

**IFA Crossroads Asia-Pacific 2011
Sanya, China, November 2-4**

Medium-Term Outlook for Agriculture in China

Dr. Funing Zhong

Nanjing Agricultural University



Introduction

**Impacts of China on global & regional
agriculture:**

**Big and growing population;
Fast growing economy and income; yet,
Limited resources for agricultural production.**

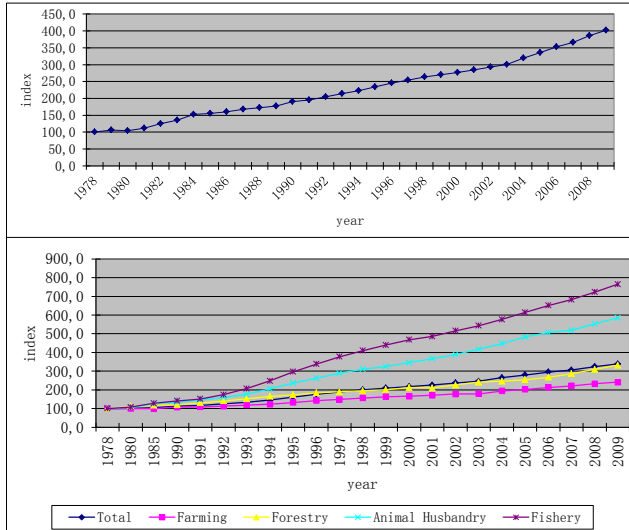
**“Understanding the new from learning the
past”:**

