

INDUSTRIAL HEMP IN CHINA

Liguo Zhang¹, Yuyan Fang¹, Nan Zheng¹, Ming Zhang¹, Guangwen Wu¹, Hongmei Yuan¹, Yan Yan², & Ruijun Qin²

1. Institute of Industry Crops, Heilongjiang Academy of Agric. Sci., 150086, Harbin, China 2. Oregon State University–Hermiston Agriculture Research And Extension Center, Hermiston, OR

OVERVIEW OF INDUSTRIAL HEMP IN CHINA

- **As a traditional crop, hemp is grown in most provinces, mainly using for fabric and food**
- **Nowadays, there are more usage of hemp**
 - Whole plant stalk: fabric, substitute wood.
 - Root & stem: coating, polishes, and lubricants.
 - Hemp seed: food, medicinal materials, and feed.
 - Hemp seed oil: fuel, and chemical materials.
 - By product: hempcrete.
- **Centralized Hemp Production**
 - China has the largest industrial hemp production area.
 - Accounting for about half of the world's hemp production.
 - The main hemp production province includes:
 - Heilongjiang, Shanxi, Shaanxi, Gansu, Inner Mongolia, Guangxi, Yunnan Provinces.



Pic.1. Hemp in the greenhouse and farms.

THREE TYPES OF INDUSTRIAL HEMP

- **Industrial Fiber Hemp**
 - China's industrial hemp is mainly used for fiber.
 - The annual processing capacity of industrial hemp textile is 30,000 Mg.
- **Industrial Grain Hemp**
 - The grain-based industrial hemp industry is relatively small.
 - Mainly distributed in Inner Mongolia, Shanxi, Shaanxi, etc.
- **Industrial Medicinal Hemp**
 - The medicinal (CBD) industrial hemp market shows great potential.
 - Currently, due to the policy restriction, the CBD is mainly used for exportation.
 - The Market of CBD
 - The scale of the market is 448 million yuan (66 million dollars) in 2017.
 - The market is expected to increase to 1.8 billion yuan (254 million dollars) in 2024.
 - The weakness
 - Limited number of factories can extract CBD and with high cost.



Pic. 2. Hemp seeds

CURRENT PROBLEMS:

- **Problems in Industrial fiber hemp**
 - Shortage of high-quality and high-yield industrial hemp varieties.
 - The dry stem production is 6 Mg ha⁻¹, which is <50% of the international production.
 - Growers are not motivated on planting hemp because of low profitability.
 - Lacking of high-yield hemp production system.
 - Lack of fiber processing capacity.
 - Limited large-scale production farming equipments drive up the production cost.



Pic. 3. Fiber hemp production facility.

Problems in Edible and Medicinal Industrial Hemp

- Lack of dedicated and/or registered industrial hemp varieties
- The current medicinal hemp varieties are low in CBD
 - The current varieties have the CBD content of < 0.7%.
 - High production cost., high extraction cost and weak market competitiveness.
- Lack of necessary policy support
 - The policy on planting medicinal hemp and extracting CBD does not exist.
 - Growers and industries are concerned about the legal issues related industrial hemp.
- **Low utilization rate**
 - The market is focused on the hemp fibers.
 - The processing and utilization of hemp by-product is very limited.
 - The low utilization rate restricts the development of the overall industry and the farmers' income.



Pic. 4. Edible and medicinal industrial hemp

FUTURE DEVELOPMENT DIRECTIONS:

- **Increase the governmental support in the hemp industry**
 - Invest in leading hemp enterprises.
 - Set-up industrial hemp development funds to support the hemp related researches.
 - Support industries on fiber, medicinal, grain, and processing.
 - Use blockchain technology to supervise the entire industry chain.
- **Develop policies on industrial hemp management**
 - Develop industrial hemp production management rules and strengthening supervision.
 - Approve CBD extraction and processing.
 - Authorize the qualified enterprise to process industrial hemp products.
 - Evaluate the hemp varieties and identify the legal source of seeds.



Pic. 5. Hemp field research and hemp laboratory research.

Promote hemp research projects

- Develop new hemp product material, short-fiber textiles, comprehensive utilization of stalk, extraction of medicinal ingredients such as CBD.
- Utilize industrial hemp systematically and form an integrated industrial chain from production to processing and sales.
- Improve the utilization of the hemp crops, i.e., flower, stem, leaves, root, and seeds.

Encourage scientific and technological innovation

Establish a standardized industrial hemp production system

Develop hemp production equipment



Pic. 6. Hemp field and hemp harvest machine.