryana, unlike in southern parts of the country, cattle and land are not

and Thirunelveli districts. The incidence is also recorded on other plant species including hibiscus, sorrel leaves, tomato, brinjal etc. Though the population of the pest recorded below economic injury level, incidence of this pest is found to be increased in the locations facing severe drought and hot climate.

Past experience revealed that spray of insecticides induced the outbreak of the bug rather than control because of its resistance and destruction of natural enemies as they are highly sensitive to the chemicals. Release of above said exotic parasitoids at 200 individuals per location alone is sufficient to manage the pest. If incidence of papaya mealybug is noticed, farmers may approach nearby agriculture universities.

directly linked. Even those who possess no land rear 2-3 buffaloes or cows and supply the milk to the societies and earn a decent income," says Dr. Rajinder Singh, Sr Extension Specialist (Animal Sciences), Lala Lajpat Rai University of Veterinary and animal Sciences. Extension Centre, Rohtak, Haryana.

The Livestock farming systems in the State can be broadly divided into two types: Buffalo based and cow/crossbred cows farming systems. Milk societies in Haryana pay ₹28.35/litre for buffalo and

₹22.95 for cow's milk. If the milk contains 10% fat with 8.8 SNF (saturated non fat), then the farmer gets about ₹42 per litre. More the fat content higher the price. The cooperative system has launched an attractive system for milk suppliers. If SNF is extra then farmers are paid 10 paisa extra.

Buffalo breeds have provided a higher fat percent (6-7%) than cow's milk (3-4%). To maintain optimum level of fat and SNF, several farmers have been trained by the extension department of the University to particularly maintain this level during winter, because during the cold season temperature falls below zero degree, badly affecting the health of the dairy animals and their milk yield. During winter season many animals often refuse to eat, become feverish and pneumonitic. This affects the milk production, health and reproduction of the animal. Normal cow and buffalo body temperature ranges between 101-102 degree Fahrenheit and suitable ambient temperature is 65-75 degree F. Severe cold surroundings result in increased energy loss, which has to be compensated by giving extra calorie-rich feed and special care.

Breed, nutrition, age, state of lactation, gestation effects and management are the main factors affecting SNF and fat percentage. Nutrition, especially balanced rations, fortified and supplemented with protein ingredients like whole cotton seed or cakes, becomes

important. Rations containing about 17% fibre in the animal feed are also helpful to increase fat percentage in milk. Concentrate mixture should comprise grains (40%), oil cakes (32%), brans (25%), mineral mixture (2 per cent) and common salt (1%). Apart from this the extra energy-rich grains at approximately 0.8% of body weight should be fed to counter the stress of cold for maintaining normal milk production and other activities.

Haryana is supporting cattle farmers (both cow and buffalo) to take up crossbred rearing for milk production by providing imported semen for breed improvement and development at their doorsteps. Farmers are also made aware about the importance of conserving green grass into hay and silage for making them available round the year. "Silage is a simple method where the grass or dried straws are packed tightly in plastic barrels or cement cisterns and the containers closed tightly. After some weeks this can be used as feed for the animals. "Sometimes a small amount of jaggery can be diluted and sprinkled over the silage and then closed inside the barrel to be used later. We find that the animals love the taste of this feed," he says. Till date the University has trained more than 800 unemployed youth, women, and farmers on scientific dairy farming as a method of increasing milk productivity and self employment.

## Management of thrips in garlic

Garlic is widely used as a condiment in Indian cuisine, especially for its medicinal properties. It is grown in Maharashtra, Gujarat, Rajasthan, Orissa, Madhya Pradesh, Utter Pradesh, Punjab, Haryana and Tamil Nadu (Nilgiris and Kodaikanal hills). Among the insect pests, the onion thrips, Thrips tabaci is a major one injuring garlic.

Both nymphs and adults cause injury to the plants by sucking the vital leaf sap. They remain in dense concentrations at leaf bases and whorls and feed by lacerating the tissues and imbibing the oozing cell sap. The infestation develops a spotted appearance on the leaves, subsequently turning into silvery white blotches. The leaf tips fade and the basal portions get blighted and distorted from tip downwards and finally the plant dries up. The affected plants yield less, with small sized bulbs.

