

## Insuring small and Marginal farmers against crop losses on a large scale: A note for Twelfth Five Year Plan

M.Karthikeyan, Program Leader, DHAN Foundation

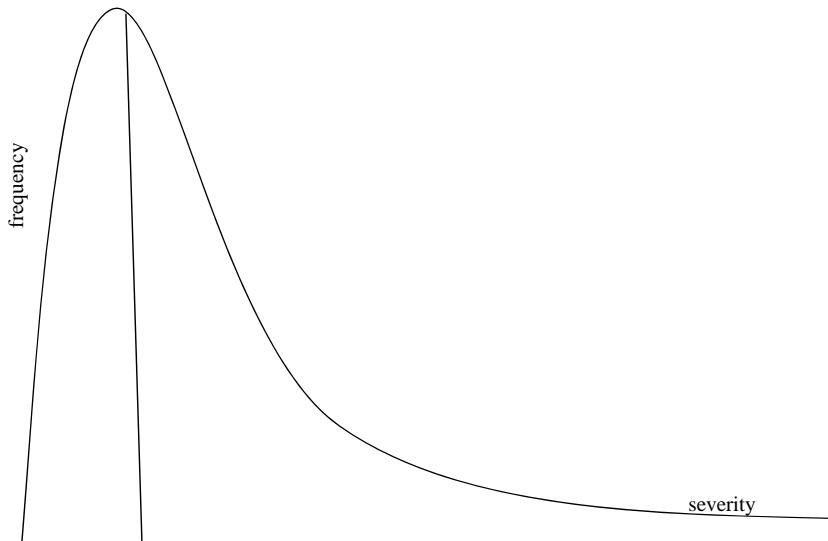
Indian farmers, particularly rainfed farmers has been facing partial or total crop losses frequently due to various controllable (like pests and diseases) and uncontrollable risks (like weather risks). Their traditional coping mechanisms for addressing these risks are not adequate and not available to all. Due to climate change these issues are expected to increase in severity and frequency. Crop insurance as a solution to these issues has been in practice for long years. Indian crop insurance scenario has changed significantly in the recent past after private companies like ICICI Lombard, IFFCO Tokyo entered the scene with variety of weather insurance products. Even then the coverage is significantly very low. It is a well known fact that only less than 10 % of the farmers in India are covered with currently prevailing crop insurance products. The following note addresses the following aspects related to crop insurance: 1) why it is difficult to insure crop losses? 2) The main issues with existing area based and weather based crop insurance products 3) why farmers are not buying crop insurance voluntarily? 4) What are the prerequisites needed for an effective management of crop related risks? And 5) what is needed in 12<sup>th</sup> Five Year Plan to make large number of small and marginal farmers benefit from crop insurance.

### **1) Why it is difficult to insure crop losses?**

Crop insurance is very different from Life insurance, livestock insurance products in many ways, which makes it difficult to insure. The difficulties related to insuring crop losses are given below.

- a) Spatially correlated risk- Output or Yields devastated over a wide region, creating large financial loss – Drought, Floods, but independent or idiosyncratic risks are what life, health or livestock insurance products try to address most of the time.
- b) Range of losses- meager, moderate and severe losses
- c) Long tail distribution of losses; very severe losses coming at low frequency (see the picture below); This makes the premium very costly for the farmers.

## Frequency and Severity Characterize Risk Think of Losses from Drought



- d) Asymmetric information: Farmers know more information on the risks faced by his/her crop than the insurers.
- e) Adverse selection – the most risky farmers buy; less risky farmers stay out
- f) Moral hazard – people change their behavior after they are insured: their risk is greater
- g) High administrative costs -Controlling above mentioned problems requires high monitoring and administrative cost

### 2) The main issues with existing area based and weather based crop insurance

Due to these difficulties traditional indemnity based crop insurance has not been successful throughout the world. To address these difficulties, all over the world there has been a shift from indemnity based insurance to area yield index based insurance and recently to weather index based insurance. But the main issues related to area yield insurance to which the National Agricultural Insurance Scheme (NAIS) of Agriculture Insurance Company (AIC) of India belongs, are:

#### Technical problems:

- 1) Geographic basis risk!
- 2) Area yield data are not collected for all crops and all regions
- 3) Insufficient time-series of area yield data for a given region
- 4) Historical area yield data are not reliable
- 5) If there are continuous three drought years, the expected block yield will be very less
- 6) Current year area yield estimate is subject to manipulation (by farmers, politicians, etc.)

