International Journal of Applied Management Research,
ISSN: 2347-2839, Vol. 2(No. 1), June, 2014, Page: 15-28

Agricultural Crop Insurance Scenario with Special Reference to Assam

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Abstract:

Crop insurance is a means of protecting the agriculturist against financial losses due to uncertainties that may arise from crop failures/losses arising from named or all unforeseen perils beyond their control. Crop insurance acts as a life saver of the farmers of the state like Assam where every year, large scale crop failure occur due to various natural calamities such as flood, drought etc. Under NAIS (National Agricultural Insurance Scheme) the performance of NE states is very poor as compared to other states of the country. Till 2011-12, 2.84 lakh no of farmers are covered out of which 44 thousand nos. of farmers are benefitted and 2.16 lakh ha areas are insured under NAIS in the state. Although the performance of NAIS in Assam both for rabi and kharif season showed highly significant Compound Growth rate for different aspects, it was observed that very less amount of crop areas and farmers are covered as compared to the crop areas and farm families affected by flood or drought. The paper also attempts to list out some problems and prospects regarding crop insurance in Assam.

Key words: *Crop insurance, NAIS, Assam*

Introduction:

Crop insurance is a means of protecting the agriculturist against financial losses due to uncertainties that may arise from crop failures/losses arising from named or all unforeseen perils beyond their control. The capacity of agriculture to hedge itself from vagaries of nature is considered crucial for development and growth of the sector in particular and economy in general. Agricultural production is an outcome of biological activity which is highly sensitive to changes in weather. In India, Agriculture is an uncertain business partly due to its high dependence on the weather, leaving 120 million farmer households vulnerable to serious hardship. Therefore, Crop insurance is one alternative to manage risk in yield loss by the farmers. It is the mechanism to reduce the impact of income loss on the farmer (family and farming). It is a mean of protecting farmers against the variations in yield resulting from uncertainty of practically all natural factors beyond their control such as rainfall, flood, hails, other weather variables, pest infestation etc (Govt of India). Crop insurance is a financial mechanism to minimize the impact of loss in farm income by factoring in a large number of uncertainties which affect the crop yields. It provides a good alternative both to farmers and government: farmers get on actuarially fair insurance with swift payments at little administrative costs to the government (Lilleor and Bie, 2005).

Methodology:

The study was conducted based on secondary data collected from different published sources such as economic survey of India, economic survey of Assam, statistical handbook of Assam, official website of Agricultural Insurance Company of India.

Different analytical tools used in the study were as follows:

(a) Compound Growth rate analysis

The CGR (compound growth rate) measures the average growth of an amount over time. In other words, the CGR assumes a constant rate of growth, thus smoothing the expansion rate. CGR was computed by using the formula:

$$CGR = \text{Antilog (b)} - 1 \times 100$$

Where,'b' is the co. efficient and which was derived by using the formula

$$Y = a.b^t$$

Where,

Y: Time series data

a: Intercept

t: Time in years

b: co-efficient

The logarithmic form of the above equation was obtained as,

$$\ln Y = \ln a + t \ln b$$

(b) Percentage analysis

In order to analyze increase or decrease in current year over the p, per cent changes were calculated. Per cent variation was calculated by the formula

