

# AGRI-FACTS

Practical Information for Alberta's Agriculture Industry

Revised June 2009

Agdex 120/45-1

## How to Purchase High Quality Forage Seed

Here are guidelines on purchasing good quality forage seed from the standpoint of purity and appropriate grade for farm use, including aspects such as land reclamation, soil conservation, green cover, wildlife grazing or habitat and wetland restoration.

Farm users are particularly concerned that forage seed does not contain unwanted weed seeds. It is best to purchase forage seed that is completely weed free. However while some weed-free seed lots are available, it is impossible to achieve this goal in most cases. So it is necessary to know how to determine what types of weed seeds are present in forage seed offered for sale. By also knowing which weed seeds are undesirable on the field to be seeded, producers can then buy the appropriate seed.

### Weed control legislation in Alberta

The province of Alberta protects the productivity of agricultural land by regulating weed distribution and growth through the *Alberta Weed Control Act*. Plants are categorized as restricted, noxious or nuisance weeds, depending on the degree of threat they present to farmland. In addition, a local municipality may elevate weeds to a higher category for land under their jurisdiction. Contact local agricultural fieldmen or other appropriate local authorities to determine which weeds are restricted or noxious in specific municipalities.

### Canada Seeds Act

All seed in Canada is graded according to the *Canada Seeds Act and Regulations*. An abbreviated Table VIII from the Regulations is included in this factsheet to show the present grade standards for the different classes of common legume seeds (Table 1). Forage seed tables of grade standards appear in Tables VIII to XII of the Seeds Regulations and vary slightly depending on the legume or grass crop to which they apply.

Weed seeds are categorized as Class 1 prohibited noxious, Class 2 primary noxious, Class 3 secondary noxious, Class 4 secondary noxious, Class 5 noxious, or Class 6 other weed seeds in the *Canada Seeds Regulations* and are listed in the Weed Seeds Order. The *Canada Seeds Regulations* has recently been revised to upgrade standards of purity, especially in regard to weed seed type and content.

However, weed seeds that are acceptable in seed as regulated by the *Canada Seeds Act and Regulations* may be unacceptable as weeds under the *Alberta Weed Control*

*Act* or in a specific municipality. Avoid planting seeds of restricted or noxious weeds in the applicable municipality or any weed seeds not present in the field to be planted.

Determine the weed seed content of graded seed by examining seed testing certificates before buying seed. The seller must make seed testing certificates available within 30 days of a written request by a buyer.

*Using high quality seed results in better yields and quality.*

**Table 1. Canada Seeds Regulations, Grade table applicable to alfalfa, red clover, sweetclover, and cicer milkvetch**

Maximum number of seeds per 25 g except where otherwise stated							
Grade name	Noxious weeds				Other crops		
	Primary	Primary plus secondary	Total weeds	Sweet-clover	Brassica crops including <i>S. alba</i>	Other non-brassica crops	Minimum per cent germination
1. Canada Foundation No. 1	0	0	5	1	0	5	85
2. Canada Foundation No. 2	0	2	30	2	2	20	70
3. Canada Registered No. 1	0	0	5	1	0	5	85
4. Canada Registered No. 2	0	2	30	2	2	20	70
5. Canada Certified No. 1	0	5	50	20	4	1% by weight	80
6. Canada Certified No. 2	0	10	75	30	6	2% by weight	70
7. Varietal Blend No. 1	0	5	50	20	4	1% by weight	80
8. Varietal Blend No. 2	0	10	75	30	6	2% by weight	70
9. Common No. 1	0	5	75	25	8	2% by weight	80
10. Common No. 2	5	10	100	50	10	3% by weight	70

- i. For any kind or species not set out in Schedule I and having 251 to 600 seeds per gram, seed shall meet the minimum weed seed and other crop seed standards set out in Table VIII. (6(2)(d))
- ii. Column 5 of Table VIII to Schedule I does not apply to sweetclover seed. (7(6))

## Seed testing certificate

A seed testing certificate is available with every lot of seed graded in Canada. The certificate is issued under the authority of the *Canada Seeds Act*. It enables the seed purchaser to determine the germination and purity of a seed lot. Seed testing is carried out by an accredited laboratory.

