# Agricultural Insurance In India

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## INTRODUCTION

Agriculture productions in India are habitually precious due to their vulnerability to natural calamities such as droughts, floods, cyclones, storms, landslides and earthquakes. Vulnerability of agriculture to these calamities is compounded by the eruption of pandemics and man-made disasters such as fire, sale of unauthentic seeds, fertilizers and pesticides, price crashes etc. All these events rigorously affect farmers as there is failure in production and loss of farm income. With the emergent commercialization of agriculture, the enormity of loss due to adverse eventualities is increasing. The question is how to guard farmers by minimizing such losses. For a segment of farming society, the minimum support prices for definite crops provide a measure of income stability. But for most of the crops and in most of the states, MSP is not realized. In recent times, means like contract farming and future trading have been established which are anticipated to provide some insurance against price oscillations directly or indirectly. But agricultural insurance is an important mechanism to effectively address the risk to harvest and income resulting from various natural and manmade occurrences. Agricultural Insurance is a way of shielding the agriculturist against financial losses occurring due to agricultural losses arising from named or unexpected hazards beyond their control (AIC, 2008). Unfortunately, agricultural insurance in the country has not made much progress, even though the requirement to defend Indian farmers from agricultural unpredictability has been an enduring concern of agriculture policy. According to the National Agriculture Policy 2000, "Despite technological and economic improvements, the circumstances of farmers continues to be unbalanced due to natural calamities and price fluctuations". In some tremendous cases, these hostile events become one of the factors important to farmer's suicides which are now assuming severe proportions (Raju and Chand, 2007). Agricultural insurance is one method by which farmers can alleviate farm income and investment and guard against ruinous effect of losses due to natural hazards or low market prices. Crop insurance not only steadies the farm income, but also helps the farmers to instigate production activity after a bad agricultural year. It pillows the upset of crop losses by providing farmers with a minimum amount of protection. It spreads the crop losses over liberty and time and helps farmers make more investments in agriculture. There are two major categories of agricultural insurance: single and multi-peril coverage. Single peril coverage offers protection from a single peril while multiple-peril provides protection from several hazards. In India, multi-peril crop insurance programme is being implemented in view of the overwhelming force of nature on agricultural output and its grievous consequences on the society, in general, and farmers, in particular. In the absence of formal risk sharing / diffusion mechanisms, farmers rely on conventional modes and methods to deal with production risk in agriculture. Many cropping strategies and farming methods have been adopted in the deficiency of crop insurance for stabilizing crop revenue. Availability and usefulness of these risk management strategies or insurance surrogates depend on public policies and stipulate for crop insurance (Walker and Jodha 1986). The risk attitude ability of an average farmer in the semi-arid tropics is very limited. A large farm household or a wealthy farmer is able to spread risk over time and liberty in several ways; he can use stored grains or savings during bad years, he can diversify his crop production across different plots. At a higher level of income and staying power, the farmer would opt for higher average yields or profits over a period of time even if it is achieved at the cost of high annual inconsistency on output (Rao *et al.*, 1988). Binswanger (1980), after studying the risk in agricultural investments, risk avoidance tendency of the farmers and accessible strategies for shifting risk, concludes that farmers' own devices for loss management or risk diffusion are very expensive in arid and semi-arid regions. The major position played by insurance programmes is the indemnification of risk-averse individuals who might be harmfully unnatural by natural probabilistic incident.

The philosophy of insurance market is based on large numbers, where the prevalence of risk is dispersed over

