

**Procedures for Evaluation and Recommendation
for Registration of Canadian Cultivars of Buckwheat
for Western Canada**

February 28, 2008

In order for a buckwheat cultivar to be registered by The Canadian Food Inspection Agency (CFIA) of Agriculture and Agri-Food Canada, a recommendation of support for registration must be obtained from the Prairie Recommending Committee Pulse and Special Crops (PRCPSC). To obtain that recommendation the candidate cultivar must be evaluated and meet the standards in the Buckwheat Co-operative Registration Tests, usually for a minimum of two years. In order to be evaluated in these trials the sponsor of the candidate cultivar must obtain permission to enter the candidate cultivar into those trials.

Submission of data for support for registration:

The data submitted for consideration for support for registration must include all data generated from all years in which the entry was included in the Buckwheat Co-operative Registration Tests in comparison with the designated check cultivar. When presenting a candidate for consideration for support for registration it must be compared to the designated check variety which was in place at the time of entry into the Co-operative Registration Test. The data submitted may also include other pertinent supplementary data available. The PRCPSC will judge the acceptability of supplementary data. Under normal circumstances a candidate cultivar requires a minimum of two years of Registration Test data to be considered for support. Under unusual circumstances, with agreement of the PRCPSC, consideration for support may be given in less than two years. Unusual circumstances are judged to be exceptional merit in any one or more characteristics as compared to the appropriate check(s). A yield increase of greater than five percent, a unique plant habit which gives a large advantage over the normal (ie. semi-dwarf that drastically reduces lodging), exceptionable disease resistance or insect resistance or exceptionable seed quality would be considered as unusual circumstances.

All relevant data, including screening and laboratory data judged to be acceptable and useful by the PRCPSC, may be used in support of registration in addition to official test data. When appropriate, grain quality market acceptability or pilot scale test data will be considered in support of registration. Market acceptability, in this situation does not refer to market harm caused by socioeconomic factors. Agronomic data on or from tests grown outside of the Co-operative Test region are normally not acceptable.

The principle of merit is used by the members of the PRCPSC in their decision regarding the support of a candidate for registration. The candidate cultivar must demonstrate merit when compared to the check and other registered cultivars. A candidate has merit when, considering all traits including agronomic performance, disease reaction and end-use suitability, its overall performance is equal to or better than the check cultivar(s) with which the candidate has been compared during the two years of testing. It is recognized that certain criteria are mandatory for certain regions or market classes and that minor deficiencies in certain parameters may be outweighed by advantages in others. The sponsor must demonstrate that the candidate cultivar has the desired end-use characteristics for its intended market class.

A written summary of the data and the request for support for registration must be received by all members of the PRCPSC and by the Canadian Food Inspection Agency - Variety Registration Office at least one week prior to the annual meeting of the PRCPSC for support of registration to be considered at that meeting.

Once a candidate cultivar has been supported for registration, both the sponsor and the secretary of the PRCPSC, shall submit the data summaries, along with copies of letters of support from the PRCPSC to:

Variety Registration Office
Plant Products Division
Plant Products Directorate of the Canadian Food Inspection Agency
59 Camelot Drive

A fee that has been established by the coordinator and Buckwheat Workers' Committee (see Appendix A), together with the co operators, will be charged for the inclusion of all lines entered into the preliminary and cooperative trials. This fee will be ratified annually by the PRCPSC. The monies collected will be utilized by the coordinator to prepare Registration Trials, obtain disease reactions, conduct quality evaluation, analyse data and to prepare and distribute test results.

Requirements to be met in order to obtain entry into the Buckwheat Co-operative Registration Test:

A minimum of two station years of data collected from scientifically sound, replicated field trials is required from locations within Canada. The data must show that the potential entry meets at least the minimum requirements for end-use suitability, marketplace identification, disease reaction and agronomic performance as determined by its performance relative to appropriate check cultivars. The potential entry must be compared to the Buckwheat cooperative registration test check cultivar designated to be used in the pre registration test that year(s). (see Appendix A).

Agronomic data in comparison to these check cultivars must include grain yield data from two station years and days to 100% bloom, plant height, test weight, and 1000 grain weight from one, but preferably from two, station years. Disease reaction data is not mandatory for entry, however, if no information is provided the potential entry will be assumed to be susceptible. Downy mildew is the main disease that affects buckwheat in Canada.