The seed testing certificate contains the following:

- Seed testing certificate number, assigned by an accredited laboratory and some authorized establishments.
- A twelve-digit crop certificate number, assigned by the Canadian Seed Growers' Association for the classes of pedigreed seed. It is not present for common seed. It is also present on the seed bag tags of pedigreed seed. The crop certificate number gives the following:
  - The first two digits represent the year in which the crop was produced.
  - The third digit identifies the location of the grower who produced the seed. For example, if the third number is eight, the seed was produced in Alberta.
  - The fourth through ninth digits identify the grower who produced the seed.
  - The tenth digit identifies the pedigreed class of the seed. For example, if the tenth number is four, the seed falls into the certified class.
  - The eleventh and twelfth digits are assigned by the Canadian Seed Growers' Association.

- Seed sealing number (i.e. lot number). This is a number assigned by the Canadian Food Inspection Agency, the registered seed establishment or the vendor of common seed. It also appears on the seed tags.
- Crop kind. In the case of pedigreed seed, the variety name is also included (i.e. for certified class and higher).
- Grade (e.g. Canada Certified No. 1, Common No. 1 etc.).
- Sample size. The grading is based on 25 grams according to the grade tables.
- Amount and name(s) of prohibited, primary and secondary noxious weeds, other weeds and seeds of other crops. Both Latin and common names are included, except for the other weeds category.
- Per cent pure seed, other crops, weed seeds and inert matter when applicable.
- Per cent germination, hard seeds (applicable to legume seeds) and pure living seeds. Hard legume seeds are included in the per cent germination even though they do not germinate during a germination test.
- Place and date of analysis as well as name of the seed analyst. All seed certificates must be signed and stamped by a seed analyst to be official.

Seed testing certificates should be examined before making a final decision about which seed lot to purchase. A copy of the information from the certificate should be filed with the field records. A sample of a seed testing certificate is included below (Figure 1).

**APPENDIX II SEED GRADING REPORT FORM**

**SEED GRADING REPORT**

**RAPPORT DU CLASSEMENT DE SEMENCE**

Name and Address of Owner / Vendor / Nom et Adresse du Propriétaire / Vendeur	
Variety / Variété	Kind / Espèce
Crop Certificate No./ N° du certificat de récolte	Lot No. / N°, du lot

**NAME AND NUMBER OF IMPURITIES / NOM ET NOMRE D'IMPURETÉS**

PROHIBITED NOXIOUS WEEDS MAUVAISES HERBES NUISIBLES INTERDITES	In / En g / Kg	per g/Kg	OTHER WEED SEEDS AUTRES GRAINES DE MAUVAISES HERBES	In / En g	per g/Kg
PRIMARY NOXIOUS WEEDS MAUVAISES HERBES NUISIBLES PRINCIPALES	In / En g / Kg	per Kg			
TOTAL PRIMARY / TOTALES PRINCIPALES					
SECONDARY NOXIOUS WEEDS MAUVAISES HERBES NUISIBLES SECONDAIRES	In / En g / Kg	per Kg	TOTAL WEED SEEDS GRAINES DE MAUVAISES HERBES NUISIBLE EN TOTAL		
			OTHER CROP SEEDS SEMENCES D'AUTRES ESPÈCES		per g/Kg
			TOTAL OTHER CROP SEEDS SEMENCES D'AUTRES ESPÈCES EN TOTAL		
TOTAL PRIMARY PLUS SECONDARY SEMENCES DE MAUVAISES HERBES PRINCIPALES ET SECONDAIRES EN TOTAL	In / En g / Kg	per Kg	ERGOT BODIES / ERGOT SCLEROTIA / SCLEROTIA	In / En g / Kg	per g/Kg

Germination Certificate No. N° du certificat de germination	Germination  %	Date of Test Date de l'épreuve	Disease Test Certificate No. and Results N° du certificat de l'épreuve de maladie et les resultats
Comments / Commentaires		Name of Lab / Nom du laboratoire	
		Grade / Catégorie	
Signature of Grader / Signature du classificateur		Date	Licence No. / N° du permis

Figure 1. Generic seed testing certificate.

