



Agricultural Insurance in China:

History, Development and Success Factors

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List of Abbreviations

AF	Administration Fee
CARP	China's Agriculture Reinsurance Pool
CIRC	China Insurance Regulatory Commission
CNY	Chinese Yuan
CPC	Communist Party of China
GWP	Gross Written Premium
MPCI	Multiple Peril Crop Insurance
PICC	People's Insurance Company of China

Authors` Note:

The report contains an aggregated analysis of agricultural insurance in China which provides data on insurance premiums, sums insured and indemnities paid through the years of the system's development.

The information provided in this report was collected using personal communication, public reports and presentations delivered by experts at various conferences and workshops in the period of 2006 - 2016.

The main concern identified during the research and analysis process, was a lack of clear fragmentation of agricultural insurance products and division between the premiums, sums insured and indemnities paid for pure agricultural insurance products and products related to "farm pack" insurance. Chinese Market Regulator sums up all premiums collected in agriculture. It includes pure agricultural insurance products, as well as property insurance for infrastructural objects, buildings, machinery, etc.

Due to the abovementioned factors, it was impossible to separate pure agricultural insurance premiums from property insurance in agriculture, with clear identification of their respectful shares on the market.

Thus, the authors of this report would like to highlight that the data collected and used in this report includes insurance for crops, livestock, aquaculture, forestry and farms' property.

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China represents one of the largest agricultural economies in the world with fast-developing agricultural insurance model in place. Chinese agricultural insurance is distinguished by its quick success and efficiency. Such success was achieved by systemic efforts and reforms. This model includes high level of governmental interventions through introduction of agricultural insurance premium subsidy program.

In 2007, after premium subsidies introduction, the amount of total premiums collected skyrocketed to USD 0.68 billion, showing an increase of over 500% from 2006 (USD 0.11 billion). Such a positive trend of GWP preserved for the following years, estimating USD 6.3 billion in 2016.

In 2007, the Chinese government allocated USD 0.28 billion for premium subsidies to finance 50% of the insurance premiums. In 2008, the government spent USD 1.1 billion to cover 60% of the insurance premiums. State support through premium subsidization in 2007 significantly increased market penetration of agricultural insurance, making it the main risk mitigation tool within farmers. In 2010, the subsidized agricultural insurance program was introduced in 25 provinces of the country.

There were about 26 insurance companies operating at the agricultural insurance market in 2016 offering about 170 types of insurance products for main crops, cash crops, livestock, forest, fruits, vegetables, medicinal herbs and local agricultural products. At present, the insurers offer multi-peril insurance, index-based insurance, price index insurance, indemnity-based insurance and revenue insurance (pilot program).

Reinsurance is provided by China's agricultural reinsurance pool (CARP) established in 2014 by China P&C Re and 23 licensed insurance companies. China Re P&C is assigned as a Pool Managing Agency. The Managing Agency negotiates reinsurance requirements and terms with its members, examines the business activities of members, evaluates the Pool's capacity and its business plans. Pool's members cede approximately 50% of their agriculture reinsurance premium into the Pool.

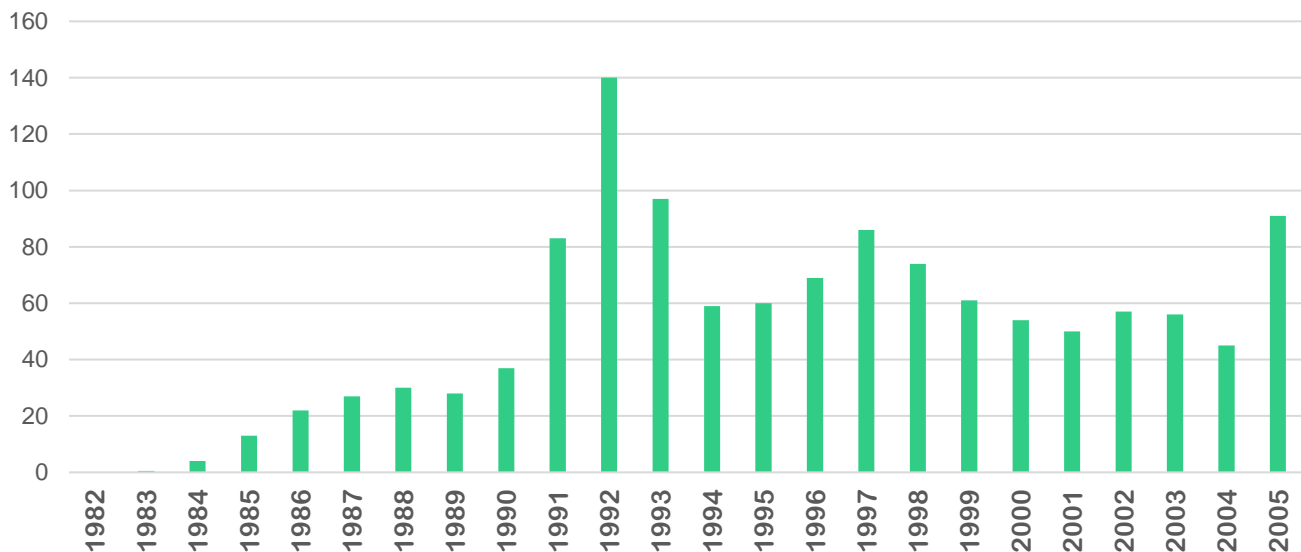
Among challenges that are considered to influence the agricultural insurance system in China are: lack of data quality provided at the farm level, need of improvement of loss adjustment procedures and lack of transparency in the information provided to the international reinsurance companies.

History of China's agricultural insurance

Agricultural insurance in China was introduced in 1982 by providing insurance coverage to both livestock and crops. Chinese agricultural insurance is considered to be divided into two major phases of development. The first phase occurred between 1982 and 2002, when PICC (Peoples Insurance Company of China) developed agricultural insurance products and delivered them to farmers through local governments ^[7].

However, during these years agricultural insurance products have proved to be strongly unprofitable and insurers became less interested in selling them further on. As a consequence, agricultural insurance premiums decreased from USD 140 million in 1992 to only USD 57 million by 2002 ^[9] (see **Chart 1.**).