**Production; consumption; resources and
inputs; and trade.**



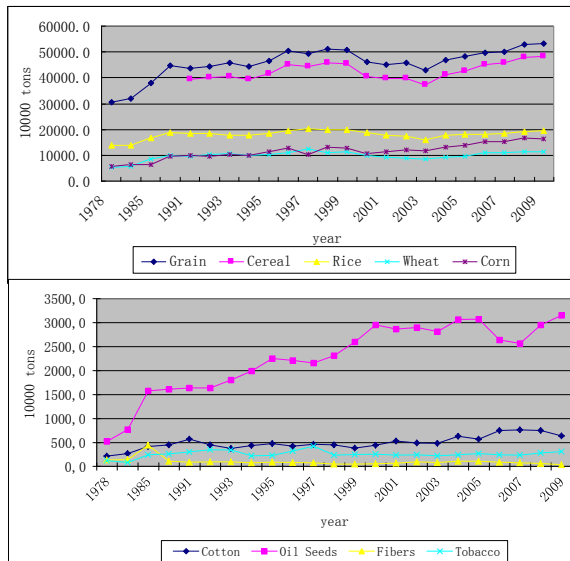
China's agricultural growth

Agricultural GDP growth & structure



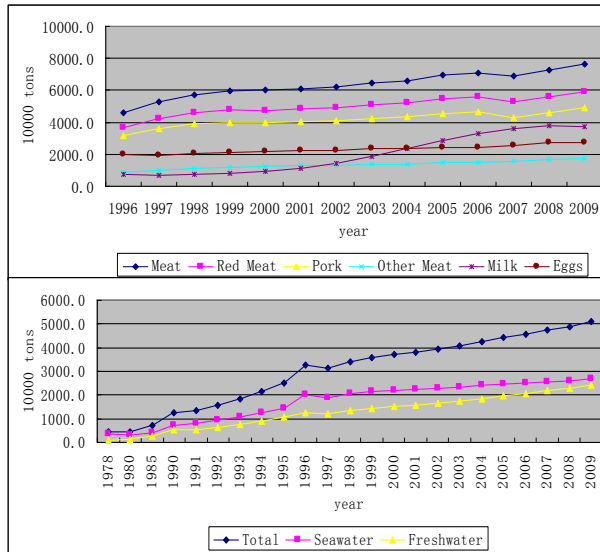
China's agricultural growth

Crop growth



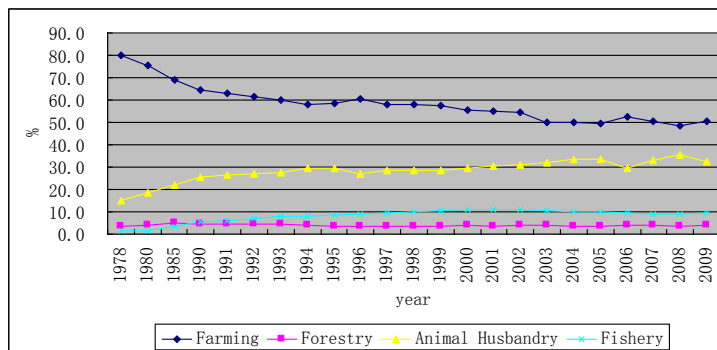
China's agricultural growth

Livestock & fishery growth



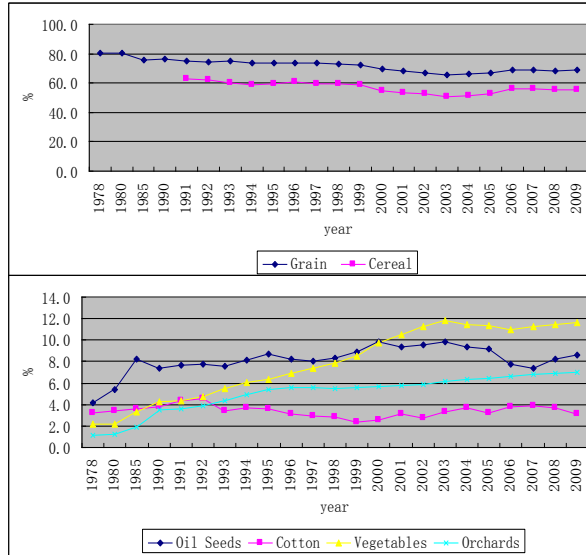
Changing structure in production

Among sub-sectors



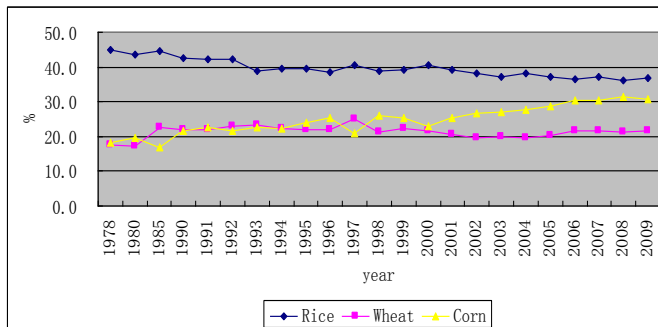
Changing structure in production

Within cropping sector



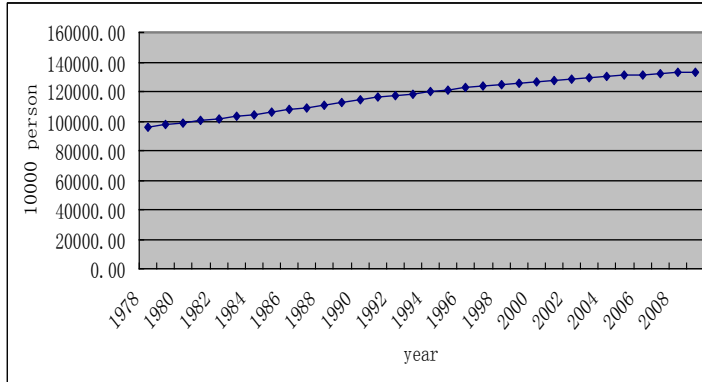
Changing structure in production

Among major cereal crops



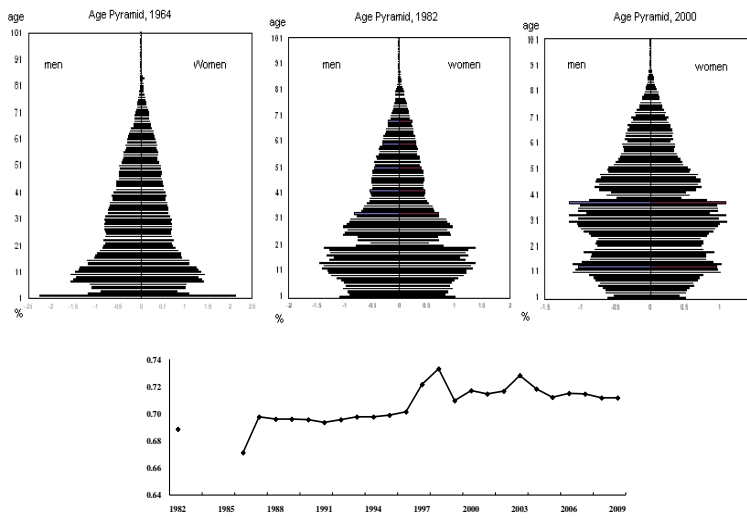
Food consumption

Population growth



Food consumption

Population structure & AMES



Food consumption

Urban households, per capita, kg/year

Item	1990	1995	2000	2005	2008	2009
Grain	130.72	97.00	82.31	76.98		81.33
Fresh Vegetables	138.70	116.47	114.74	118.58	123.15	120.45
Edible Vegetable Oil	6.40	7.11	8.16	9.25	10.27	9.67
Pork	18.46	17.24	16.73	20.15	19.26	20.50
Beef and Mutton	3.28	2.44	3.33	3.71	3.44	3.70
Poultry	3.42	3.97	5.44	8.97	8.00	10.47
Fresh Eggs	7.25	9.74	11.21	10.40	10.74	10.57
Aquatic Products	7.69	9.20	11.74	12.55		
