

AGRICULTURE AND AGRI-FOOD CANADA

LACOMBE RESEARCH CENTRE

OAT CULTIVAR DEVELOPMENT PROGRAM

OBJECTIVE

To develop for early maturing, high yielding, disease and lodging resistance cultivars that would be suitable for various end-use applications in the agri-food industry of western Canada

ACHIEVEMENTS

The Lacombe Research Centre has developed 14 oat, 2 wheat and 2 barley cultivars.

Cultivars Developed by the Lacombe Research Centre

<u>Cultivar</u>	<u>Year of Registration</u>
<u>Oats</u>	
1. Random	1971
2. Cavell	1975
3. Athabasca	1977
4. Cascade	1979
5. Jasper	1985
6. Waldern	1989
7. AC Mustang	1994
8. AC Juniper	1995
9. AC Morgan	1999
10. Murphy	1999
11. Kaufmann	2000
12. Baudrias	2000
13. OT7001	2001
14. OT7008	2002
<u>Barley</u>	
1. Diamond	1982
2. AC Lacombe	1992
<u>Wheat</u>	
1. Park	1963
2. AC Michael	1993

Oat Varieties

1. AC Morgan was developed at the Agriculture and Agri-Food Canada Research Centre at Lacombe and registered in 1998. AC Morgan yields 108% of Cascade and matures two days later than Cascade. Its advantages are a high yield potential, excellent milling quality, plump kernels and very strong straw. A disadvantage is late maturity (2 days later than Cascade).

2. AC Ronald is a semi-dwarf milling oat cultivar developed at the Agriculture and Agri-Food Canada, Cereal Research Centre in Winnipeg. Its main feature is better lodging resistance than any other oat cultivar released for western Canada, and its main disadvantage is low yield relative to other milling oat varieties recommended for Alberta.

3. Kaufmann was developed at the Agriculture and Agri-Food Canada Research Centre at Lacombe and registered in 2001. It is a high-yielding, disease resistant cultivar with plump kernels, high test weight, high groat content and high milling yield. Kaufmann is resistant to most of the prevalent races of crown rust, stem rust and surface-borne smuts, and is moderately resistant to barely yellow dwarf virus. It is best adapted to the rust prone areas of Manitoba and eastern Saskatchewan, where it has out-yielded AC Mediallion by 6% and 2%, respectively. Kaufmann is not recommended for production in Alberta or western Saskatchewan because of its lower yield and later maturity relative to other cultivars that are recommended for these areas.

4. Athabasca is an early maturing oat cultivar developed at the Lacombe Research Centre and released in 1977. Its main advantages is its early maturity. It matures about 2-3 days earlier than Cascade and is a good variety to grow in northern areas where, because of cool temperatures and short growing season, other later maturing cultivars are not well adapted. Its main disadvantages are lower yield and weaker straw relative to Cascade.

5. Pendek is an early maturing oat introduced from Holland by the Lacombe Research Centre and released in 1963. It has short straw and good lodging resistance. At the time of its registration in 1963, Pendek had the best combination of high yield and early maturity, but since then new cultivars with improved yield-maturity relationships (e.g. AC Juniper, OT7001, CDC Dancer) have been developed.

6. AC Mustang is a dual purpose (grain/silage) oat developed by Agriculture and Agri-Food Canada, Lacombe Research Centre and released in 1994. Currently it is the highest yielding cultivar in Alberta (yields about 10% more than Cascade). AC Mustang is equal to Cascade in lodging resistance. It also has higher test weight, higher percentage of plump kernels, and a lower percentage of thin kernels than Cascade. AC Mustang has high hull content and is not suitable for milling.

7. AC Juniper was developed at the Agriculture and Agri-Food Canada Research Centre at Lacombe and registered in 1996. AC Juniper yields 97% of Cascade and matures two days earlier than Cascade. Its advantages are early maturity, improved grain quality and excellent lodging resistance. A disadvantage is lower yield than Cascade.

8. CDC Bell is a new forage oat cultivar developed by the Crop Development Centre at the University of Saskatchewan. It is a tall, late maturing variety with very large, long and thick leaves. It was developed for use by producers who wish to grow an annual cereal crop for hay (green-feed).

