

Brief Introduction to IFA and IPI new publication on Fertigation: a tool for efficient fertilizer and water management

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Year	Grain Demand (10,000 ten thousand tons)	Grain Production (10,000 ten thousand tons)	Fertilizer Use (10,000 ten thousand tons)	Irrigation Area (10,000 ten thousand mu)	Pesticide Use (10,000 ten thousand tons)
1961	~0.5	~0.5	~0.1	~0.1	~0.1
1967	~1.0	~1.0	~0.2	~0.2	~0.2
1975	~1.5	~1.5	~0.3	~0.3	~0.3
1979	~2.0	~2.0	~0.4	~0.4	~0.4
1985	~2.5	~2.5	~0.5	~0.5	~0.5
1991	~3.0	~3.0	~0.6	~0.6	~0.6
1995	~3.5	~3.5	~0.7	~0.7	~0.7
2002	~4.0	~4.0	~0.8	~0.8	~0.8
2007	~4.5	~4.5	~0.9	~0.9	~0.9
2012	~5.0	~5.0	~1.0	~1.0	~1.0

Background: Chinese Agriculture development relies on high inputs and high resource consumption

International Fertilizer Industry Association
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Fertigation
A Tool for Efficient Fertilizer and Water Management
灌溉施肥：水肥高效应用技术
【以色列】海曼·李夫李曼（阿拉伯）阿曼·塔曼特赫基
顾有强 译 谢建良 审定
中国农业出版社

We cultivate too much land which is not naturally suitable for agriculture

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Highest Records Real yield in tryout yield in records area field

maize

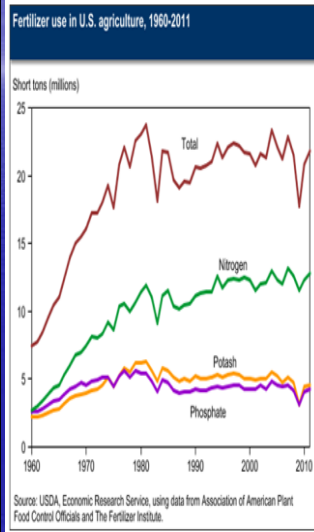
Year	高产记录 (t/ha)	区试产量 (t/ha)	实际产量 (t/ha)
1980	7.6	6.1	3
1995	11	7.9	4.9
2005	19.5	8.85	5.2

产量 (t/ha)

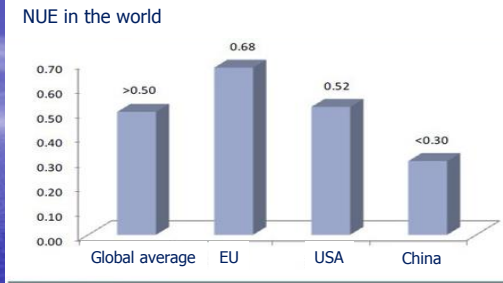
The potential production of new varieties are continuously increasing but the real yields in field scale are increasing relatively slowly, which means the fertility of soil has become the limit factor for high yield varieties.



Year	Chemical fertilizer consumption
2011	12,426.26
2010	12,675.72
2009	12,770.02
2008	11,861.97
2007	11,649.96
2006	10,690.10
2005	10,355.72
2004	9,259.33
2003	7,762.62
2002	7,399.02
2001	6,766.02
2000	6,333.13
1995	5,104.32
1990	2,314.62



(in 10⁴ tones)



Fertilizer consumption (kilograms per hectare of arable land)

Country	2003	2004	2005	2006	2007
China	3,062	3,066	3,217	3,633	3,311
Brazil	1,666	1,739	1,396	1,451	1,901
USA	1,458	1,594	1,651	1,478	1,712
India	1,051	1,154	1,278	1,364	1,423

Source: World Bank, "Country Data: China" (accessed July 26, 2010).