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individual. Insurance, by presenting the opportunity of uneven risks, enables individuals to connect in risky actions which they would not agree to otherwise (Ahsan *et al.,* 1982). The benefits of crop insurance differ depending on the scenery and level of protection provided by the scheme. It is argued that farmers' own trial to reduce the risk in farming in semi-arid tropical India is costly and pretty ineffective in reducing risk in farming and to adjust to drought and scarceness forms. Jodha says that the riskiness of farming intrudes upon the investment in agriculture, primary to suboptimal part of resources. He also says that official credit institutions are ill ready to reduce the exposure of Indian farmers to risks because they cannot or do not provide consumption loans to drought-affected farmers (Jodha 1981). Crop credit insurance also cuts the risk of becoming cheat of institutional credit. The repayment of indemnities in the case of crop failure facilitates the farmer to pay off his debts and thus, his credit line with the formal financial institutions is maintained integral (Hazell *et al.,* 1986; Pomareda 1986; Mishra1996). A right designed and implemented crop insurance programme will keep the copious, vulnerable small and marginal farmers from hardship, bring in solidity in the farm incomes, and increase the farm production (Bhende 2002). The farmer is likely to allot resources in a profit maximizing way if he is sure that he will be rewarded when his income is terribly low for reasons not under his control. A farmer may raise more profitable crops even though they are risky. Similarly, a farmer may accept improved but uncertain technology when he is sure of compensation in case of failure (Hazell 1992). This will increase value addition from agriculture, and income of the farm family. Access and accessibility of insurance changes the stance of the farmer and tempts him to take decisions which, otherwise, would not have been taken due to hatred towards risk. For example, rain-fed paddy was refined in one of the riskiest districts i.e. Anuradhapur district of Sri Lanka for the first time in 1962, as insurance ability was offered to the farmers (Ray 1971). Bhende (2005) said that income of the farm households from semi-arid tropics occupied mainly in rain-fed farming and was really associated with the level of risk. Hence, the accessibility of formal device for diffusion of risk like crop insurance will assist farmers to adopt risky but remunerative technology and farm activities, resulting in increased income. Some of the studies verify the square view that right hazard incentive lead insured farmers to use fewer chemical inputs (Smith and Goodwin 1996). Babcock and Hennessy (1996) find that at rational levels of risk hate, nitrogen fertilizer and insurance are alternates signifying that those who purchase insurance are likely to decrease nitrogen fertilizer applications. A study by Horowitz and Lichtenberg (1993) find that in the US Midwest, crop insurance exerts great influence on maize farmers' chemical use decisions. Those purchasing insurance apply notably more nitrogen per acre (19 %), spend more on pesticides (21 %), and treat more acreage with both herbicides and insecticides (7 % and 63 %) than those not purchasing insurance. These fallouts imply that both fertilizers and pesticides may be risk-increasing inputs. Mishra (1994) analyzed the force of a credit-linked Comprehensive Crop Insurance Scheme (CCIS) on crop loans, mainly to small farmers in Gujarat. It was observed that CCIS had a security effect as reflected through the increased loan amount per borrower and reduction on the part of non-borrowers among small farmers. The allusions of credit growth are that increased accessibility of credit can improve input use and output and employment that increased share of small farmers in the total loan can have enviable effects on equity and efficiency considerations. Though crop insurance is based on area yield, it insures the loan amount. This leads to better access of small and marginal farmers to institutional credit. In the event of crop failure or drought, loan is repaid in the form of indemnity and thus, there is decline in the cost of revival of loans to lending institutions and reduction in the overdue and defaults. It is pragmatic that insured households invest more on agricultural inputs leading to higher output and income per unit of land. Interestingly, percentage increase in output and income is more for small farms. Based on 1991 data, CCIS was found to contribute 23, 15, and 29 per cent increase in income of insured farmers in Gujarat, Orissa and Tamil Nadu respectively (Mishra 1994). Many of the risks insured under public insurance programme are essentially un-insurable risks. Moreover, they arise often and hence are posh to insure. The financial performance of most of the public crop insurance has been harmful in both developed and developing countries. The multi-peril crop insurance thus is very costly and has to be deeply subsidized (Hazell, 1992).

## OBJECTIVES OF THE STUDY

1. To examine the performance of the existing and earlier national agricultural insurance schemes implemented in India.

2. To discuss and explore the problems and prospects of agriculture insurance in the country.
3. To look into the role of government in implementing various agricultural insurance schemes .

## PROGRESS AND PERFORMANCE OF AGRICULTURAL INSURANCE

The issue of introducing an agriculture insurance plan was examined soon after Independence in 1947. Following a promise given in this view by the then Ministry of Food and Agriculture (MOFA) in the Central Legislature to launch crop and cattle insurance, a unique study was commissioned during 1947-48 to think whether insurance should follow an '*Individual approach*' or a '*Homogenous area approach*'. The study favoured '*homogenous area approach* even as diverse agro-climatically homogenous areas are treated as a single unit and the individual farmers in such gear pay the same rate of premium and receive the same benefits, irrespective of their individual fortunes. In 1965, the Government introduced a Crop Insurance Bill and spread a model scheme of crop insurance on an essential basis to State governments for their views. The bill provided for the Central government to edge a reinsurance scheme to cover indemnity duties of the States. However, none of the States favoured the scheme because of the financial commitments involved in it. On receiving the replies of the State governments, the subject was referred to an Expert Committee headed by the then Chairman, Agricultural Price Commission, in July, 1970 for full examination of the economic, administrative, financial and actuarial allusions of the subject.

## AGRICULTURAL INSURANCE SCHEMES

### FIRST INDIVIDUAL APPROACH SCHEME – 1972-1978

Different types of tests on agricultural insurance on a limited, ad-hoc and spread level started from 1972-73 when the General Insurance Corporation (GIC) of India introduced a Crop Insurance Scheme on H-4 cotton. This scheme was based on "*Individual Approach*" and anon integrated groundnut, wheat and potato. The scheme was implemented in the states of Andhra Pradesh, Gujarat, Karnataka, Maharashtra, Tamil Nadu and West Bengal. It sustained 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 conditions and practice of the aforesaid trial scheme, a study was commissioned by the General Insurance Corporation of India and was entrusted to Prof. V.M. Dandekar to suggest a suitable approach to be followed in the scheme. The recommendations of the study were received 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 beg off in crop yield below the threshold level. The scheme covered cereals, millets, oilseeds, cotton, potato and chickpea and it were confined to loanee farmers of institutional sources on a voluntary basis. The premium paid was shared between the GIC 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 anon 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.

