



FEE SCHEDULE 2008/2009

ISO 9001:2000 registered

GERMINATION, PURITY & DISEASE TESTING

CEREAL SPECIES	CANADIAN				AOSA			
	Germ	Purity	% Pure Seed	1000 Kernel Weight	Federal Noxious Weed Exam	Germ	Noxious or Bulk Exam	Purity % Test
Wheat, Barley, Rye, Triticale, Oat	\$24	\$31	\$13	\$12	\$40	\$40	\$44	\$21
Durum Wheat	\$24	\$41	\$13	\$12	\$40	\$40	\$44	\$21

DISEASE TESTING								
Fusarium graminearum Screen	200 Seed Culture	\$39		Smut (Ustilago nuda) - Barley	Embryo Extraction			\$55
Fusarium graminearum Screen	DNA	\$49		Smut (Ustilago tritici) - Wheat	Embryo Extraction			\$55
Fusarium graminearum Screen	Tissue	\$80		Root Rot (Cochliobolus sativus)	200 Seed Culture			\$48
Fusarium spp. ID	200 Seed Culture	\$80		Barley Stripe Mosaic Virus	ELISA			\$70
Fusarium spp. ID	DNA	\$80		Fungal Scan for all Disease	200 Seed Culture			\$100

OILSEED SPECIES	CANADIAN				AOSA				
	Germ	Purity	% Pure Seed	1000 Kernel Weight	Federal Noxious Weed Exam	Germ	Noxious or Bulk Exam	Purity % Test	
Canola, Mustard	5 day count	\$24	\$41	\$13	\$12	\$48	\$38	\$67	\$21
Canola, Mustard	5 & 7 day count	\$35							
Sunflower, Safflower, Soybean	7 day count	\$24	\$41	\$13	\$12	\$48	\$38	\$67	\$21
Flax, Solin	7 day count	\$24	\$36	\$13	\$12	\$48	\$38	\$67	\$21

DISEASE TESTING								
Blackleg Initial Scan (Leptosphaeria maculans)	1000 Seed Culture	\$43		Alternaria spp.	200 Seed Culture			\$41
Blackleg Virulence Test	Culture Test	\$43		Sclerotinia spp.	200 Seed Culture			\$37

PULSE SPECIES	CANADIAN				AOSA			
	Germ	Purity	% Pure Seed	1000 Kernel Weight	Federal Noxious Weed Exam	Germ	Noxious or Bulk Exam	Purity % Test
Pea, Lentil, Bean, Chickpea	\$24	\$31	\$13	\$12	\$40	\$40	\$44	\$21

DISEASE TESTING								
Ascochyta spp.	Seed Culture - Pea, Lentil, Bean, Chickpea	\$50		Anthracoze spp.	Seed Culture - Lentil, Bean, Chickpea			\$50
Botrytis spp.	Seed Culture - Pea, Lentil, Bean, Chickpea	\$50		Disease Package	Seed Culture - Pea, Lentil, Bean, Chickpea			\$100
Sclerotinia spp.	Seed Culture - Pea, Lentil, Bean, Chickpea	\$50						

OTHER CROP SPECIES	CANADIAN				AOSA			
	Germ	Purity	% Pure Seed	1000 Kernel Weight	Federal Noxious Weed Exam	Germ	Noxious or Bulk Exam	Purity % Test
Corn, Sorghum, Millet, Hemp, Sainfoin, Buckwheat, Canary Grass	\$24	\$31	\$13	\$12	\$40	\$40	\$44	\$21

