



OATS  
2016



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

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- **Brief Introduction**
- **Cross-breeding procedure**
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- **Yield**
- **Quality**
- **Suitable region**

# Brief Introduction-- Academy

## Zhangjiakou Academy of Agricultural Sciences



# Brief Introduction-Zhangjiakou City



# Brief Introduction--Breeding Base



# Brief Introduction-- Work Department



# Brief Introduction--Team



Changye Tian



# Brief Introduction--Team



Cai Yang





# Brief Introduction--Team



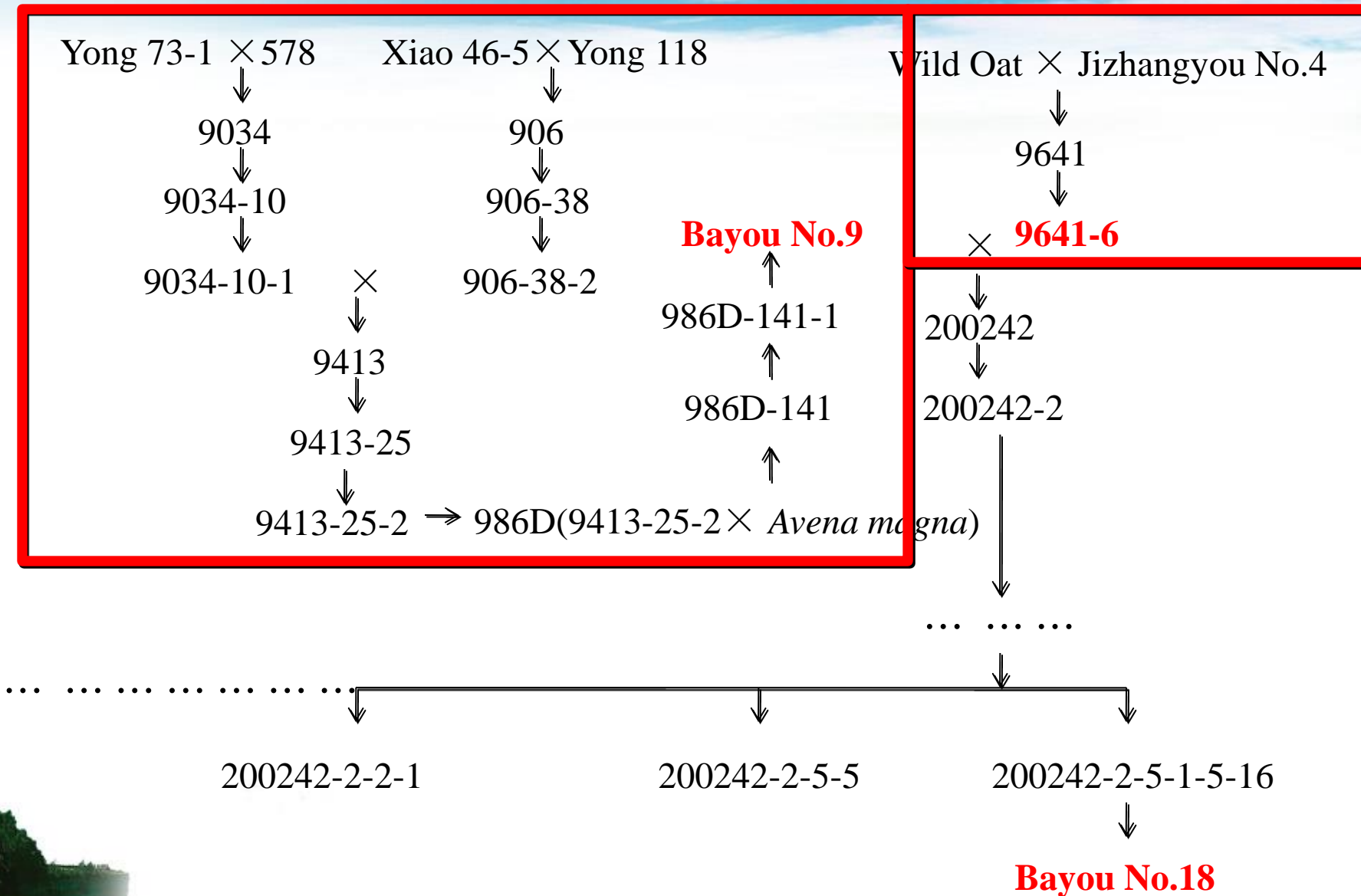
# Brief Introduction--Team



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# Cross-breeding Procedure



# ● 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

Disease-resistant identification was done 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

