

# Universal Lessons from China's Advancement in Agriculture

by Mei Fangquan

*This is an edited transcription of a July 7, 2017 presentation (English translation) in New York City, by Mei Fangquan, Professor at the Agriculture Information Institute, and Chief Expert of the United Nations Global Food Security Committee, China.*

*Professor Mei's presentation focused on the success of agriculture in China since 1978. At the time, he and a delegation of Chinese farm and food specialists were attending a July 10-19 United Nations High Level Forum, addressing "Eradicating Hunger," which is the second goal of UN Agenda 2030. China is in the lead internationally, not only for its record of eradicating poverty, but for its example of agriculture advancement.*

*During that visit, Prof. Mei also spoke July 7, at a Schiller Institute co-sponsored event in Manhattan, titled, "[Food for Peace and Thought—China-U.S. Agricultural Cooperation](#)," which was attended by an audience of friends of the Schiller Institute, including people from the U.S. Farmbelt.<sup>1</sup>*

*Prof. Fangquan described the process of how a sequence of structural adjustments undertaken in China over the last 35 years, has upgraded its farm and food system. This process was further discussed at the October 2017 Communist Party Congress, which ratified three goals, now under implementation: (1) by 2020, the institutional framework is to be in place for maintaining productive and fair agriculture and ecological*

1. The conference in New York City, July 7, 2017, was sponsored by the Schiller Institute, the China Energy Fund Committee, and the Foundation for the Revival of Classical Culture. Prof. Mei spoke through an interpreter.



Prof. Mei Fangquan

*practices; (2) by 2035, there will be "decisive" progress in the agriculture sector; and (3) by 2050, the agriculture sector will be strong and "beautiful," and farmers will be well-off. Aspects of the Chinese experience are now under study and application in Africa, Asia, and South America.*

*In contrast, in the United States, during the same time period since the 1970s, there has been a dramatic de-structuring of agriculture. The principle of sovereign responsibility for farming and the food supply was*

*set aside, in favor of Wall Street-serving practices of commodity speculation, outsourcing key parts of the food supply, and blocking any provision of fair, parity-based, prices for the farmer's output. Farm counties have been depopulated; infrastructure is decaying; and rural areas suffer from high rates of poverty, suicide, and drug abuse. The average farm family is losing money, and must depend on off-farm jobs to continue to farm.*

*Thus, when it comes to the heated topic of trade relations—as is now under discussion between the United States and China—the real question of principle must be addressed: what is the government doing for its own people and economy to begin with, and how can win-win trade measures further mutual development for all concerned.*

*In New York, Prof. Mei welcomed this approach, calling for "joining hands" in promoting positive "agricultural structural adjustments." He and his colleagues conferred one-on-one with the American farmers present, and took a tour of a Hudson Valley dairy farm, hearing first-hand about the U.S. dairy sector*



EIRNS

Twenty-five Chinese agricultural specialists joined by nine U.S. farm representatives visit Shenandoah Farm, in Duchess County, N.Y., July 8, 2017, hosted by brothers Verne and Wayne Jackson, whose family has owned it since 1892.

crisis. This month South Dakota rancher Ron Wiczorek, who participated in the New York Schiller event, declared as a candidate for the U.S. House of Representatives, supporting the policy of collaboration with China, to end “the British free trade system” and benefit everyone. (See article on page 24.)

—Marcia Merry Baker

It gives me great pleasure to participate in such an important forum. I was asked to talk about the development of agriculture in China, and lessons and experiences in the process. [Figure 1] This is completely different from the topic I had yesterday, and that is why I made different slides for this presentation. I would like to share with you China’s strategic and structural changes in its agricultural sector in the last 30 years. I would like to share with you the experience of China’s agricultural transformations and organization process. Over the past few years, the central government has been promoting supply-side reform, and that has translated into strategic reforms in the agricultural sector. In the past few decades there have been three major structural changes in the sector in China.