Milk	4.63	4.62	9.94	17.92	15.19	14.91
Fresh Melons and Fruits	41.11	44.96	57.48	56.69	54.48	56.55

Food consumption

Rural households, per capita, kg/year

Item	1990	1995	2000	2005	2008	2009
Grain (Unprocessed)	262.08	256.07	250.23	208.85	199.07	189.26
Fresh Vegetables	134.00	104.62	106.74	102.28	99.72	98.44
Edible Oil	5.17	5.80	7.06	6.01	6.25	6.25
Vegetable Oil	3.54	4.25	5.45	4.90	5.36	5.42
Meats and Processed Products	12.59	13.56	18.30	22.42	20.15	21.53
Eggs and Processed Products	2.41	3.22	4.77	4.71	5.43	5.32
Milk and Processed Products	1.10	0.60	1.06	2.86	3.43	3.60
Aquatic Products	2.13	3.36	3.92	4.94	5.25	5.27
Sugar	1.50	1.28	1.28	1.13	1.11	1.07
Fruits and Processed Products	5.89	13.01	18.31	17.18	19.37	20.54
Nuts and Processed Products		0.13	0.74	0.81	0.93	1.05

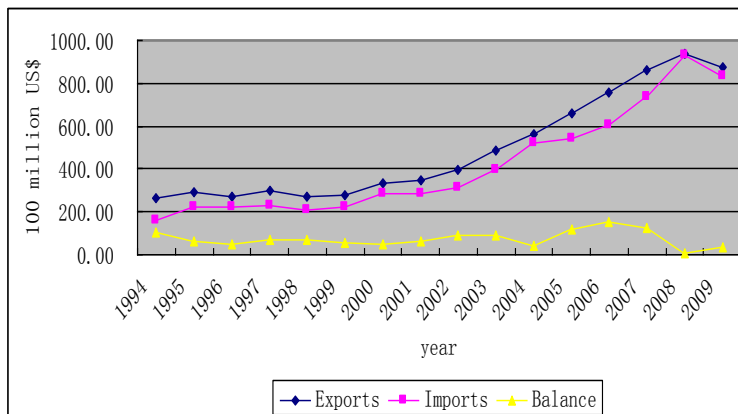
Food consumption

Per Capita Calorie Intake

by Income				by Year			
yuan	Obs.	Mean	S.D.	Year	Obs.	Mean	S.D.
<800	1778	2219.8	704.3	1991	3219	2432.87	643.35
800-1500	2497	2280.5	703.4	1993	3111	2391.82	675.1
1500-3000	5232	2278.6	673.7	1997	2793	2187.79	587.69
3000-5000	4699	2273.38	645.3	2000	3848	2242.83	658.74
>5000	6568	2241.8	670.7	2004	3879	2203.73	692.03
				2006	3924	2141.39	702.87

