The Breeding of High Yield High β-glucan Disease-resistant Naked Oat (Avena nuda L.) Strains --“Bayou 18” by Interspecific Hybridization

Reporter:  Dr. Junyong Ge
Deputy Director of the Institute of Oat Research in Zhangjiakou Academy of Agricultural Sciences
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- Cross-breeding procedure
- Characteristics
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- Suitable region
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Zhangjiakou Academy of Agricultural Sciences
Brief Introduction - Zhangjiakou City
Brief Introduction -- Breeding Base
Brief Introduction -- Work Department

Zhangjiakou

Beijing
Brief Introduction--Team

Changye Tian
Brief Introduction--Team

Cai Yang
Brief Introduction--Team
Brief Introduction -- Team
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Cross-breeding Procedure

Yong 73-1 × 578 → 9034
  ↓
  9034-10 → 9034-10-1 × 906-38-2
  ↓
  9413
  ↓
  9413-25
  ↓
  9413-25-2 → 986D(9413-25-2 × Avena magna)

Xiao 46-5 × Yong 118 → 906
  ↓
  906-38 → 986D-141-1
  ↓
  986D-141
  ↓
  986D-141

Wild Oat × Jizhangyou No.4 → 9641
  ↓
  9641-6
  ↓
  9641-6
  ↓
  9641-6

··· ··· ··· ··· ··· ··· ···

Bayou No.9

200242-2-2-1 → 200242-2-5-5 → 200242-2-5-1-5-16

Bayou No.18
Wild oat
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Characteristics

Growth period: 115d, a late variety  
Plant height: 120~135cm  
Spikelet on main panicle: averagely 39  
Spike grain number: averagely 82  
Spike grain weight: averagely 2.2g  
1000-grain weight: 28~32g。  
Grain: tidy, oval  
Grain color: golden  
Shell rate: 1.5%
Compact plant type
Disease-resistant identification was did by the Institute of Plant Protection of Gansu province Academy of Agricultural Sciences:

Immune covered smut

moderate resistance to red leaf virus
### Disease-resistant Report

**Immune covered smut**

<table>
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<th>编号</th>
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<th>类型</th>
<th>平均病株率（%）</th>
<th>抗性类型</th>
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甘農省農業科学院植物保护研究所
## Disease-resistant Report

**MR to red leaf virus**

### Table 3  2015年燕麦品种抗红叶病鉴定结果

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</table>
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Yield

In Sep. 26th 2014, the official invited 5 experts to measure the yield of “Bayou No.18” planted in Kangbao county, 0.207 ha flatland produced 1359.52 kg of grain, per unit area yield achieved 6565.65 kg·ha⁻¹, create a record of high yield in rain-fed land. The whole yield estimation process was notarized by China Notary.
Yield

The same as 2014, in Sep. 13\textsuperscript{th} 2015, the official also invited 5 experts to measure the yield of “Bayou No.18” planted in Chongli county and Zhangbei county, the difference was that the planting area was hillyland and larger, both 3.33 ha, per unit area yield achieved 4547.85 kg·ha\(^{-1}\) and 5494.95 kg·ha\(^{-1}\) respectively.
Notarial Certificate - 2014 Kangbao County
Notarial Certificate - 2015 Chongli County

中华人民共和国河北省崇礼县公证处

公证员 狄瑞兵

二〇一五年十一月十六日

Notarial Certificate - 2015 Zhangbei County

中华人民共和国河北省张北县公证处

公证员 李小琴

二〇一五年十一月十六日
Chongli County
Hilly land
Zhangbei County
Slope land
Contents

- Brief Introduction
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The protein, fat, starch were tested by The ministry of agriculture grain quality supervision, inspection and testing center, the $\beta$-glucan was tested by Beijing products lipid-lowering oats development co., LTD.

**Grain protein:** 15.17% ;
**Crude Fat:** 9.89% ;
**Crude starch:** 58.26% ;
**$\beta$-glucan:** 5.31%.
Quality Inspection Report

<table>
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<th>检测项目</th>
<th>单位</th>
<th>检验结果</th>
<th>检验依据</th>
<th>标准值</th>
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Bayou No. 18 VS Common grain

Suitable to make oat-rice & oatmeal
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Suitable Region

The results of regional test (2 year) and production test (1 year) showed that “Bayou No.18” suited to the northwest of Hebei province in China, the field with good water and fertilizer conditions will get a better quality and yield.
We are expecting the great development of the oat industry & Welcome to Zhangjiakou to see the Olympic Winter Games in 2022!

Jone
E-mail: gejy207@163.com
Thanks for Your Attention!