### Big Population, Limited Resources

A few words about the basic situation in China. [Figure 2] The Chinese population increased from 963 million in 1978 to 1,383 million in 2016. China’s population grew really rapidly

FIGURE 1

**Universal Lessons from  
China’s Advancement  
in Agriculture**

**Professor, Mei Fangquan**

Honorary Director-General, Agricultural Information Institute,  
Chinese Academy of Agricultural Sciences (CAAS)

Advisor. Former Deputy Executive Director,  
State Food and Nutrition Advisor Committee (SFNCC) in China

Chairman of the Academic Committee of China  
Capital Construction Optimization Research Association

Member of Steering Committee (StC) of  
the High Level Panel of Experts (HLPE)  
World Committee of Food Security (cfs) United Nation(UN)

FIGURE 2

**Basic Situation**

**Population (0.1 billion): increased from  
9.63(1978) to 13.83(2016).**

**Water resources: Water resources per capita  
are ¼ of the world average level, and the  
water use efficiency is less than 40%.**

**Arable land: Land per capita is 1.5 mu, and  
it is 40% of the world average level**

FIGURE 3

**population, resources and environment in China**

Item	population	arable land	irrigation area	forest coverage	surface water resources
	0.1 billion	million Ha	million Ha	(percentage)	Cubic metre/capita
1978	9.63	99.4	45.0	12.5	2921
1990	11.43	96.0	47.4	13.2	2460
1995	12.11	95.0	49.4	13.5	2322
2000	12.78	128.2	51.7	15.0	2163
2005	13.08	122.0	55.2	18.2	2076
2010	13.47	92.6	55.7	18.5	1967
2020	14.0-14.1	91.3	57.3	22.0	1826
2030	14.9-15.1	90.0	60.0	25.0	1728

Note: The figures of arable land for year 2000 later are revised according to the joint investigations by FAO and China in 1998

in the first 20 years after 1978, and after that we have seen a decrease in [the rate of] population growth.

China has limited resources. Looking first at water resources, water resources per capita are one-fourth of the world average, while the arable land per capita is only 40 percent of the world average.

In order to feed over 1 billion people, China is faced with many challenges in terms of resources. [Figure 3] It is projected by many different methodologies and many conferences, that the Chinese population might reach its peak in 2030 at 1.6 billion. The current projections say that the peak is going to happen at 1.5 billion. That is the consensus of many departments and academic institutes. Currently we have a population of 1.3 billion, and we believe that every year the population is going to increase by 70-80 million and finally will reach the high point of 1.5 billion.

China's arable land, because of this strict policy, is not facing a sharp decrease. China's irrigation system is relatively developed, while its forestry coverage in the past 10 years has seen rapid growth, because China has stopped destroying forests and is using many alternative materials.

China is faced with scarce water resources, and water resources per capita are decreasing. By 2030, the per-capita water resources will be 1,700 cubic meters per capita. Currently the annual consumption of the U.S. consumer is 2-3,000 cubic meters per capita, so you can see how scarce the water resources in China are.

FIGURE 4

**Development analysis on major foods consumption in China**  
中国主要食物消费的发展分析

Year	Country	Grains	Meats	Eggs	Aquatic	Milks	Fruits	Vegetables
1995	China	232	29	11	11	4	32	144
2000	China	206	25	12	12	7	35	139
2010	China	183	29	15	17	25	40	128
2020	China	173	35	18	21	40	45	120
2030	China	140	35	20	24	60	50	120
1990	Japan	125	28	15	40	63	44	114

Note: unit : Kg.

FIGURE 5

**Future Goals for Food Development in 2020**

**Grain: Total production about 620 million tons in 2020 (610-2015)**  
About 450 kg/per capita

**Main Food Consumptions (kg/ per capita):**  
Meats 35 Eggs 18 Aquatic 21 Milks 40  
Fruits 45 Vegetables 120

Now let's look at food consumption in China [Figure 4]: By 2025 to 2030, major food consumption in China per capita will peak and will stabilize, as the model projects. The per-capita number, as well as the overall number, will not increase, and we're going to see only structural changes. By that time, we will have a structure similar to that which Japan established in the 1980s.

The only difference will be aquatic products. In fact, the percentage of aquatic products in China was much lower. About 85 percent of aquatic products in Japan are from the high seas. But in the past in China, the supply is different, because we do not have many aquatic products coming from the high seas; 70 percent of them are cultured, which means that we will have to invest in food as feed. Compared with other agricultural countries such as Japan, we are in a completely different situation.