Adults are slender, yellowish brown and measure about 1mm in length and have narrow fringed wings. Eggs are laid singly in tender

leaves by making slits with sharp ovipositors by the females. A single female lays 40-50 eggs which hatch after 4-9 days. The entire life cycle is completed in 11-21 days. There are more than ten generations per year. The pest occurs on garlic from November to May and migrates to other crops from June.

Varieties with open type growth and circular leaf structure are not preferred by thrips. Tolerant varieties of Garlic viz. G-2, G-19, LCG-1, Ooty-1 may be utilised for cultivation. Higher doses of nitrogenous fertilizers and close planting should be avoided.

Clean cultivation, regular hoeing and flooding of infested field will check the thrips population. Insect predators like green lacewing fly and tiny ladybird beetles check the population of this pest. Application of profenofos or malathion 0.05%, methyl demeton 0.025%, monocrotophos 0.036%, formothion 0.025%, dimethoate 0.03%, carbaryl 0.1% or phorate 10G at 10kg/hectare could control the pest.

## Double breakthrough in cotton research

Two developments of Central Institute for Cotton Research, Nagpur, could potentially revolutionise cotton production in the country - a soon-to-come variety with the weightiest boll in the world, and a germplasm (genetic resource) for a possible variety or hybrid with the strongest fibre. The big boll was

accidentally developed by head of crop improvement P K Chakrabarty. The strong-fibre achievement by principal scientist Vinita Gotmare was the result of a sustained effort in that direction. "Chakrabarty's boll weighs 7.9 gm, which is probably the highest the world has ever known. Gotmare's fibre's strength is 29

grams/tex, which is the highest in India and surely one of the highest in the world," CICR director Keshav Kranthi.

The maximum boll weight anywhere in the world, according to Kranthi, hasn't exceeded 6 gm and the top fibre strength in India is 25 g/tex and around the same in most parts of the world. Chakrabarty is two seasons away from his new variety with the big boll. Gotmare's tough-fibre germplasm, too, will be available in around the same time for strengthening existing varieties or hybrids. A high-strength fibre is

crucial to high-speed spinning.

Chakrabarty's variety will have a maximum 25 and a minimum 15 bolls per plant. "With normal plant spacing, it should fetch 50 quintals/hectare with best protection," he said. Bt cotton hybrids have fetched about 60-70 quintals per hectare with best production. "The culture (cells) can be used to develop big bolls in even hybrids, which could further boost production," Chakrabarty said. About disease resistance, fibre strength and length of his variety, he said, "it is as good as any other".

### **Water jetting: An eco-friendly pest management technique in mulberry**

Like other crops, mulberry is also prone to a number of pest attacks. Farmers generally spray pesticides two times before each harvest of leaves i.e. in bimonthly interval to produce quality leaves to feed the silkworms. The spray consists of some chemical pesticide mixed with water and sprayed over the leaf canopy. The main drawback in this is that while the chemical spray initially seems to control the pest, over time the insect develops an immunity to these sprays. Besides this, the practice of spraying chemicals over time creates some serious health problems to the farmers spraying it.

In order to overcome these problems the research extension of the silk board developed a water jetting package which attempted to apply the physical force of water

against the sucking pest menace in mulberry cultivation and succeeded. Water jetting using a high volume sprayer is an old recommendation but became unpopular among the farmers because it required huge quantity of water at the spraying spot. It is an expensive method and required a lot of time and labour. But in the present method irrigation water is diverted from the main pipeline to a one-inch garden hose with the help of suitable adaptor and gate-valve for jetting. Therefore, the farmer gets an uninterrupted supply of water as well as sufficient flow quantity to generate adequate water pressure to hit the pests lethally and wash them out from the plants.

The water pressure and jetting distance can be adjusted by

blocking the open end of the garden hose by using the thumb. Farmers who do not have pipeline across the garden can establish the system for one acre at a cost lesser than that of the cost of a high volume power sprayer. The technology is highly economical as the cost of establishment of the system is lesser (₹5,000 to ₹7,000) than the purchase of standard high volume power sprayer that costs ₹10,000-₹15,000) and also can conveniently be used for many years. Water jetting can be done at the time of

routine irrigation without using additional man power and any revolving expenditures.