表1 2015年燕麦坚黑穗病鉴定结果

编号	品种名称	类型	菌粉拌种	抗性类型	菌土覆盖	抗性类型
			平均病株率 (%)		平均病株率 (%)	
1	坝燕1号	皮	0.00	I	0.00	I
2	坝燕4号	皮	0.00	I	0.00	I
3	坝燕5号	皮	0.00	I	0.00	I
4	坝燕6号	皮	2.91	HR	0.00	I
5	坝燕7号	皮	0.00	I	0.00	I
6	坝苽1号	裸	3.90	HR	0.00	I
7	坝苽3号	裸	1.14	HR	0.00	I
8	坝苽6号	裸	7.00	R	0.44	HR
9	坝苽8号	裸	0.00	I	0.97	HR
10	坝苽9号	裸	0.00	I	0.00	I
11	坝苽12号	裸	12.26	MS	2.27	HR
12	坝苽13号	裸	3.03	HR	0.00	I
13	坝苽14号	裸	1.14	HR	0.00	I
14	坝苽18号	裸	0.00	I	0.00	I
15	燕2007	裸	62.72	MS	28.24	S

# Disease-resistant Report

## MR to red leaf virus

表3 2015年燕麦品种抗红叶病鉴定结果

编号	品种名称	0级	1级	2级	3级	4级	5级	总株	平均严重度	抗性
1	坝燕1号	0	0	0	100	15	12	127	3.3	S
2	坝燕4号	0	0	0	116	20	27	163	3.5	S
3	坝燕5号	0	0	0	45	38	98	181	4.3	HS
4	坝燕6号	0	0	0	118	24	55	197	3.7	S
5	坝燕7号	0	0	0	26	49	103	178	4.4	HS
6	坝苻1号	0	0	0	45	60	95	200	4.3	HS
7	坝苻3号	0	0	0	38	41	100	179	4.3	HS
8	坝苻6号	0	0	25	140	10	0	175	2.9	MR
9	坝苻8号	0	0	0	150	45	15	210	3.4	S
10	坝苻9号	0	0	25	125	20	35	205	3.3	S
11	坝苻12号	0	0	0	145	25	30	200	3.4	S
12	坝苻13号	0	0	0	90	45	60	195	3.8	S
13	坝苻14号	0	0	0	70	80	55	205	3.9	S
14	坝苻18号	0	20	50	100	20	5	195	2.7	MR
15	燕2007	0	0	0	0	60	130	190	4.7	HS

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# Yield

In Sep. 26<sup>th</sup> 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<sup>-1</sup>**, create a record of high yield in rain-fed land. The whole yield estimation process was notarized by China Notary.

