CROP INSURANCE

In any business arrangement, both sides of the transaction must expect to benefit. Crop insurance transactions are no different. This defines the first boundary: crop insurance is sold and bought in a market. The purchasers must perceive that the premiums and expected benefits offer value; the sellers must see opportunity for a positive actuarial outcome, over time, and profit.

Crop insurance is not the universal solution to the risk and uncertainties which are part and parcel of farming. Rather insurance can address part of the losses resulting from some perils. The second boundary then is, insurance has a limited role in risk management in farming. Again, the implications of this will be explored below.

The third boundary is that any limitations to the scope for effective and economic crop insurance, though real at any given moment, can change over time. Farming enterprises and systems are dynamic. They change over time, and in so doing present different patterns of risk and new ways by which farming technology, and farm management techniques, can cope with production and other risks. The design of insurance solutions is an equally dynamic field of research and development. New techniques of ascertaining that loss-causing perils have occurred, together with more efficient and economical methods for measuring losses, mean that new types of insurance products can be developed. When companies see a business opportunity here, with an evident demand, then these products will be refined, funded and marketed.

All over the world agriculture is synonymous with risk and uncertainty. Agriculture contributes to 24% of the GDP and any change has a multiplier effect on the economy as a whole. Economic growth and agricultural growth are inextricably linked to each other. Crop insurance helps in stabilization of farm production and income of the farming community. It helps in optimal allocation of resources in the production process.

History of Crop Insurance in India

The Crop Insurance in India was started with the introduction of the All-Risk Comprehensive Crop Insurance Scheme (CCIS) that covered the major crops. This scheme

was introduced in 1985. In fact this period of introduction also coincided with the introduction of the Seventh-Five-year plan. This initial scheme was of course later substituted and replaced by the National Agricultural Insurance Scheme (NAIS). This substitution came into effect from 1999. These Schemes that have been introduced throughout the crop insurance history have been preceded by years of preparation, studies, planning, experiments and trials on a pilot basis. In the crop insurance history, the question of introducing a crop insurance scheme was taken up for examination soon after the Indian independence. The first aspect that was examined related to the modalities of crop insurance. The issue under consideration was about whether the crop insurance should be offered under an 'individual approach' or on 'Homogenous area approach'.

The Individual approach of the scheme indemnifies the farmer to the full extent of the losses. Also the premium that is to be paid by him is determined with reference to his own past yield and loss experience. The Individual approach for these schemes necessitates reliable and accurate data of crop yields of individual farmers for a sufficiently long period, for fixation of premium on actuarially sound basis. The Homogenous area approach on the other hand was aimed at envisaging a homogeneous area from the point of view of crop production and similarity of annual variability of crop production. The homogenous area approach was found to be more favorable. This is because it would facilitate the provision of a single unit treatment to various agro-climatically homogenous areas and the individual farmers and allow them to pay the same rate of premium and receive the same benefits, irrespective of their individual fortunes.

First Individual Approach Scheme 1972-1978

Different forms of experiments on agricultural insurance on a limited, ad-hoc and scattered scale started from 1972-73 when the General Insurance Corporation (GIC) of India introduced a Crop Insurance Scheme on H-4 cotton. In the same year, general insurance business was nationalized and, General Insurance Corporation of India was set up by an Act of Parliament. The new corporation took over the experimental scheme in respect of H-4 cotton. This scheme was based on "Individual Approach" and later included groundnut, wheat and potato. The scheme was implemented in the states of Andhra Pradesh, Gujarat, Karnataka, Maharashtra, Tamil Nadu and West Bengal. It continued up to 1978-79 and covered only 3110 farmers for a premium of Rs.4.54 lakhs against claims of Rs.37.88 lakhs.