Further, chemical measure to control pests in mulberry garden is not possible after initiation of silkworm rearing. But water jetting can be done at any moment if pest incidence is noticed i.e. even after initiation of silkworm rearing. This water jetting can also be employed for other agricultural and horticultural crops with a little care at the time of flowering stage.

### **Device to remove insect pests from stored grains**

Stored grains are attacked by several pests. They assume importance as they start their damage in the field itself. Generally insects fly from nearby farms, farm store houses or farmer storehouses and start laying eggs on the grains that are stored. Eggs are the root cause in of damage to the grains during storage. As the use of pesticides and fumigants on or near stored grain is more dangerous to human beings and due to the development of resistance to the insects, mechanical methods like rotation, tumbling and impact of infested grains prove to be effective in the removal of stored-product insects.

Mechanical removal of insects from stored grains is an important pest control strategy. Hence, a device to remove adult stored product insects and crush the eggs present in stored grain has been

developed by Department of Agricultural Entomology, Tamil Nadu Agricultural University, Coimbatore.

The device has a grain feeding hopper, insect cleaning unit with an outlet to collect them separately and an outlet for the treated grain. It can be easily operated and within five minutes majority of the insects present in the food grains can be removed and collected in the collection outlet. Further inner arrangement in the insect cleaning unit facilitates crushing of the eggs, if any, in the grains. The capacity of the hand operated machine is 200-250 kg/hr. It can be easily motorized depending on the need.

For wheat and pulses (whole and broken) the perforation size of the insect cleaning unit can be adjusted between 2.8-3 millimetres and for cereals like rice, maize, sorghum, it should be 2

millimetres, so that perforation permits insects alone and not the grains. For best results, the length of the insect cleaning unit can be six feet or more, depending on the grain handling. The approximate

cost of this device is ₹2,00,000. The unit can also be fabricated into smaller sizes. It has been licensed by TNAU through Agribusiness Entrepreneurship programme.

### **Management of rice blast disease**

Rice blast is a fungal infestation known to occur in all the rice growing areas of the country. The disease attacks all the parts of the crop growing above the soil. It is broadly classified into three types, leaf, collar and neck blasts. Initially elliptical or spindle shaped lesions occurs with brown borders and grey canters. Under favourable conditions, lesions enlarge and coalesce eventually killing the leaves. Leaf blast usually increases early in the season and then declines later as leaves become less susceptible.

Collar blast occurs when the pathogen infects the collar that can ultimately kill the entire leaf blade. The pathogen also infects the node of the stem known as node blast that turns blackish and breaks easily. Neck blast occurs when the pathogen infects the neck of the panicle. The infected neck is girdled by a greyish brown lesion and the panicle falls over if the infection is severe. If neck blast occurs before the milk stage (rice forming stage), the entire panicle may die prematurely, leaving it white and completely unfilled. Later infections may cause incomplete

grain filling and poor milling quality.

Varietal resistant to blast is the most practical and economical approach for management. The most common resistant varieties are Aditya, CSR27, IR64, KRH2, Krishna, Hamsa, Naina, Pusa sugandha3, Rasi, Vasumati, PA6129, DRRH2, Dhan80, PR113, Swati, Narendra, Sumati, Swarnadhan, Triguna, Tulasi, IR-36 etc.

Use disease free seeds. Apply recommended dosage of nitrogen application in 3 to 4 splits and avoid final application in infested plots. Burn previous crop residues if the crop is found infested. Early sowing helps prevent this infestation spread from neighbouring fields. Avoid water stagnation.

Treat seeds with Pseudomonas fluorescence 10g/lit of water for 30 min, dip the seedlings in Pseudomonas fluorescence 5gm/lit for 20 minutes before transplanting. Foliar spray of the Pseudomonas fluorescence 5gm/lit can be done at an interval of 15-20 days after transplanting.

## Goat shed that is easy to build and dismantle

More than maintenance, building a housing structure for farm animals poses a challenge for farmers. Unlike a dairy farm where some cattle are kept tied under a covered structure, in goat rearing the animals are predominantly kept in the open.

