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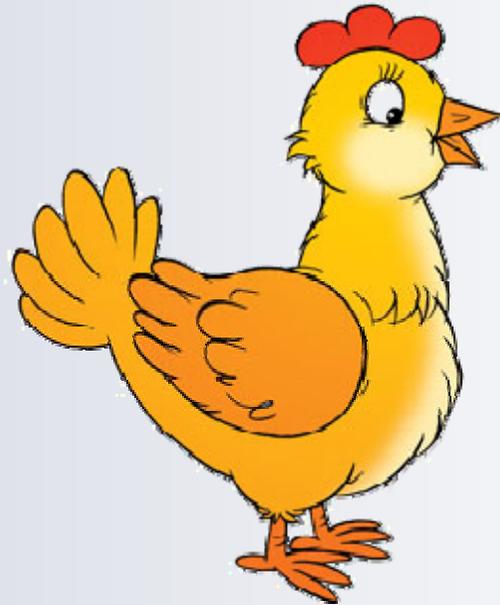
Economic Analysis on HPAI Prevention and Control

Wei Xinjie



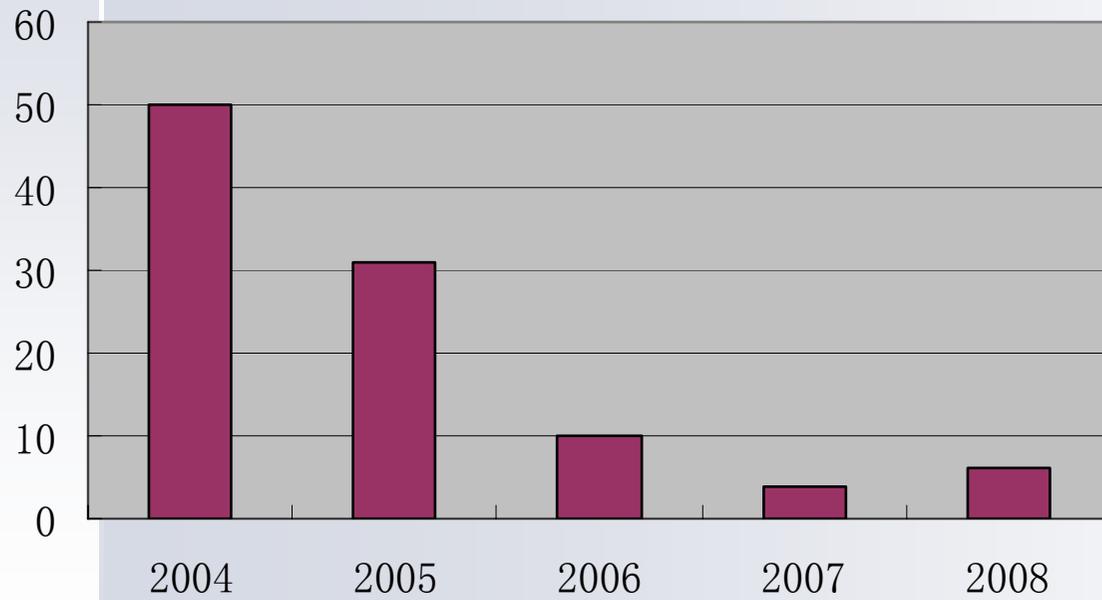
**China Animal Health and Epidemiology Centre
Ministry of Agriculture, P.R. China
2008.11.7**