Chart 1. Agricultural insurance premiums collected for the period 1982-2005, USD million¹



Source: *An insurance recipe for the Chinese food and agricultural industry*. Swiss Re Group Publication 7/2008

A second phase of agricultural insurance market development led to the present market standing. The new turn in development has started in 2003 by introduction of various pilot subsidy programs. China United Property Insurance provided insurance coverage for rice, wheat and barley in Xinjiang province on a pilot basis. PICC, in collaboration with local governments, has also launched a number of pilot agricultural insurance products on the market ^[9].

¹ See Annexes, Chart 7. for CNY

Since 2003 apart from the China United Property Insurance and PICC, four insurance companies (Sunlight, Anxin, Anhua, and Groupama) started offering agricultural insurance products. In 2005, Chinese agricultural insurance market was still very small and totaled USD 91.1 million ^[7]. Premium subsidies amounted less than USD 40 million ^[10].

In later years of development, Chinese government has promoted the market expansion by inviting insurance companies to participate in the agricultural insurance program and announced agricultural insurance as a core element of its agricultural development policy. Subsidized agricultural insurance has become a relevant component in promoting agricultural production and stabilizing farmers' income ^[7].

New model of agricultural insurance

In June 2006, the State Council issued its Opinions about the reform and development of insurance industry. Among them there was a declaration on the importance of insurance in national agricultural policy. This declaration was confirmed as the No. 1 Document issued by the State Council in 2007. This document called for developing a risk mitigation mechanism, which included the promotion of agricultural insurance, expanding the coverage of pilot insurance programs by making use of premium subsidies and establishing methods to diversify catastrophic risks with financial support from the government ^[9]. This document is considered as a milestone in the history of Chinese agriculture insurance, as it has provided a legal base of further governmental financial support for the agricultural insurance industry.

2006	0.11 b USD	0.07 b USD	68%	9.66 m ha
	Total Premiums	Indemnities	Loss Ratio	Area Insured

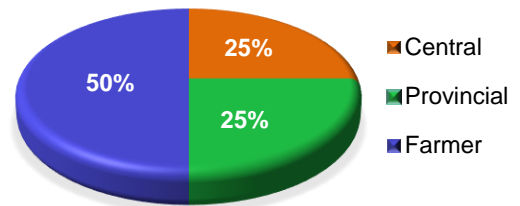
In 2006, the total premiums collected from agriculture insurance programs approached USD 0.11 billion ^[8]. Total agricultural indemnity payouts estimated USD 0.07 billion ^[8] with a combined loss ratio of 68%. The area covered by insurance that time was equal to 9.66 million hectares ^[7].

2007	0.68 b USD	22.7 b USD	0.3 b USD	44%	15.33 m ha
	Total Premiums	Sum Insured	Indemnities	Loss Ratio	Area Insured

In 2007, the Chinese government allocated USD 0.13 billion ^[9] for premium subsidies to finance 50% of the insurance premiums paid by farmers in provinces Jiangsu, Jilin, Xinjiang, Hunan, Sichuan and Inner Mongolia to cover five major crops: corn, wheat, paddy rice, cotton and soybean (see Map 1.). Later this year the government allocated an additional USD 0.15 billion for breeding swine insurance program ^[9].

In 2007, the premium subsidy for selected crops had such constitution: 25% of the premium was financed by central government, 25% - by provincial governments, and 50% of crop insurance premiums were covered by farmers ^[7]. State support by premium subsidy program in 2007 has significantly increased market penetration of agricultural insurance.

2007 premium subsidy

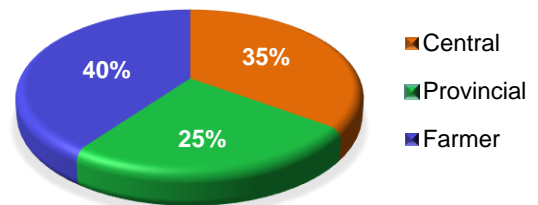


In 2007, agriculture insurance premiums increased considerably and reached USD 0.68 billion ^[8], bringing an increase of 518% compared to 2006. Total agricultural indemnity payouts estimated USD 0.3 billion ^[8] (combined loss ratio 44%), which made 2.83% of all indemnity payouts in Chinese property insurance business this year. The sum insured exceeded USD 22.7 billion ^[6]. Over 50 million of farmers were insured in 2007, 15.33 million ^[7] hectares of crops were covered, which made about 10% of country's cultivated area out of total estimated 153.6 million hectares for crops grown in the country that time.

2008	1.84 b USD	34.7 b USD	1.1 b USD	59%	33.3 m ha
	Total Premiums	Sum Insured	Indemnities	Loss Ratio	Area Insured

In 2008, the Chinese government increased its premium subsidies for crops from 50% to 60%, where 35% of crop premiums were financed by central government and 25% by provincial government ^[10]. Thus, such a subsidy composition made a decrease in farmers' share of premiums to 40%.

2008 premium subsidy



In 2008, the agriculture insurance program expanded into 17 provinces. Provinces Heilongjiang, Liaoning, Hebei, Shandong, Henan, Hubei, Anhui, Zhejiang, Jiangxi, Fujian and Hainan were additionally selected to participate in national agricultural insurance scheme (see Map 1.). More than 33.3 million ^[6] hectares of crops were covered under the program with

over 90 million farmers insured. The total of insurance premiums collected estimated USD 1.84 billion ^[4], with premium subsidies of USD 1.1 billion ^[10]. Total indemnities paid exceeded USD 1.1 billion ^[3], making a combined loss ratio of 59% in 2008. The sum insured reached USD 34.7 billion ^[6] that year.

2009	2 b USD	55.7 b USD	1.4 b USD	70%	44 m ha
	Total Premiums	Sum Insured	Indemnities	Loss Ratio	Area Insured

In 2009, the total agricultural insurance premiums equaled around USD 2 billion ^[6] with the sum insured of USD 55.7 billion ^[6]. The total area insured amounted to 44 million ^[1] hectares of crops. In 2009, about USD 1.4 billion ^[6] insurance claims have been settled and paid out to the insured farmers, making a combined loss ratio of 70%.