Pilot Crop Insurance Scheme (PCIS) 1979-1984

In the background and experience of the aforesaid experimental scheme, a study was commissioned by the General Insurance Corporation of India and Prof. V.M. Dandekar was entrusted to suggest a suitable approach to be followed in the scheme. The recommendations of the study were accepted and a Pilot Crop Insurance Scheme was launched by the GIC in 1979, which was based on Area Approach for providing insurance cover against a decline in crop yield below the threshold level. The scheme covered cereals, millets, oilseeds, cotton, potato and chickpea and it was confined to loanee farmers of institutional sources on a voluntary basis. The premium paid was shared between the General Insurance Corporation of India and State Governments in the ratio of 2:1. The maximum sum insured was 100 per cent of the crop loan, which was later increased to 150 per cent. The Insurance premium ranged from 5 to 10 per cent of the sum insured. Premium charges payable by small/marginal farmers were subsidized by 50 per cent shared equally between the state and central governments. Pilot Crop Insurance Scheme–1979 was implemented in 12 states till 1984-85 and covered 6.23 lakh farmers for a premium of Rs.195.01 lakhs against claims of Rs.155.68 lakhs in the entire period.

Comprehensive Crop Insurance Scheme (CCIS) 1985-99

This scheme was linked to short term credit and implemented based on the Homogenous area approach. Till Kharif 1999, the scheme was adopted in 15 states and 2 UTs. Both PCIS and CCIS were confined only to farmers who borrowed seasonal agricultural loan from financial institutions. The main distinguishing feature of the two schemes was that PCIS was on voluntary basis whereas CCIS was compulsory for loanee farmers in the participating states / UTs.

Main Features of the Scheme were

- It covered farmers availing crop loans from Financial Institutions, for growing food crops and oilseeds, on compulsory basis. The coverage was restricted to 100 per cent of the crop loan subject to a maximum of Rs.10,000/- per farmer.

- The premium rates were 2 per cent for cereals and millets and 1 per cent for pulses and oilseeds. Farmers' share of premium was collected at the time of disbursement of loan. Half of the premium payable by small and marginal farmers was subsidized equally by the Central and State Governments (Tripathi, 1987)

- Burden of Premium and Claims was shared by Central and State Governments in a 2:1 ratio, and

- The scheme was a multi agency effort, involving GOI, State Governments, Banking Institutions and GIC.

Experimental Crop Insurance Scheme (ECIS) 1997-98

As demanded by various states from time to time attempts were made to modify the existing CCIS. During 1997, a new scheme, namely Experimental Crop Insurance Scheme was introduced during Rabi 1997-98 season with the intention to cover even those small and marginal farmers who do not borrow from institutional sources. This scheme was implemented in 14 districts of five states. The Scheme provided 100 per cent subsidy on premium. The premium and claims were shared by Central and State Governments in 4:1 ratio.

National Agricultural Insurance Scheme (NAIS) 1999

The National Agricultural Insurance Scheme (NAIS) was introduced in the country from the rabi season of 1999-2000. Agricultural Insurance Company of India Ltd (AIC) which was incorporated in December, 2002, and started operating from April, 2003, took over the implementation of NAIS. This scheme is available to both loanees and non-loanees. It covers all food grains, oilseeds and annual horticultural / commercial crops for which past yield data are available for an adequate number of years. Among the annual commercial and horticultural crops, sugarcane, potato, cotton, ginger, onion, turmeric, chillies, coriander, cumin, jute, tapioca, banana and pineapple, are covered under the scheme. The scheme is operating on the basis of both area approach, for widespread calamities, and individual approach, for localized calamities such as hailstorm, landslide, cyclone and floods.

Agriculture insurance in India till recently concentrated only on crop sector and confined to compensate yield loss. Recently some other insurance schemes have also come into operation in the country which goes beyond yield loss and also cover the non- crop sector. These include Farm Income Insurance Scheme, Rainfall Insurance Scheme and Livestock Insurance Scheme.

Pilot Scheme on Seed Crop Insurance (PSSCI)

The Seed Crop Insurance Scheme was implemented on pilot basis during 1999-2000 and 2000-01 and the financial assistance was provided to the identified states i.e., Andhra Pradesh, Orissa, Gujrat, Haryana, Karnataka, Madhya Pradesh, Punjab, Rajasthan, U.P, Maharashtra for the implementation of the scheme. The major objectives of this scheme are:

a) Objectives

- To provide financial security and income stability to the seed growers in the event of failure of seed crop
- To build confidence in the minds of existing seed growers and stimulate participation of new growers to undertake seed production programme of newly released hybrid / improved varieties
- To provide stability to the infrastructure established by the State owned Seed Corporations / State Farms and
- To give a boost to the modern seed industry to bring it under scientific principles.

b) States, Areas and Crops to be covered

Breeder', 'Foundation' and ‘Certified’ seeds of the following crops in the following States will be covered. The identified States will opt for the crops to be covered from the list given in Table 1.