In general, we have an Oriental model of food consumption which is different from the Western model: In terms of meat and poultry, we're not going to see a high percentage in our food mix. In the future, our main target is to ensure food supply. [Figures 5 and 6] Our second target is to ensure the quality and safety of our food. These are our two major targets.

In the future, by 2020, total agricultural output will reach 620 million tons, while per-capita production is going to be 450 kg per capita. The major food consumption projections were already shown in a previous table. [Figure 4]

In 2015 total agricultural food output had a value of \$1.8 trillion; by 2020 it's going to be \$2.3 trillion. We are the country with the biggest food industry, but we do not have a very strong industry, because we do not have a large number of multinationals.

Here are a number of very important figures about China's agricultural structure [Figure 7]: In 2015, 40 percent of food production was used as animal feed. By 2030, half of China's food output will be used as animal feed. Many countries and many people are not familiar with such a structure: They assume that food is mostly consumed by people in China, but that is not true.

### Three Strategic Agricultural Reforms

Now a few words about the history of major structural changes in China's agricultural development in the past 30-plus years. We call them "strategic" changes because they happen every 10-plus years; we see major changes in investment, input/output strategies, policies, etc., and we see them change once every 10-plus years.

The first reform was between 1979 and 1988. [Figure 8] In 1978, total grain production was 300 billion kg. In 1984, total grain production reached 400 billion kg. The per-capita amount was 400 kg: That reform solved the problem of feeding most of the Chinese people.

After reaching the per-capita amount of 400 kg, we were faced with the problem of selling surplus grain, because in the history of China, lack of food was always the problem. But by 1984, we had achieved a grain surplus, and that is why the government needed to make further changes. [Figure 9] The first policy was to promote coordinated development of food crops and cash crops. The second was to support cotton, oil, and other economic crops. And in the development of the third, the government allowed part of the grains to be used as feed to support the development of animal husbandry. In the past, before solving the problem of feeding the population, Chinese people did not actually have access to a lot of meat, poultry, eggs, or milk.

The second reform [Figure 10] took place between 1998

FIGURE 6



FIGURE 7



FIGURE 8



FIGURE 9

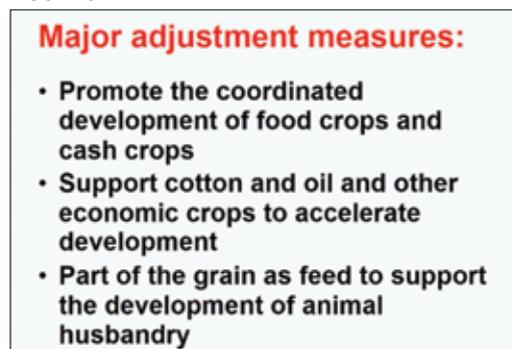


FIGURE 10

**The second agricultural structure adjustment (1998-2003)**

In 1998, the total grain output reached 500 billion kilograms for the first time, and there was a relative surplus of grain.

**Major adjustment measures:**

- Returning the grain plots to forestry
- Returning the grain plots to husbandry
- Returning the grain plots to fishery ponds

FIGURE 11

In 2003, food reforestation reduced land and environmental pressures, reduced the pressure on food stocks, and helped to improve the agro-ecological environment.

However, due to the significant reduction in grain area, the total grain output dropped significantly to 430 billion kilograms, forming a pressure on food shortages in the same year

FIGURE 12

**The third agricultural structure adjustment**

In 2015, grain has grown for 12 years. Total grain output reached 600 billion kilograms for the first time.

At the same time there have been three consecutive increases:

- Food production continues to increase
- Food stocks continue to increase
- Food prices continue to increase

The third structural adjustment must be made

and 2003. In 1998, total grain output reached 500 billion kg for the first time, representing a second wave of grain surplus. Because of the high inventory, the government adopted a number of additional reform measures. At that time, the ecology was degrading, so the government also adopted policies to return some farmland to forests, fishery sites, or husbandry sites.

This reform resulted in significant improvements in the Chinese agricultural sector [Figure 11], reducing pressure on the land and the environment, as well as the agricultural and ecological environment. And there has been a significant improvement in China's agricultural structure. In the past 10-plus years, forestry coverage has increased very rapidly. If you look at western and northern China, over 10 years ago you could barely see *any* greenery, if you traveled in the area. Now in some areas, these places are covered by forests. That is a result of government reform.