FORAGE AND GRASS SPECIES	CANADIAN			AOSA				
	Germ	Purity	% Pure Seed	Federal Noxious Weed Exam	Germ	Noxious or Bulk Exam	Purity % Test	
Alfalfa, Large Seeded Clovers	\$22	\$32	\$13	\$48	\$38	\$67	\$21	
Alsike, White Clover	\$22	\$33	\$13	\$40	\$40	\$67	\$21	
Timothy, Trefoil	\$22	\$33	\$13	\$40	\$40	\$48	\$21	
Bromegrass, Ryegrass*	\$29	\$47	\$15	\$72	\$51	\$87	\$29	
Fescues*	\$29	\$52	\$15	\$44	\$51	\$52	\$29	
Reed Canarygrass*	\$29	\$57	\$15	\$72	\$51	\$86	\$29	
Foxtail Grasses*	\$29	\$57	\$15	\$72	\$51	\$86	\$29	
Wheatgrasses (Excluding Crested)*	\$29	\$66	\$15	\$72	\$51	\$100	\$29	
Crested Wheatgrass*	\$29	\$52	\$15	\$72	\$51	\$86	\$29	
Russian Wildrye*	\$29	\$52	\$15	\$72	\$51	\$86	\$29	
Altai and Dahurian Wildrye*	\$29	\$66	\$15	\$72	\$51	\$100	\$29	
Bentgrass, Orchardgrass, Bluegrass*	\$35	\$63	\$26	\$72	\$51	\$86	\$29	
Alkaligrass*	\$35	\$63	\$26	\$72	\$51	\$86	\$29	
Native Species - Small	\$37	\$131						
Native Species - Large	\$37	\$71						
Forage Mixtures	The above charge is applicable per component.							
* Purity price includes % Pure Seed test.								

OTHER FORAGE TESTS				
Fluorescence Test (Ryegrass)		\$29		
Fusarium graminearum Screen	200 Seed Culture	\$39		
Fusarium spp. ID	200 Seed Culture	\$80		
Fusarium graminearum Screen	Tissue (Straw, Hay)	\$80		

APHIS DOCUMENTATION		
Aphis Certificate (Document only)		\$12

VEGETABLES, HERBS AND FLOWERS	CANADIAN		
	Germ	Purity	% Pure Seed
All species	\$29	\$32	\$26

Federal noxious weed examination is required to meet USDA regulations for export to the United States. USDA-APHIS form PPQ 925 is for Canadian grown or US returned seed. If the seed to be exported to the US is not Canadian grown or US returned seed, or not listed in the US Federal Seed Act as an agricultural or vegetable seed, then form CFIA-5289 provided by the Canadian Food Inspection Agency is required. Canadian purity analysis includes % pure seed where required to grade. Prices for analysis of native species not listed in the Canadian Methods and Procedures may be affected by weight and degree of difficulty of analysis.

VARIETAL PURITY, NOVEL TRAIT TESTING, GRAIN TESTING, SEED HEALTH

VARIETAL PURITY TESTING					SEED HEALTH					
Barley	Percentage of Varietal Purity	HPLC	Approx. 1000 Seeds	\$100	Cereals	Cool Stress Test	Uniformity of Emergence under Cold Conditions	Manual Method	\$38	
Wheat, Winter Wheat	Percentage of Varietal Purity	Acid-PAGE	48 Seeds	\$165	Oilseeds	Cool Stress Test	Uniformity of Emergence under Cold Conditions	Manual Method	\$50	
Wheat (Durum), Oat, Pea	Percentage of Varietal Purity	IEF	48 Seeds	\$165		Controlled Deterioration	Seed Germination after Aging (Storeability)	Manual Method	\$75	
						Chlorophyll Content	Seed Maturity	Spectrometric Method	\$70	
						Green Seed - Canola	Seed Maturity	Visual Assessment	\$15	
						Pulses	Cold Stress Test	Uniformity of Emergence under Cold Conditions	Manual Method	\$50
							Electrical Conductivity - Peas	Seed Coat Integrity and Mechanical Damage	EC Meter	\$50
						All Crops	Tetrazolium - All Crop Species	Seed Respiration	Manual Method	\$44

CLUBROOT TESTING				
Clubroot (Plasmodiophora brassicae)	Presence/Absence of Plasmodiophora brassicae	PCR - Soil or Tissue	\$70	

GRAIN TESTING				
Vomitoxin		\$25		
Ochratoxin		\$40		
Protein		\$27		
Moisture Percent		\$18		
Falling Number		\$25		

DOCUMENTATION FEES		
Rush Surcharge		\$40
Additional Fax		\$5
Additional Certificate		\$5
Test Cancellation Fee		\$15

SPECIAL PREPARATION		
Germination of Treated/Coated Seed	Seed Coatings	\$10
Purity on Treated Seed	Removal of Seed Coating	\$20
Germination in Soil	Soil Preparation	\$10

All tests will be conducted according to Canadian Methods and Procedures unless otherwise directed by the client. If you do not see the test you are interested in on this list, please contact us at: 1-800-952-5407.