**Table 1: Performance of Pilot Crop Insurance Scheme during 1979-80 to 1984-85**

| Particulars | 1979-80 | 1980-81 | 1981-82 | 1982-83 | 1983-84 | 1984- 85 | Total |
|---|---|---|---|---|---|---|---|
| Number of states | 3 | 3 | 8 | 9 | 11 | 12 | - |
| Area covered ( ha) | 13181 | 18703 | 24467 | 70729 | 87347 | 477333 | 691760 |
| Farmers covered | 16265 | 23442 | 24625 | 50855 | 60349 | 447086 | 622622 |
| Sum Insured (Rs.lakh) | 130.30 | 165.77 | 202.82 | 468.26 | 653.64 | 4446.49 | 6067.28 |
| Premium collected (Rs.lakh) | 5.53 | 6.93 | 7.55 | 15.65 | 21.15 | 138.20 | 195.01 |
| Claims paid (Rs.lakh) | 5.29 | 3.27 | 9.64 | 37.32 | 8.37 | 91.80 | 155.68 |
| Claims ratio ( % ) | 95.71 | 47.10 | 127.67 | 238.46 | 39.56 | 66.42 | 79.83 |

### 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 plan was adopted in 15 states and 2 UT's. Both PCIS and CCIS were limited only to farmers who borrowed cyclic agricultural loan from financial institutions. The main unique facet of the two schemes was that PCIS was on voluntary basis whereas CCIS was compulsory for loanee farmers in the participating states/

UTs. The Main Features of the Scheme were, it covered farmers availing crop loans from Financial Institutions, for rising food crops and oilseeds, on a compulsory basis. The coverage was limited 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 serene at the time of payout of loan. Half of the premium payable by small and marginal farmers was subsidized equally by the Central and State Governments; Burden of Premium and Claims was jointly covered by Central and State Governments in a 2:1 ratio; the scheme was a multi agency effort, involving GOI, State Governments, Banking Institutions and GIC.

**Table 2: State-wise CCIS Performance During 1985 – 1999**

| State | Premium collected | | Claims | Claim-premium ratio | |
|---|---|---|---|---|---|
| Rs. Crores | % Share | | Rs. Crores | % Share | |
| Gujarat | 64.45 | 16 | 1336.93 | 58 | 20.74 |
| Maharashtra | 60.42 | 15 | 253.33 | 11 | 4.19 |
| A.P. | 100.70 | 25 | 322.70 | 14 | 3.20 |
| Other states | 177.24 | 44 | 3918.60 | 17 | 2.21 |
| India | 402.81 | 100 | 2305.04 | 100 | 5.72 |

Source: Agriculture insurance Company of India (AIC) Limited, New Delhi.

**Table 3: Crop-wise CCIS Performance During 1985 – 1999**

| Crop | Premium (%) | Claims (%) | Claims to premium ratio | Claims as % of sum assured |
|---|---|---|---|---|
| Paddy | 57.88 | 31.38 | 3.12 | 6.24 |
| Wheat | 4.42 | 1.30 | 1.69 | 3.39 |
| Jowar | 8.35 | 4.96 | 3.42 | 6.83 |
| Bajra | 4.12 | 5.40 | 7.53 | 15.06 |
| Other cereals | 1.39 | 0.66 | 2.69 | 5.38 |
| All cereals | 76.16 | 43.70 | 3.30 | 6.60 |
| Groundnut | 19.00 | 52.94 | 16.02 | 16.02 |
| Other oilseeds | 3.51 | 1.40 | 2.28 | 2.28 |
| All oilseeds | 22.51 | 54.34 | 13.88 | 13.88 |
| Pulses | 1.33 | 1.96 | 8.50 | 8.50 |
| All crops | 100 | 100 | 5.75 | 9.29 |

Source: Agriculture Insurance Company of India (AIC) Limited, New Delhi.

## EXPERIMENTAL CROP INSURANCE SCHEME (ECIS) – 1997-98

During 1997, a new scheme, namely Experimental Crop Insurance Scheme was introduced during Rabi 1997-98 seasons with the intent to wrap 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. The scheme covered 4.78 lakh farmers for a sum insured of Rs.172 crores and the claims paid were Rs.39.78 crores against a premium of Rs.2.86 crores. The scheme was discontinued after one season and based on its experience, the National Agricultural Insurance Scheme was started.

## NATIONAL AGRICULTURAL INSURANCE SCHEME (NAIS) – 1999- DATE

NAIS was introduced in the nation from the *rabi* season of 1999-2000. Agricultural Insurance Company of India Ltd. (AIC) which was incorporated in December, 2002, and ongoing operating from April, 2003, took over the completion of NAIS. It covers all food grains, oilseeds and annual horticultural / commercial crops for which past yield data are offered for an ample number of years. The plan is in use on the basis of both "*area approach*" for extensive calamities, and '*individual approach*' for localized calamities such as hailstorm, landslide, cyclone and floods. The premium rates applicable on the sum insured are : Bajra and oilseeds : 3.5 %, Other *kharif* crops : 2.5 %, Wheat : 1.5 %, Other *rabi* crops : 2.0 %, Annual commercial / horticultural crops : Actuarial rate. Initially, the premium in the case of small and marginal farmers was subsidized @ 50 per cent, which was shared equally by the Government of India and the afraid State/UT. The premium subsidy was to be phased out over a