History Distribution of HPAI in China





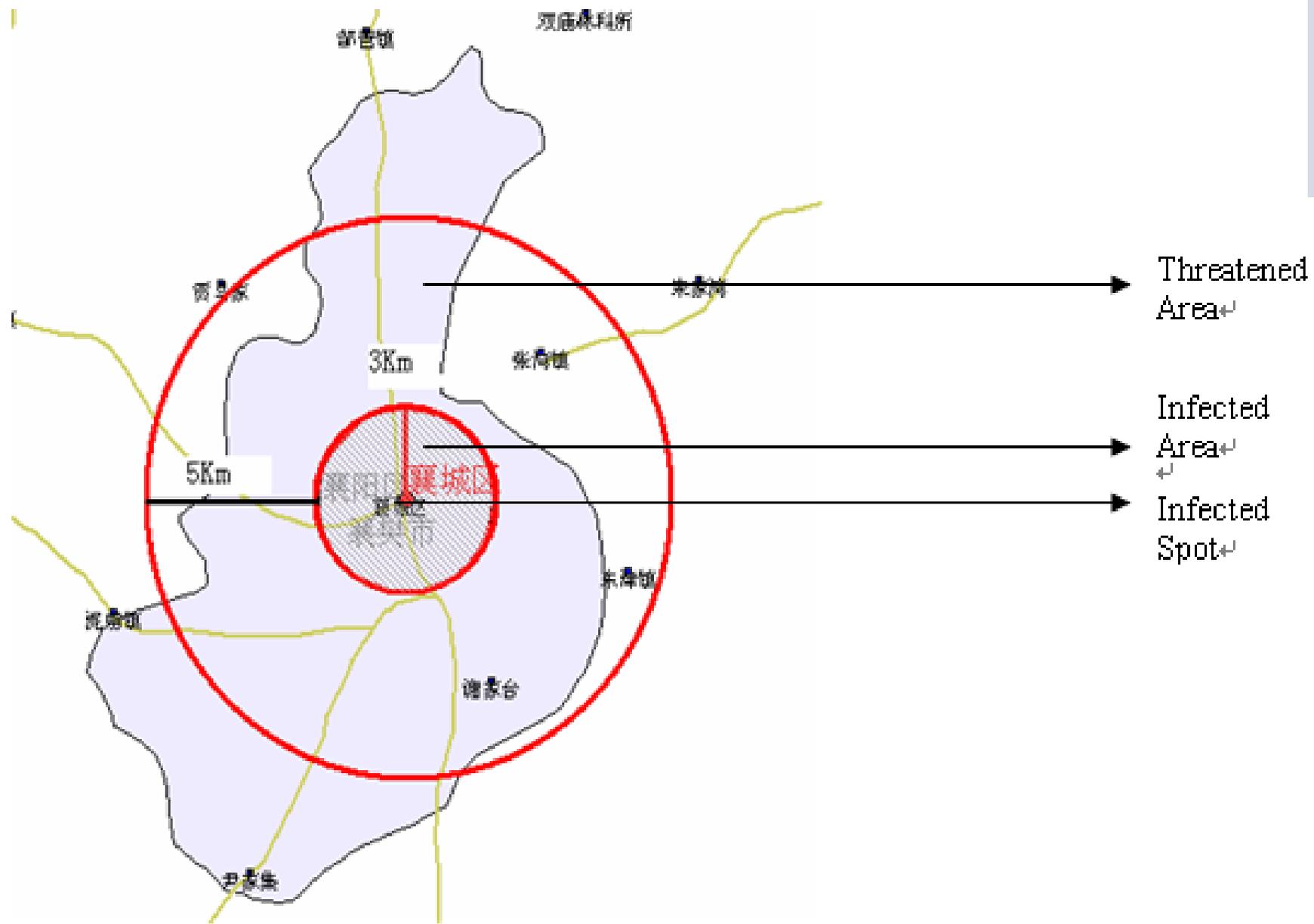
Outbreaks



General Policy for HPAI Control in China



- **Guideline of *strong leadership, sound coordination, reliance on science and law, participatory approach, decisive intervention***
- **Policy of integrated vaccination and stamping-out**
- **Being continued to strengthen HPAI prevention and control mechanism, improve relevant infrastructures, enhance capability and level of prevention and control of the disease.**



Purpose of economic analysis



- ∞ Decision making supporting
- ∞ Farm, region, country

Economic Analysis Methods on Animal Disease Prevention and Control



- ❧ **Cost Effectiveness Analysis**
- ❧ **Cost Benefit Analysis (CBA)**
- ❧ **Market Value Train Analysis**
- ❧ **Decision Tree Method**

Stakeholders of different level



Level	Stakeholders	Affect
Micro level	Farm, mill, trader	Enterprise benefit
Medium level	Region (province, county); Husbandry, Agricultural product processing industry, Travel industry	Regional economy; Sector economy
Macro level	Country; Zone	National economy; International economy

Cost Benefit Analysis



- ❧ **Cost**
- ❧ **Benefit**
- ❧ **Net Benefit**
- ❧ **Discount**
- ❧ **Net Present Value (NPV)**
- ❧ **Internal Revenue Rate (IRR)**
- ❧ **Benefit Cost Ratio (BCR)**

Net Benefit



$$L_{without} - L_{with} = B$$

$$L_{without} - L_{with} - C_{control} = NB$$

Where

$L_{without}$: Losses due to disease without control project

L_{with} : Losses due to disease with control project

$C_{control}$: Cost of the disease control project

B : Benefit

NB : Net Benefit

Criteria for Project acceptability



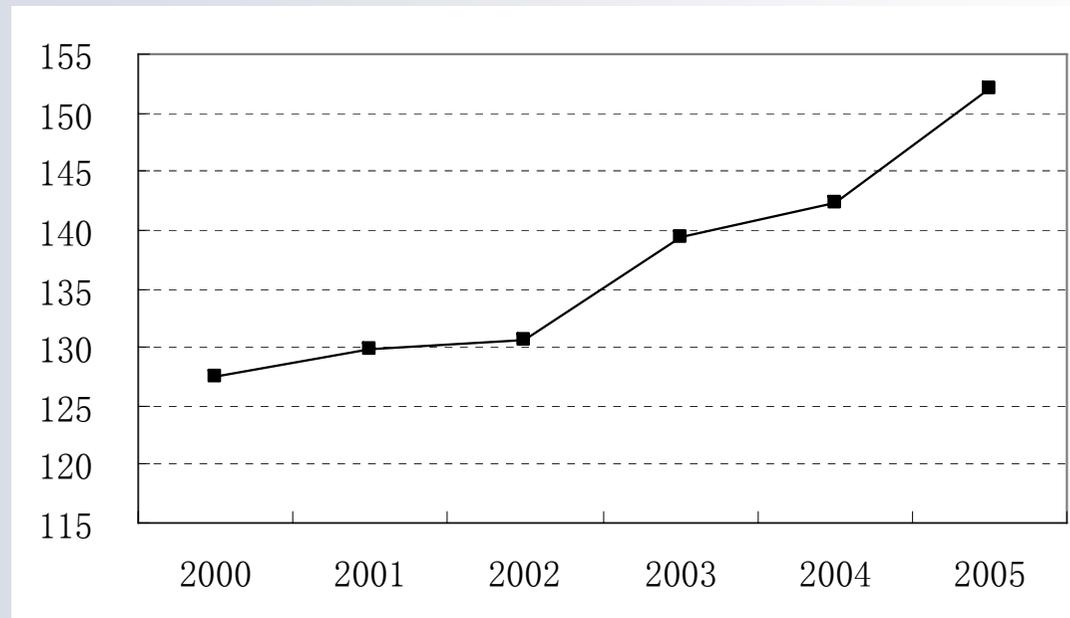
- ↪ **NPV > 0**
- ↪ **B/C > 1**
- ↪ **IRR > the usual discount rate**