$$= \frac{V_{present} - V_{past}}{V_{past}} \times 100$$

Where,

$V_{present}$: present or future value

V_{past}: past or present value

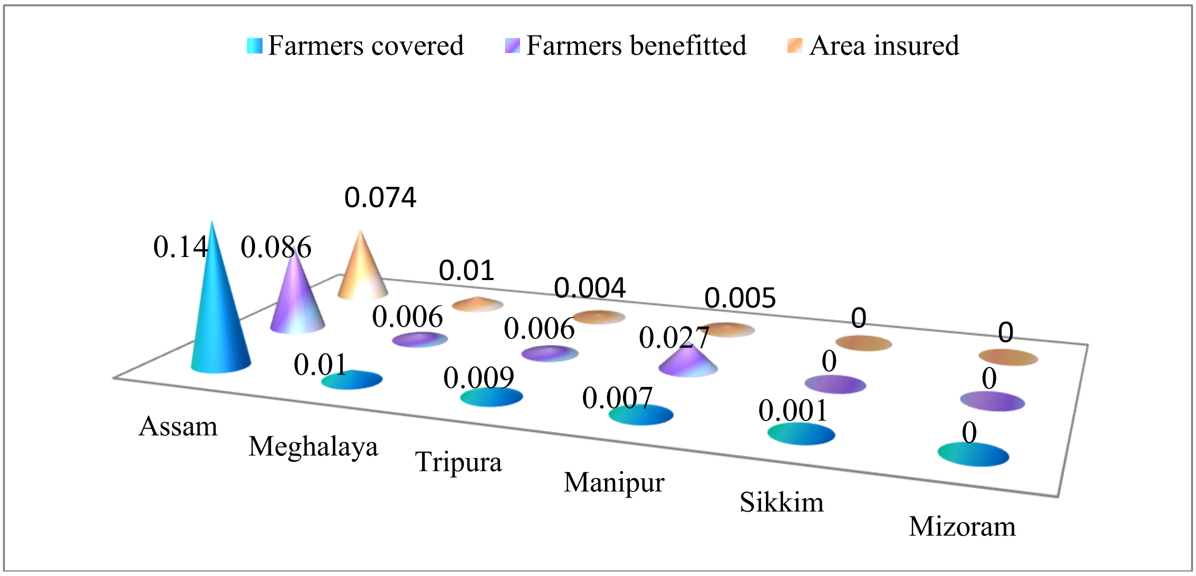
Discussion:

Status of NAIS in NE States of India:

India's crop insurance program is the world's largest with 25 million farmers insured (Olivier Mahul, 2012). The farmers of Andhra Pradesh topped the list by claiming Rs.4,411 crore and the farming community of Gujarat stood second in the list by claiming Rs.4262 crore for their crop losses (AICI). In 1999 the national agricultural insurance scheme (NAIS) replaced the Comprehensive Crop Insurance Scheme (CCIS) as the main instrument for providing risk management to India's farming community. NAIS was started as a part of Rashtriya Krishi Bima Yojana (RKBY). The scheme operates on the basis of area approach i.e., defined areas (unit of insurance) for each notified crop for widespread calamities. In case of localized calamities such as hailstorm, landslide, cyclone and flood the scheme operates on the basis of individual approach.

Table 1 shows the present status of NAIS in North East states of India. Among NE states, Arunachal Pradesh and Nagaland are not yet covered under NAIS. NAIS performance wise Assam occupied the highest position and Mizoram and Sikkim were the bottom listed states among all NE states (table 1). As compared to other states of India NE states' share was very less to total farmers covered and benefitted, total area insured under NAIS in India. Among NE states Assam contributed the highest shares which were only 0.14, 0.086 and 0.074 per cent to total farmers covered, benefitted and area insured in India under NAIS respectively as shown in Figure 1.

Fig. 1 Status of NE states under NAIS (in per cent to total India)



The scenario of agricultural crop insurance in Assam

The economy of Assam is predominantly agrarian. About 99 per cent area of total land mass of the State is rural and almost 50 per cent of the total land area is used for cultivation. Agriculture sector continues to support more than 75 per cent population of the state directly or indirectly providing employment of more than 53 per cent of the workforce. A general profile of land area of Assam is given in table 2.

After critical analysis of the sectoral growth of the state economy it has been observed that the growth of the agriculture and allied sector was not encouraging during last few periods. It is reported that every year, large scale crop failure occur in Assam due to various natural calamities such as flood, drought etc. and damaging the crops in wide spread areas and making agriculture as the most risky business. Though such farmers are given some support from the government under various schemes but the help is not enough. Thus implementation of the crop insurance scheme in Assam is highly essential.