2010	2.26 b USD	59.1 b USD	1.6 b USD	71%	45.3 m ha
	Total Premiums	Sum Insured	Indemnities	Loss Ratio	Area Insured

In 2010, the agricultural insurance program was introduced in 25 provinces of the country (see Map 1.). The insurance premiums collected estimated USD 2.26 billion ^[4], the sum insured amounted USD 59.1 billion ^[1]. About 45.3 million ^[1] hectares of crops were covered under the program. In 2010, agricultural insurance payouts reached USD 1.6 billion ^[3] with a combined loss ratio of 71%, which made 2010 the most unprofitable year since the implementation of a subsidized insurance program in China.

2011	2.9 b USD	100.7 b USD	1.4 b USD	48%	53.3 m ha
	Total Premiums	Sum Insured	Indemnities	Loss Ratio	Area Insured

In 2011, the total premiums collected from agriculture insurance estimated USD 2.9 billion ^[4]. The sum insured reached USD 100.7 billion ^[1], and indemnity payouts received by farmers approximated USD 1.4 billion ^[3]. In contrast with previous year, a combined loss ratio in 2011 showed a decrease and leveled at 48%. The total area insured was 53.3 million hectares ^[1].

2012	4.01 b USD	142.5 b USD	2.3 b USD	57%	64.7 m ha
	Total Premiums	Sum Insured	Indemnities	Loss Ratio	Area Insured

In 2012, the agricultural insurance premiums collected in China reached USD 4.01 billion ^[4] with indemnified sum of USD 2.3 billion ^[3] making a combined loss ratio 57%. The total amount of insurance cover reached USD 142.5 billion ^[1] and the total area insured estimated at 64.7 million hectares ^[1].

2013	4.9 b USD	226.5 b USD	3.4 b USD	69%	73.3 m ha
	Total Premiums	Sum Insured	Indemnities	Loss Ratio	Area Insured

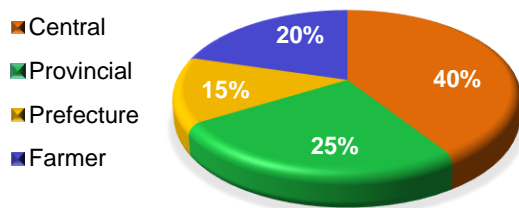
In 2013, the amount of agricultural insurance premiums collected totaled USD 4.9 billion ^[5] and indemnity payouts of USD 3.4 billion ^[5] were made to 32 million of affected farmers, drawing a combined loss ratio to 69%. About 73.3 million ^[5] hectares of main crops were covered, accounting 45% of national cultivated area (153.6 million hectares). The sum insured reached USD 226.5 billion ^[1]. Approximately USD 2.04 billion ^[13] was allocated by the Chinese government to finance agricultural insurance premiums in 2013.

In 2013, agricultural insurance coverage was provided by 25 out of 64 Chinese insurance companies, specializing in property and casualty insurance lines of business ^[5].

2014	5.3 b USD	269.9 b USD	3.5 b USD	66%	78.7 m ha
	Total Premiums	Sum Insured	Indemnities	Loss Ratio	Area Insured

In 2014 China recorded agricultural insurance premium income of USD 5.3 billion ^[15]. The insurance compensation received by farmers was USD 3.5 billion ^[15] with a respective combined loss ratio of 66%. The total area insured was 78.7 million hectares ^[1] with over 160 million farmers insured ^[15]. The sum insured amounted USD 269.9 billion ^[15].

2014 premium subsidy



In 2014, premium subsidy level ranged between 65% and 80%, depending on the region and the type of insurance. Central government financed 40% of insurance premiums, Provincial government provided 25% of premiums and Prefecture government - 15%. The remaining 20% of insurance premiums were covered by farmers ^[1].

2015	5.6 b USD	295 b USD	4 b USD	71%	92 m ha
	Total Premiums	Sum Insured	Indemnities	Loss Ratio	Area Insured

In 2015, the total premiums collected from agriculture insurance estimated USD 5.6 billion ^[12], the sum insured amounted USD 295 billion ^[12]. The agricultural insurance payouts reached USD 4 billion ^[12] with a combined loss ratio of 71%. About 92 million ^[12] hectares of crops were covered under the program or 60% of the country’s cultivated area.

2016	6.3 b USD	328 b USD	5.2 b USD	83%	115 m ha
	Total Premiums	Sum Insured	Indemnities	Loss Ratio	Area Insured

In 2016, the amount of agricultural insurance premiums collected totaled USD 6.3 billion ^[16] with the sum insured of USD 328 billion ^[12]. About 115 million ^[12] hectares of main crops were covered, accounting 75% of national cultivated area. In 2016, agricultural insurance payouts reached USD 5.2 billion ^[12] with a combined loss ratio of 83%.

There were about 26 insurance companies operated on agricultural insurance market in 2016. Around 93% of agricultural insurance business was divided between the major six insurance companies: People's Insurance Company of China, China United Property Insurance Company, Sunlight Agricultural Mutual Insurance Company, Guoyuan Agricultural Insurance Company, Anhua Agricultural Insurance Company and AVIC Groupama insurance. In 2016 People's Insurance Company of China (PICC) was the main agricultural insurance provider and held a 54% of market share ^[3].

Ag insurance market share

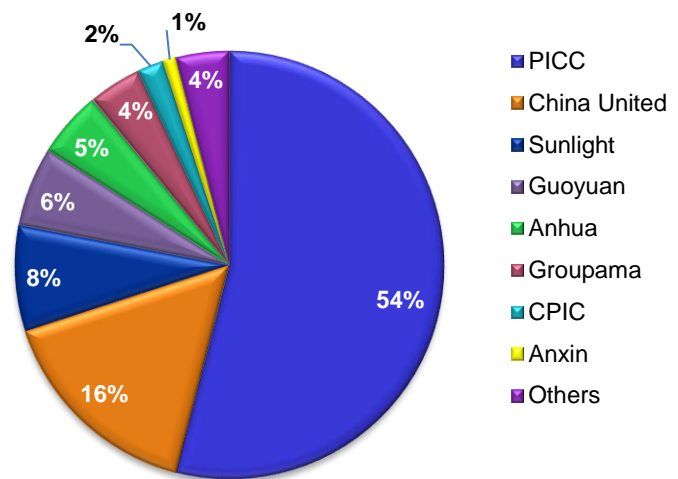


Table 1. Agricultural insurance market for the period 2006-2016

Year	Premiums, USD billion	Sum insured, USD billion	Indemnities, USD billion	Loss ratio	Area insured, million ha
2006	0.11	n/a	0.07	68%	9.66
2007	0.68	22.7	0.3	44%	15.33
2008	1.84	34.7	1.1	59%	33.3
2009	2.0	55.7	1.4	70%	44.0
2010	2.26	59.1	1.6	71%	45.3
2011	2.9	100.7	1.4	48%	53.3
2012	4.01	142.5	2.3	57%	64.7
2013	4.9	226.5	3.4	69%	73.3
2014	5.3	269.9	3.5	66%	78.7
2015	5.6	295.0	4.0	71%	92.0
2016	6.3	328.0	5.2	83%	115.0