Benefit Cost Ratio (BCR) of Animal Disease Control

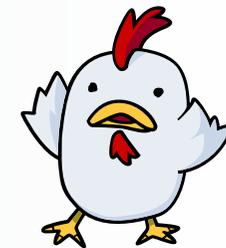


Animal Disease	Time	Country/Region	BCR
FMD	1972	Tanzania	1.82:1~1.96:1
Rinderpest	Different time	Ethiopia, Kenya etc.	1.35:1~2.55:1
Bovine Brucellosis	1975-1976	United States	5~8:1
Bovine Trypanosomiasis	1998	Kenya	34:1
Swine Fever	2004	Holland	5~9:1

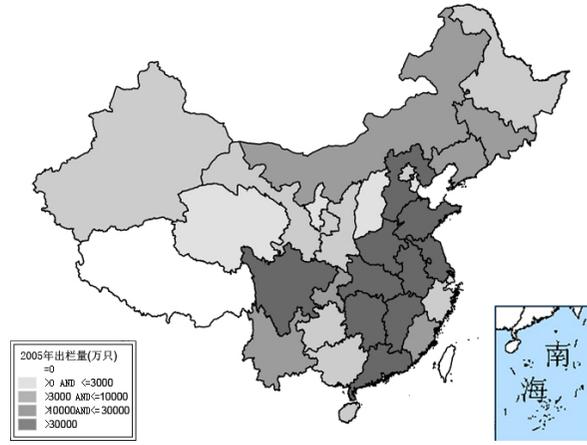
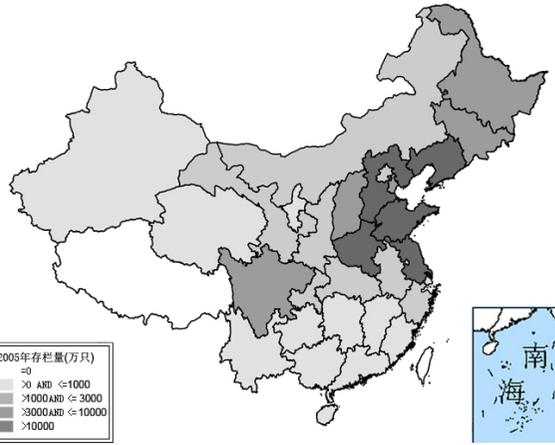
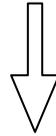
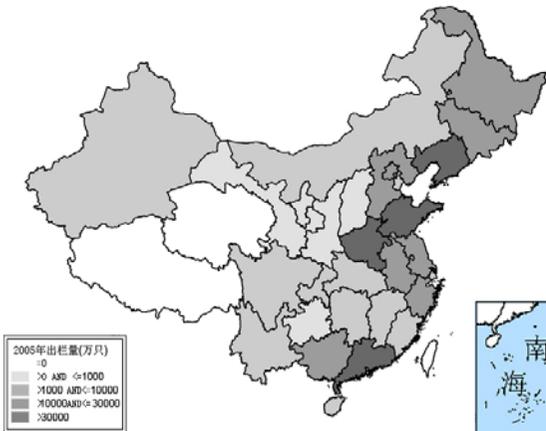
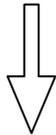
Poultry Production and Health Situation Investigation in China 2007



Poultry Population (100 Million)