period of five years; 10 per cent grant was provided on the premium payable by small and marginal farmers. Initially, only 9 states / UTs participated in the National Agricultural Insurance Scheme. It covered 5.8 lakh farmers and 7.8 lakh hectares of cropped area. The coverage under NAIS increased dramatically after the *kharif* 2000. The exposure has been far better during the *kharif* than *rabi* seasons. The trend in *kharif* treatment appears to be related to the extension of participating states, crops notified, extent of drought, and non-borrower farmers' decision to participate in the scheme. Non-borrower farmers usually opted for crop insurance only selectively, after being almost certain of crop failure. The average premium charged during *kharif* was Rs 3.34 per hundred rupees of sum insured as against Rs 2.06 per hundred rupees of sum insured in the *rabi* season. The average premium rate of Rs 3.03 indicates the dominance of risky crops in the crop area insured during the *kharif* season.

**Table 4: Season–Wise Performance of The National Agricultural Insurance Scheme**

| S. No. | Season | No. of covered states / UTs | Farmers covered (lakhs) | Area (lakh ha) | Sum assured (Rs crore) | Premium (Rs crore) | Total Claims (Rs crore) |
|---|---|---|---|---|---|---|---|
| **RABI** | | | | | | | |
| 1 | 1999-00 | 9 | 5.8 | 7.8 | 356 | 5 | 8 |
| 2 | 2000-01 | 18 | 20.9 | 31.1 | 1603 | 28 | 59 |
| 3 | 2001-02 | 20 | 19.6 | 31.5 | 1498 | 30 | 65 |
| 4 | 2002-03 | 21 | 23.3 | 40.4 | 1838 | 39 | 189 |
| 5 | 2003-04 | 22 | 44.2 | 64.7 | 3050 | 64 | 497 |
| 6 | 2004-05 | 23 | 35.3 | 53.4 | 3774 | 76 | 161 |
| 7 | 2005-06 | 23 | 40.5 | 72.2 | 5072 | 105 | 338 |
| 8 | 2006-07 | 23 | 49.8 | 76.3 | 6593 | 143 | 477 |
| **Total** | | | **239.4** | **377.4** | **23784** | **490** | **1794** |
| **KHARIF** | | | | | | | |
| 1 | 2000 | 17 | 84.1 | 132.2 | 6903 | 207 | 1222 |
| 2 | 2001 | 20 | 87.0 | 128.9 | 7503 | 262 | 494 |
| 3 | 2002 | 21 | 97.7 | 155.3 | 9432 | 326 | 1824 |
| 4 | 2003 | 23 | 79.7 | 123.6 | 8114 | 283 | 653 |
| 5 | 2004 | 25 | 126.9 | 242.7 | 13171 | 459 | 1038 |
| 6 | 2005 | 25 | 126.7 | 205.3 | 13517 | 450 | 1060 |
| 7 | 2006 | 25 | 129.3 | 196.7 | 14759 | 467 | 1772 |
| **Total** | | | **731.4** | **1184.7** | **73399** | **2454** | **8063** |
| **SUM (KHARIF +RABI)** | | | | | | | |
| 1 | 1999-2000 | 9 | 5.8 | 7.8 | 356 | 5 | 8 |
| 2 | 2000-2001 | 18 | 105.0 | 163.3 | 8506 | 235 | 1281 |
| 3 | 2001-2002 | 20 | 106.6 | 160.4 | 9001 | 292 | 559 |
| 4 | 2002-2003 | 21 | 121.0 | 195.7 | 11270 | 365 | 2013 |
| 5 | 2003-2004 | 23 | 123.9 | 188.3 | 11164 | 347 | 1150 |
| 6 | 2004-2005 | 25 | 162.2 | 296.1 | 16945 | 535 | 1199 |
| 7 | 2005-2006 | 25 | 167.2 | 277.5 | 18589 | 555 | 1398 |
| 8 | 2006-2007 | 25 | 179.1 | 273.0 | 21352 | 610 | 2249 |
| **Grand Total** | | | **970.8** | **1562.1** | **97183** | **2944** | **9857** |

Source: Economic Survey ( 2007-2008) and AIC (2008)

**Table 5: Season-wise Share of Insured Farmers In Total Holdings And Area (%)**

| Crop year | *Rabi* | | | *Kharif* | | Total |
|---|---|---|---|---|---|---|
| Holdings | Area | Holdings | | Area | Holdings | Area |
| 1999-00 | 0.50 | 0.41 | - | - | 0.50 | 0.41 |
| 2000-01 | 1.81 | 1.66 | 7.28 | 7.07 | 9.09 | 8.73 |
| 2001-02 | 1.70 | 1.65 | 7.53 | 6.77 | 9.23 | 8.42 |
| 2002-03 | 2.02 | 2.30 | 8.46 | 8.82 | 10.48 | 11.12 |
| 2003-04 | 3.83 | 3.39 | 6.90 | 6.48 | 10.73 | 9.88 |
| 2004-05 | 3.06 | 2.80 | 10. 99 | 12.73 | 14.04 | 15.53 |
| 2005-06 | 3.51 | 3.79 | 10. 97 | 10.77 | 14.45 | 14.56 |
| 2006-07 | 4.31 | 4.02 | 11.19 | 10.32 | 15.51 | 14.32 |

Source: *Agricultural Statistics at a Glance* (2007), and *Economic Survey* (2007-08) and AIC (2008).