NAIS in Assam

Crop insurance programme "National Agricultural Insurance Scheme" (NAIS) has been implemented in the state since Rabi 1999-2000. The AICI pays 100 per cent amount of premium collected towards claim if any. The scheme provides 10 per cent subsidy to small & marginal farmers. Total premium subsidy is shared equally between G.O.I and G.O.A.

In table 3, achievements under NAIS in Assam are shown for the period of 1997-98 to 2009-10. From the table it is seen that as compared to the period of 1997-2001 all particulars had been increased at higher rates in the periods of 2001-2006 and 2006-10 (shown in the parentheses).

At present (up to 2012), 2.84 lakh numbers of farmer were covered under NAIS, out of which 15.49 per cent farmers were benefitted, 2.16 lakh ha of crop areas were covered and Rs 11.74 crore claims were entertained (table 4).

Crop covered under NAIS in Assam

Total eight numbers of crops are covered under NAIS in Assam and categorized into two groups as shown in table 5. Crop wise sum insured limits and premium rates are different under NAIS (table 6). Under Rabi crops potato has the highest sum insured limit as well as premium subsidy rate as shown in table 6.

It is noted that sum insured limits are only for non-loanee farmers. In case of loanee farmers, entire crop loan amount is compulsorily covered as 'sum insured' at the above premium rate. Small and marginal (S&M) farmers are eligible for premium subsidy of 10% on full premium.

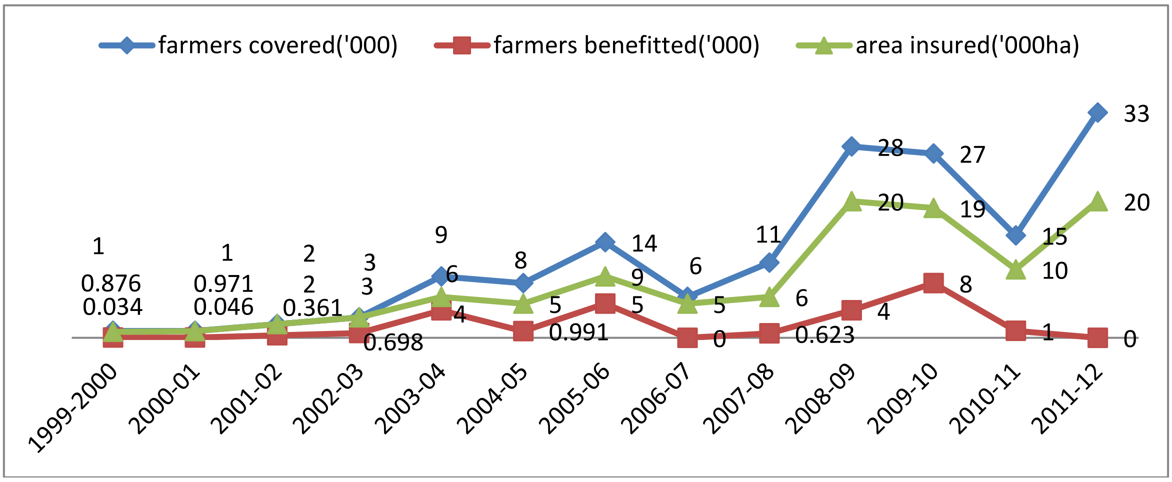
Performance of NAIS in Assam

A scenario of performance of NAIS in Assam for Rabi season is shown in table 7 from the year of 1999-2000 to 2011-12. There was a considerable increase in all aspects from 1999-2000 to 2011-12. Claims were seen as fluctuated, it was because of the variation in crop damage caused by flood or drought in the previous seasons.

During that period of 1999-2000 to 2011-12, highly significant and positive compound growth rates were found for all aspects considered under NAIS (table 8).

During the same period, numbers of farmers covered and benefitted, area insured under NAIS in Assam were also increased significantly (shown in figure 2).