Map 1. Chinese provinces selected for the agriculture insurance program and financed by the Government for the period from 2007 to 2010

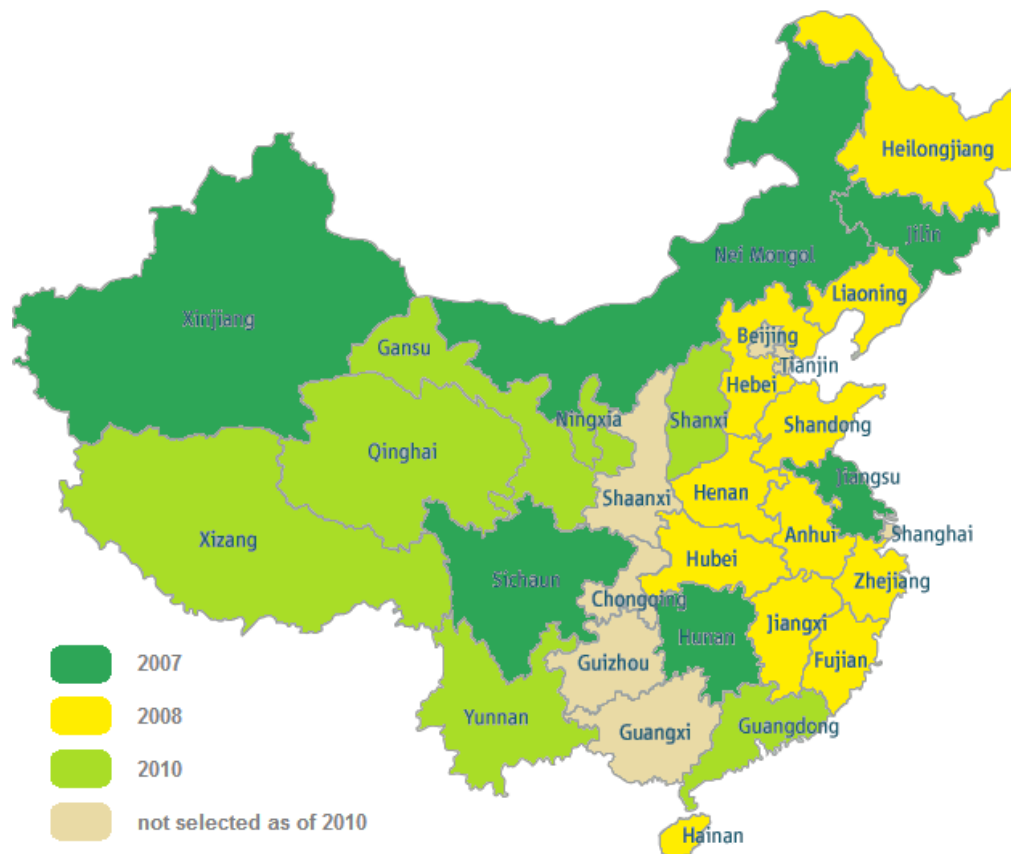


Chart 2. The total of agricultural insurance premiums collected for the period 2006-2016, USD billion²

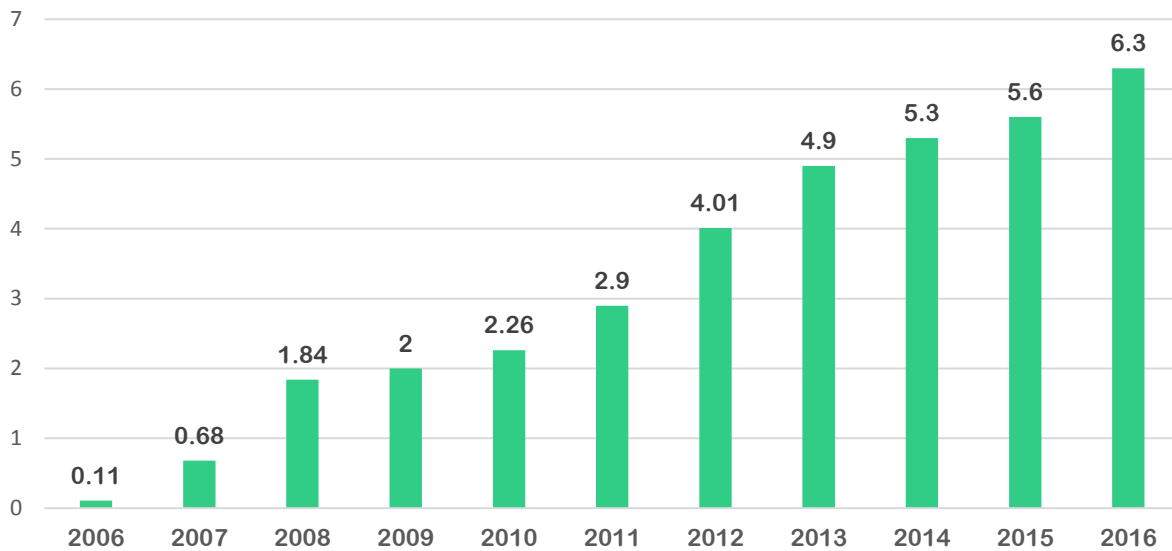
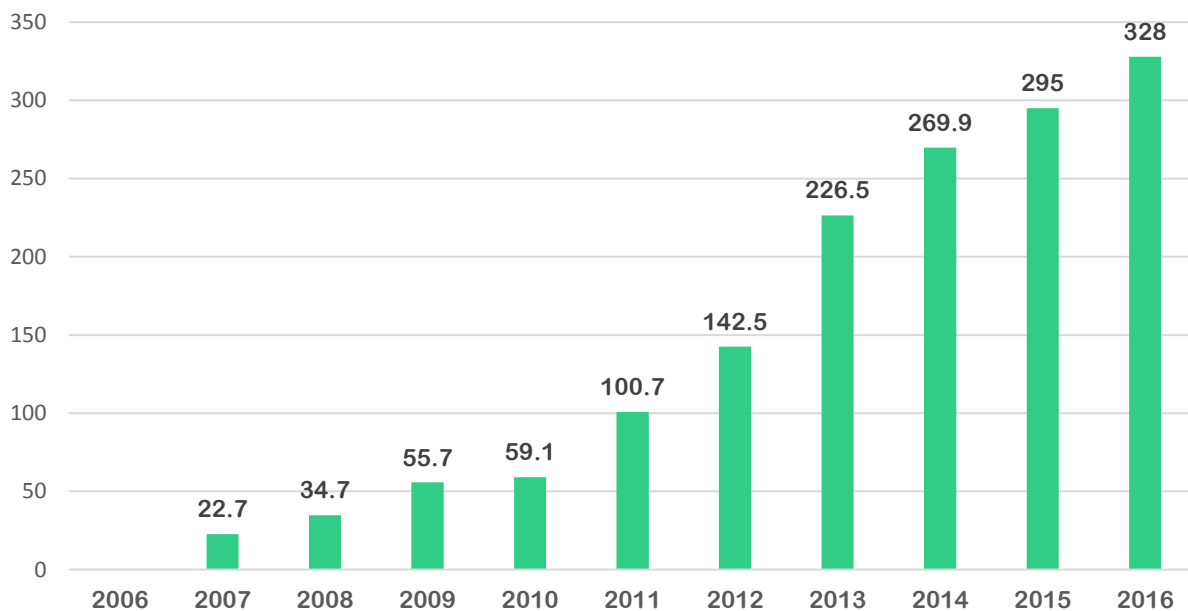


