Feeding China’s future

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China’s Global Significance to the Potato Industry

Since 1993, China has become the largest potato producer in the world.

The planting area increased by 2.33 m ha to 5.2 m ha, and the total production increased by 50 m tons to 81 m tons from 1991 to 2010.
China’s Global Significance to the Potato Industry

- The planting area accounted for 16% of the world in 1991, and continuously increased to 28% in 2010.

- The total potato production accounted for 12% of the world in 1991, and continuously increased to 25% in 2010.
China’s Global Significance to the Potato Industry

- China is also the largest potato consumer in the world.
- Average annual per capita consumption in mainland China was 44kg in 2010.
- Potatoes are utilized as vegetable, staple food and raw material for processing in China.
- It was estimated that, on average, 48.6 million tons of potato production used for table stock, 12.8 million tons for processing, and 9.9 million tons for seed every year during 2009-2011.
Utilization of Potato in China

- Fresh: 61%
- Seed: 12.3%
- Processing: 15.9%
- Fresh export: 0.4%
- Loss: 10.4%
Overview of Potato Production in China

- Potatoes are widely distributed throughout the country in four main agro-ecological zones

- Growing 50% of China’s potato seed potatoes production
  - Fall: Apr/May-Sep/Oct.

- Growing 37%
  - Diverse geography and climate
  - Fall: Mar/Apr-Aug/Sep
  - Summer: Feb/Mar-Jun/Jul

- Growing 8%
  - Spring: Dec/Jan-Apr/may
  - Summer: Feb/Mar-Jun/Jul

- Growing 5%
  - Oct/Nov/Dec-Jan/Feb/Mar/Apr
Overview of Potato Production in China

- 60% of potato area is in arid and semi-arid region where potatoes are grown in rain-fed field. Plastic film mulching and water saving irrigation technologies are applied to keep soil moisture and collect limited rainwater for crop growing.
Overview of Potato Production in China

- Potatoes can be produced in China throughout the year since the country covers a large geographic area with different climates from south to north.

- Autumn is the main production season in the northern and south-western regions of China where single crop is planted. Potatoes are usually interplanted with other crops.
Overview of Potato Production in China

- Summer potatoes are grown in plastic greenhouse, or covered by plastic film, in the Central Plain, and harvested early summer to gain better profits.

- Winter potatoes are produced in winter fallow paddy rice fields in Southern China, with less tillage and covered by rice straw.
Overview of Potato Production in China

- Potatoes are grown mainly by small farmers. In recent years, however, mechanized farms are developing in the north.
How the Chinese Eat Potato

In the diet, potatoes, as an important vegetable, can be prepared for hundreds of dishes in different cuisines.
How the Chinese Eat Potato

- As a staple food, potatoes are cooked with different grains.
How the Chinese Eat Potato

- Dishes made from potato starch noodles are also the favorite foods of Chinese. It was estimated that 300,000 tons of potato starch noodles were processed in 2010.

- 300,000 tons of potato chips and 160,000 tons of French Fries were produced and consumed in mainland in 2010.
The Potato’s Role in Food Security in China

- Demand for foods will continue to increase due to the large and increasing population.
- Arable land is limited and decreasing, 55% of which are dry land without irrigation.

Population and food demand is increasing

Arable Land Is Decreasing
The Potato’s Role in Food Security in China

- The planting area of the three major grain crops (rice, wheat and maize) accounts for 71% of total arable land.
- Potential to increase production is limited because of the low profitability.
The Potato’s Role in Food Security in China

- Potato is considered the fifth most important food crop in China after rice, wheat, corn, and soybean.

- Expansion of planting area in the winter fallow paddy rice fields and increase of yield will contribute to improvement of potato total production.

- Increased potato production will help alleviate poverty, improve food security, and increase income for farm households.
Looking into Future: More Consumption of the Potato and Its Products

- Vegetable potato consumption will increase because more people move from the countryside into the city.

- Rising disposable income, longer working hours and shrinking free time influence consumer’s choices for convenient snack foods and semi-finished products.

- Cooked potatoes are also consumed as staple food in marginal areas.
Looking into Future: More Consumption of the Potato and Its Products

- Dehydrated potato products will be widely used in food processing: baking, mashed potatoes and snacks. And they are also used to make dishes at-home.

- Consumption of frozen French Fries is expected to moderately increase with the western style fast food outlets’ continuously expanding in China.
Looking into Future: More Consumption of the Potato and Its Products

- As staple foods, potato products, which meets Chinese dietary habits such as potato noodles, breads and slices, would be increased in future.
Looking into Future: Challenges in China’s Potato Industry

- Low yield results from poor production condition, shortage of good varieties and high quality seeds, low level of mechanization, and stress of diseases, drought and frost.
Looking into Future: Challenges in China’s Potato Industry

- Losses and low added value are caused by backward post harvest handling and storage technology.
- Main processed product is crude starch with low added value.
- Other processing products (like FFF) cannot meet eating habits of Chinese.
Looking into Future: Government Policy for Potato Industry Development


- The Government of China (GOC) has included seed potatoes in its seed subsidy program to expand virus-free seed potato coverage and increase yields since 2009.

- GOC has included potato machinery in its agriculture machinery subsidy program to promote potato production mechanization since 2004, and will start storage subsidy program to reduce loss this year.
Looking into Future: Government Policy for Potato Industry Development

- GOC put investment to establish key Labs.
- Potato Research & Development Center, China Agriculture Research System (CARS) under MOA was built in 2009.
- GOC launched projects to set up seed production bases, potato products and seed potato quality testing centers.
Looking into Future: Research Efforts for Development of Potato Industry

- The MOA key labs focus on basic and applied basic research related to potato biology and genetic improvement:

  - Functional genomics of biotic and abiotic stress, tuber quality.
  - Potato germplasm enhancement and exploitation.
  - Biology, gene mapping and isolation for important traits.
  - Potato breeding methodology and variety development.
Looking into Future: Research Efforts for Development of Potato Industry

- Potato R &D Center, CARS focus on development of applied technologies of potato industry on following aspects.

- Breeding for varieties suitable for different uses, and improving seed potato propagation technology.

- Crop management on different cropping models, water saving irrigation, no/less tillage culture, application of fertilizers etc.

- Late/early blight integrated management
Looking into Future: Research Efforts for Development of Potato Industry

- Developing farming machinery and post-harvest handling systems for small farmers.
- Developing new processed products and the machinery.
Looking into Future: Research Efforts for Development of Potato Industry

- Improving tuber nutritional quality through culture practices.
- Modifying farmer’s storage with low energy use and cost in the North.
- Recovery of useful materials from waste water of processing.
- Deliver to the public the messages of health, safety, nutrition new technology of potatoes through media, publicity, training activities and demonstration.
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