Fig.2.Performance of NAIS in Assam (Rabi) *Source: AICI*

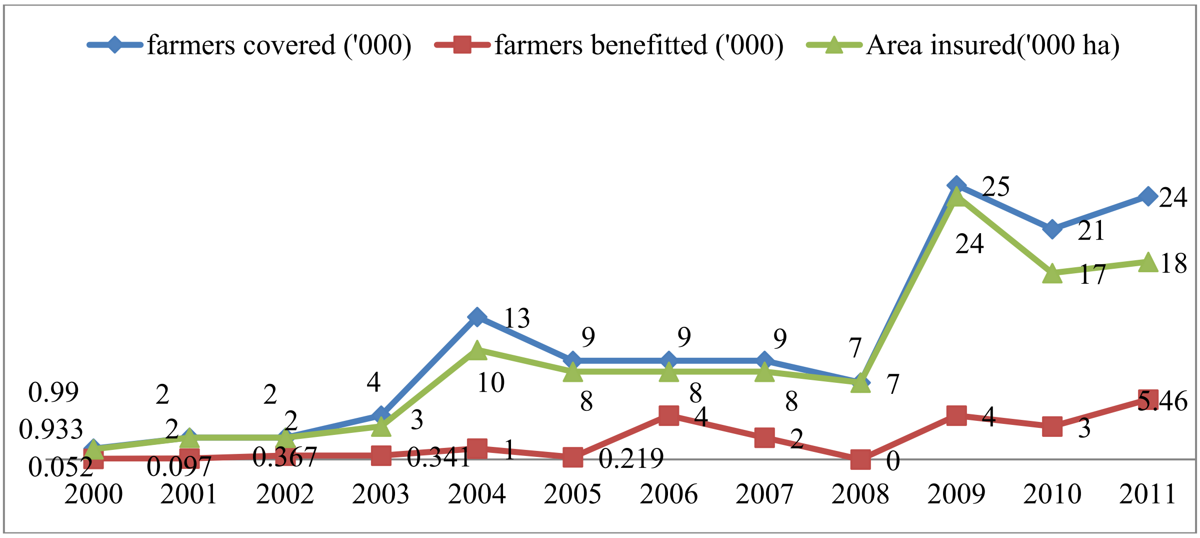


Compound Growth Rate of farmers covered was 32.88**, farmers benefitted was 41.13* and area insured was 28.13**(*signficant at 5 per cent ,**significant at 1 per cent significance level) under NAIS in Assam for rabi season.

Similarly, table 9 shows the performance of NAIS in Assam from 2000 to 2011 for kharif season. Here also highly significant and positive compound growth rates were found for all aspects during that period as shown in table 10.

Figure 3 shows the trends of farmers covered and benefitted and area insured under NAIS in Assam for the kharif season during that period.

Fig.3.Performance of NAIS in Assam (Kharif) *Source: AICI*



Compound Growth Rate of farmers covered was 30.25*, farmers benefitted was 48.64* and area insured was 28.97 **significant at 1 per cent significance level under NAIS in Assam for kharif season.

District wise crop coverage under NAIS in Assam

Under NAIS district wise crop coverage is different in Assam. Based on the number of crops covered for rabi season (2011-12), all districts of the state are categorized into five groups as shown in table 11.

Although NAIS is showing a highly significant and increasing growth in its performance, it is still far away from the desired destination. When the crop areas and farmers affected by flood or drought were compared with crop areas insured and farmers covered under NAIS in Assam (from 2006-07 to 2011-12), it was found that a very less amount of areas as well as very less number of farmers were covered under NAIS in the state (figure 4 & 5). It is noted that both flood/drought affected and non affected crop areas and farmers were included under total crop areas and total number of farmers insured under NAIS.