“The herd is usually kept inside a circular ring like formation made from locally available material. Though this may serve the purpose for the time being, it cannot offer protection against snake bites or provide shelter during heavy rains,” says Dr. Abdul Kareem, Programme Coordinator, Krishi Vigyan Kendra, Kannur, Kerala Agricultural University”. Our research team, bearing this in mind, has developed an easy-to-assemble and dismantle goat shed designed from galvanized iron (GI) frame and fibre-reinforced plastic.

The shed, with an area of 100 sq ft, can accommodate 10 to 20 goats, and is strong enough to support the weight of the animals,” he says. Provisions for adult and kid feeders and automatic water drinking units are inbuilt. The animals can be

reared exclusively inside the shed without grazing thus reducing manpower requirement. A fibre-reinforced plastic floor ensures that the goats inside do not get wet or dirty. As a result the animals are devoid of bad body smell caused by wetting and dampening by urine common in conventional sheds. The animals are at ease during extreme summer or during winter since the plastic floor is resistant to heating and cooling.

As the holes for excreta are small and of uniform size, the legs especially of kids will not get caught in the gaps as seen in structures with uneven gaps in the floor. It can be cleaned easily. The floor made of inter-lockable units can be taken out separately and cleaned. The unit is priced at ₹1 lakh. “Though the initial cost may look high, in the long run it will prove beneficial since it is built to last for more than 15 years. A similar structure made with locally available materials would cost nearly 60% less, but last only up to two years,” says Dr. Kareem.

## ICRISAT led team decodes genome sequence of chickpea

In a major breakthrough, a team of global scientists led by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) have decoded the genome sequence of chickpea or gram. The sequencing would help plant breeders develop newer varieties that can yield more and are drought and

disease tolerant among others.

The decoding done by a consortium of scientists led by the Hyderabad-based International Crop Research Institute for the the semi aired Tropics (Icrisat) assumes significance as India is the largest producer, consumer and importer of Chickpea.

Chickpea is the second largest pulse crop in the world, grown in about 11.5 million hectares. The highly nutritious crop is grown mostly by poor farmers and in dry areas. Besides India, chana is also

is grown in a number of African countries including Ethiopia, Tanzania and Kenya. It is also an important component of the pulse industry in Australia, Canada and the US.

### **Control measures for managing eriophyd mite**

Eriophyd mite affecting coconut trees is a major problem in coconut regions of India. Green coloured nuts are more prone to this infestation than yellow coloured ones. The mites spread through wind and their multiplication rate is high. Usually trees of 15- 25 years of age have been prone to damage by this pest. Earliest symptoms of infestations are noticed on the buttons. A triangular yellow coloured patch and a gummy substance oozing from the small nuts, brown discolouration in the husks, frequent nut falling from the trees are all indications of the pest attack.

#### **Management**

- Collect and destroy the fallen nuts.

Grow intercrops in between and casuarina on all the four sides to prevent further entry.

- Apply 1.3 kg of urea, 2 kg of super phosphate and 3.5 kg of

muriate of potash at 3 kg per tree every year.

- In case soil is deficient in micro nutrients, apply 50 gms of borax, 1 kg of gypsum and 0.5 kg of manganese sulphate per tree a year.

Farmers can also make their own organic bio inputs for controlling this pest. For this they need to grind 200 gms of garlic and mix it in water and filter it to make a extract of 300ml. An ordinary bar soap is to be dissolved in 500 ml water. This soap solution is to be mixed in 200 ml of neem oil and stirred slowly to get a good emulsion. Mix the garlic extract into this. You will get approximately one litre of solution. Dilute this entire solution in nine litres of water and the bio input is ready for use. This bio formulation can be sprayed on the tree crown once every 45 days during non rainy season. It is advisable not to spray during heavy winds to prevent contamination spread.

### **Women coconut pollinators scale new heights**

In Kasaragod district, the friends of coconut trees programme (FoCT) for training women in coconut pollination organized by the Central Plantation Crops Research Institute (CPCRI), evoked good response from enterprising women. Thirty-four ladies, mostly house-wives,

underwent training in pollination techniques, an area all along dominated by men. In addition, 207 unemployed rural youth were also trained in the techniques.