The poultry industry has a distinct regional distribution

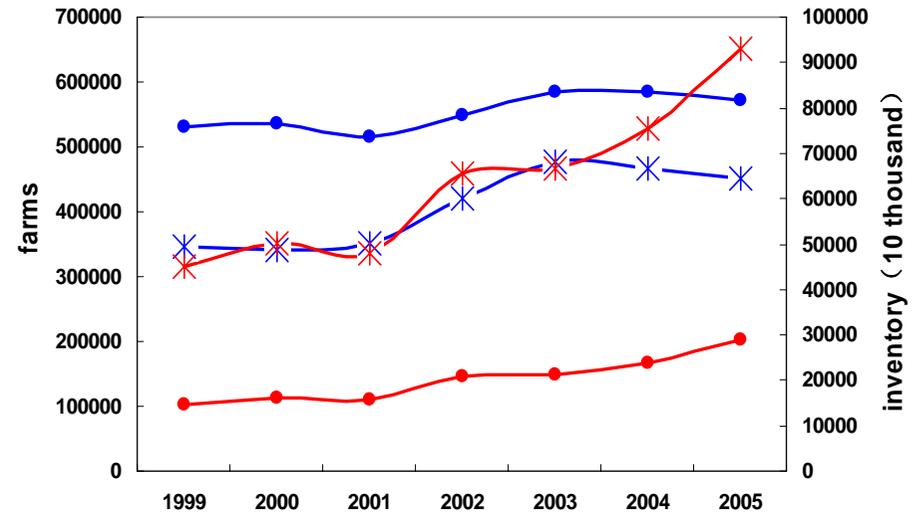
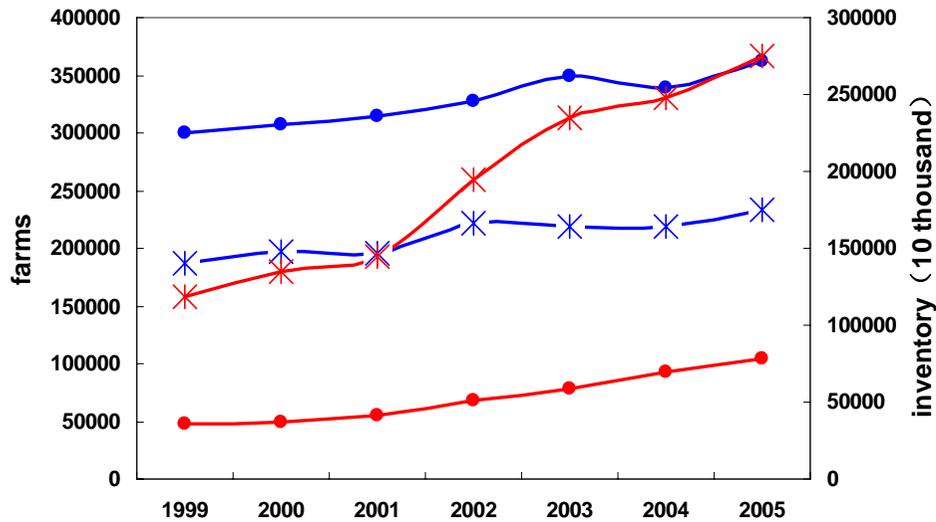


The scale of the poultry industry

Broiler



Layer



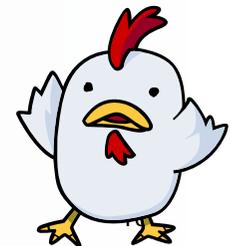
Survey on Health Situation of Poultry Flocks



Classification of Poultry Raising Modes and Health Situation

28 indexes covering 4 parts

- **environment**
- **management**
- **vaccination**
- **testing**



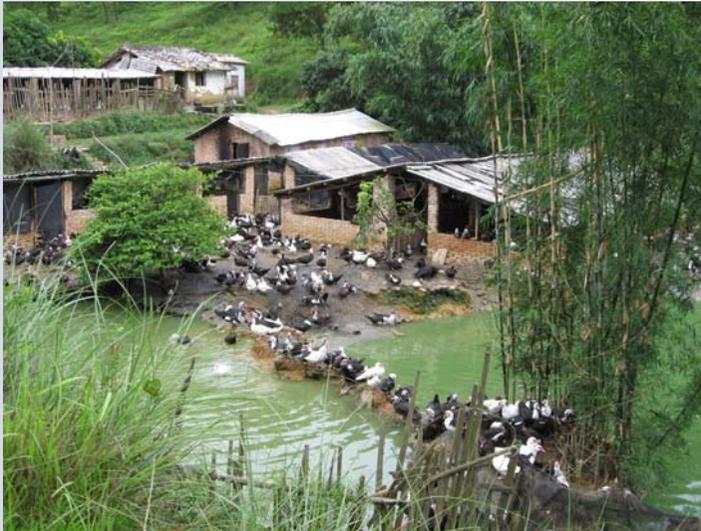
I



II



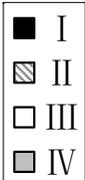
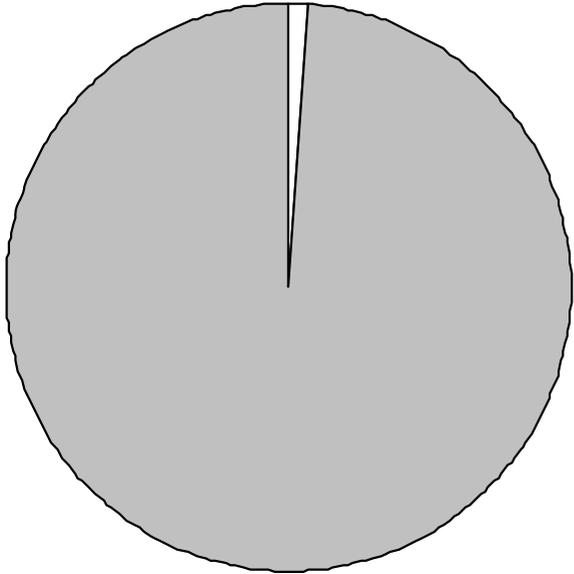
III