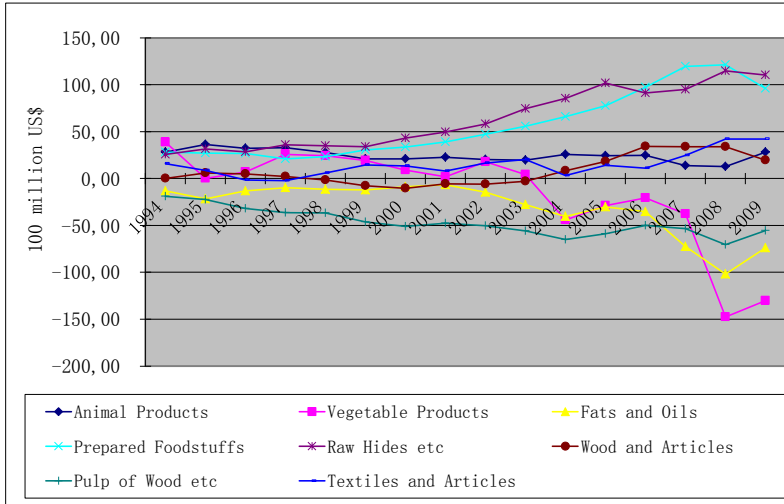
Trend in agricultural trade

Total agricultural trade



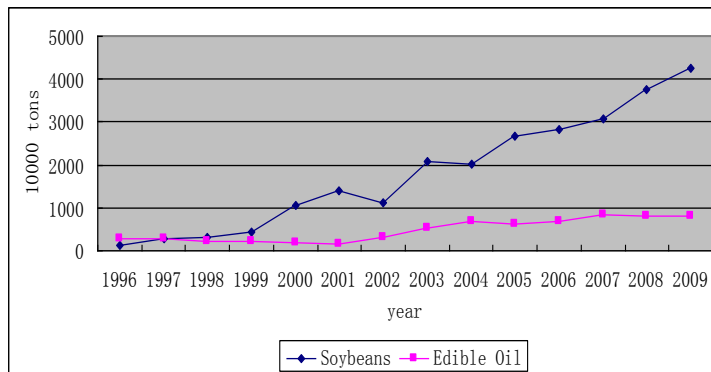
Trend in agricultural trade

Net trade of farm and related goods



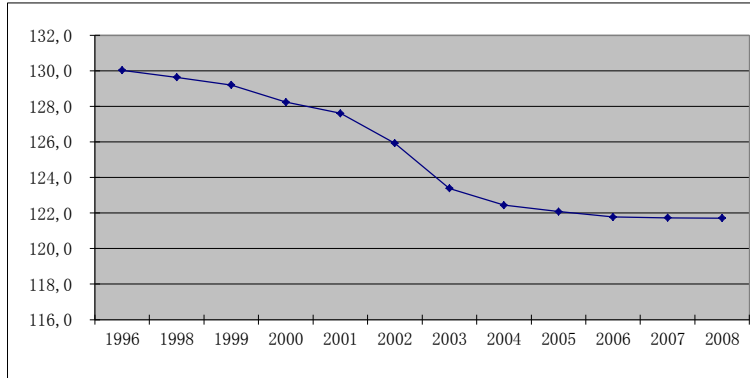
Trend in agricultural trade

Imports of soybeans and edible oils



Future challenges

Arable land, million hectares

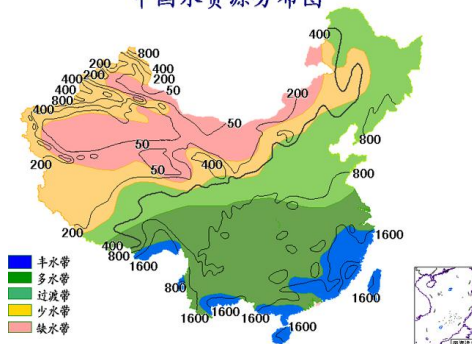


Arable land per capita: 40% of world average and declining, especially in high-yield regions. Production is shifting from south to north.