Chart 3. The total sum insured for the period 2006-2016, USD billion³



² See Annexes, Chart 8. for CNY

³ See Annexes, Chart 9. for CNY

Chart 4. The total agricultural indemnity payouts for the period 2006-2016, USD billion⁴

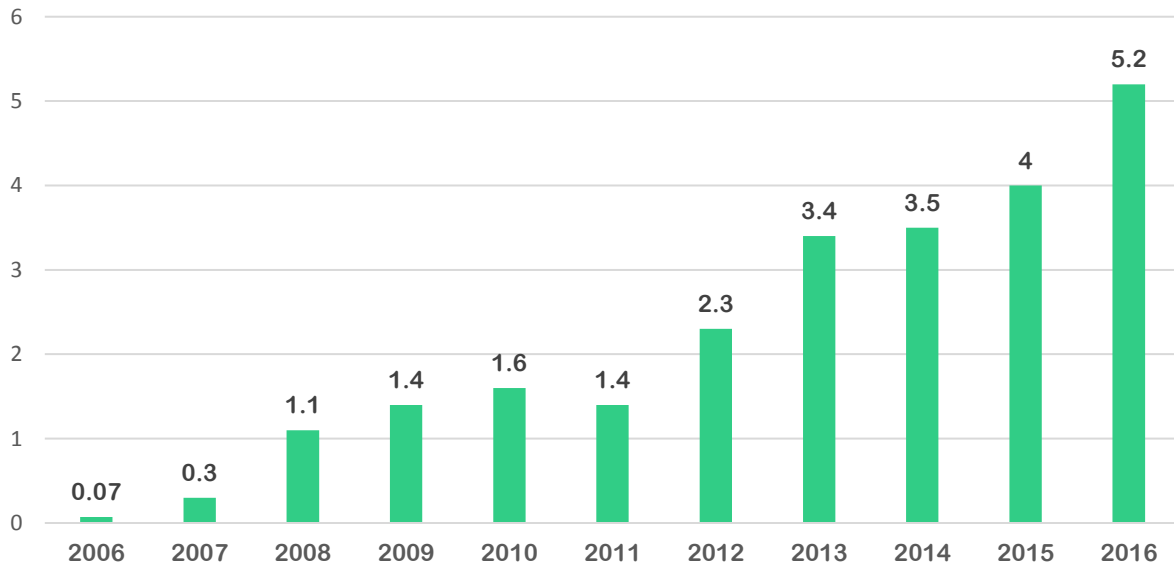
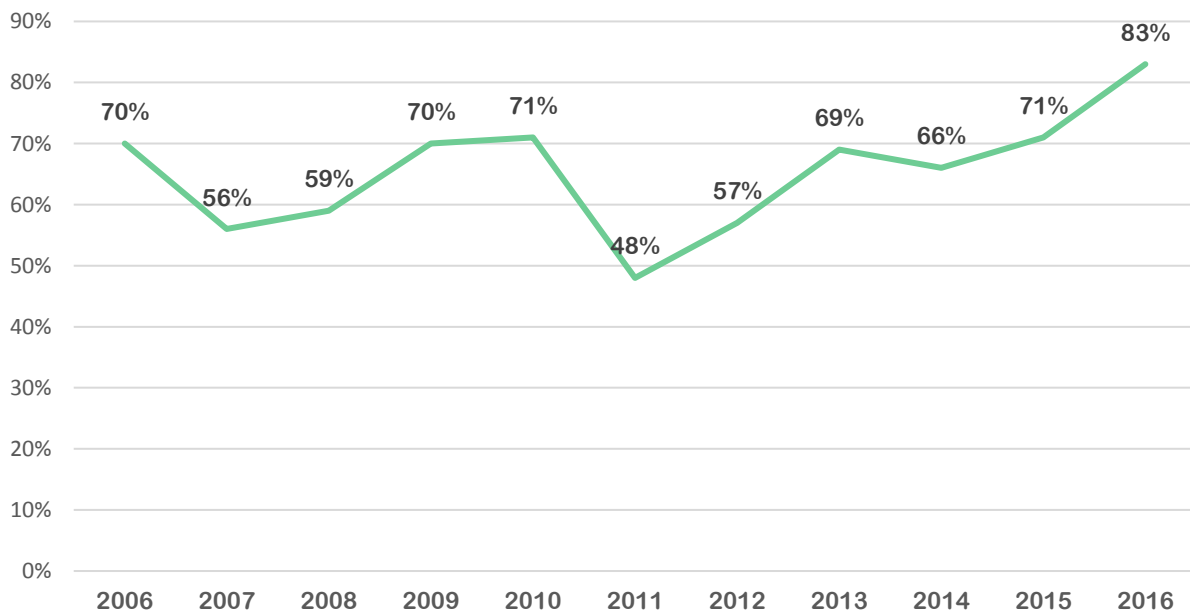
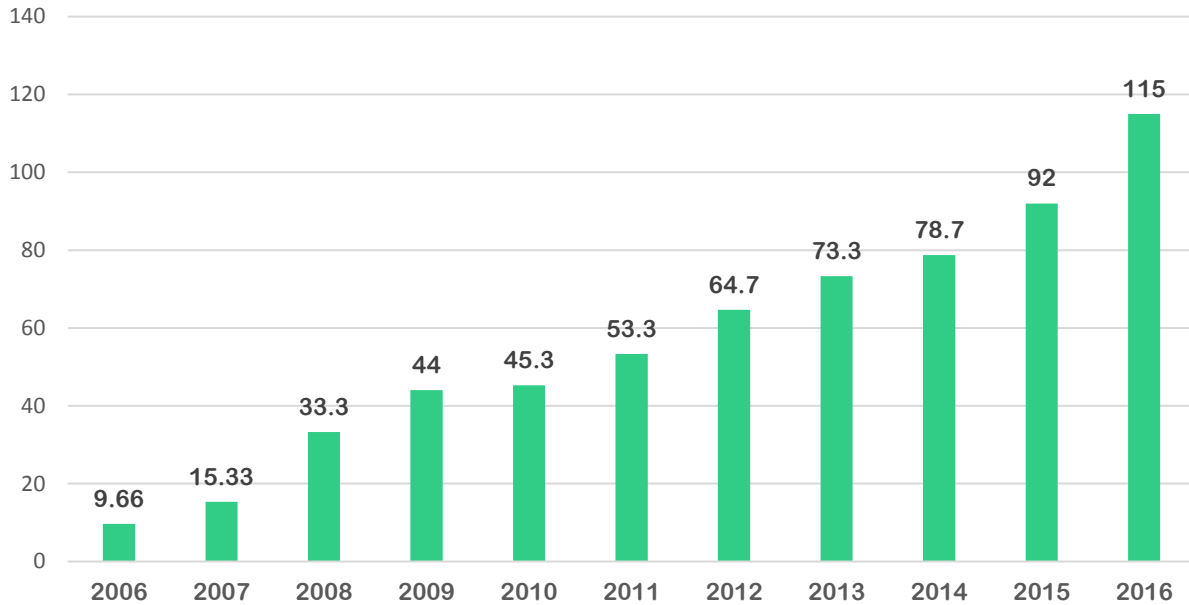