**Table 6:Year-wise Performance of National Agricultural Insurance Scheme**

| Year | Sum assured as % of value of crop output | Claims ratio (Claims / Premium) | Premium/ sum assured % | Claims/ sum assured % | Ratio of borrower and non-borrower insured farmers |
|---|---|---|---|---|---|
| 2000-01 | 2.28 | 5.45 | 2.76 | 15.06 | 97:3 |
| 2001-02 | 2.22 | 1.91 | 3.24 | 6.20 | 93:7 |
| 2002-03 | 2.92 | 5.52 | 3.23 | 17.84 | 86:14 |
| 2003-04 | 2.46 | 3.29 | 3.11 | 10.22 | 75:25 |
| 2004-05 | 3.77 | 2.24 | 3.16 | 7.06 | 88:12 |
| 2005-06 | 3.76 | 2.53 | 2.97 | 7.52 | 85:15 |

Source: *Economic Survey* (2007-08), *National Accounts Statistics* (2007) and AIC (2007).

The number of non-borrower farmers showed ample year - to - year fluctuations. There was a big skip in the non-loanee farmers opting insurance in the year after 2002-03 which was a very severe drought year. The reward received by those who had insured induced a large number of farmers to take benefit of insurance in the case of adverse events. This shows a strong bent towards unhelpful selection problem. Further, the non-borrower farmers' participation had come from those areas and crops which were most likely to report high crop losses. Their participation was inevitably the highest during adverse seasons. Based on the coverage between 1999-00 and 2005-06, the loss cost to NAIS for non-borrower farmers was a staggering 27 per cent, compared to 9 per cent for the loanee farmers.

**Table 7: State level coverage of NAIS**

| States | Share in cases insured % | Share in area under insured % | Insurance cases received claims % | Premium/ sum insured % | Claims / sum insured % | Claim/ Premium ratio |
|---|---|---|---|---|---|---|
| Andhra Pradesh | 15.41 | 14.37 | 19.69 | 2.76 | 7.30 | 2.65 |
| Assam | 0.09 | 0.04 | 12.26 | 2.51 | 2.18 | 0.87 |
| Bihar | 1.72 | 1.18 | 42.40 | 2.18 | 25.05 | 11.51 |
| Chattisgarh | 4.41 | 5.89 | 27.61 | 2.59 | 8.66 | 3.34 |
| Goa | 0.01 | 0.01 | 13.94 | 1.76 | 1.12 | 0.63 |
| Gujarat | 8.41 | 12.58 | 35.08 | 4.43 | 16.68 | 3.76 |
| Haryana | 0.37 | 0.28 | 8.34 | 3.16 | 0.84 | 0.27 |
| Himachal Pradesh | 0.14 | 0.05 | 59.56 | 2.29 | 9.64 | 4.21 |
| Jammu & Kashmir | 0.01 | 0.01 | 0.00 | 1.88 | 0.00 | 0.00 |
| Jharkhand | 1.26 | 0.43 | 67.13 | 2.43 | 30.76 | 12.67 |
| Karnataka | 7.31 | 7.23 | 46.58 | 3.25 | 16.06 | 4.94 |
| Kerala | 0.29 | 0.15 | 19.29 | 2.09 | 5.62 | 2.69 |
| Madhya Pradesh | 13.16 | 21.77 | 22.91 | 3.05 | 5.42 | 1.78 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Maharashtra | 19.47 | 12.56 | 29.71 | 3.63 | 8.47 | 2.33 |
| Meghalaya | 0.01 | 0.01 | 10.63 | 6.32 | 2.96 | 0.47 |
| Orissa | 7.96 | 4.99 | 21.86 | 2.53 | 7.13 | 2.82 |
| Rajasthan | 5.50 | 8.16 | 23.95 | 2.77 | 8.05 | 2.90 |
| Sikkim | 0.00 | 0.00 | 8.60 | 1.01 | 1.09 | 1.08 |
| Tamil Nadu | 0.86 | 0.90 | 35.80 | 2.07 | 13.25 | 6.40 |
| Tripura | 0.01 | 0.00 | 17.24 | 2.88 | 1.91 | 0.66 |
| Uttar Pradesh | 8.46 | 7.71 | 20.50 | 1.96 | 3.27 | 1.67 |
| Uttaranchal | 0.04 | 0.03 | 18.45 | 1.56 | 1.15 | 0.73 |
| West Bengal | 5.09 | 1.63 | 14.66 | 2.60 | 3.98 | 1.53 |
| Andaman & Nicobar | 0.00 | 0.00 | 5.60 | 2.32 | 0.69 | 0.30 |
| Pondicherry | 0.02 | 0.02 | 22.09 | 1.97 | 4.70 | 2.39 |
| **Total (India)** | **100** | **100** | **27.02** | **3.08** | **9.55** | **3.10** |

Source: AIC (2007).