Feedback studies show that the training programme in artificial pollination done by women is a big

hit among rural women in the region as it helps in their financial empowerment. Among the five groups functioning in the district now, two groups comprise only women. "From the usual women dominated leaf plating, broom making, and copra drying for instance, women started climbing the trees, harvesting nuts, cleaning the crown, carrying out plant protection methods, and today they are happy that our institute has played a major role in making them pollinators," says Dr. V. George, Director, CPCRI. The programme is funded by the Coconut Development Board (CDB).

Coconut pollination technique is a highly skilled activity which has to be done on newly opened inflorescence located on the crown of the tree. It takes only 5-10 minutes to pollinate a bunch on the tree. The different steps in this technique are pollen collection and processing, removal of male flowers from the inflorescence, tying a bag on the inflorescence, dusting of pollen, confirming the receptive stage of female flowers, repeating the same procedures till the last flower comes to receptivity, and removal of the cloth bag after

ensuring that the last button is also pollinated.

The pollinator needs to climb a tree at least 5-6 times to pollinate a bunch. On the first day he/she has to remove the male flowers from the opened inflorescence and cover the bunch with a bag. From the second day onwards (some times alternative days) they need to pollinate according to the receptive stage of the female flower. There are two parts in procedure one the lab scientists keep the pollen (processed male flowers ready) and the women climbers take it with them to be sprayed on matured female flowers in the crown.

At present a private contractor selected through the institute pays ₹600 a day for each woman climber who pollinates 20-22 trees in a day. "Though the main objective of the programme was to address the problem of labour shortage, it has changed the social status of coconut climbers as they are known today, as skilled professionals in the sector. "Their services are highly valued by the coconut farmers of the locality and nearby panchayaths because of their dedication and sincerity towards their profession," says Dr. George.

### **Control of moths in stored grains**

The Angoumois grain moth is the most serious pest injurious to rice, both in the field and storage. This moth also attacks other cereals like maize, wheat and sorghum. The infestation may reach serious levels

before the grains are transported to the storage godowns resulting in around 25% loss in weight and seed viability. The larva is an internal borer of the whole grain, feeding on the starchy part. Severely infested

material emits an unpleasant smell and looks unhealthy in appearance. Grains are often covered with scales shed by the moths. The grains are practically hollow and filled with larval excreta and other refuse making it unfit for consumption.

The adult is a small, straw coloured moth. The female can lay an average of 150 eggs on unhusked paddy grains. They hatch in a week's period. Newly hatched caterpillar is yellowish white in colour with a brown head capsule. It soon bores into the grain and feeds on its contents. Larval stage lasts for about three weeks. Before pupation, the larva constructs a silken cocoon in the cavity made during feeding and turns into reddish brown pupa. After a period of 4-7 days, the adult emerges. Entire life cycle is

### **Punjab's alternative fruit other than the kinnow**

The daisy tangerine, being promoted as an alternative to the kinnow, will be at its sweetest in November, when the kinnow too arrives but with a very sour taste. The daisy also has a higher nutritional value than the kinnow. Its harvesting season comes almost two months prior to that of the kinnow. The daisy will also provide farmers an alternative for diversification.

Punjab's latest addition to the citrus family has been cleared by the horticulture department, following more than five years of

completed in 30-35 days. Several generations are completed in a year. Adults are short-lived and can be seen flying about in large numbers in storage bags and on the surface of grains.

#### **Management**

Drying the grains under sun for three days to reduce moisture content below 12% is suggested.

The jute bags to be used for storing grains have to be dipped in insecticidal solution of fenitrothion 50EC at 5ml/20 liters of water.

Application of dichlorvos (DDVP) 76SC is recommended on the surface of stored jute bags by dissolving 7ml/lit. of water and the spray solution is sprayed at three lit/100 sq.m.

Male moths can also be caught in sticky traps baited with female sex pheromone.

extensive research by scientists of Punjab Agriculture University. Says its director for research, Dr. S S Gosal, "Although kinnow is Punjab's largest horticulture crop as of now, it has a few problems. The PAU wants to break the kinnow monoculture by expanding the citrus window. After testing all aspects weather suitability, fruit yield, total sugar solubility, weight, acidity the PAU plans to introduce this extremely attractive, deep orange, sweet and juicy fruit among Punjab farmers." He adds, "The daisy has fewer seeds, lower acid

levels and higher juice content than the kinnow. Its biggest advantage will be its harvesting season. Kinnows are sour in November but farmers pick them early though their actual harvesting season is early January. The daisy ripens in early November, which will benefit the processing industry in (what is now) the off-season." Dr Jagtar Dhiman, PAU's additional director (research), natural resources, cites another advantage of the daisy against the kinnow. "For the past few years, the disease phyto-pthora foot rot has been damaging kinnow orchards. Research has found that the daisy will be resistant to this

and other viruses," Dr Dhiman says.