Fig.4.Comparison between crop areas affected by flood/drought and crop area insured under NAIS in Assam

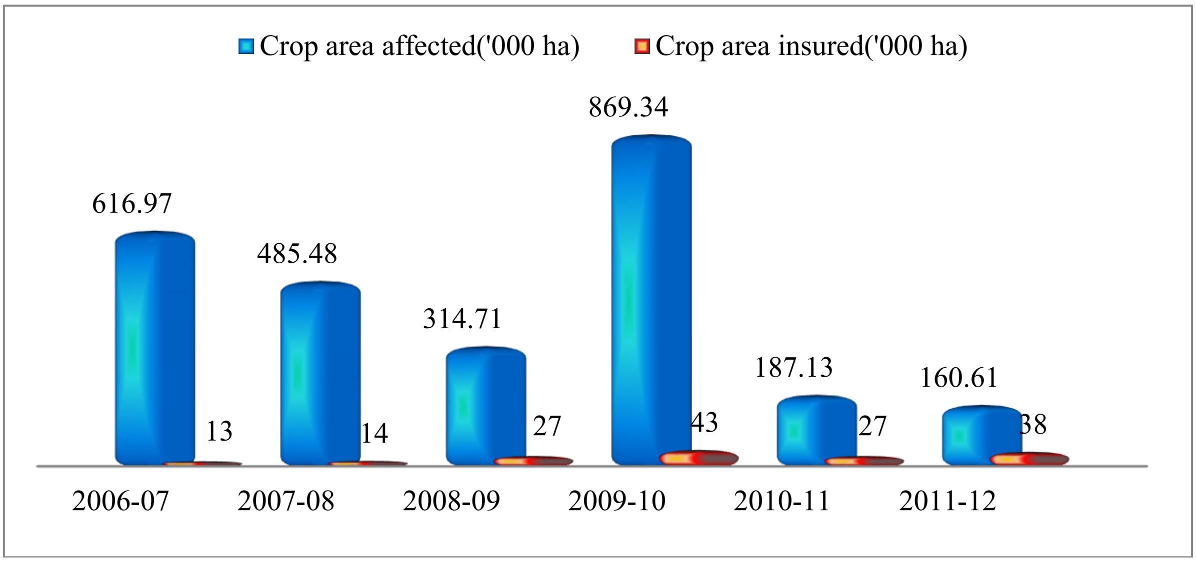
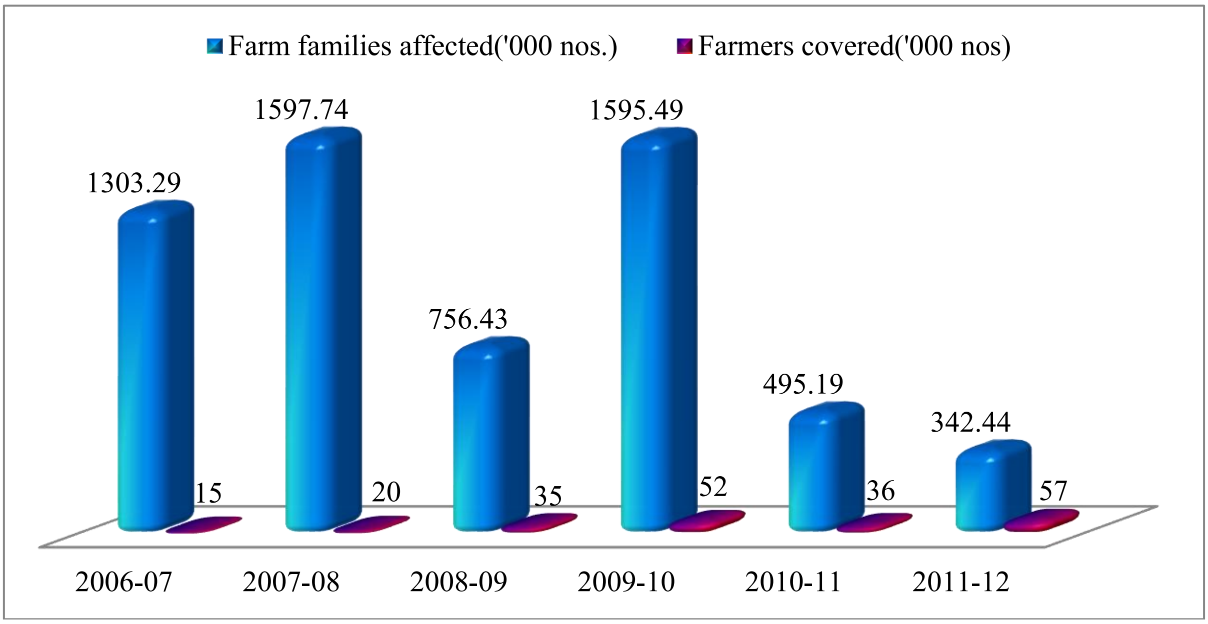