Chart 5. The loss ratio for the period 2006-2016



⁴ See Annexes, Chart 10. for CNY

Chart 6. The total area insured for the period 2006-2016, million ha



China Agriculture Reinsurance Pool (CARP)

On November 21, 2014, China Property & Casualty Reinsurance Company Ltd, along with 23 licensed insurance companies, founded the China Agriculture Reinsurance Pool (CARP). China Re P&C was assigned as a Pool Managing Agency ^[14].

The Pool Managing Agency negotiates reinsurance requirements and terms with its members, examines the business activities of members, evaluates Pool's capacity and its business plans. The Managing Agency also provides trainings, manages information sharing and provides consulting services to local market players ^[3].

The Managing Agency annually sets Pool's administration fees which go to business management, research and studies, trainings, loss adjustment, conference costs, external exchanges, marketing, salaries and related travel expenses ^[3].

Pool's members cede approx. 50% of their agriculture reinsurance premium into the Pool. Member's share on administration fee is calculated according to the formula: premium ceded from Pool by a member plus premium ceded into Pool by a member divided by premiums ceded from Pool by all members plus premiums ceded into Pool by all members ^[3]:

$$AF = \frac{a \text{ member's premium from Pool} + a \text{ member's premium into Pool}}{\text{members' premiums from Pool} + \text{members' premiums into Pool}}$$

To qualify as a Pool member, insurance and reinsurance companies should meet the following criteria ^[3]:

- ✓ Insurance entity and insurance branch established in China;
- ✓ Registered capital equal or above USD 160 million;
- ✓ Operation history over 3 years;
- ✓ Solvency ratio at 150% and above for the previous 2 seasons;
- ✓ For specialized agricultural insurance companies, solvency ratio at 100% and above for the previous 2 seasons.

Agricultural insurance products

In 2007, five of the leading insurance companies (PICC, CUPIC, Anxin, Anhua and Sunlight) offered livestock insurance for reproductive sows against epidemic diseases including blue ear (known as porcine reproductive and respiratory disease) and natural hazards including flood, fire and typhoon. In 2010, most of the reproductive sow and dairy cattle herd in China was insured under these epidemic disease programs ^[8].

In 2008, the majority of China's individual farmers were covered under multiple peril crop insurance program. The products based on named-peril crop insurance were available on the market as well. The main crops insured in China in 2008 were maize, rice, soybean, wheat, and cotton ^[8].

In 2008 Anxin Insurance Company piloted an excess rain/humidity index program for watermelons in Shanghai municipality and in 2009 Guoyuan Agricultural Insurance Company launched a pilot excess rain and drought index cover for farmers in selected districts of Anhui province ^[8]. By 2014, some insurers have tried the weather index-based insurance, but met some problems such as pricing risk and basis risk ^[4].

In May 2013, livestock price index insurance was presented on the Chinese market, which became available for pig farmers only ^[4].

In 2015, about 170 varieties of agricultural insurance products were available on the market providing insurance coverage for main crops, cash crops, livestock, forest, fruits, vegetables, medicinal herbs and local agricultural products ^[1].

Agricultural insurance products available on the market in China in 2017 ^[12]:



- Multi-peril crop insurance
- Weather index-based insurance
- Vegetable price index insurance
- Crop yield and crop revenue cover (pilot program)

- Indemnity-based livestock insurance
- Livestock price index insurance (for pig only)



- Forestry fire and multi-peril insurance

- Wind-index (typhoon) aquaculture insurance



Loss assessment and loss adjustment

Every village in China has an appointed or elected village chief who holds a full-time job, financed by the government. A village chief cooperates with local insurers on a range of issues within agricultural insurance program and is eligible to act on behalf of the insurer for loss assessment and adjustment purposes ^[3].