The daisy tangerine, a product of cross-breeding between mandarin varieties, was officially named by Dowling Young of Young's Nursery in Thermal, California. "We are in the process of readying the root stalks. TERI (The Energy and Resource Institute, New Delhi) will help us in mass production and multiplication of saplings; the material will be provided by PAU. Then they will be distributed to farmers in Punjab at very nominal rates," says Dr Pushpinder Singh Aulakh, head of PAU's fruit sciences department.

### **Integrated aquaculture for improving productivity**

The farmers of Sonmar in Sarai Ranjan block, Samastipur district, Bihar have shown a way for productive utilization of water bodies (called chaurs) into an integrated aquaculture model. The chaurs are spread over 44 hectares and about 43 farmers control their ownership. Till 2008, these chaurs were being utilized for capture of wild fishes. The State Fishery Department, Govt. of Bihar with the help of a local bank called Kshetriya Gramin bank and Rastriya Krishi Vikas Yojana constructed a series of about 50 ponds for increased fish production. About 43 farmers came together and formed Sonmar Chaur Matsya Vikash Samiti to monitor these activities, facilitate the resources, inputs and market the fishes.

Due to delayed rainfall, tubewells were sunk in several locations and a solar operated pump was also established with the help of fishery department. ICAR joined the farmers to work in participatory mode to boost the economic status and nutritional security of the farmers by enhancing the aquaculture / agriculture production from the chaurs. Since, farmers were finding it difficult to feed the fishes properly due to high cost of concentrate, the Council integrated duck, goat and cattle with fish to facilitate the supply of organic wastes to improve the overall productivity. Fruits and vegetable crops were planted on the pond bunds to give additional income to farmers. Several demonstrations for fish farmers for

monitoring water quality in the pond were also done at periodical intervals by the scientist team. A

### **Farmer groups in Kerala run their own markets, eliminate middlemen**

More than growing, it is while marketing the produce that a farmer faces a lot of problems and hitches. "The Kerala Government, realising the seriousness of the issue, formed the Vegetable and Fruit Promotion Council (VFPCK) to help farmers market the produce themselves. The council developed a new group marketing system that is production centred and farmer-participatory. Farmers in different villages all through the State were formed into self help groups called Swasraya Karshaka Samithi (SKS)," says Chief Executive Officer of VFPCK, Mr. V. V. Pushpangadan.

Each samiti has 20-25 farmers as members, who are responsible

programme was organized to bring in awareness and encourage more farmers to take up this vocation.

### **Farmer groups in Kerala run their own markets, eliminate middlemen**

for sourcing and marketing the produce. Every two years the samithi elects new office bearers. VFPCK has established different marketing locations across the region and the members bring their produce to these places to be sold. Unlike several other trading places in the country, there are no unions for loading or unloading the produces from the vehicles. The farmers have to do it themselves or can use their own labour for the work. The council provides account books and proper authorised platform weighing scales, furniture, telephone connection, land and building for all the samitis across the state.

### **Using fish waste to make a low-budget crop nutrient**

"The challenge today is to generate a better yield and income from small farms using locally available materials since more than 80 % of farmers in India are small farmers," says Dr. Kamalasan Pillai, Head of the R&D, Vivekananda Kendra Natural Resources Development (VK-Nardep), an NGO in Kanyakumari, Tamil Nadu.

While cattle-dung based formulations are well known, still not all marginal farmers are cattle owners particularly cow which is essential for indigenous

formulations. Some of these formulations are also costly for a marginal farmer.

VK-nardep developed a new technology using fish wastes to make a nutrient that offers all the vital ingredients needed for crop growth in an organic way through locally available resources. "Though fish is available throughout the year, during the post monsoon season huge quantity of fish waste as well as non-edible fish related waste is generated both in village markets and also in household kitchens.