### **Implementation problems:**

- *Limited reach:* Less than 5 % of the total number of farmers.
- *Compulsory coverage:* The product is tied to the crop loans given by rural public sector banking system. The coverage is compulsory for the borrowers and not voluntary. In many cases farmers themselves do not know that they were covered.
- *Lack of transparency:* Claims are assessed by crop cutting (loss adjustment) experiments in which yield assessment is made in few farms and the results are supposed to represent a large geographical area, usually a block or Taluk. The experiment results are not available for public verification and therefore the objectivity of the experiments is in doubt.
- *Uniform premium:* The premium rate is uniform for a crop across the whole country while the risk certainly is not uniform nationwide.
- *Very late compensation:* The claim settlement process takes a very long time- from six months to two years in some cases, thereby allowing all the bad consequences of the yield loss to occur before the compensation reaches the insured. This considerably reduces the developmental impact of the insurance.
- *Lack of viability:* Parchure estimated that from 1985-6 through 1999 the loss ratio, excluding huge management expenses stood at 5.72 (Hess, 2003). The claim to premium ratio was 4.17 in the *kharif* season of 2002 showing that this intervention is not viable. The recent data also indicates the same trend.
- *Administrative cost:* Administrative cost is very high very high as crop cutting method is used for loss assessment.
- *Inequality of benefits:* The premiums and claims were not “equitably” distributed across crops and states, favoring paddy, groundnut and wheat farmers from Gujarat, Maharashtra and Andhra Pradesh.
- *Political interference:* Political interference at times converts this intervention into an instrument of popular politics, as it is used as a sop.

Even the so called alternative that is supposed to address above mentioned issues namely weather insurance has the following issues:

- The main problem faced was ‘basis risk’ (i.e.) difference in the risk assessed by the insurance product and the actual risk faced by the farmers, due to, variation in rainfall between villages and the reference weather station and difference in crop period and cover period  
Effectiveness of the product largely depends on synchronizing the policy initiation date and the sowing date and in calculating compensation based on actual rainfall in each village. But the insurance companies rely on a reference station, which is usually an Indian Meteorology Department (IMD) station, meant for a large number of villages and so are not capable of offering customized policies on a micro scale.

- The weather insurance product for Groundnut could not reflect the “*pattam (optimum season)*” effect as it only takes one or two weather parameters; It has been the repeated experience of farmers to get better yield, if the crop is sown in the optimum sowing period between June 25<sup>th</sup> and July 15<sup>th</sup> and lower yields if sown after that. But the rainfall insurance showed that the premiums were more for the optimum sowing period than for the delayed sowing, indicating that there is more risk of loss if sown in the optimum season. Yield is influenced by factors beyond just ‘quantity of rainfall’ that is taken for designing rainfall insurance product.
- Lack of reliable historical weather data for a given weather station in most parts of the country
- Lack of Secure and objective source of current weather measurements from weather stations for most parts of the country

### **3) Why farmers are not buying crop insurance voluntarily?**

- a) Lack of understanding of need for insurance: Not able to see how insurance can address their risk and appreciate it.
- b) Lack of knowledge on insurance and how it works: Most of the farmers see premium as some kind of savings; they want to get compensation or the premium back. Not able to understand how insurance works by collectively pooling risk and transferring from one village/region to other.
- c) Cognition failure; Farmers forget bad events and focus mostly on what happens in that year; So not ready to pay actuarial based premiums, which takes into consideration the risks of total losses by severe drought or flood; It is a classic problem in pricing risk.
- d) Lack of customised products: In the crop insurance domain, lack of coverage is discussed as the main issue as if there is a robust insurance product that meets the requirement of farmer. But the reality is that in crop insurance there are no very robust products that reflect the real risks faced by the farmers. There are no trusted crop insurance products in the market. This is the case whether it is the conventional area yield insurance product or weather insurance product. So, lot of action research is needed here and agriculture research institutions of the country has not done much in this direction.
- e) Lack of free access to institutions offering insurance: Currently insurance is offered mostly through the existing banks, cooperatives network and they are not easily accessible to small and marginal farmers.
- f) Inadequate affordability on the part of farmers

### **4) Prerequisites for effective crop insurance**

- Addressing the various challenges on both insurer side and farmers’ side mentioned above
- Layering the risk: the less significant, very frequent losses to be managed by farmers themselves through their savings; moderately significant and moderately frequent losses to be met by insurance by farmers; rare but total crop loss situations to be managed with the support of government