Fig.5.Comparison between farm families affected by flood/drought and farmers covered under NAIS in Assam



Source: Statistical Handbook of Assam 2011

Modified National Agricultural Insurance Scheme (MNAIS) in Assam

In Assam, Modified National Agricultural Insurance Scheme is implemented in two districts, viz., Kamrup and Dhubri from rabi 2010-11. Table 12 shows the status of MNAIS in Assam for the year of 2010-11.

Crop wise sum insured limits and premium rates under MNAIS are different in both two districts viz., Kamrup (rural) and Dhubri of Assam. Table 13 shows the sum insured limits and premium rates for summer paddy in those two districts.

In case of loanee farmers, entire crop loan amount is compulsorily covered as 'sum insured' at the above premium rate.

Problems and prospects of crop insurance in Assam:

Problems:

One of the major problems is unawareness. Most of the North Eastern farmers are unaware about crop insurance. Even no claims at all have been made by the farmers. of Assam and other north eastern states in the last year (2011-12) for their crop losses. On the other hand, NAIS has not been able to provide desired solution to the risk hedging in the agriculture sector in the state. Reasons are:

- The slow response of banks in issuance of kissan credit cards which has affected a large number of farmers of the state from getting benefit from NAIS
- Mismatch of crops covered under NAIS and crop grown by farmers of Assam, some important crop like ginger, chili etc. are not covered.
- Delays in claims settlements
- Crop Cutting Experiment (CCE) quality is likely to vary considerably between states due to disparities in the levels of accountability, expertise and capacity of the agencies responsible for CCEs.
- A lack of accuracy in CCEs increases the basis risk experienced by farmers by increasing the non-sampling error.
- No Involvement of private sector which results in low investment in the scheme.

Prospects:

Different possible prospects are listed below:

- Provision for conducting awareness programmes for farmers (AICI-NCAP sponsored awareness meeting at AAU during 2011, December) to promote awareness about crop insurance.
- Provision for covering other economically important and extensively growing crops of the state under crop insurance scheme.
- Proper co-ordination of crop insurance scheme with farmers' convenience.
- More crop area coverage under MNAIS as MNAIS is considered as more improved than NAIS.
- Publication of leaflets related to crop insurance in local languages so that farmers can better understand.

Conclusion

Crop insurance acts as a life saver of the farmers of the state like Assam where every year, large scale crop failure occur due to various natural calamities such as flood, drought etc. The crop insurance scheme National Agricultural Insurance Scheme (NAIS) has benefitted a large number of farmers in Assam to overcome the financial loss resulting from such crop failure due to natural disasters. However, although NAIS is showing a significant growth in the state, but still this scheme has failed to cover a considerable number of farmers of the state which demands for more improvement in the scheme to be done. A well planned and well executed crop insurance scheme always needs proper co-ordination as well as integration of government and farmers to achieve the desired goal. So lastly it can be concluded that by making provision for a better crop insurance scheme government can provide better standard of living to farmers and likewise ensure a better socio economic development of the state.