Additional data for all the above parameters may be useful, especially when it becomes necessary to eliminate potential entries due to lack of space in the trials. The maximum total number of entries in any one Buckwheat Co-operative test is limited to twenty-five by the availability of resources. In the event that requests for entry exceed that total, the test co-ordinator(s) and the Buckwheat Workers' Committee, in consultation with contributing breeders, will determine which entries are to be included. This decision will be based on the merits of the potential entry relative to appropriate checks as determined by the data submitted for entry and on an equitable and fair allocation of entry numbers per contributor. The minimum amount of clean seed required for each year of entry is 1.0 kg. Request for entry with the necessary supporting data must be supplied to the test co-ordinator (see Appendices A and B), at least one week prior to the annual meeting of the PRCPSC. The date of that meeting may be obtained from the test co-ordinator by December 31 of the previous year.

One kilogram of untreated viable and disease free seed of each entry is required. The seeds must be received by the co-ordinator by May 1. A germination of 85% will be assumed unless the sponsor supplies other information.

Buckwheat Co-operative Registration Test Procedures:

Standard procedures require that the PRCPSC evaluate all candidates in these trials for two years prior to consideration.

The test is grown annually at 3-5 locations (Appendices A and B) throughout Canada with data collected

for grain yield, test weight, and 1000 seed weight at all sites. Other data is collected as appropriate and feasible and includes, days to 100% bloom, maturity (percent seeds turned brown at harvest), plant height, resistance to lodging, %hull and % protein, seed uniformity, seed coat colour and groat colour.

Check cultivators are determined annually by the Buckwheat Workers' Committee and should be consistent throughout the two year test period of a particular candidate cultivar. Checks may be included in the trials for agronomic, quality or disease resistance purposes and normally include the best available registered cultivars.

All tests are managed and harvested according to standard and sound agronomic and scientific practices as appropriate for each test site. Acceptable coefficient for variation (cv) for seed yield is 20. At the present time no "special management" practices can be performed for any candidate cultivar. If the sponsor can demonstrate the need for special management of a candidate cultivar, new testing procedures may be developed.

Unless notified by the entry sponsor one week prior to the next PRCPSC annual meeting that a particular entry is to be retained for a further year of testing the entry will be dropped from the test. Retention of existing entries for further testing is subject to approval by the co-ordinator and the Buckwheat Workers' Committee in consultation with the sponsors. Judgement of the merit of the entry for retention will be made based on the data collected during the previous year(s) of the Buckwheat Co-operative Registration Test. Inferior performance will include disease susceptibility, poor plant characteristics, i.e. severe lodging, and/or poor seed quality.

Off-types and variants in candidate cultivars will be noted during the testing procedure and the sponsor will be notified via the test co-ordinator's annual report.

The co-ordinator, all co-operators and the PRCPSC will strictly adhere to the professional code of ethics as developed by the PRCPSC.

Appendix A

I. Buckwheat Cooperative Test A as of February 28, 2008.

(A) Coordinator:

Dr. Clayton Campbell, Kade Research Ltd., 126 Southpark Street, Morden, MB R6M 1H1
phone: 204-822-7235; fax: 204-822-5960; email: kaderes@mts.net

(B) Buckwheat Workers' Committee:

The Buckwheat Workers' Committee, is made up of Dr. Clayton Campbell, Coordinator Test A; Mr. Gerald Loepky, Coordinator Test B; representatives of the Manitoba Buckwheat Growers Association; Mancan Genetic Ltd.; and a representative of the PRCPSC as designated by the chair of the PRCPSC. This is not to be a closed meeting as any other individuals who are active in buckwheat cultivar development are allowed to attend and participate. The Buckwheat Workers' Committee is responsible to determine its own chair.

(B) Check Cultivars:

Koma - 2008 first and second year Registration Test entries

(C) Test Sites:

Morden, Portage la Prairie, Bow Island and an additional site in western Canada

Pathology

- Disease evaluations must be conducted under the supervision of a pathologist member of the PRCPSC.
- Any candidate cultivar to be licensed with a pesticide requirement can only be considered if the pesticide is registered for use in Canada.
- Total numbers of candidate cultivars will be limited to test facilities.
- Appropriate check cultivars must be included.