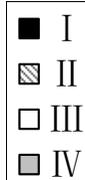
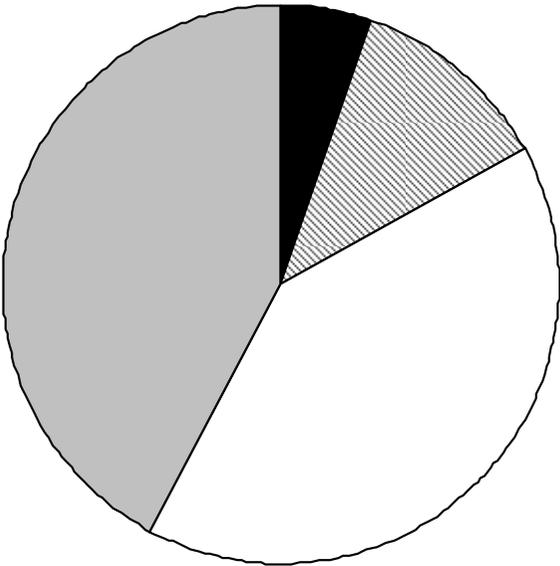
IV



Farm/household numbers



Stocking numbers



Survey on Trading of Live Birds Markets



- ❧ **Live birds trading in local market**
- ❧ **Sanitary Conditions of Live Bird Markets**

Survey on Poultry Slaughtering Situation



- **Large poultry slaughter house**
- **Median or small poultry slaughter house**
- **Bio-security condition**

Poultry farming system in China



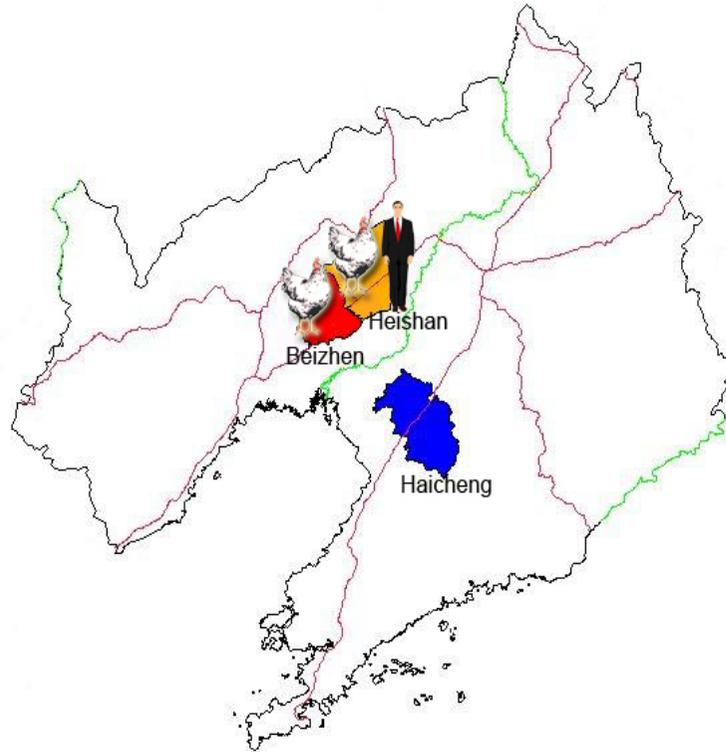
- ❧ **Baseline survey in China**
- ❧ **North, Liaoning province**
- ❧ **South, Anhui province**

Province	Location	Layer	Broiler	Duck	Human AI Case	Poultry AI Outbreaks
Anhui	South	40	160	180	5	7
Liaoning	North	130	390	60	1	4

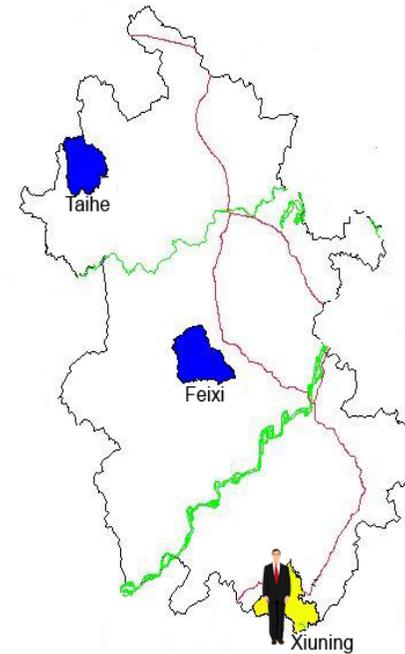
Poultry population, million



AI epidemics distribution in the project counties (2002~2006)