However, the average area insured per participating farmer varies across the states. It was around half a hectare in the states of Himachal Pradesh, Jharkhand, Tripura and West Bengal, whereas, it was more than the national average of 1.63 ha / farmer in the states of Chhattisgarh, Gujarat, Madhya Pradesh, Rajasthan and Tamil Nadu. The average sum insured per household ranged from less than Rs 5000 in Goa, Himachal Pradesh and Jharkhand to more than Rs 15000 in Gujarat, Tamil Nadu and Pondicherry. The average amount insured per farmer under NAIS at the aggregate level was Rs 9573. Similarly, the average sum insured was Rs 5860 / ha and it varied from less than Rs 3000 / ha in Chattisgarh, Goa and Madhya Pradesh to more than Rs 15000 / ha in Tripura.

**Table 8: Average Area Insured Per Participating Farmer**

| States | Area / Farmer (ha) | Sum Insured per (Rs) | | | Premium Paid per (Rs) | | Claim per (Rs) |
|---|---|---|---|---|---|---|---|
| Farmer | Hectare | Farmer | | Hectare | Farmer | | Hectare |
| Andhra Pradesh | 1.52 | 13211 | 8675 | 365 | 239 | 965 | 634 |
| Assam | 0.75 | 8234 | 10979 | 207 | 276 | 179 | 239 |
| Bihar | 1.12 | 11469 | 10207 | 250 | 222 | 2873 | 2557 |
| Chattisgarh | 2.18 | 5636 | 2582 | 146 | 67 | 488 | 224 |
| Goa | 1.60 | 4017 | 2511 | 71 | 44 | 45 | 28 |
| Gujarat | 2.44 | 17614 | 7209 | 781 | 320 | 2938 | 1202 |
| Haryana | 1.25 | 8187 | 6536 | 258 | 206 | 69 | 55 |
| H P | 0.61 | 4840 | 7883 | 111 | 181 | 466 | 760 |
| J & K | 1.38 | 6770 | 4923 | 128 | 93 | 0 | 0 |
| Jharkhand | 0.56 | 3886 | 6954 | 94 | 169 | 1195 | 2139 |
| Karnataka | 1.62 | 10526 | 6511 | 342 | 212 | 1691 | 1046 |
| Kerala | 0.85 | 11195 | 13246 | 234 | 277 | 629 | 744 |
| M P | 2.70 | 7905 | 2925 | 241 | 89 | 429 | 159 |
| Maharashtra | 1.05 | 5898 | 5593 | 214 | 203 | 499 | 474 |
| Meghalaya | 1.09 | 8853 | 8115 | 560 | 513 | 262 | 240 |
| Orissa | 1.02 | 8767 | 8563 | 221 | 216 | 625 | 610 |
| Rajasthan | 2.43 | 10293 | 4244 | 286 | 118 | 829 | 342 |
| Sikkim | 1.00 | 11778 | 11778 | 119 | 119 | 128 | 128 |
| Tamil Nadu | 1.71 | 16110 | 9394 | 333 | 194 | 2135 | 1245 |
| Tripura | 0.57 | 9642 | 16874 | 278 | 486 | 184 | 322 |
| Uttar Pradesh | 1.49 | 9155 | 6152 | 180 | 121 | 300 | 201 |
| Uttaranchal | 1.06 | 9405 | 8897 | 147 | 139 | 108 | 102 |
| West Bengal | 0.52 | 6680 | 12763 | 174 | 332 | 266 | 508 |
| Andaman & Nicobar | 1.00 | 8852 | 8852 | 205 | 205 | 61 | 61 |
| Pondicherry | 1.56 | 19210 | 12295 | 378 | 242 | 902 | 577 |
| **Total (India)** | **1.63** | **9573** | **5860** | **295** | **180** | **915** | **560** |

Source: AIC (2007).

## OTHER AGRICULTURAL INSURANCE SCHEMES

Lately, some other insurance schemes have also come into action in the country which goes afar to cover yield loss and also covers the non- crop sector. These include Farm Income Insurance Scheme, Rainfall Insurance Scheme and Livestock Insurance Scheme. All these schemes except rainfall insurance and various crop insurance schemes discussed above remained in the realm of the public sector.

## FARM INCOME INSURANCE

The Farm Income Insurance Scheme was on track on a pilot basis during 2003-04 to provide income shield to the farmers by integrating the device of insuring yield as well as market risks. In this plan, the farmer's income is ensured by providing minimum guaranteed income.

## LIVESTOCK INSURANCE

Livestock insurance is provided by public sector insurance companies and the insurance cover is vacant 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 (Table 9). In 2004-05, about 32.18 million heads were insured which comprised of 6.58 percent of livestock population. The execution of the livestock insurance as it obtains now, does not satisfy the farmers much.