Quality

- Quality evaluation requirements will remain the same as in the current Cooperative Registration Test system.
- Total numbers of candidate cultivars will be limited to test facilities.
- Appropriate checks cultivars must be included.

Fee for inclusion of candidate cultivars.

- Cooperative Trial: up to \$75.00 per plot per entry depending on the cooperators needs.

Appendix B

I. Buckwheat Cooperative Test B as of February 22, 2007.

(A) Coordinator:

Mr. Gerald Loeppky, ICMS, Box 67 station Main, 2375 Saskatchewan Ave. E, Portage la Prairie, MB.
R1N 3B2, LOEPPKY@ICMS-INC.COM

(B) Buckwheat Workers' Committee:

The Buckwheat Workers' Committee, is made up of Dr. Clayton Campbell, Coordinator; Mr. Gerald Loeppky, Coordinator Test B; representatives of the Manitoba Buckwheat Growers Association; Mancan Genetic Ltd.; and a representative of the PRCPSC as designated by the chair of the PRCPSC. This is not to be a closed meeting as any other individuals who are active in buckwheat cultivar development are allowed to attend and participate. The Buckwheat Workers' Committee is responsible to determine its own chair.

(C) Check Cultivars:

Koma - 2008 first and second year Registration Test entries

(C) Test Sites:

Carberry, Portage la Prairie, Winkler, MB. Testing to be conducted by the Canada-Manitoba Crop Diversification Centre (C-MCDC) and/or Integrated Crop Management Services Incorporated (ICMS Inc). Data to be analyzed and report created by Gerald Loeppky.

Pathology

- Disease evaluations must be conducted under the supervision of a pathologist member of the PRCPSC.
- Any candidate cultivar to be licensed with a pesticide requirement can only be considered if the pesticide is registered for use in Canada.
- Total numbers of candidate cultivars will be limited to test facilities.
- Appropriate check cultivars must be included.

Quality

- Quality evaluation requirements will remain the same as in the current Cooperative Registration Test system.
- Total numbers of candidate cultivars will be limited to test facilities.
- Appropriate checks cultivars must be included.

Fee for inclusion of candidate cultivars.

- Cooperative Trial: up to \$125.00 per plot per entry depending on the co operators needs.

**CODE OF ETHICS
FOR PLANT BREEDERS AND CO-OPERATORS
CONDUCTING CULTIVAR REGISTRATION TRIALS IN CANADA**

The mutual interests of all engaged in cultivar development and evaluation are served by a climate which engenders the greatest freedom of communication and exchange of breeding material, while at the same time providing adequate safeguards to the originator of any material.

It is the desire of all breeding institutions to receive credit for their discoveries and to recognize the discoveries of other institutions, both privately and publicly funded. For this reason, it is recommended that breeders, institutions, and companies conducting cultivar trials for registration purposes in Canada subscribe to the following code of ethics:

A) GENERAL

In case of conflict between this code and any provincial or federal legislation such as plant breeders' rights, the legislation would prevail.

B) WRITTEN PERMISSION NOT REQUIRED

Material registered and/or commercially available as a cultivar in any country, may be used without permission of the breeder, as parental material for making crosses or for induction of mutations, for the purpose of creating other cultivars.

C) WRITTEN PERMISSION REQUIRED

1. Material not registered and/or commercially available as a cultivar in any country may not be used as parental material in a breeding program with the written permission of the breeder.
2. When the repeated use of a cultivar is required for the production of seed of another cultivar, the written permission of the breeder must be obtained. This does not preclude the use of a registered cultivar as a recurrent parent in a backcross-breeding program.
3. Selection within a normally self-pollinated cultivar for the purposes of creating a new cultivar may only be done with the written permission of the breeder.
4. The isolation of parental lines that are present as mixtures in hybrids and any use of them may only be made with the written permission of the breeder.
5. Material not registered and/or commercially available as a cultivar in any country may not be distributed for purposes other than registration tests without the written permission of the breeder.
6. Seed multiplication of any unregistered cultivar, for purposes other than for the production of seed stocks for registered trials, may only be made with the written permission of the breeder.