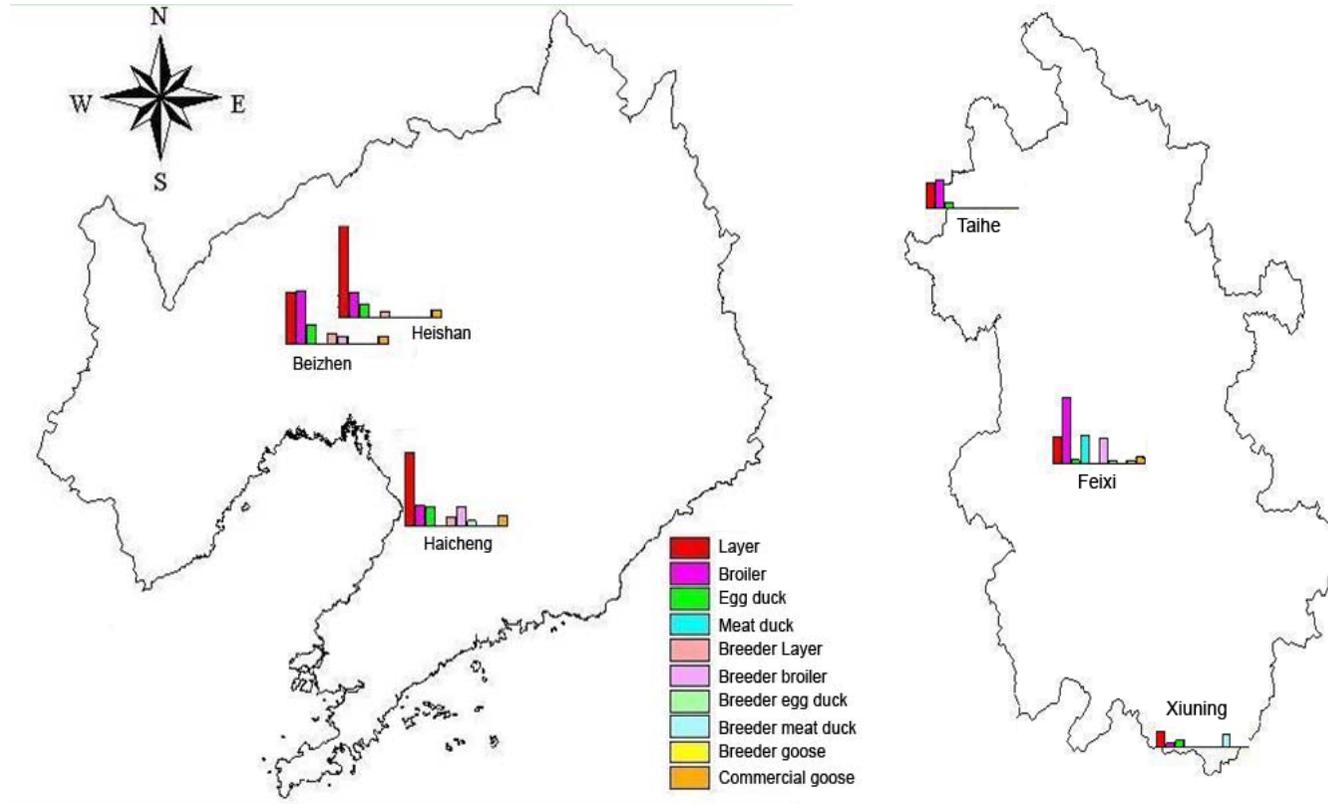


Liaoning Province



Anhui Province

Poultry stock



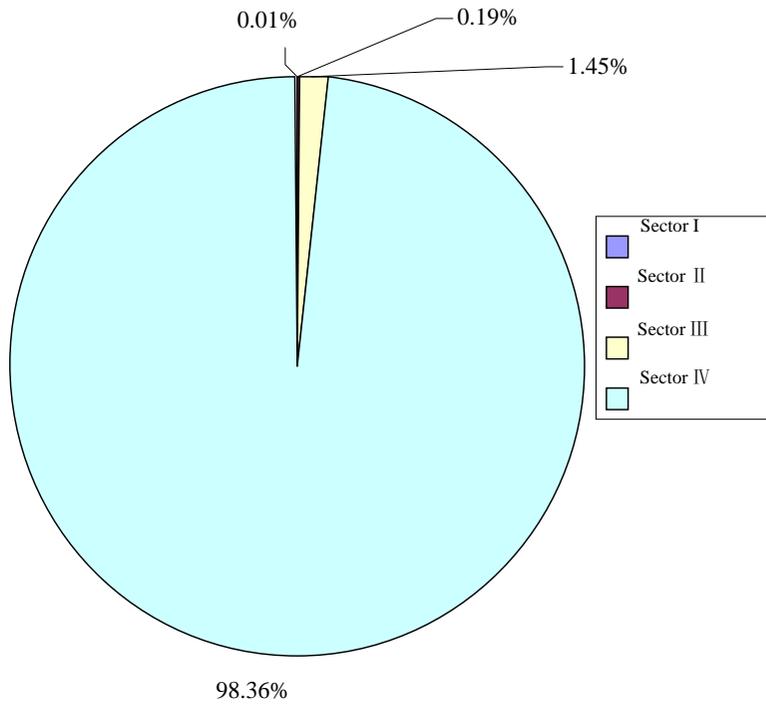
Liaoning Province

Anhui Province

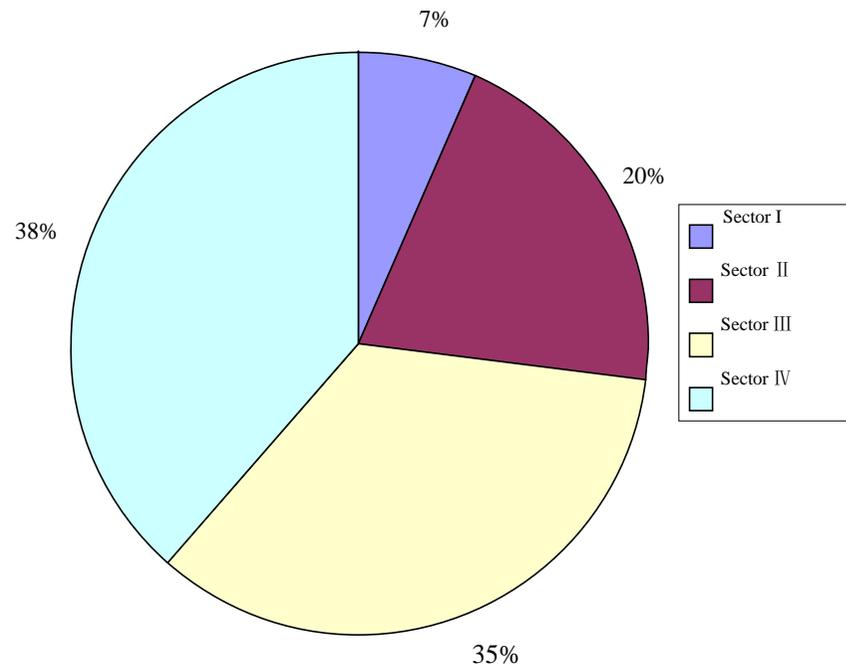
Poultry breeding situation in the project Provinces



