



白城师范学院 BNU

# Grain Amaranth in China: Nearly two of decades development

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白城师范学院



**Institute Started as Baicheng Normal University, It is the only one normal university under direct administration of ministry of Jilin Province Education in the west of Jilin Province.**







**Grain Amaranth developments**

**Achievements in BNU**

**Application of grain amaranth**

**Development plans of grain amaranth**





## 1、 Nearly 20 years of Grain Amaranth development in China since 1990

**Grain Amaranth is a grain and forage crop. Not only is the high-quality of livestock forage but poultry is also high quality healthy raw food grain.**

**Early 1980s: two researchers, Yue Shaoxian and Sun Hongliang who led China's first grain amaranth team conduct comprehensive studies of the crop and organize several conferences in China.**

**1990s, China had reached status as one of the highest amaranth producers in the world in terms of acreage and production.**

**1995 Baicheng grain amaranth team started to promote the industrialization and development, including breeding of new varieties, high yield cultivation, feeding utilization, product processing, college students enterprising and higher demonstration and extension value and so on. We have established cooperative development relationship with the enterprises of amaranth.**

**At present, the research of amaranth in Jilin province is one of the highest in China.**



1) Baicheng grain amaranth team applied for over 30 national, provincial and municipal scientific research projects, 9 projects won the prize, 2 patented grain amaranth inventions and more than 30 publications.

2) Recent award projects:

“The promotion of the efficient planting and breeding mode of Grain amaranth” was awarded by Jilin Agr. Technology Promotion Award (the first prize).

“Research on Introduction and feed utilization of grain amaranth ” was awarded by Baicheng city technology progress award (the first prize).

“New cultivation technology development of grain amaranth varieties” was awarded by Baicheng city (the first prize)







## Amaranth achievements in BNU

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### 1) Breeding new varieties of grain amaranth

Since 2001, the Baicheng grain amaranth team has made use of domestic germplasm as well as introductions from Japan, Russia and the United States.

As of 2013 the new variety of grain amaranth Baicheng No.1 has been validated and additional varieties will be released.







**Baicheng No.1 is a semi-dwarf, early grain amaranth variety with a 30% yield increase and capable to mechanical harvesting.**



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## 2) Projects achievements

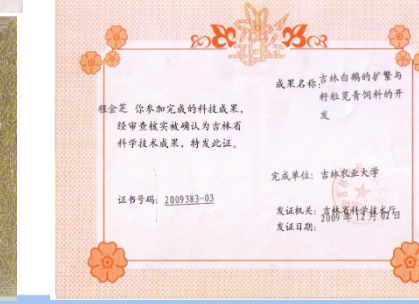
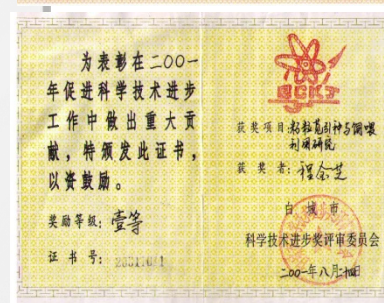
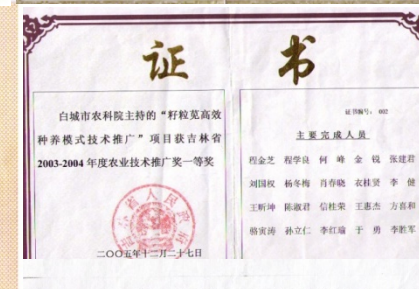
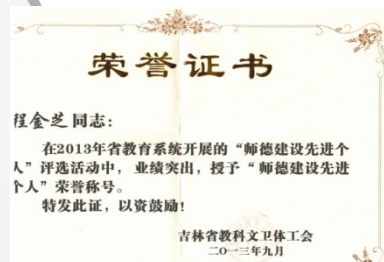
**Baicheng grain amaranth team hold over 30 national, provincial and municipal scientific research projects, 9 projects won the prize, These projects have laid the foundation for the industrialization of grain amaranth.**

**Some projects:**

**“The expansion of the white goose in Jilin and the development of amaranth green feed.”**

**“The research and demonstration of the key technology of amaranth industrialization.”**

**“ The research and development of the vegetable base micro-ecological series food.”**





## Grain Amaranth international cooperation projects

Three visits by Hokkaido, Japan (Shinshu University) grain amaranth breeders Honda and Kanto to China; studies of mechanized harvesting of Baicheng No.1

Support from USA through David Brenner acknowledge.







## 3. Application of grain amaranth

### 1) Application for animal feed

**Thousands of families in Baicheng planted amaranth for animal husbandry industry development. Promote the "123 feeding model", "the garden chicken feeding model" and "the garden goose rearing pattern", and product the green meat, egg and milk.**







## 2) Grain Amaranth Promotion Council

**On August 18, 1999, the promotion of the amaranth planting in jilin province was held in BNU, from now on, more and more grain amaranth were planted in jilin province.**

**The industrial development pattern "the pattern of amaranth rearing garden goose" has been implemented in the white goose company in Da'an city and Qida company in Qianan.**





## 3) Large scale cultivation

As of 2015, Baicheng grain amaranth team guide some companies to plant amaranth more than 700 mu. The amaranth were used in cattle, sheep feeding, and promote China's "grass for food" the healthy development of the target; At present, the development of amaranth has changed to enterprises cultivation, found large scale cultivation. More than 100,000 mu amaranth were planted this year in Jilin province. Economic and social benefits more than 100 million yuan.







## 4) A series of nutritious foods from grain and amaranths

- 1) Grain amaranth bread
- 2) Grain amaranth cake
- 3) Grain amaranth pastries (sweet and salty Crisps)
- 4) Grain amaranth mooncake
- 5) Sensory and scientific evaluation of nutritional quality for a balanced, reasonable diet. Ensure low use of additives and food safety.





## 5) Grain amaranth yogurt

- Yogurt produced from amaranth.
- Emulsifiers stabilized without precipitation.
- New product for the commercialization of grain amaranth.
- The conversion process of our patent.







## 6) Comprehensive development and utilization of grain amaranth

**Straw and cob used as fodder after grain amaranths harvesting**





## Straw and cob after grain amaranths harvesting







## Grain amaranth hulls(directly processed for feed or fertilizer without threshing)





## 7) Amaranth Fodder:

- Protein content of 5 to 9 %.
- Oils, minerals and vitamins were higher than corn stover.
- Can be used as silage, pellets, feed meal for livestock or poultry.
- Microbial fermentation could be used to create bio-organic fertilizer.







## 4.

## Future Plans

**The research target:**

- **grain complete utilization, whole plant use, improve benefit**

**The four aspects of amaranth product development:**

- **Process food;**
- **Produce fodder;**
- **Produce fertilizer;**
- **Produce nutritious soil.**





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Thank you!