A village chief is eligible to:

- Maintain records of farms insured and crops produced within a village;
- Identify farms located in flood-prone areas and notify the insurer which of them should not be included into insurance program;
- Participate in assessment of large-scale damage events, performing as mediators for calculation of a final claim sum.

Loss assessment is performed by a group of surveyors that includes an agricultural expert from the provincial government or university, a surveyor from the client's side and a farmer's representative ^[3].

Challenges

Chinese government continues to support the development of agricultural insurance in the country by providing premium subsidies which cover with years more and more areas and

agricultural produce. However, there is still need for further improvement and adjustment on the level and scope of the premium subsidies.

The major issue is that insurance covered sum is generally lower than the farmers expected based on the actual market prices. This fact decreases the enthusiasm of farmers of buying insurance. For example, an area of 0.07 ha paddy can yield between 600 - 1000 kilograms of rice which is worth USD 140-250. The product with insurance coverage for rice compensates only direct materials cost involved in crop production with the sum covered at the level around USD 50. This constitutes no more than one-third of the farmer's earnings from his/her paddy yield, making the indemnity compensation in bad year absolutely not attractive for the farmers. At the same time, the higher coverage requires higher premium, and respectfully more governmental subsidy spending ^[11].

Among other challenges that are considered to influence the agricultural insurance system in China are ^[3]:

- Agricultural insurance market premium growth is strongly affected by the country's gradual slowdown of the overall economic growth;
- Lack of transparency in the information provided to the international reinsurance companies;
- Lack of data quality and sufficiency provided at the farm level;
- Loss assessment and loss adjustment methods lack transparency and require significant improvements in the future.

Conclusions

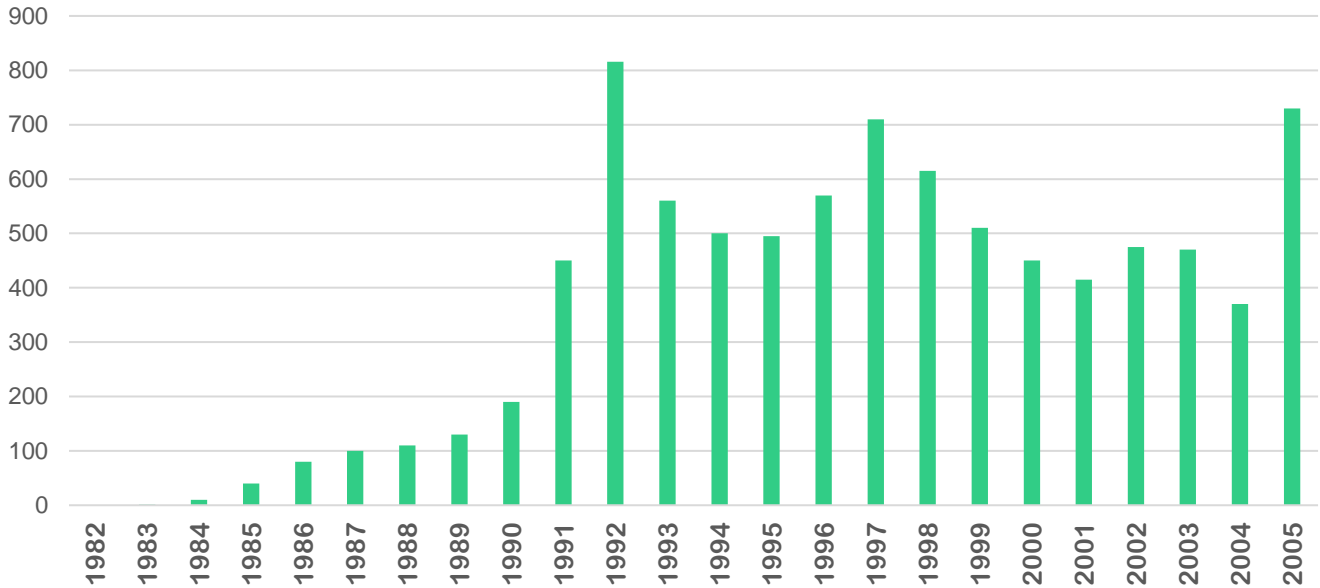
Agricultural insurance in China went through about 35 years of fundamental reforms and policy changes to become one of the largest agricultural insurance markets in the world. Starting from 1982, the country's legal and regulatory framework has been continuously developing to support farmers all over the country. The No. 1 Document issued by the State Council in 2007 is considered to become a huge move in the country's history making a significant milestone in its agriculture insurance programs development, providing a legal base for intensive financial support on the state level.

In 2007, after new model of insurance premium subsidies introduction, the amount of annual premiums collected showed a continuous development, growing the market from year to year. Governmental interventions and state support through premium subsidies in the last 10 years facilitated a significant boost in covering various crops and risks throughout the whole country. A continuous increase in market penetration of agricultural insurance attracts more and more

attention of the world largest reinsurers, making it one of the most attractive markets in the world.

The Chinese case study vividly illustrates a significant role and importance of state support and a structured public-private partnership efforts along with the long-term strategy and policy moves in development of national agricultural insurance system. The efficiency of PPP model and state support has been proven by various examples in different countries worldwide while, the Chinese experience should be emphasized among other instances by its scale of support, results achieved and the level of market's sustainable development.