Farm Numbers

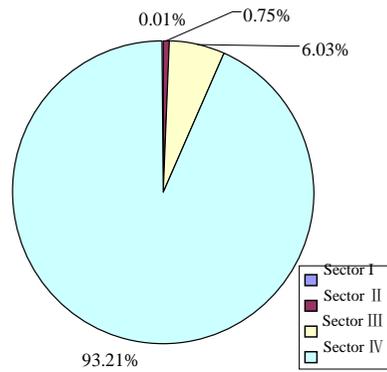


Stocking Numbers

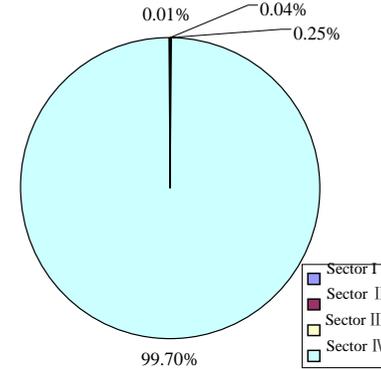


Comparison on poultry production sectors of Liaoning and Anhui province

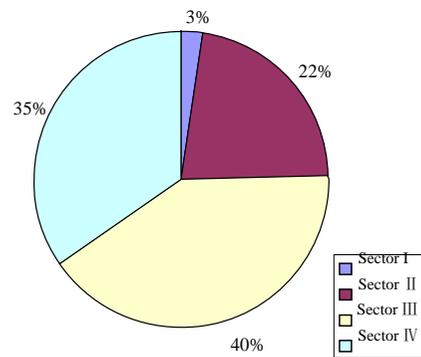
Farm Numbers of Liaoning Province



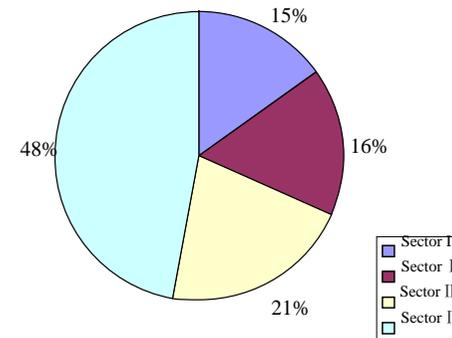
Farm Numbers of Anhui Province