9. Waldern is a high yielding feed oat developed at Agriculture and Agri-Food Canada, Lacombe Research Centre and released in 1989. It yields about 8-10% higher than Cascade while maturing about 2 days earlier than Cascades. It has bigger seeds and higher percentage of plump kernels, but lower test weight than Cascade.

10. **Foothill** was developed by Agriculture and Agri-Food Canada, Ottawa Research Centre and released in 1978. Foothill is a forage oat variety and is intended for use by farmers who grow oats as a source of silage or green feed for livestock. Foothill is susceptible to lodging.

11. **Murphy** is a high yielding forage oat variety with good lodging resistance and excellent adaptation to Alberta. In three years of testing in central and northern Alberta, Murphy has out-yielded Foothill by more than 6.2% in forage/silage while maintaining similar nutritional values as Foothill. It has also demonstrated higher grain yield (about 9%), improved lodging resistance, a higher percentage of plump kernels, a slightly lower percentage of thin kernels than Foothill. Murphy matures about 1 or 2 days later than Foothill.

Other New Cultivars from Lacombe Research Centre

12. **OT7001** is a new early maturing oat with high yield, good lodging resistance and high test weight. OT7001 has out-yielded AC Ronald and CDC Dancer by 11.9 and 18.1%, respectively, in the Black Soil Zone, and by 6.4 and 6.8%, respectively, in Dark Brown Soil Zone, while maturing about 2 days earlier than CDC Dancer and about 5 days earlier than AC Ronald. It has the best combination of yield and maturity than any other oat cultivar so far developed and released for western Canada.

13. In addition to **OT7001**, two new hullless oat cultivars, **Boudrias** and **OT7008** with high yield and improved lodging and disease resistance have been developed and released from the program at Lacombe.

OATS												
Variety	Irr. 1&2	Yield as % of CASCADE					Comp Mat	Te. Wt.	Kn. Wt.	Resistance to:		
		1	2	3	4	5&6				Ldg.	Shat.	Smuts
GRAIN FOR MILLING												
AC Antoine	XX	97*	112*	96*	86*	93*	-1	38	35	G	XX	I
AC Assiniboia ◊	XX	98	95	92	91	91	1	37	39	G	G	R
AC Juniper ◊	107	95	107	100	97	101	-1	39	35	VG	G	I
AC Medallion ◊	XX	102	103	96	97	95	3	38	36	F	XX	R
AC Morgan ▲	XX	109	118*	113	107	105	2	38	39	VG	XX	I
AC Pinnacle ▲	XX	110	116*	107	95	98	5	38	35	F	XX	R
AC Preakness ◊	99	106	105	94	98	101	3	38	36	F	G	R
AC Rebel ▲	XX	104	102	99	96	96	3	38	33	G	XX	R
AC Ronald ▲	XX	88*	96*	95*	80*	90*	3	39	35	VG	XX	R
Calibre	99	107	102	98	95	100	1	40	35	F	G	S
CDC Boyer	100	97	106	97	98	98	0	38	38	G	G	S
CDC Dancer ▲	XX	83*	106*	103*	88*	96*	-3	40	33	G	XX	R
CDC Pacer	XX	107	108	103	103	101	2	39	37	F	G	R
Derby	107	104	103	100	97	99	1	40	36	G	G	S
Jasper	107	96	98	95	94	95	-2	40	34	F	G	S
Triple Crown ◊	XX	108	107	99	103	99	3	38	35	G	XX	I
GRAIN FOR FEED												
Cascade	100	100	100	100	100	100	100	38	34	G	G	S
AC Mustang	113	112	109	109	111	111	1	40	35	G	G	I
Grizzly †	99	94	95	94	94	92	1	40	36	F	G	S
SW Exactor ▲	XX	108	120	104	97	102	2	38	35	VG	XX	I
Waldern	109	109	110	108	107	113	1	37	42	G	G	S
FORAGE												
AC Mustang	113	112	109	109	111	111	1	40	35	G	G	I
Foothill	91	97	86	93	89	91	1	38	30	F	G	S
HULLESS												
AC Belmont ◊	77	78	69	73	71	78	4	41	27	G	G	R
AC Gwen	XX	54*	78*	79*	64*	78*	5	48	33	VG	XX	R
Bullion	XX	70	75*	67	67	72	0	48	28	VG	XX	S