Chart 7. Agricultural insurance premiums collected for the period 1982-2005, CNY million



Source: *An insurance recipe for the Chinese food and agricultural industry. Swiss Re Group Publication 7/2008*

Chart 8. The total of agricultural insurance premiums collected for the period 2006-2016, CNY billion

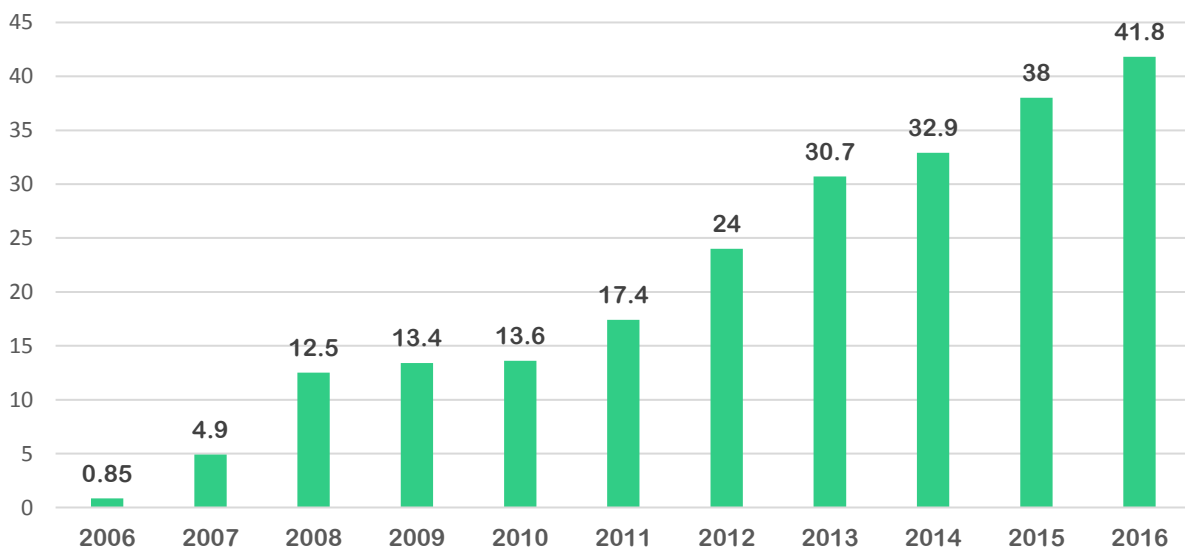


Chart 9. The total sum insured for the period 2006-2016, CNY billion

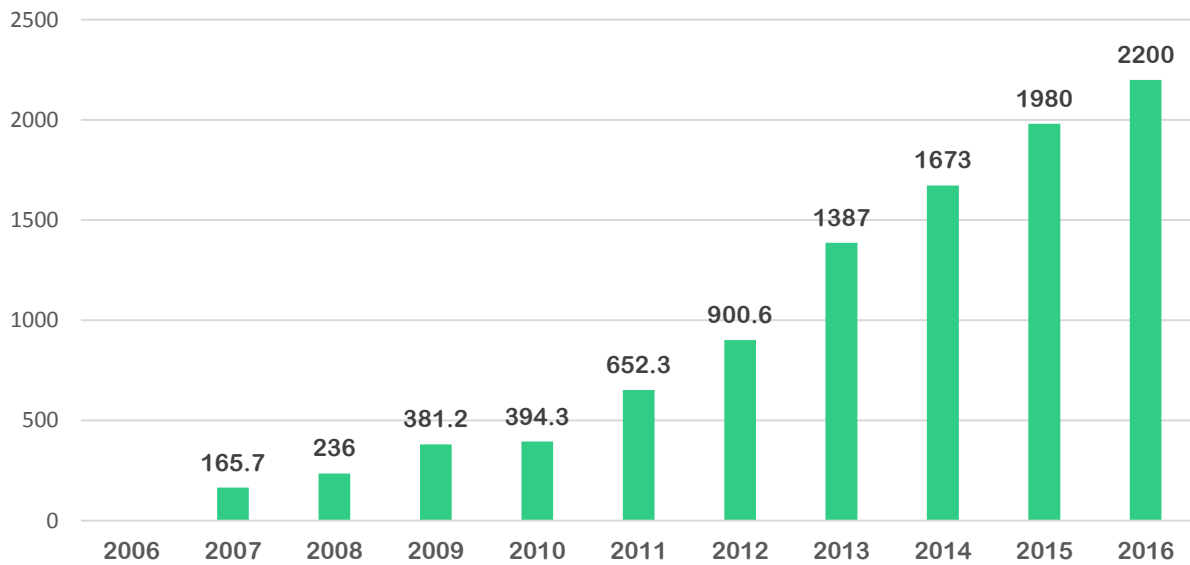
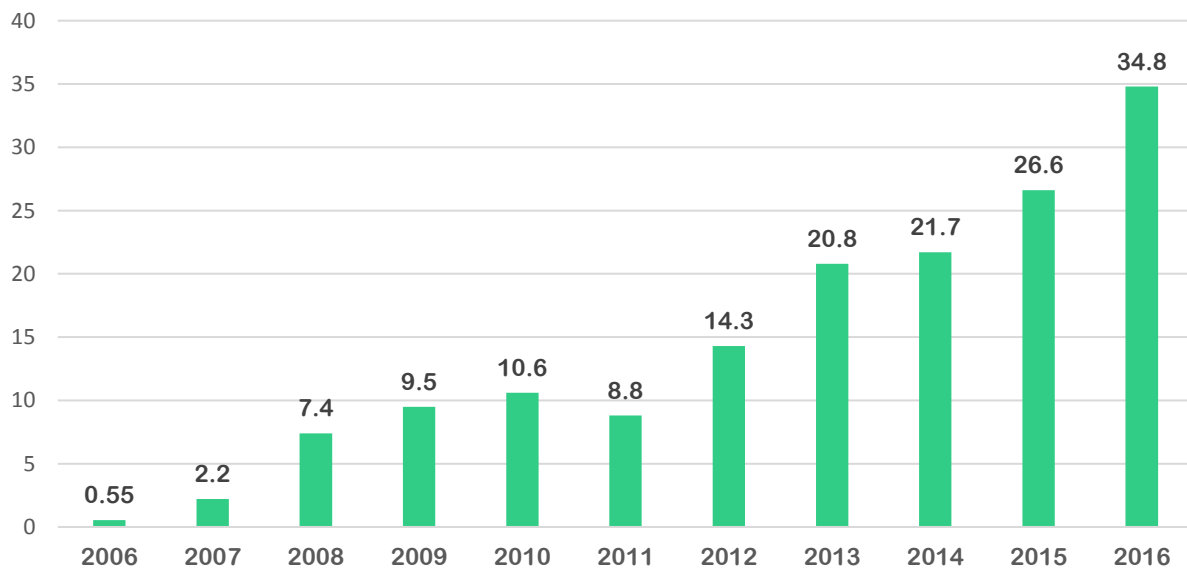


Chart 10. The total agricultural indemnity payouts for the period 2006-2016, CNY billion



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