Table 1: States and Crops Covered under Pilot Scheme on Seed Crop Insurance

State	Crops
Andhra Pradesh	Paddy, Maize, Jowar, Bajra, Sunflower, Cotton, Groundnut, Red Gram
Gujarat	Bajra, Wheat, Gram, Cotton, Groundnut, Maize, Red Gram, Castor
Haryana	Paddy, Wheat, Gram, Red Gram, Cotton
Karnataka	Paddy, Maize, Jowar, Bajra, Sunflower, Cotton, Groundnut, Red Gram, Bengal Gram, Black Gram, Green Gram, Ragi.
Madhya Pradesh	Paddy, Wheat, Gram, Soyabean, Sunflower, Cotton, Red Gram, Mustard.
Maharashtra	Paddy, Jowar, Bajra, Wheat, Gram, Soyabean, Sunflower, Cotton, Groundnut, Red Gram, Green Gram, Black Gram.
Orissa	Paddy, Groundnut, Red Gram , Cotton
Punjab	Paddy, Wheat, Gram, Red Gram, Soyabean, Cotton.
Rajasthan	Wheat, Gram, Soyabean, Groundnut, Red Gram, Cotton, Bajra, Castor, Mustard.
Uttar Pradesh	Paddy, Wheat, Gram, Soyabean, Sunflower, Red Gram, Cotton, Potato, Pea, Mustard.

Only the Foundation and Certified Seed produce that is offered to State Seed Certification Agency (SSCA) for certification is eligible for coverage. In case of Breeder Seed, the coverage is subject to the production being carried out under the supervision of the concerned Monitoring Committee. For the purpose of insurance coverage, seed areas under jurisdiction of a sub-office / area-office of SSCA will be identified as a unit for determination of Average Yield and Sum Insured in respect of that unit area.

c) Risks Covered

The proposed Scheme seeks to provide protection against those risks, which are beyond control of the farmers. The following types of losses will be covered:

A. At Field Stage

A1. Failure of Seed Crop Field either in Full or in Part due to the Perils Indicated Below:

Risks of loss against natural fire, lightning, storm, hailstorm, cyclone, typhoon, tempest, hurricane, tornado, flood, inundation, landslides, drought, dry spells, excessive rain, large scale incidence of pests and diseases are covered. Damages due to frost would also be covered under the Scheme.

A2. Loss in Expected Raw Seed Yield

Following perils in addition to the perils mentioned under Para A1 above will be covered:

Prevalence of excessive rain, blowing of hot and / or cold wind, excessive hot weather during flowering or seed setting stage will be covered.

A3. Loss of Seed Crop after Harvest

Damage to the harvested seed crop due to operation of the above-mentioned perils whilst lying on the field until the crop is removed from the field for transportation to the processing plant will be covered under the Scheme.

B. At Seed Certification Stage

Losses due to seed lots having failed in 'Germination Test' due to operation of any of the insured perils mentioned in Para A1 and A2 above will be compensated. Failure in germination test due to any factor / reason other than the insured ones will not be covered.

d) Exclusions under Seed Crop Insurance

Physical damage / losses / rejection of field / seed on account of following reasons are excluded from the coverage:

i) Poor crop stand due to either defective planting material or unfavourable conditions prevailing during sowing period.
ii) Non-maintenance of prescribed isolation distance.

iii) Non-rouging at appropriate times and non-conformity of prescribed standards or non-compliance of any of the instructions of the Certification Agency.

iv) When seed crop production has not been taken up in ideal conditions with proper cultural practices.

v) Non-acceptance of crop due to non-synchronization of male and female plants.

vi) Lodging of seed crop and resulting loss in yield except for the insured perils.

vii) Loss or damage to seed crop affected by pests and/or diseases, which otherwise, would have been controlled by adopting adequate plant protection measures.