The disposal of this waste material poses a big problem. As the fish-waste contains rich proteins, it cannot be kept beyond 24 hours. This waste material becomes the basic substrate for the bio-formulation developed by us. This also solves the problem of pollution and waste-disposal," says Dr. Pillai.

Giving details on how the fish substrate can be done he says: About 20 kg of fish waste is collected and stored in a plastic can of 40 litres capacity. To this 10 litre of water is added followed by 20-30 ml papaya latex. The papaya latex (pappain) is collected after making a small cut on the surface of a mature green papaya fruit. The material is mixed well with pappain and kept for 5-8 hrs. The vessel is kept closed with stirring every hour.

After 5-8 hours, jaggery solution (4 kg jaggery dissolved in five litres of water) is added to the fish

### **Management tips for mulberry thrips**

The quality of mulberry leaves fed plays a vital role in growth and development of silkworms and silk production. However, incidence of pests often affects the leaf quality and yield.

*M u l b e r r y t h r i p s , Pseudodendrothrips mori*, a sap sucking tiny insect pest now poses a big challenge to sericulture causing severe damage in mulberry in all seasons especially in the tropical zones. Almost all popular varieties are found susceptible. Mulberry thrip sucks the sap by

substrate and stirred well. This mixture is allowed to ferment well for 15-20 days. The scales and fish bones get degraded well within this period.

After the stipulated day the extract is prepared by adding two to five times water to the fermented material. The extract can be filtered and applied to plants, preferably as a foliar spray. The undigested part if any can be used as manure for the soil.

For increasing shelf life further, the extract can be filtered using a muslin cloth followed by pressure filtration to get rid of small solid particles.

The material filtered with the pressure filter can be kept for a period of 3 months and used when necessary. To use this as spray dilute 250 to 500 ml of the extract in 10 litres of water. Farmers are advised to spray this after 4 pm in the evening for best results.

piercing the ventral side of tender leaves with its mouth part that leads to a dappled appearance due to numerous blotches on its surface.

Heavy incidence of the pest causes abrupt decline in leaf moisture and nutrient content. The leaves become unfit to feed the silkworms. The estimated leaf loss due to the pest is about 30-40 % of the total yield produced. Incidence of the pest affects the mulberry leaves used for feeding the silkworms. This has a direct link to

poor growth of worms and susceptibility to diseases followed by heavy mortality. Live silkworms that escape mortality spin only flimsy cocoons with poor silk content which leads to economic loss to the farmers.

Chemical measures are often found partially effective as the thrips develop resistance to the insecticides. At the same time, application of long persisting chemicals is hazardous to the silkworms. However, spray of

dimethoate at 2ml/lit found effective and leaves could be fed to the silkworms 20-25 days after spray. Release of green lacewings, Chrysoperla at 1,000 numbers per acre, 10 days after spray is useful. Population of thrips is naturally reduced during monsoon. The pest is observed to flare up mainly during summer and monsoon failure. Spray of strong jet of water is an effective and eco-friendly approach to control the pest successfully.

### **New red kernel groundnut variety developed**

The Oilseeds Research Station, Eraiyanur near Tindivanam, under the Tamil Nadu Agriculture University, Coimbatore has released a new red kernel variety called TMV (Gn) 13.

These red coloured kernels are found in both bunchy and spreading types. The bunchy types are shorter in duration (100-105 days) while the spreading ones last more than 125 days. The red coloured variety is preferred by oil mills owing to higher oil (content) recovery. The oil is quite bitter in taste and may not be favourable for direct use in cooking. The seeds are round with a thin, papery seed coat. The pods are 1-2 seeded types unlike another earlier one called VRI 2 which is three seeded type.

This variety mostly possesses well developed root systems which are harder than most other groundnut varieties and capable of thriving even under limited water supply. It is ideal for sowing during

December-January of at a spacing of 30x10 cm using machines or manually either at random or at row spacing. The fertilizer recommended under irrigated condition is 25:50:75 kg NPK per hectare. The seed rate may range from 110-120 kg per ha.

It is essential to keep the crop weed free up to 60 days after sowing as the maximum damage is caused during this period. Removal of weeds manually after 45 days up to 60 days without disturbing the soil results in higher yield.