•Water consumption in China in 1993 is 525.4 billion m³

For agricultural use, it is 385.1 billion m³, occupying 73.3%

•556.6 billion m³ in 1997

For agriculture, 392 billion m³, 70.4%

•556.7 billion m³ in 2001

For agriculture, 382.6 billion m³, 68.7%

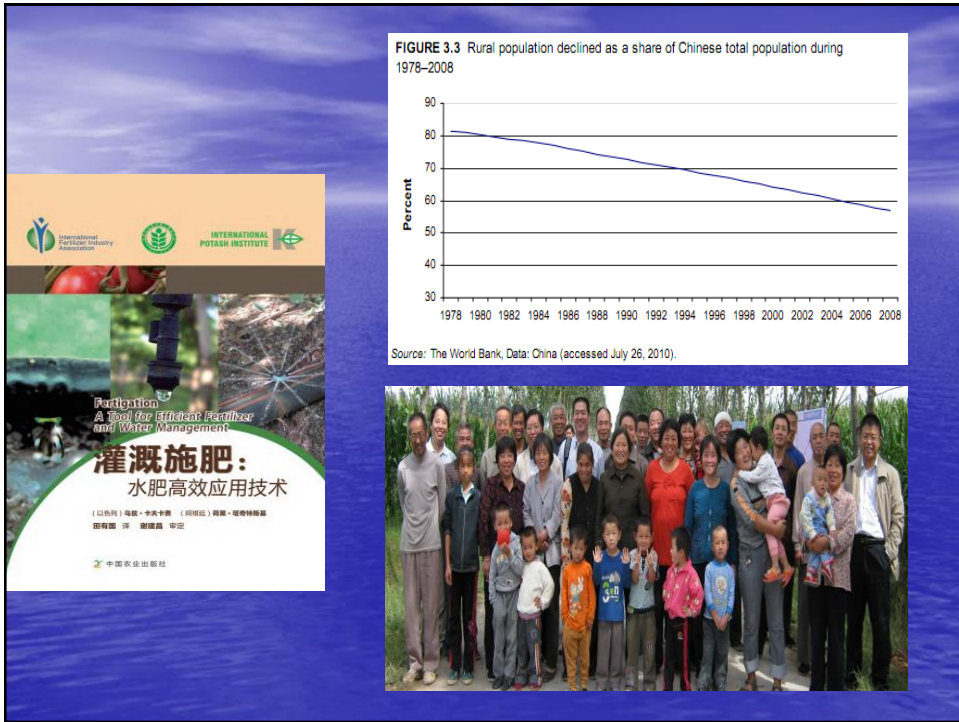
•590.9 billion m³ in 2008

For agriculture, 330.5 billion m³, 55.9%



China produces 26% of the world's agricultural products, feeding 20% of the world population, by using 9% of the world's cultivated land and 6% of the world's water resources.

“Scarcity of water” is much severer than “scarcity of land” in China !



Fertigation is the best way to increase the efficiency of water and nutrients usage, the best way to meet the challenges in the fast developing rural area in China !

Soil Fertilizing → Crop fertilizing
Irrigating the land → Irrigating the root of crops

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【以色列】海曼·李夫李曼（阿拉伯语）阿拉·塔奇特斯基
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National Survey shows the fertigation application can:



- increase the yield: vegetables by 15-28%, fruits by 10-15%, cotton by 10-20%, maize by 25-35%; potatoes by 50%
- Improve the quality obviously
- Increase the income: more than 20% in average
- Save fertilizer: Fruits by 25-35%, vegetables by 20-30%.
- Save water: fruits 150 m³ per mu and vegetables 100 m³



- USA: among agriculture under irrigation, 25% of maize, 60% of potatoes and 32.8% of fruits are being applied fertigation;
- Israel: 100% of irrigation are accompanied by fertigation;
- China: only 2.87% of 0.9 billion irrigation area are applying fertigation; only 1% of planting area are using fertigation if taking multiple-crop index into account.

Fertigation has a great potential in China.

The target setup by MOA in 2013

- The area using fertigation technology will be increased from the current 30 million mu to 80 million mu by 2015.
- Maize increases 15 m mu. Wheat, 5 m mu. Potatoes, 5 m mu. Cotton, 5 m mu. Vegetables, 8 m mu. Fruits, 10 m mu and others, 2 m mu.
- Saving water 50%, saving fertilizer 30%; the yield of grain crops increases 20% and cash crops income increases 600 rmb per mu.



How did this book in Chinese come into being?

Two distinguished authors and an excellent and professional book;
Useful and meaningful for Chinese agriculture;
My personal interests;
Support from IFA and IPI, and individuals.





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Thanks for attention

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