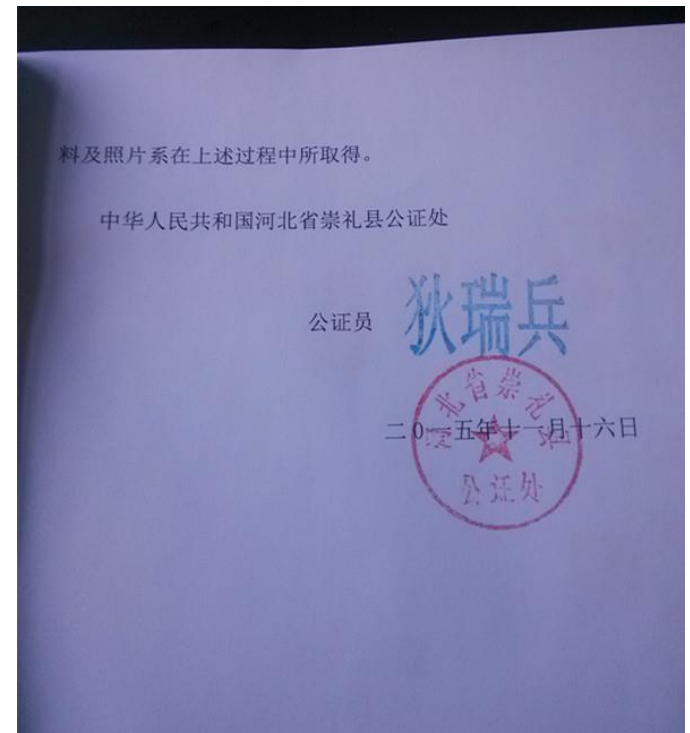
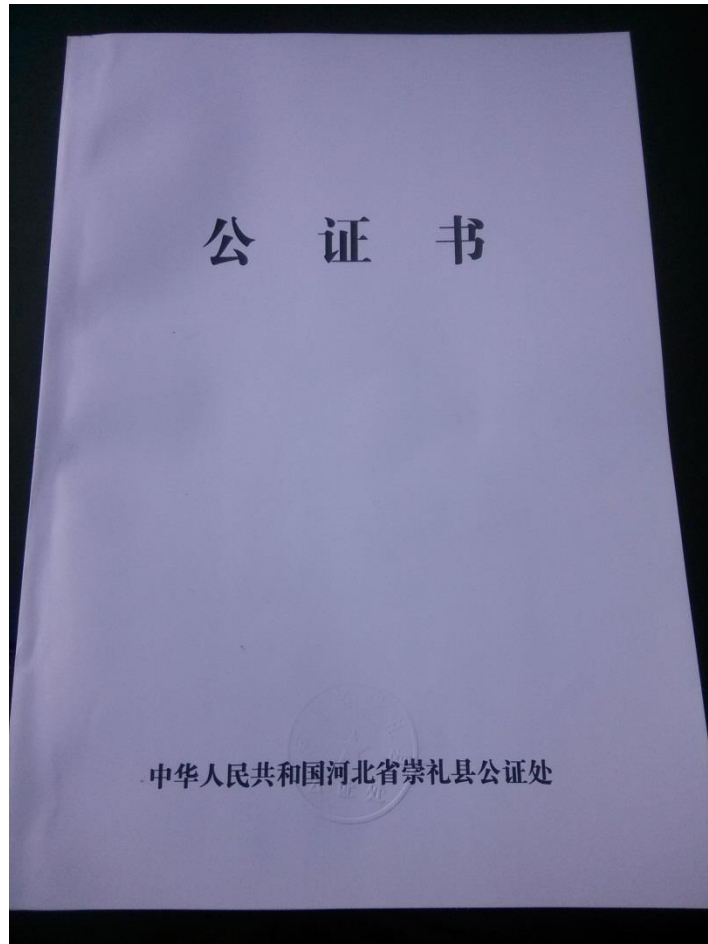


# Yield

The same as 2014, in Sep. 13<sup>th</sup> 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<sup>-1</sup>** and **5494.95 kg·ha<sup>-1</sup>** respectively.