viii) Losses on account of Physical Purity, Genetic Purity, and admixtures of Other Distinguishable Varieties (ODV) or due to 'other' reasons not covered under the Scheme.

ix) Loss of seed crop / seeds at field stage / laboratory stage due to theft.

x) Losses to seed crop whilst in transit.

xi) Loss / damage due to operation of following perils directly or indirectly:

a) War, invasion, civil war, rebellion, conspiracy, persons acting maliciously.

b) Nuclear reaction, nuclear radiation or radioactive contamination.

xii) Loss or damage due to:

a) Willful negligence of the insured.

b) Human action, birds and animals.

e) Sum Insured

Sum Insured is equivalent to preceding three / five year's Average Seed Yield certified in respect of the identified unit area multiplied by 'Procurement Price' of the seed crop variety prevailing in the previous season by National Seed Corporation (NSC). The Sum Insured may be increased up to 150 per cent of the average processed, tagged certified Seed Yield. A producing agency opting for higher Sum Insured would be required to pay a correspondingly higher premium.

f) Salvage

All seed crops identified for coverage under the Scheme have salvage values. Salvage values will be calculated at a fixed percentage of Procurement Price (PP) as given below, which will be deducted from the claim amount before payment. Alternatively, the insurer will pay the full amount of compensation (i.e., before deduction of salvage) and will take

over the possession of the salvage. The deduction of salvage will be applicable in case of losses in Germination test only.

Salvage Value under Seed Insurance Scheme

Crop	Salvage as per cent of Procurement Price	
	Hybrids	Other Varieties
Jowar and Bajra	30	60
Maize	40	60
Paddy, Wheat, Gram and Groundnut	40	60
Sunflower	30	60
Soyabean and Tur	40	50
Cotton	20	20

g) Loss Assessment Method

The certification agency officials, who periodically inspect the field, will intimate individual grower-wise, the details of damages / losses and rejection thereof to the seed producing organization and to the insurer. The insurer will arrange for surveying the loss and the compensation will be estimated and paid as per graded scale mentioned earlier. The first inspection of the seed crop will be done by the State Seed Certification Agencies within 45 days in case loss is reported by the seed grower, otherwise if the crop is normal, the State Seed Certification Agencies will work out the inspections as per their routine norms. The amount of claim will be proportionate to the area rejected.

Excess: 20 per cent of all admissible claims will be borne by the Insured.

Loss after Harvesting and until the Crop is ready for Transportation

Concerned seed producing organization / grower will intimate the loss soon after the incident of loss to the insurer giving all the detailed information. The Insurer will arrange or survey / loss assessment and the compensation will be estimated and paid.

Excess: 20 per cent of all admissible claims will be borne by the Insured.

Loss at Seed Certification Stage

Certification Agency and seed producing organization both will intimate

i) Sharing of Risk

Premium will go to the account of the Insurer, i.e., General Insurance Corporation of India. The Claims beyond 200 per cent of premium income will be to the insurer the individual farmer-wise Actual Quantity Rejected due to failure in germination test on account of natural calamity along with the laboratory test results. The maximum amount of claim will be the procurement value of the rejected quantity less salvage value as referred in Salvage value chart.

h) Premium Rate

Crop-wise premium at the following rates will be charged borne by the Government on a sunset basis - in the first year 100 per cent, in the second year 50 per cent and in the third year 25 per cent of losses beyond 200 per cent of the premium income might be met by the Central Government. From the fourth year onwards the General Insurance Corporation of India will meet the losses fully.

Premium Rates under Seed Insurance Scheme

Crop	Rate (per cent)	Crop	Rate (per cent)
1. Paddy	3.0	7. Wheat	2.0
2. Jowar	3.5	8. Bajra	5.0
3. Maize	5.0	9. Soyabean	5.0
4. Sunflower	2.5	10. Groundnut	2.0
5. Gram	5.0	11. Tur	5.0
6. Cotton	5.0		

i) Reinsurance

General Insurance Corporation of India will negotiate suitable reinsurance arrangement in the international market to cover the losses exceeding 100 per cent of premium income. In

case the reinsurance arrangement also covers the Government of India's liability, the same will be adjusted while receiving the Government of India's share of claims liability.