Normally herbicide application of 1kg Pendimethalin on third day per hectare after sowing prevents early weed competition and one hand weeding on 20<sup>th</sup> and one at 40<sup>th</sup> day after sowing is advised. Adopting integrated pest management (IPM) and irrigation (10-12 irrigations) farmers can easily get more than 1,800 kgs per hectare.

## **Making silage popular among livestock owners in Rajasthan**

“Silage making helps in ensuring availability of green food during lean period or drought conditions. It also helps in improving digestibility in animals and in maintaining milk production during lean periods. Timely and unchanged feeding is possible with silage,” says Dr. R.K. Nagda, Dean, College of Veterinary and Animal Sciences, Vallabhnagar Distt., Udaipur, Rajasthan.

Silage is fermented, high-moisture stored fodder which can be fed to cud chewing animals such as cattle, sheep and goats. It is fermented and stored in a process called ensilage, ensiling or silaging and is usually made from grass, maize, sorghum or other cereals using the entire green plant (not the grain alone). Chaffed and packed in air tight conditions at appropriate moisture levels within 24 hours of chaffing, silage can get ready in 60 days. The crops suitable for making silage are ordinary green grasses, sorghum, maize and various weeds.

“After harvesting, crops are shredded into small pieces and spread in uniform layers over the floor or inside big bags. If the material is placed in bags or containers then the container mouth has to be tightly closed to prevent air from entering. In about two weeks fermentation gets completed and the silage is ready to be fed to cattle,” explains Dr.

Nagda. Silage must be firmly packed to minimize the oxygen content or it will get spoilt.

Traditional methods of making silage involve digging a pit in the soil and placing the harvested matter inside and covering it with soil. But this proved difficult since landless farmers cannot go for such pit methods. This method makes it difficult to transport the silage from the pit to the cattle shed, making portability difficult. It is also labour intensive and costly. High wastage of silage near top of the pits also occurs due to mud contamination.

The University of Veterinary Animal Sciences in Bikaner was approached by some experts to try and make silage in plastic bags. Called silage bags, they are easily available in different capacities, are light in weight, cost low, can be folded, stored easily and carried even on a bicycle. Trials were conducted at various locations in Rajasthan and results have emboldened scientists to encourage farmers to use this technique on their animals.

“One of the main reasons for our finding the bags useful is that they are available in various sizes from 1.5 to 5 kg depending on requirement in the local market. Labour requirement is low: 1-3 persons are needed to fill a bag. Moisture retention is excellent with practically no wastage or contamination. The nutritional

value of the packed silage remains intact. One 100 kg bag is sufficient

for feeding 5-10 animals a day," he says.

### **Role of insect light trap in organic agriculture**

Insect light trap is one of the very effective tools of insect pest management in organic agriculture as it mass-traps both the sexes of insect pests and also substantially reduces the carryover pest population. The key insect pests of cereal crops (rice, maize, sorghum), pulse crops (chickpea, pigeon pea, lentil, green gram), vegetable crops (okra, cauliflower, cabbage, tomato, brinjal), horticultural crops (mango, litchi, pomegranate, apple guava, coconut, banana) can be mass trapped by using the light trap.

Farmers must know that by attracting and killing one adult moth or insect they control around 300-400 insect progenies through them. By monitoring the light traps they will know better what types of insect are there in the field and whether they are in controllable level or not.

Once the insect population in the light traps crosses a certain limit the farmer can decide on the type of pest management they have to take up. By keeping a light trap, one for

every half an acre right from the beginning of planting the farmer can control almost all the insect pests that are trying to attack the crop. The light trap has undergone lots of changes from its simple beginning as a kerosene lamp kept in front of a cloth sheet or water container to electrically operated ones to battery operated now.

The ordinary light trap consists of an electric bulb emitting yellow light as attractant and a funnel to direct lured insects into a container containing water. A biotech company called Romvijay Biotech has developed a light weight, portable, battery-operated, remote and timer operated light trap.

The light trap has been fitted with yellow light emitting LED bulbs for longer life and much brightness. The inbuilt battery is chargeable and one charge will keep the light glowing for about eight hours. Farmers are advised to keep one light trap for every half an acre during the dusk hours (6 pm to 9 pm) when the insects are very active.