**Table 9: Progress of livestock insurance**

| Year | Number of animals insured (millions) | % livestock population insured |
|---|---|---|
| 1988-89 | 18.60 | 4.20 |
| 1992-93 | 13.80 | 2.90 |
| 1997-98 | 22.83 | 4.70 |
| 1998-99 | 23.50 | 4.84 |
| 1999-00 | 17.10 | 3.52 |
| 2000-01 | 15.35 | 3.16 |
| 2001-02 | 16.49 | 3.40 |
| 2002-03 | 29.40 | 6.09 |
| 2004-05 | 32.18 | 6.58 |

Source: Various issues of Basic Animal Husbandry Statistics, GOI.

## 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 factors. The insurance losses due to vagaries of weather, i.e. excess or deficit rainfall, anomalies in sunshine, temperature and humidity, etc. could be roofed on the basis of weather index. If the actual index of a precise weather event is less than the sill, the claim becomes payable as a percentage of digression of actual index. One such product, namely Rainfall Insurance was developed by ICICI-Lombard General Insurance Company. Under the idea, exposure for departure in the rainfall index is extended and rewards for economic losses due to less or more than normal rainfall are paid. The pilot test enclosed 200 groundnut and castor farmers in the rain-fed district of Mahaboobnagar, Andhra Pradesh. The policy was related 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, a NGO, 600 acres of paddy crop in Aligarh through ICICI Bank's 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) initiated rainfall insurance (Varsha Bima) during 2004 South-West Monsoon period. 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 were covered under each India Meteorological Department (IMD) rain gauge stations. Varsha Bima-2005 enclosed 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, throughout *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. The Weather Based Crop Insurance Scheme (WBCIS) of AIC was implemented in the selected areas of Karnataka on a pilot basis. WBCIS is an exclusive weather based insurance product designed to offer insurance protection against losses in crop yield ensuing from unpleasant weather incidences. It provides payout against unpleasant rainfall prevalence (both deficit and excess) during *kharif* and unfavorable prevalence in weather parameters like frost, heat, relative humidity, un-seasonal rainfall etc., during *rabi*. This scheme is available to both loanees (compulsory) and non-loanees (voluntary). The NAIS is not available for the locations and crops selected for WBCIS pilot. It has the advantage to settle the claims with the shortest possible time. The AIC implemented the pilot WBCIS in Karnataka during *kharif* 2007 season, covering eight rain-fed crops, insuring crops nearly 50,000 ha for a sum insured of Rs.50 crore. WBCIS was implemented in 2007-08 on a larger scale in selected states of Bihar, Chattisgarh, Haryana, Madhya Pradesh, Punjab, Rajasthan and Uttar Pradesh for *rabi* 2007-08 season and was continued even in 2008-09 also as a pilot WBCIS (Union Budget 2008-09, GOI). Together, these above mentioned companies have been able to sell weather insurance policies to about 5.39 lakh farmers across India from their inception in 2003-04 to date. Though weather insurance coverage was limited, it holds lessons for future programmes.

## ISSUES RELATED TO AGRICULTURAL INSURANCE

### REDUCTION OF INSURANCE UNIT TO VILLAGE PANCHAYAT LEVEL

As of now, the NAIS is realized on the basis of "*homogeneous area*" approach, and the area at present is the Mandal / Taluk / Block or equivalent unit, in most occasions. For the plan to become more popular, the unit for influential claim should be abridged to the level of 'village' in the case of large villages and to a cluster of villages in the case of small villages. However, because of infrastructural and financial constraints, States could not lower the unit to village panchayat. Ideally, "*Individual approach*" would reflect crop losses on a realistic basis, and has been regarded as most desirable (Dandekar, 1985). We feel that lowering of the insurance unit to the Gram Panchayat (GP) level is a welcome move as it would mirror yield losses at a reasonable level.

### THRESHOLD / GUARANTEED YIELD

Presently, Guaranteed Yield, based on which indemnities are calculated, is the moving average yield of the before three years for rice and wheat, and prior five years for other crops, multiplied by the level of indemnity. The concept does not offer plenty protection to farmers, mainly in areas with successive adverse seasonal conditions, and in case of destruction to the average yield. It is projected to consider the best 5 out of the preceding 10-years' yield.

### LEVELS OF INDEMNITY

Presently, the levels of indemnity are 60 per cent, 80 per cent and 90 per cent equivalent to high, medium and low risk areas. It is alleged that the 60 per cent indemnity level does not passably cover the risk, mainly in the case of small/ medium-intensity adversities, since losses get covered only if and when the loss exceeds 40 per cent. Consequently, hint was made that instead of three levels of indemnity, there should be only two levels of indemnity, viz. 80 per cent and 90 per cent. But these top levels of indemnity may spiral the premium rates and would increase the grant yoke of the government. Therefore, it may be wise to continue with the three levels, with up gradation of 60 per cent to 70 per cent. Since the mass of crops are being enclosed right now in the 60 per cent level category, its upgradation to 70 per cent level would be a reasonable progress.