2.7 Farm Income Insurance

The Farm Income Insurance Scheme was started on a pilot basis during 2003-04 to provide income protection to the farmers by integrating the mechanism of insuring yield as well as market risks. In this scheme the farmers' income is ensured by providing minimum guaranteed income.

2.8 Livestock Insurance

Livestock insurance is provided by public sector insurance companies and the insurance cover is available for almost all livestock species. Normally, an animal is insured up to 100 per cent of the market value. The premium is 4 per cent of the sum insured for general public and 2.25 per cent for Integrated Rural Development Programme (IRDP) beneficiaries. The government subsidizes premium for IRDP beneficiaries. Progress in livestock insurance, however, has been slow and poor.

2.9 Weather Based Crop Insurance / Rainfall Insurance

During the year 2003-04 the private sector came out with some insurance products in agriculture based on weather parameters. The insurance losses due to vagaries of weather, i.e. excess or deficit rainfall, aberrations in sunshine, temperature and humidity, etc. could be covered on the basis of weather index. If the actual index of a specific weather event is less than the threshold, the claim becomes payable as a percentage of deviation of actual index. One such product, namely Rainfall Insurance was developed by ICICI-Lombard General Insurance Company. This move was followed by IFFCO-Tokio General Insurance Company and by public sector Agricultural Insurance Company of India (AIC). Under the scheme, coverage for deviation in the rainfall index is extended and compensations for economic losses due to less or more than normal rainfall are paid.

ICICI Lombard, World Bank and the Social Initiatives Group (SIG) of ICICI Bank collaborated in the design and pilot testing of India's first index based weather insurance

product in 2003-04. The pilot test covered 200 groundnut and castor farmers in the rain-fed district of Mahaboobnagar, Andhra Pradesh. The policy was linked to crop loans given to the farmers by BASIX Group, a NGO, and sold through its Krishna Bhima Samruddhi Area Bank. The weather insurance has also been experimented with 50 soya farmers in Madhya Pradesh through Pradan, an NGO, 600 acres of paddy crop in Aligarh through ICICI Banks agribusiness group along with the crop loans, and on oranges in Jhalawar district of Rajasthan.

Similarly, IFFCO-Tokio General Insurance (ITGI) also piloted rainfall insurance under the name - Baarish Bima during 2004-05 in Andhra Pradesh, Karnataka and Gujarat. Agricultural Insurance Company of India (AIC) introduced rainfall insurance (Varsha Bima) during 2004 South-West Monsoon period. Varsha Bima provided for five different options suiting varied requirements of farming community. These are (1) seasonal rainfall insurance based on aggregate rainfall from June to September, (2) sowing failure insurance based on rainfall between 15th June and 15th August, (3) rainfall distribution insurance with the weight assigned to different weeks between June and September, (4) agronomic index constructed based on water requirement of crops at different pheno-phases and (5) catastrophic option, covering extremely adverse deviations of 50 per cent and above in rainfall during the season. Varsha Bima was piloted in 20 rain gauge areas spread over Andhra Pradesh, Karnataka, Rajasthan and Uttar Pradesh in 2004-05.

Based on the experience of the pilot project, the scheme was fine-tuned and implemented as "Varsha Bima -2005" in about 130 districts across Andhra Pradesh, Chattisgarh, Gujarat, Karnataka, Maharashtra, Madhya Pradesh, Orissa, Tamil Nadu, Uttarakhand and Uttar Pradesh during Kharif 2005. On an average, 2 or 3 blocks /mandals / tehsils were covered under each India Meteorological Department (IMD) rain gauge stations. The scheme covered the major crops provided at least two coverage options namely, Seasonal Rainfall Insurance or Rainfall Distribution Index and Sowing Failure Insurance. Varsha Bima-2005 covered 1.25 lakh farmers with a premium income of Rs.3.17 crore against a sum insured of Rs.55.86 crore. Claims amounting to Rs.19.96 lakh were paid for the season. Further, during kharif 2006, the scheme was implemented as Varsha Bima-2006 in and around 150 districts/ rain gauge station areas covering 16 states across the country.