# Official seed sealing tags

All graded seed offered for sale will have a tag attached (or an invoice showing the same information will accompany the sale). Official seed tags may be issued by the Canadian Food Inspection Agency or by authorized establishments (Figures 2 to 5). The tag gives the following information:

- Crop kind: e.g. alfalfa.
- Variety: e.g. Algonquin. Variety names are applicable only to certified or higher classes of seed, but not to common seed.
- Grade and class of seed: e.g. Canada Certified No. 1.
- Crop certificate number, applicable to certified or higher classes of seed, but not to common seed (see notes above).
- Seed sealing number. Seed from each lot of seed has a different number.

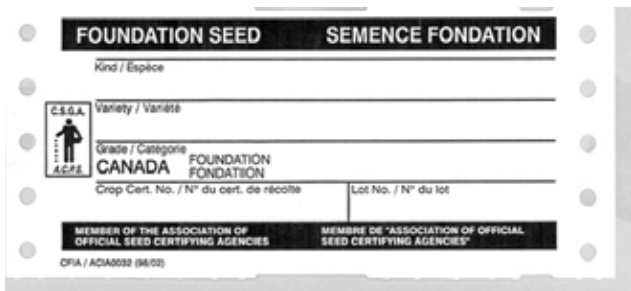


Figure 2. Official foundation seed tag (white).

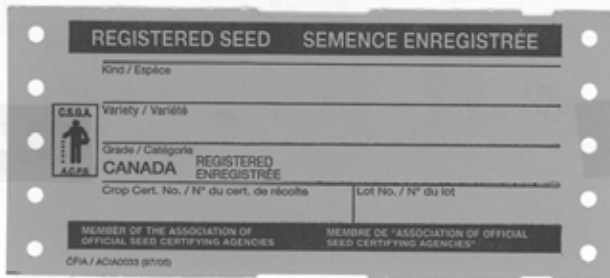


Figure 3. Official registered seed tag (purple).

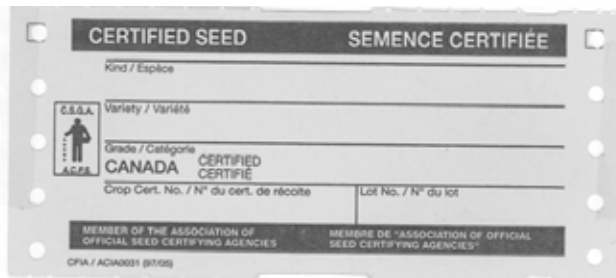


Figure 4. Official certified seed tag (blue).



Figure 5. Official inter-agency certification seed tag (white with red print).

Seed tags should be kept with field records in case a problem relating to the seed arises. By referring to the crop certificate number and the seed sealing certificate number, it is possible to trace the place of origin and the seed testing certificates of the seed.

## What grade of seed should be purchased for farm use?

The general answer to this question is that Certified No. 1 seed is the most appropriate for farm use as it is the most likely to have high quality and purity. Certified seed has a pedigree, i.e. it is of a known variety. The need for variety identification becomes greater as more varieties with specific adaptations are developed and more seed is imported from foreign sources with different climates from that of Alberta. Many crop kinds used for forage purposes are subject to variety registrations as listed in Schedule III of the *Canada Seeds Regulations*.

Certified seed is produced from registered, foundation or breeder seed and gives consistent field performance regardless of where the seed was produced. Certified seed is grown according to standards set by the Canadian Seed Growers' Association to prevent contamination or cross pollination by other varieties, etc. Annual field inspections by the Canadian Food Inspection Agency inspectors ensure these standards are adhered to. Imported certified seed must meet equivalent standards recognized by the Canadian Food Inspection Agency. Certified seed must be analyzed and graded by an accredited laboratory or by an accredited grader.

Canada Certified No. 1 seed has a higher standard for purity and per cent germination than Canada Certified No. 2 seed. On occasion, it is more appropriate to use Canada Certified No. 2 seed; the final choice should be based on careful examination of the seed testing certificates (see examples below).

### Example 1.

A seed lot downgraded to Certified No. 2 due to slightly lower per cent germination can be used satisfactorily at a slightly higher seeding rate. The presence of other crops such as 1.5 per cent red clover in alfalfa, intended for farm use in western Alberta, may be of little consequence, yet it will result in the downgrading of seed from Certified No. 1 to Certified No. 2.