- Crop insurance, a *risk transfer measure*, will be effective only in combination with *risk reduction measures* like physical measures (E.g. Bunding, Silt application), biological measures (E.g. Quality seeds), timely cultivation practices (sowing in the *Pattam*, optimum season) and diversification measures (E.g. Diversification to livestock/ tree crops) and *risk coping measures* like timely credit availability.
- Linking crop insurance with risk education and prevention, so that over the years the premium comes down

## 5) What is needed in 12<sup>th</sup> Five Year Plan to make large number of small and marginal farmers benefit from crop insurance

The general understanding that crop insurance coverage can be improved with small changes here and there is highly inadequate. As can be seen above, the challenges are multiple in nature and related to each other. Further the above mentioned prerequisites have to be met for making crop insurance effective. So without a large scale and simultaneous efforts and investments at national level on the following five key parameters there will not be significant progress in coverage of small and marginal farmers: 1) research to evolve location specific insurance products, 2) insurance education for the small and marginal farmers, 3) capacity building of various stakeholders like farmers' organizations, SHGs, cooperatives, banks and insurance companies to offer viable and robust crop insurance products, 4) Investment in infrastructure like automatic rain gauges and data collection systems and 5) bringing in favourable regulatory environment for various insurance delivery institutional mechanisms like mutual insurance. It will be possible only if all the stakeholders namely State, Insurance companies, Research institutions, development organisations and donor agencies work together and do their roles in a complementary way

### 1) Research to evolve location specific insurance products:

There need to be open admission of all the crop insurance providers that there is dearth of robust location/region specific crop insurance products and relevant agricultural research institutes both public and private need to involve in serious medium to long term action research in evolving appropriate products. State need to support this research.

### 2) Insurance education for the small and marginal farmers:

Like a drive for financial literacy at the national level, a separate drive for insurance literacy among small and marginal farmers is needed to address the critical attitude and knowledge changes needed for them to appreciate crop insurance product. Farmers need to be have a new attitude of giving importance to effective crop insurance on par with the importance they give to other risk management measures like land development, seeing insurance as one of the working capital expenses and seeing the logic behind pooling premiums for pooling risks and transferring to others. Development organizations working closely with farmers should be supported by State to offer well

designed behavior impacting training programs, cultural programs like street play and short films on very large scale. Further various kinds of media like TV can be engaged for popularizing crop insurance concept among the small and marginal farmers. It has to be a coordinated campaign through various means in a simultaneous manner. Market creation for crop insurance can only happen if this investment is made. It is the role of State to create markets for crop insurance on which private insurance players can make further investment in a later stage.

**3) Capacity building of various stakeholders like farmers' organizations, SHGs, cooperatives, banks and insurance companies:**

Microfinance through SHGs has been an important development success and banks could reach the poor families remote corners of the country through SHGs. It is time that farmers groups, SHGs and various kinds of farmers' bodies to be made vehicle for crop insurance not only for delivery but also for evolving appropriate products. They can act as risk aggregators for effective crop insurance delivery.

**4) Investment in infrastructure like automatic rain gauges and data collection systems:**

Again the role of state to create these for making available crop insurance on a large scale, as they are public good in nature. Further effective PPP arrangements can be tried for addressing this challenge. A good quality automatic rain gauge costs Rs. 35000 with the cost of installation and the annual maintenance cost is Rs. 6000. Like Karnataka government has tried, a network of rain gauges need to be created along with central server for receiving information at each district level. The data base created from now on will help in offering precise products in future. Postponing this investment will result in postponing the availability of robust crop insurance products to the poor farmers.

**5) Bringing in favourable regulatory environment:**

Currently it is State's responsibility to give compensation when there is a catastrophe like drought or flood. If State can take insurance before such catastrophe occurs, then the cost of spending for catastrophe can come down significantly. On the other hand if government insures for catastrophic risk, then farmers are left out with only moderate risks and so the premium they have to pay will come down significantly, thereby making the crop insurance product affordable to them. Further there is need to bring about many regulatory changes for accommodating various insurance delivery institutional mechanisms like the case of mutual crop insurance in Mexico, for giving incentives to insurance companies and small farmers to enroll into the crop insurance and for ensuring availability of reinsurance. Many state governments like Rajasthan and Andhra Pradesh has taken some initiatives for supporting small and marginal farmers.

To take up these five tasks in a coordinated manner at the national level, a separate national mission for crop insurance need to be created. This mission must have representation from various stakeholders, have to be of high profile enough for dealing with various state governments as agriculture is a state subject and more importantly must have to be endowed with adequate budgetary resources.