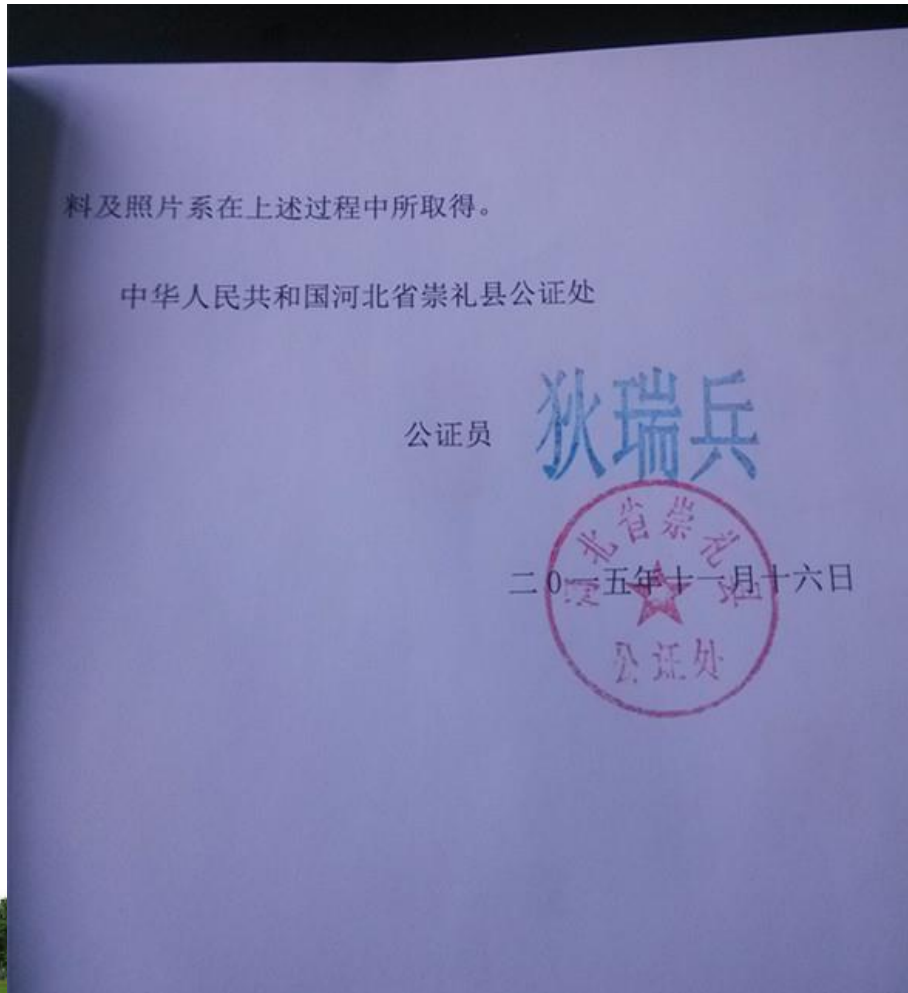


# Notarial Certificate- 2014 Kangbao County

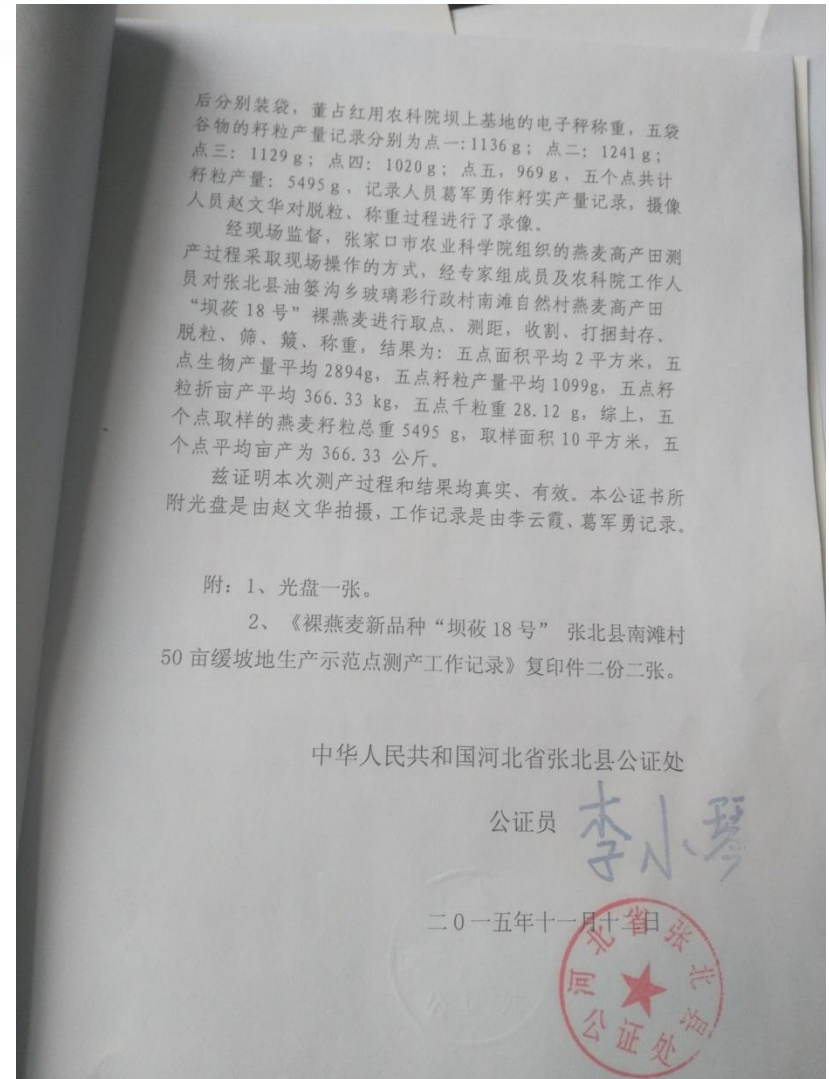




# Notarial Certificate- 2015 Chongli County



# Notarial Certificate- 2015 Zhangbei County



# Chongli County Hilly land



# Zhangbei County Slope land

“坝莜18号”燕麦新品种公证现场检测（张北）



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# Quality

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

## 农业部谷物品质监督检验测试中心 检验报告

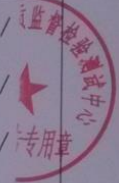
NO. W150021

共 2 页第 2 页

样品名称：燕麦 坝苽 18 号

检测项目	单位	检验结果	检验依据	标准值	单项判定
粗蛋白质（干基）	%	15.17	NY/T3-1982	/	/
粗脂肪（干基）	%	9.89	NY/T4-1982	/	/
粗淀粉（干基）	%	58.26	NY/T11-1985	/	/

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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 !**