But these policies back then led to a decrease in grain output from 500 to 430 billion kg. When a new administration came into power they saw that the grain inventory was under stress, while output was under pressure as well.

That's why the new administration launched the third reform. [Figure 12] By 2015, grain output had seen growth for 12 successive years, because of the government's favorable policies and an increase in imports. In 2015 our grain output reached 600 billion kg for the first time. We saw three increases: first, food production increased; second, food stocks inventory increased; and third, food prices increased. The three increases meant that a third reform of structural changes was needed.

Usually you have to have a big picture, because importers would be interested in importing food without looking at food's historical output, and that is because back then, management of the agricultural sector was siloed.

Starting in 2016, a strategic reform was implemented to deal with the problem of very high corn stocks. [Figure 13] Because of too much corn on the market, the price dropped, and that is why a large amount of corn is used as animal feed.

The third reform, therefore, aimed at using corn to feed animals and [support] husbandry instead of people, because of the corn surplus. Seventy percent of corn output in China is now used as animal feed, because of the policy changes. Currently the government is trying to deal with the large inventory as well as change the ways corn is planted, but that is not going to solve the problem fundamentally, if corn continues to be used as a major source of animal feed.

In the 1990s, we conducted two projects, one in the south and one in the north of China. We discovered that if we replaced the corn grown for human consumption with corn for animal feed,

we could increase the efficiency by 30%, which means that if the arable land decreases in size, the efficiency in output will not decrease concurrently.

So, we have to accelerate the pace of building a sustainable system that combines agriculture and animal husbandry which is sustainable.

### Organic vs. Green

After this policy was adopted, a new target for the development of the agriculture sector included the following [Figure 14]: The ultimate goal is to establish a modern, efficient, ecological and organic sector—a modern agricultural sector, that will use resources efficiently while protecting the environment.

While these three elements are very important, so is the development of green products, the steady development of organic products. Many people have been talking about organic products in the past two days. But the price of organic products is much higher than that of conventional products. Germany was the first to develop organic products. But the share of organic in Germany is not big, because of the high prices. We have to focus more on the development of *green* products, instead of *organic* products, which will carry the brand label “green base.” We have to develop green industrial chains.

In the meantime, we have to put in place a modern ecological industry. Ecological development is very important; the whole eco-system has to be protected. [Figure 15] We cannot simply make big investments to improve the environment; if we do so without producing anything, we might be under pressure. Ecological protection and industrial development must proceed hand in hand, at the same time.

In the meantime, China is witnessing rapid development in combining its big health sector, tourism, agriculture, and the recreational sector. We use the “Three P’s” model: That is, the combination of public investment and social capital against the backdrop of a decrease of investment in major industries. Investment in big health industry has been constantly growing. This is conducive to the development of the big health industry that combines agriculture, tourism, and recreation.

Agricultural structural adjustment is the inevitable process of agricultural progress and modernization. [Figure 16] Every adjustment constitutes an upgrade to a higher stage of development.

After the first stage of restructuring, we became successful in feeding our population. The second restructuring focussed on the reuse of land and reforestation. And the third restructuring put in place a modern feed system, combining ecological protection and industrial development.

Let us join hands in promoting the agricultural structural adjustments! Thank you. [applause]

FIGURE 13

**From 2016 the corn acreage began to reduce, as well as the corn production and inventories.**

**Must be accelerated to be used for feed corn gradually adjusted for the feed,**

**Create conditions to convert 70% of corn into feed crop.**

FIGURE 14

**Explore the Development model of modern and efficient ecological agriculture**

**Focus on the development of modern and efficient ecological agriculture**

**Focus on the development of green food**

**Solve the problem of organic matter circulation in ecosystems**

**Brand --- green base**

FIGURE 15

**New development goals of modern agriculture:**

**Dual goals:**

**Protect the ecological environment**

**rational use of resources**

**Speed up economic growth and change the mode of development**

**Realization: modern --- efficient --- ecology - organic combination**

FIGURE 16

**Agricultural structural adjustment is the inevitable process of agricultural progress and modernization**

**Every adjustment is an upgrade, into a higher stage of development.**