Inventory Numbers of Liaoning Province



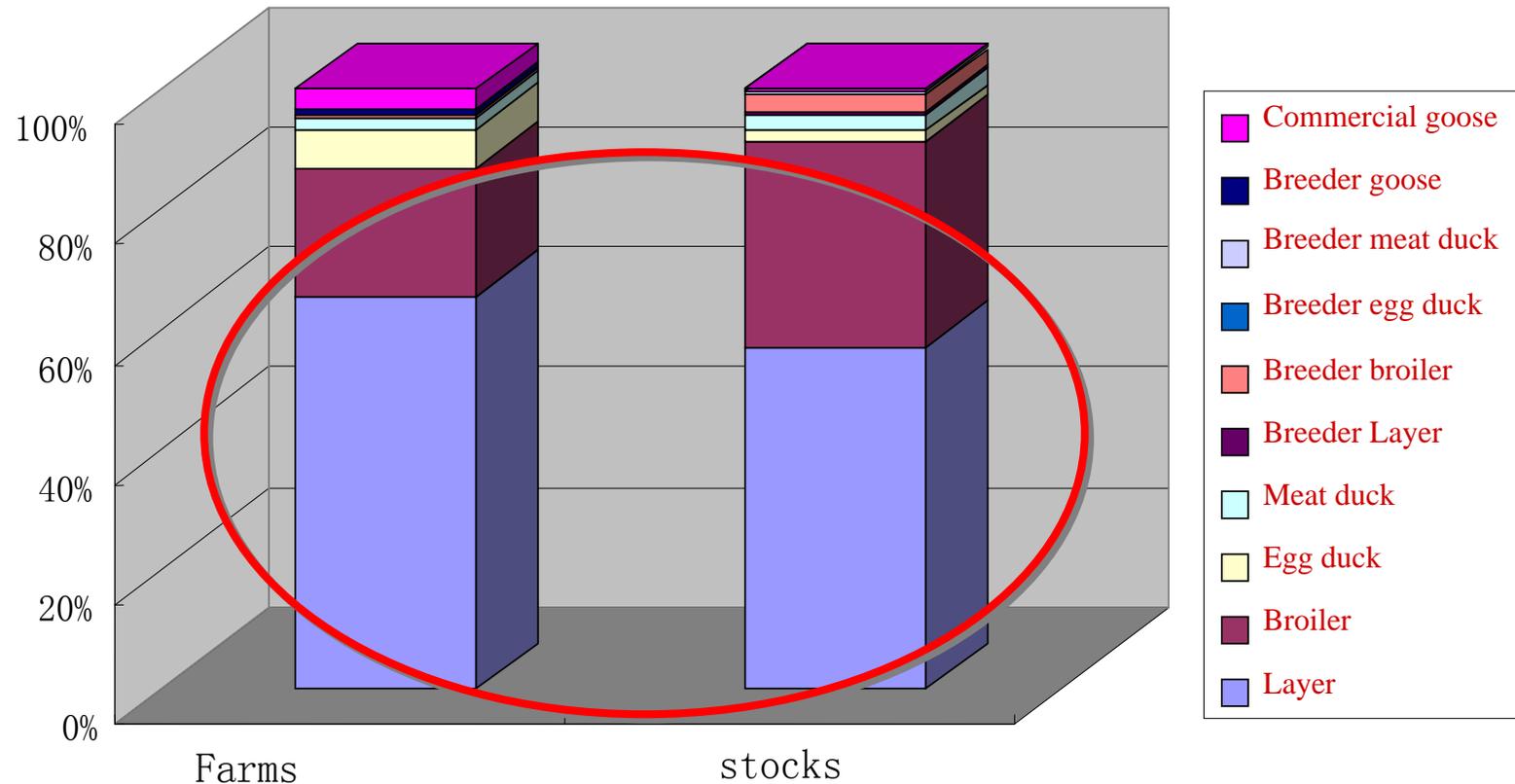
Inventory Numbers of Anhui Province

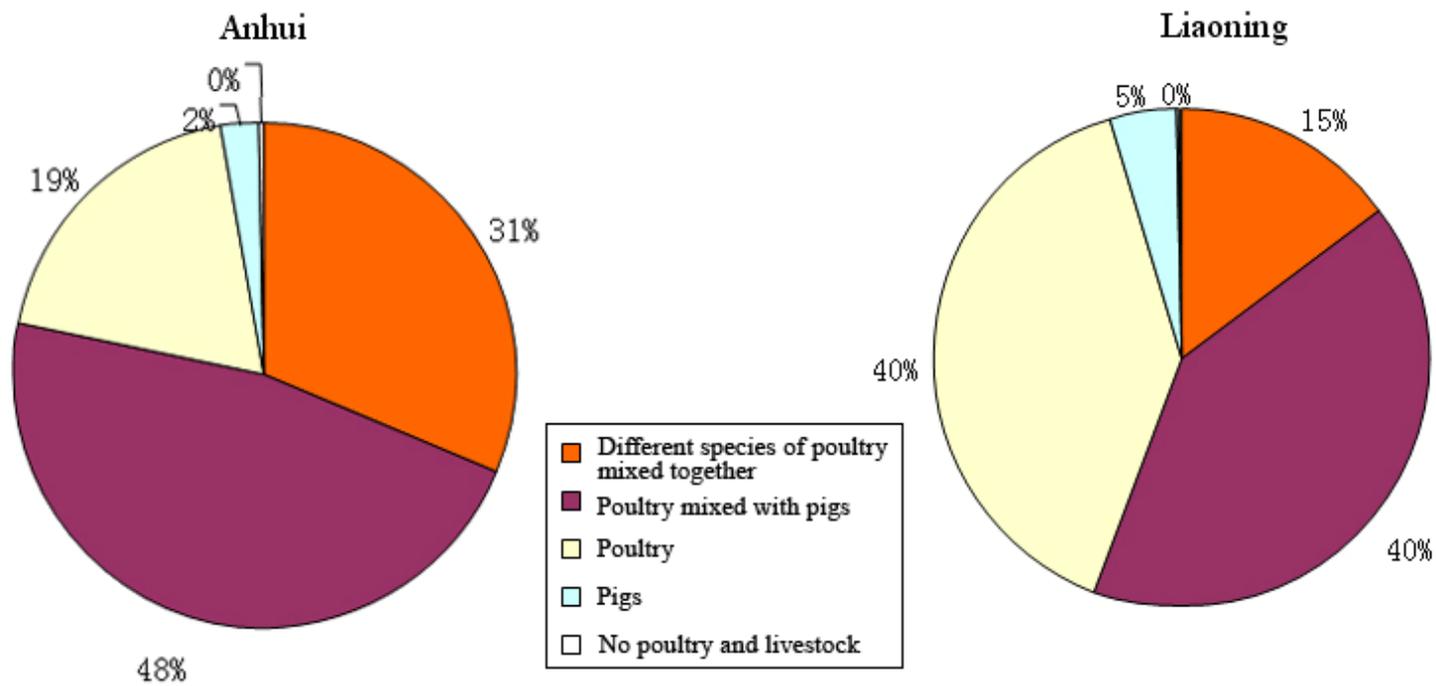


Liaoning Province

Anhui Province

Proportion of various types of poultry







2



Thank you for your attention!



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