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Table 1: Status of NAIS in NE states of India from Rabi 1999-2000 to Kharif 2011-12 (as on 19.10.2012)

State / union territory	No. Of farmers covered (in '000')	Area insured ('000ha)	Sum insured	Gross premium	Premium subsidy	Claims	No. Of farmers benefitted (in '000')
			All are in Rs. Crore				
Assam	284	216	473	13	1	12	44
Manipur	14	15	40	1	0.09	3	14
Meghalaya	27	29	42	2	0.32	0.47	3
Mizoram	0.121	0.134	0.232	0.01	0.001	0.112	0.119
Sikkim	2	1	3	0.04	0.01	0.013	0.086
Tripura	19	12	26	0.73	0.08	0.58	3
India	**192778**	**291406**	**255360**	**7556**	**819**	**24839**	**51042**

Source: AICI

Table 2.Assam's general profile of land area (2009-10)

Total geographical area	78.44 lakh ha
Total cultivable land	30.16 lakh ha
Net area sown	28.11 lakh ha
Flood prone area	4.75 lakh ha (16.9 per cent of net area sown)
Drought prone area	0.94 lakh ha (3.3 per cent of net area sown)

Source: Statistical hand book of Assam, 2010

Table 3.Achievements under NAIS in Assam

Particulars	1997-98 to 2000-01	2001-02 to 2005-06	2006-07to 2009-10	Total (1997-98 to2009-10)
Farmers covered (no.)	3580	66292 (1751.73)	94772 (2547.26)	164644
Area covered (ha)	2418.70	44787.83 (1751.73)	82460.09 (3309.27)	129666.62
Sum insured(lakh Rs)	307.27	5792.61 (1785.18)	14326.94 (4562.65)	20426.82
Premium received (lakh Rs)	72.87	142.49 (95.54)	250.88 (244.28)	466.24
Claim entertained(lakh Rs)	1.41	250.88 (1692.90)	311.87 (2018.43)	564.16

Source: Assam agriculture at a glance, deptt of agriculture, Assam
(Figure in parentheses indicates per cent change in current period over the base period i.e.1997-98 to 2000-01: Authors' calculation)

Table 4.Agricultural insurance (NAIS) of Assam at a glance (as on 19.10.2012)

Particulars	Amount
Farmers covered	2.84 lakh nos.
Crop area covered	2.16 lakh ha
Sum insured	Rs.473.38 crore
Gross premium received	Rs. 13.34 crore
Premium subsidy	Rs. 112.24 lakh
Claims entertained	Rs 11.74 crore
Farmers benefited	44000 nos. (15.49 per cent of total farmers covered)

Source: AICI, Guwahati

Table 5.Crop covered under NAIS in Assam

Parameters	Kharif 2010	Rabi 2010-11
Crops covered	Ahu paddy, sali paddy, jute	Summer paddy, wheat, rape & mustard, potato, sugarcane
Unit of insurance	Revenue circle/gr. Of revenue circles/ district	Revenue circle/gr. Of revenue circles/ district

Source: AICI

Table 6.Crop wise sum insured limits & premium rate under NAIS in Assam (rabi 2012-13)

Notified crops	Sum insured limits(Rs./ha)*	Premium rate (%) **
Summer paddy	32,100	2.00
Wheat	11,300	1.50
Rape & mustard	10,700	2.00
Potato	66,300	6.00
Sugarcane	58,100	3.10

(*Applicable only for non-loanee farmers, ** applicable for both loanee and non- loanee farmers.) *Source: AICI, Guwahati*

Table 7.Performance of NAIS in Assam for rabi season

Year	Sum insured	Gross premium	Premium subsidy	Claims
	(all amounts are in Rs. thousand)			
1999-2000	11030	272	112	50
2000-01	12585	301	148	18
2001-02	26771	750	299	1211
2002-03	32789	886	265	120
2003-04	58887	1477	263	2738
2004-05	86740	2440	221	957
2005-06	136668	4115	395	13038
2006-07	91150	2460	246	768
2007-08	135999	5038	505	446
2008-09	417148	12437	1232	6600
2009-10	571995	17553	1751	32924
2010-11	310330	12926	1288	1626
2011-12	739114	27343	2730	0.00
Rabi seasons total	**2631206**	**87998**	**9455**	**60919**