### Example 2.

Decisions related to weed content must be based on the specific weed seeds present. It may be unacceptable to purchase seed containing any scentless chamomile seed (Class 3 secondary noxious weed under the Canada Seeds Act), yet there can be 4 or 5 seeds per 25 gram in most Certified No. 1 forage seed kinds. On the other hand, it may be acceptable to plant forage with 6 stinkweed seeds (Class 3 secondary noxious weed) per 25 gram even though this situation would cause most forage crop kinds to be graded as Certified No. 2 seed.

Forage seed graded as common seed is of limited value for farm use. Common seed may be produced from pedigreed or common seed. There are no field production standards or field inspections, and the seed does not have to be graded by an accredited lab. It is regulated by the *Canada Seeds Act and Regulation* to control standards for purity and per cent germination. The tolerance of weed seeds is generally higher than for other grades of seed. Seed certificates should be examined to determine what weed seeds are present in specific seed lots. Variety names are not applicable to common seed. Agronomic performance is variable since the seed may be produced from different varieties or non-varieties. One lot of seed may contain seed mixed from more than one source.

Common seed is acceptable for forage production with forage crops where the choice of variety is not an important factor relating to adaptability or yield. For example, it is acceptable for single cut red clover, alsike clover and creeping red fescue and for sweetclover for plowdown. It is also acceptable for conservation or reclamation purposes where the forage crop kind is generally well adapted and where yield is of secondary importance. Examples include creeping red fescue, crested wheatgrass and most other wheatgrasses.

Some species, such as cicer milkvetch, do not require varieties to be registered for use in Canada according to the *Canada Seeds Regulations* Schedule III. However, pedigreed seed for this species can still be produced and purchased for use. Seed can be inspected and assigned a class, resulting in its ability to be labeled with an official pedigreed seed tag (Figure 6). However, its grade will not be determined.

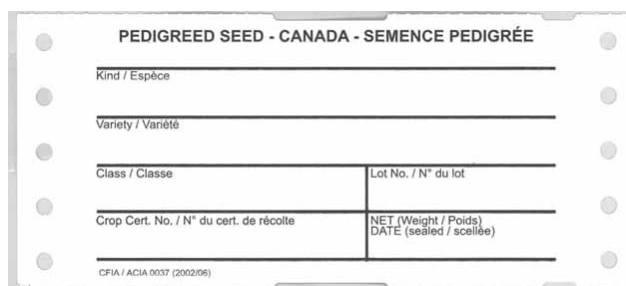


Figure 6. Pedigreed official seed tag for forage species not requiring variety registration (white with blue print).

## Use of mixed seed

In some cases, it is desirable to purchase pre-mixed seed. However, the following procedures should be followed to be sure the mixed seed is of high quality.

- Select seed ingredients of high quality and have the mixture made up as a custom mixture.
- Supervise the seed mixing if there is any doubt that quality will not be maintained.

For simplicity and to reduce costs, many farmers purchase pre-mixed seed as advertised in seed catalogues. These are usually Common No. 1 Forage Mixtures, but may be Certified No. 1 or Certified No. 2 Forage Mixtures. The disadvantages of pre-mixed forage seed mixtures are as follows:

- Most mixtures contain seed of several different crop kinds. This mix may reduce yield. Some of the crop kinds may not be suited to the specific environment or use that will be made of the crop.
- Purity and quality levels of common mixtures are often low. For example, a Canada Certified No. 1 Forage Mixture or Common No. 1 Forage Mixture of alfalfa and brome grass can have 10 secondary noxious weed seeds per 25 grams compared to 4 or 5 when the seeds are purchased separately.
- Mixtures are sometimes made by blending seeds of lower grade or even seed that will not make any grade. As a result, the weed seed content and/or per cent germination will frequently approach the maximum levels allowed for the forage mixture grade.
- Small forage seeds tend to settle out of mixtures during planting. The resulting forage stand will not be uniform.

The labelling of forage seed mixtures is regulated by the *Canada Seeds Act and Regulations*. In forage seed mixtures where seed from all the component species is certified seed, an official certified seed mixture tag must be supplied (Figure 7). This tag must include the name and percentage of each species, as well as the corresponding

variety name for each species. In cases where one or more component species of the mixture is classified as common seed according to the *Canada Seeds Act and Regulations*, the official certified seed mixture tag may not be used and a company seed mixture tag supplied instead.

