OTAL BARLEY

Otal is a six-rowed spring feed barley (*Hordeum vulgare* L.) developed and released in Alaska by the United States Department of Agriculture and the state Agricultural and Forestry Experiment Station at Palmer. Otal was developed from a cross of the Finnish cultivar Otra, and a breeding line from the Weibullsholm Plant Breeding Institute, Sweden. It was identified at the Agriculture Canada Research Station at Beaverlodge in Alberta as having promise in the Peace River region for its combination of earliness and high yield, and was licensed for sale in Canada.

Key words: Cultivar description, barley, *Hordeum vulgare* L. early-maturity

[Orge Otal.]
Otal est une orge fourragère de printemps à six rangs (*Hordeum vulgare* L.) créée et mise au commerce en Alaska par le ministère de l'Agriculture des États-Unis (USDA) et par la station expérimentale agricole et forestière de Palmer. Elle est issue d'un croisement entre le cultivar finlandais Otra et une lignée génétique de l'Institut d'amélioration des plantes de Weibullsholm, en Suède. Les essais du ministère de l'Agriculture du Canada à la station de recherches de Beaverlodge en Alberta ont mis en valeur ses possibilités pour la région de la rivière La Paix en vertu de ses qualités de précocité et de rendement élevé. Le cultivar a été homologué pour la vente au Canada.]

Mots clés: Description de cultivar, orge, *Hordeum vulgare* L.

Otal is an early-maturing, spring-habit, six-rowed, hulled feed barley (*Hordeum vulgare* L.) developed by the United States Department of Agriculture and the state Agricultural and Forestry Experiment Station, Palmer, Alaska. It was released in Alaska for commercial production in April 1981, and licensed for sale in Canada (no. 2128) in May 1981.

Pedigree and Breeding Methods

Otal was derived from a cross made in Alaska in 1967 between the Finnish cultivar Otra and Weibull 1514-64, a selection of the Swedish Weibullsholm Plant Breeding Institute. Weibull 1514-64 is a selection from the cross: Maja/3/Hanna/Svanhals//Opal/4/Tammi (Weibull 5672/5/Morgenrot (G. Ewertson. Pers. Commun.). Single plant selections were made in the F_2 through F_5 generations. An F_6, designated Alaska 71-II-67-18-57, was harvested and tested as such in Alaska from 1975 to 1980 and as NRG B77-10 and BT655 in Canada. Breeder seed was developed from a bulk of more than 400 F_{10} single plant selections. Otal has also been listed in United States and Canadian national collections as CI 15853 and PGR 1977, respectively.

Adaptation and Performance

This cultivar was released for its combination of earliness, high yield, and good test weight in Alaska, U.S.A., and the Peace River region of Alberta and British Columbia, Canada (Tables 1, 2, and 3).

Description

SPIKES. Six-rowed, medium length, lax to medium density, kernels overlapping at the tip; semi-nodding to nodding; lemma awns rough, long, with green tip; glumes one-half the length of the lemma to slightly shorter, short hairs completely covering the glume; glume awn rough, with green tip, length heterogeneous with approximately equal numbers short, about equal to the length of the glume, and long, about three times the length of the glume; rachis edge tapered, with numerous short hairs; first rachis internode straight.

KERNELS. Midsize, long and narrow; lemma slightly wrinkled, few barbs on lateral veins; aleurone yellow; rachilla, mid-long

Table 1. Summary of yield and agronomic performance of selected barleys at Palmer, Alaska, 1975–1984

Cultivar	Yield (kg ha^{-1})	Days to mature	Test wt. (kg hL^{-1})	Kernel wt. (mg)	Height (cm)	Lodging (1–9)†
Otal	2912	98.6	65.9	37.2	74.2	3.2
Datal	3046	98.7	64.6	36.0	65.3	3.4
Lidal	2822	99.0	63.2	34.5	74.9	2.3
Weal	2890	101.5	60.5	34.4	81.3	2.7
Edda	2890	101.0	63.2	36.9	82.6	3.7

† 1 = no lodging; 9 = completely lodged.

Table 2. Summary of yield and agronomic data from the Western Canadian Cooperative Six Row Barley Test, 1978–1980.

Cultivar	Yield (kg ha^{-1})	Days to mature	Test wt. (kg hL^{-1})	Kernel wt. (mg)	Height (cm)	Lodging (1–9)†
	(52)‡	(40)	(44)	(45)	(42)	(30)
Otal	3558	82.9	62.8	32.7	74.6	3.2
OAC 21	3467	88.4	60.1	36.7	86.0	3.9
Bonanza	4346	90.0	61.9	37.2	83.3	2.7
Johnston	4980	94.9	62.4	37.3	79.7	3.7

† 1 = no lodging; 9 = completely lodged.
‡ No. of station years of data.

Table 3. Yield and agronomic characteristics of several barley cultivars in the Peace River region, Alberta Regional Recommendation Trials, 1979–1981†

Cultivar	Yield (kg ha^{-1})	Yield (as percent of Galt)	Days‡ to mature	Test wt. (kg hL^{-1})	Kernel wt. (mg)	Height (cm)	Lodging‡ 0–9 §	Protein (percent)
	(32)¶	–	(20)	(33)	(33)	(15)	(14)	(29)
Otal	3404	85.8	88.8	64.7	35.3	68.9	3.2	14.6
Olli	3005	75.8	89.0	61.8	34.7	70.3	3.7	14.5
Gateway 63	3285	82.8	91.8	65.0	34.8	66.8	2.5	14.8
Bonanza	3577	90.2	96.2	63.6	38.8	76.7	2.7	13.7
Galt	3966	100.0	97.5	63.7	39.5	65.6	2.4	13.5
Johnston	4472	112.8	99.8	65.3	39.6	72.9	3.6	12.6

† Data are included from two Peace River sites in the province of British Columbia.
‡ Data from province as a whole.
§ 0 = no lodging; 9 = completely lodged.
¶ Number of station years of data.

with short hairs, few abnormal; basal marking, incomplete horseshoe depression.

STRAW. Approximately 8 cm shorter than Bonanza and weaker than Bonanza.

MATURITY. Early, 7 d earlier than Bonanza.

DISEASE REACTION. Otal is susceptible to the common diseases of barley in Alaska and northwestern Canada: barley leaf scald (*Rhynchosporium secalis* (oud.) J.J. Davis); net blotch (*Phyrenophora teres* (Died.) Dreschl.); the three barley smuts (*Ustilago* spp.); and is very susceptible to common root rot (*Bipolaris sorokinians* (Sacc. in Sorok.) and *Fusarium* spp.) as evidenced by subcrown internode staining. Other cultivars registered in Canada of similar maturity are also susceptible to these diseases.

QUALITY. Otal does not meet current U.S.A. or Canadian malting standards. Protein levels have been higher than those of Johnston, Bonanza and Galt (Table 3).

Maintenance and Distribution of Pedigreed Stocks

Breeder seed will be maintained by the USDA at Palmer, Alaska, and has been supplied on loan to Agriculture Canada. In Canada it is being maintained at the Experimental Farm, Indian Head, Saskatchewan S0G 2K0.

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