### EXTENDING RISK COVERAGE TO PREVENTED SOWING / PLANTING IN ADVERSE SEASONAL CONDITIONS

The NAIS under the existing mode covers risk only from sowing to harvesting. Many a times, sowing / planting is vetoed due to adverse cyclic situation and the farmer loses not only his early outlay, but also the chance value of the reap. A state where the farmer is vetoed from even sowing the turf is a case of intense hardship and this risk

must be covered. Pre-sowing risk, particularly prevented / failed sowing / reseeding on account of adverse seasonal conditions should be covered wherein, up to 25 per cent of the sum insured could be paid as compensation, covering the input - cost incurred till that stage.

## COVERAGE OF POST-HARVEST LOSSES

In some states, crops like paddy are left in the field for drying after harvesting. Pretty often, this 'cut and spread' crop gets spoiled by cyclones, floods, etc., mainly in the coastal areas. The existing scheme covers risk only up to the harvesting period and these post-harvest risks are not covered by insurance cover. This matter was examined in the light of difficulties in assessing such losses at the individual level. One of the suggestions to address this issue could be to widen the insurance cover for two weeks after the harvest.

## ON-ACCOUNT SETTLEMENT OF CLAIMS

The meting out of claims in NAIS begins only after the harvesting of the crop. Further, assert payments have to stay for the results of Crop Cutting Experiments (CCE's) and also for the free vital funds from the central and state governments. Accordingly, there is a gap of 8-10 months between the event of loss and actual claim payment. To rush the defrayal of claims in the case of adverse seasonal conditions, and to ensure that at least part payment of the likely claims is paid to the farmer, before the end of the season, it is optional to introduce 'on-account' defrayal of claims, without waiting for the delivery of yield data, to the extent of 50 per cent of likely claims, subject to tuning against the claims assessed on the yield basis.

## SERVICE TO NON-LOANEE FARMERS

The alertness about the plan is poor, partially due to lack of sufficient localized contacts and significantly due to the lack of efficient image edifice and alertness campaigns. For loanee farmers, with premium being subtracted at the time of loan payment and claim defrayals being certified to the farmer's loan account, the ignorant or feebly educated farmer is scarcely aware of the scheme's reality, let alone its benefits. The poor sharing of non-loanee farmers is even inferior. Hence, most of pilot studies, to erect effective communication models, need to be conducted as a vital feature of policy planning. NAIS being a multi-agency approach, the implementing agency now has no incidence, but in the state capitals. The scheme is marketed to non-loanee farmers through the rural credit agencies. These farmers are neither known nor calm in going to the faintly-located credit agencies. Dedicated rural agents, who could provide service, supported by the effective communication and training programs, would be a needed initiative (Planning Commission, 2007).

## PREMIUM SHARING BY FINANCIAL INSTITUTIONS

Crop Insurance claims are paid for difficult seasons; the loan availed of which in any case could not have been repaid by the farmer. The assert amount is routinely adjusted against the terrific crop loan, foremost to the revival of dues for the financial institutions (FIs), and providing the farmer eligibility for a fresh loan. In other words, Crop Insurance helps the flow of credit to crop production. In view of the overall payback of Crop Insurance and its direct and indirect guard to lending tricks, the yoke of high premium rates of Crop Insurance may be partially shared by the Fls.

## ROLE OF GOVERNMENT

Crop insurance to be victorious requires civic support in terms of subsidy on premium, meeting part of administrative outflow, and reinsurance etc. Agriculture in India is not just reliant on weather conditions, but also suffers the impact of natural disasters. It will be pretty in order for crop insurance to be regarded as a hold gauge in which government plays a vital role, because of the benefit it provides not purely to the insured farmers, but to the intact national economy caused by the forward and backward relations with the relaxation of the economy. The principle following the appraisal of yield insurance schemes all over the world are along these lines for getting the dynamic support and finance of the Government. Integrating the assorted risk easing methods and reforming the funds not only injects liability and professionalism into the system, but also increases economic effectiveness .The Government can assist agricultural insurance in some ways. There is a need for some subsidization by the government. It can offer information on weather patterns, spots of farms and crops, rate and history of perils and crop yields. It can help to meet the costs of the research to be undertaken before starting an

agricultural insurance plan. Basic issue in the plan of a crop insurance scheme is whether to cover all or specified risks.

## CONCLUSIONS

Despite diverse schemes launched from time to time in the country, farming insurance has served a restricted purpose. The exposure in terms of area, number of farmers and value of agricultural output is very small, payment of indemnity based on area approach overlooks affected farmers outside the compensated area, and most of the schemes are not doable. Escalating the exposure of crop insurance would ,therefore, increase government costs noticeably. Unless the programme is efficient to make it doable, the prospects of its future expansion to include and force more farmers are remote. This requires new pains by Government in terms of deceitful appropriate mechanisms and providing financial support for agricultural insurance. Providing similar help to private zone insurers would help in escalating insurance exposure and in civilizing feasibility of the insurance schemes over time. With the superior mixing of rural scenery and communication system, the piece region of insurance could be brought down to a village panchayat level. Good supremacy is as important for a range of developmental programmes as for the thriving of a farming insurance scheme. Poor governance harmfully affects advance actions. With the upgrading in governance, it is viable to well operate and recover upon the recital of various programmes including agriculture insurance.

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