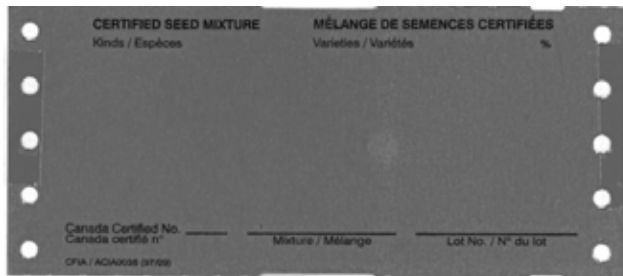


Figure 7. Official certified seed mixture tag (green).

When looking to purchase a forage seed mixture, make sure you request a copy of the seed testing certificate to examine carefully before making a purchase.

## Step-by-step procedure for purchasing high quality seed

- Determine the crop kinds, amount and varieties to purchase.
- Contact two or more seed firms or dealers well before seeding time (by March for spring seeding). Indicate the crop species, variety and quantity of seed required. Request that seed certificates be available for examination.
- Based on an examination of seed certificates, determine which lots of seed to buy. Record the crop certificate numbers of the lots selected for further reference and confirmation with the seed tags. Know what minimum quality in terms of variety choice, weed seed content, etc. is acceptable, and do not purchase seed of a lower quality.
- Purchase individual crop kinds rather than pre-packaged mixtures. The purchase of individual crop kinds has the following advantages:
  - Higher purity and other quality standards.
  - Legume components can be inoculated separately with the appropriate inoculant shortly before seeding.
  - Many seed drills require that different seeds be placed in different seed boxes.
  - The seed can be mixed shortly before seeding for the specific needs of the field to be planted and the use to be made of the crop.
- Purchase the correct fresh inoculant for legume seeds or buy pre-inoculated seed from a reputable source. When buying inoculant or pre-inoculated seed, always check for the expiry date of the inoculant. Seeding must take place before the expiry date of the inoculant for optimum results.
- Store seed in a dry, cool, rodent-free storage area. Store inoculant in a cool, dark location, such as a refrigerator. Avoid intermittent freezing and thawing of inoculant.

## Tendering seed

When individuals or municipalities purchase forage seed in large volumes, it may be preferable to tender seed orders to minimize purchase costs. In this situation, the seed order must be made up in a complete and exact manner to maintain good quality control and still be fair to sellers offering seed. The following should be included:

- Describe the seed to be purchased accurately and completely, indicating quantity, crop kind, variety and grade.
- A quality better than the grade indicated may be asked for in the order. For example, no scentless chamomile or sweetclover could be specified in the order even though the grade indicated permits their presence.
- If mixtures are being ordered, it may be specified that components of a specific quality be used. For example, it may be specified that only Certified No. 1 seed with no scentless chamomile be used. It may also be specified that the buyer or an agent for the buyer will supervise the mixing of the seed.
- Inspection of seed certificates to verify quality before making a final decision on purchases is reasonable. For large orders, companies may only hold an option to buy a given lot of seed. In this case, an affidavit indicating the grade, purity and per cent germination is satisfactory to verify quality. Final verification with seed certificates can be made before paying for the seed.
- On very large orders of pre-mixed seed, the mixing can be tendered. This approach will permit the purchase of seed on an ingredient basis from the lowest bidder and then having just one company make up the mixture(s).
- It should be specified if the lowest bidder of each ingredient of satisfactory quality will get the order. To be fair to all sellers, substitution of lower quality seed should not be accepted unless the specified seed is unavailable.

## Summary

Forage seed quality, especially weed content, has been a concern for as long as tame forages have been grown in Alberta. A major effort is required for seed consumers to know what weeds they already have and to know which “new” weeds represent a risk in their area and on their land. The *Canada Seeds Act and Regulations* and the *Alberta Weed Control Act* do enable forage producers to avoid undesirable weed seeds. The pay-off for using high quality seed is that land will be cleaner, and forage yields and quality will be higher.

### Revised by

Stephanie Kosinski  
Alberta Agriculture and Rural Development

For more information, contact  
Alberta Ag-Info Centre  
Toll-free at 310-FARM (3276)

Website: [www.agriculture.alberta.ca](http://www.agriculture.alberta.ca)