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The Economics of Ecosystem and Biodiversity (TEEB): Promoting a
Sustainable Agriculture and Food Sector
Implementation in China

Heilongjiang Stakeholder Consultation Report

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International Ecosystem Management Partnership
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Introduction

During May 8-10, 2023, the TEEBAgriFood China implementation team conducted a stakeholder consultation mission to Heilongjiang Province to validate the scenario setting of the TEEBAgriFood Heilongjiang study, verify key parameters, and help compile data and information to build up the models.

This report is a summary of messages collected from a range of stakeholders interviewed in this mission, including representatives from Northeast Agricultural University, Bayan Agricultural and Rural Affairs Bureau, and agricultural cooperatives and households. This report also integrates relevant information obtained from the previous consultation with the Beidahuang Group Co., Ltd., a state-owned company on agricultural reclamation overseen by the Ministry of Agriculture and Rural Affairs, and a major implementation body of the soybean expansion policy in Heilongjiang.

Key messages

1. Soybean expansion capacity
 - The answer to how much land can be used for soybean expansion is closely related to the demand for rice (stable food) and maize (livestock feeds). The limited area of farmland restricts the expansion of soybeans.
 - In 2022, the soybean self-sufficiency rate of the country is estimated to be 15-18%. Possibly this number will reach 20-25% in the future, and an estimation of future increase in soybean yields is 10 million tons nationwide.
 - The current soybean planting area in Heilongjiang is around 74 million mu (equi. 4.93 million ha), and this number is expected to increase to 80 million mu (equi. 5.33 million ha).
2. The spatial feature of the soybean expansion
 - The ways of increasing soybean plantation are:
 - i) Maize-soybean rotation: replanting soybeans on lands that are planted with maize (soybean cannot be planted in consecutive years as it will lead to yield reduction)
 - ii) Rice to soybeans: plant soybeans in rice growing areas with groundwater overdraft issues or where drainages facilities are good, as soybeans are susceptible to flooding.
 - iii) Planting soybean on marginal land: to develop saline-tolerant soybean varieties and undeveloped saline land turns into potential areas for soybean plantations. For example, there is still undeveloped saline land around Daqing City in Heilongjiang.
 - Distribution of crops across cumulative temperature zones

1st cumulative temperature zone: households are motivated to grow maize and rice.

2nd cumulative temperature zone: households grow rice, maize and soybean in combination.

3rd and 4th cumulative temperature zone: households are active in planting soybeans.

3. Soybean yields

- The current average yield of soybeans in Heilongjiang is 130 kg/mu (equi. 2 tons/ha).
- Factors influencing soybean yields include:
 - i) Photothermal conditions affecting 40-50% of soybean yields: households are more motivated to grow soybeans in 3rd, 4th and 5th cumulative temperature zones.
 - ii) Varieties (20-30%): the upper limit of yield improvement through germplasm innovation is estimated to be 180-200 kg/mu (equi. 2.7-3 tones/ha)
 - iii) Planting techniques (20-30%)

4. Ways of soybean plantation

Soybean plantations in Heilongjiang are mainly conducted by large farms, family farms and cooperatives, and households. Among them:

- Large farms are directly overseen by the Bureau of Reclamation, Ministry of Agricultural and Rural Affairs, and operated and managed by the Beidahuang Co., Ltd.
- Cooperatives or socialized service organizations operate on large scales. Compared with small households, they gain better income from three aspects:
 - i) through large-scale procurement of agricultural materials, annual cost saving is around 50 CNY/mu, ii) with improved planting method applied, annual income increase is about 100 CNY/mu, and iii) better prices for selling in large quantities.

5. Motivation mechanism: producer subsidies

- Government provides differentiated producer subsidies for rice, maize and soybean cultivation. For example, in 2022, the producer subsidy for soybean in Heilongjiang was 248 CNY/mu, this rate for maize was 28 CNY/mu, and 93 CNY/mu (groundwater irrigation) and 123 CNY/mu (surface water irrigation) for rice. In 2023, the subsidy for soybean farming increase to above 350 CNY/mu.
- However, the subsidy provides limited incentive for soybean expansion, because of low planting returns of soybeans due to low yields and poor resistance to natural disasters. It is said that an increase of 200-300 CNY/mu

on top of the existing soybean subsidy may be required to equalize soybean planting returns with maize.

6. Insurance

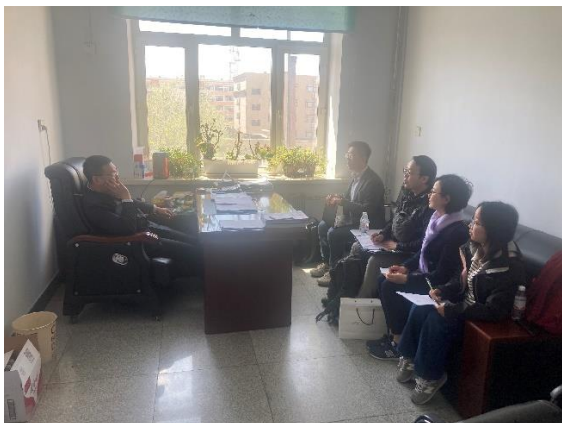
- The government encourages households and cooperatives to purchase full-cost agricultural insurance. A shared payment plan is in operation with which the government pays for 80% of the insurance fee and farmers/cooperatives pay the rest.
- Currently, the agricultural insurance coverage is 40-50%.

In addition to the above, the project implementation team obtained detailed data on inputs and outputs of the cultivation of rice, maize and soybean, as well as demand for labor, through field survey with households and cooperatives.

Photos



Consultation meeting with Beidahuang Group Co., Ltd.



Consultation with Bayan Agricultural and Rural Affairs Bureau



Consultation with agricultural cooperatives in Heilongjiang





Consultation with households