Future challenges

Water

中国水资源分布图



Arable land under irrigation:

1950 12%;

1998 40%;

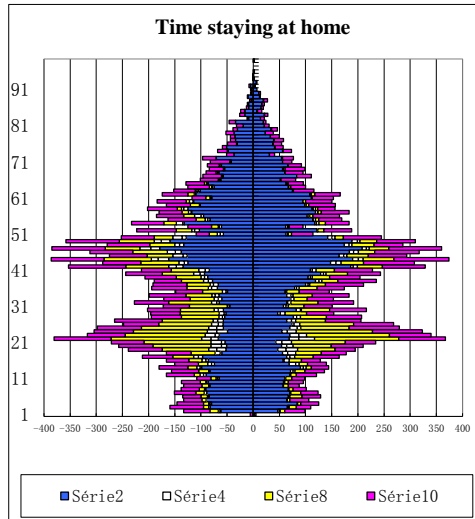
2009 45%.

Heavily rely on groundwater in the Northern region

Fresh water per capita: 28% of world average, unevenly distributed and declining.

Future challenges

Rural population structure



1. Aging residents with large portion of children;

2. Proportionally out-migration peaked around 25-year age group, gradually reduces with age;

3. New peak delays to appear.

4. Aging may continue, followed with big drop in rural population.

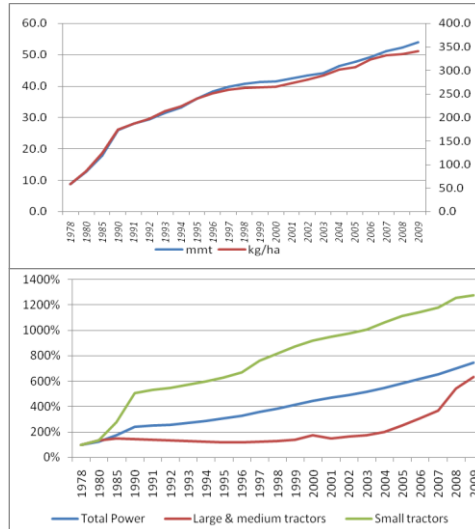
Future challenges

Rural labor structure

Age	Agriculture		Non-agric.		Dual-occ.		No-work		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
16-25	154	1.66	240	2.59	458	4.94	360	3.88	1212	13.06
26-35	286	3.08	268	2.89	633	6.82	55	0.59	1242	13.39
36-45	881	9.49	260	2.80	1322	14.25	65	0.70	2528	27.24
46-55	967	10.42	164	1.77	1202	12.95	92	0.99	2425	26.13
55-65	908	9.79	67	0.72	725	7.81	172	1.85	1872	20.17
total	3196	34.44	999	10.77	4340	46.77	744	8.02	9279	100.00

Future challenges

Inputs: fertilizers & tractors



Future challenges

Production resources & conditions:

Continuing declines in arable land, and areas sown to grain crops;

Tightened water supply;

Volatile weather conditions;

Deteriorated environment;

Uneven development in infrastructures;

Declining marginal return to inputs;

Lagged restructuring of rural society

Production may increase at lower pace and high costs

Future challenges

Growing population with demographic changes:

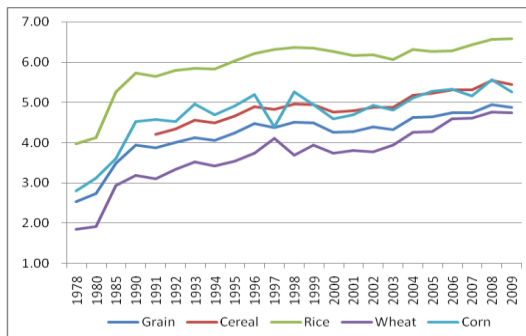
Population growth: around 1.5% in the 1980s, down to 1% in the 1990s, and around 0.5% in recent years ;

Rural vs. urban: 19% vs. 81% in 1978, down to 47% vs. 53% in 2009

Age and gender structure: AMES decreased by 2 percentage points since mid-1990s

Population may grow slower, and even decline in the near future, along with per capita energy intake.

Future challenges



Yield and output growth rely on:

Improving R&D and infrastructure, especially in low-yield regions;

Developing biotech and water-saving technology;

Facilitating restructuring rural society;

and etc.

Future challenges

Better utilization of the world market:

Continuing growth in oil seed imports, gradually importing feed grains and the like, while maintaining a high degree of self sufficiency in food grains;

Diversifying origins of imports to ensure smooth supply, and to reduce political sensitivity;

Increasing world grain supply through direct overseas investment and cooperation;

Additional benefit from agricultural growth in the South hemisphere