Source: AICI

Table 8.Compound growth rate of performance of NAIS in Assam for rabi season

Particulars	CGR
Sum insured	41.24*
Gross premium	46.47*
Premium subsidy	26.70*
Claims(up to 2010-11)	53.80*

* Means significant at 1 per cent level of significance
(Based on authors' calculation)

Table 9.Performance of NAIS in Assam (Kharif)

Year	Sum insured	Gross premium	Premium subsidy	Claims
	(All amounts are in Rs. thousand)			
2000	7114	157	70.0	75
2001	24139	527	204	160
2002	17477	361	100	79
2003	24280	660	128	717
2004	72590	1322	128	5937
2005	89084	1710	156	131
2006	104932	1758	158	9190
2007	117210	2050	202	6684
2008	82647	1723	169	536
2009	480181	9778	930	6870
2010	462550	9867	982.96	5971
2011	619654	15510	1542	20218
Kharif Seasons Total	**2102604**	**45423**	**4769**	**56569**

Source: AICI

Table 10.Compound Growth Rate of performance of NAIS in Assam for kharif season

particulars	CGR
Sum insured	45.19*
Gross premium	44.92*
Premium subsidy	26.19*
Claims(upto 2010-11)	56.74*

* Significant at 1 per cent significance level
(Based on authors' calculation)

Table 11.District wise crop coverage under NAIS in Assam (rabi 2011-12)

A. Districts covering all five crops:

District	Crops covered
Nalbari	Summer paddy, wheat, rape & mustard, potato and sugarcane
Baksa	
Sonitpur	
Darrang	
Udalguri	
Nagaon	
Morigaon	
Golaghat	
Karbi Anlong	

B.District covering 4 crops:

District	Crops covered
Kokrajhar	Summer paddy, rape & mustard, potato, wheat
Bongaigaon	-do-
Chirang	-do-
Goalpara	-do-
Barpeta	-do-
Dhemaji	-do-
Kamrup(rural)	Wheat, rape & mustard, potato and sugarcane

Jorhat	Summer paddy, rape & mustard, potato and sugarcane
Lakhimpur	-do-
Cachar	-do-
Karimganj	-do-

C. Districts covering 3 crops:

District	Crops covered
Dhubri	Wheat, rape & mustard ,potato
Hailakandi	Summer paddy, rape & mustard, potato

D.Districts covering 2 crops:

District	Crops covered
Kamrup (metro)	Summer paddy, rape & mustard
Sivasagar	Rape & mustard, potato
Tinsukia	-do-
N.C. Hills	Rape & mustard , sugarcane

E.District covering only one crop:

District	Crops covered
Dibrugarh	Rape & mustard

Source: AICI, Guwahati

Table 12.Status of MNAIS in Assam

Items	Kamrup (R) District	Dhubri District
Village panchayats covered	144 nos	168 nos.
Farmers covered	903 nos. (loanee farmer: 893 nos. & Non-loanee farmer:10 nos.)	1194nos.(loanee farmer:1186 nos.& Non-loanee farmer:8 nos.)
Area covered	869.71 ha	694.48 ha
Sum insured	Rs.2.74 crore	Rs.2.24crore
Premium received	Rs.9.58 lakh	Rs.10.10 lakh

Source: Directorate of Agriculture, Assam

Table13.Crop-wise sum insured limits & premium rate under MNAIS in Assam (rabi 2010-11)

Notified crops	Districts	Sum insured limits(Rs./ha)*	Premium rate(%)**
Summer paddy	Kamrup (rural)	35,370	2.10
	Dhubri	40,485	2.70

(*Applicable only for non-loanee farmers, ** Applicable for both loanee and non- loanee farmers.) *Source: Directorate of Agriculture, Assam*