BioVision Seed Labs supports the Plant Breeders' Rights Act, the Alberta Fusarium graminearum Management Plan and the Alberta Clubroot Management Plan.

DISEASE TESTS

BLACKLEG (*LEPTOSPHAERIA MACULANS*)

Virulent blackleg is an aggressive disease of canola. As high as 80% reduction in yield has been reported. Virulent blackleg spreads via infected seed and by wind or rain dispersal of fungal spores from infected canola stubble.

ALTERNARIA (*ALTERNARIA BRASSICAE* AND *ALTERNARIA CARTHAMI*)

Alternaria brassicae is a fungus which survives on canola seed and plant debris and causes a disease known as "Black Spot". Severely infected plants will have black spots that occur on stems and pods. Infected pods may contain shrunken seeds causing a reduction in yield and quality. *Alternaria carthami* infects safflower during a wet season and can result in the downgrading of seed quality.

ASCOCHYTA (*ASCOCHYTA* SPP.)

This pathogen causes such diseases as leaf and pod spot and Ascochyta blight. It affects field peas, beans, and lentils, causing seed discoloration and reducing quality.

ANTHRACNOSE (*COLLETOTRICUM TRUNCATUM*)

The pathogen attacks pulse crops reducing yield and seed quality. Anthracnose causes defoliation and stem girdling, which inhibits utilization of water and nutrients, and causes the lentil plants to wilt. As a result, large areas of brown and dying plants can be found in the field.

BOTRYTIS (*BOTRYTIS CINEREA*)

Seed from severely infected crops is often discolored and shriveled. If infected seed is used for planting, plant establishment is usually poor, due to low germination and increased seedling blight. Blighted seedlings emerge, but are yellow, stunted, and usually die after one or two weeks. When grey mold-infected seedlings are pulled up, grey mycelium can often be found on the stems just below the soil line.

FUSARIUM (*FUSARIUM* SPP.)

This pathogen attacks cereals causing head blight (scab) and "tombstone kernels". This disease is typically found in areas which receive high amounts of rainfall at heading and filling. Infected seed is lighter in weight and kernels may be white or pinkish. *Fusarium graminearum* infection may lead to high levels of DON (deoxynivalenol) or vomitoxin. Seed with high levels of DON may be harmful to livestock and not suitable for malting or processing.

SMUT (*USTILAGO NUDA* AND *USTILAGO TRITICI*)

This aggressive disease primarily attacks barley and wheat. The fungus over winters as dormant mycelium in the embryo of infected kernels. Once the seed matures the infected heads emerge containing smut spores instead of seed and chaff. BioVision is accredited by CFIA for this analysis in barley.



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GERMINATION TESTS

Replicated seed samples are germinated under environmentally controlled conditions. Moisture, temperature and light are all managed to achieve individual test parameters. Seedlings are evaluated to assess their ability to produce a normal mature plant.

In seedling laboratory practice, germination is defined as the emergence and development from the seed embryo of those essential structures which, for the kind of seed under test, are indicative of the ability to produce a useful, mature plant under favorable field conditions. In a laboratory germination test, the plant-producing potential of a seed sample is evaluated.

Germination results are expressed as a breakdown of normal, abnormal, fresh, hard, and/or dead seeds.

NORMAL SEEDLINGS

Seedlings possessing the essential structures that are indicative of their ability to produce useful mature plants under favorable field conditions.

ABNORMAL SEEDLINGS

All seedlings which cannot be classified as normal seedlings. In general, the following are considered to be essential structures necessary for the continued development of the seedling (although some structures may not be visible in all species at the time of seedling evaluation).

- root system, consisting of primary and/or secondary, seminal or adventitious roots
- hypocotyl
- epicotyl
- cotyledon(s)
- terminal bud
- primary leaves

Seedlings with defects to these structures, as described in the abnormal seedling descriptions, are judged to be incapable of continued growth.

FRESH SEEDS

Seeds which have failed to germinate but have imbibed moisture and appear firm, fresh, and capable of germination at the end of the prescribed test period and under the prescribed test conditions. Such seeds may be viable but dormant.

DORMANT SEEDS

Viable seeds, other than hard seeds, which fail to germinate when provided the prescribed germination conditions.

HARD SEEDS

Seeds which remain hard at the end of the prescribed test period because their impermeable seed coats prevent the absorption of water.

DEAD SEEDS

Seeds which at the end of the test period are neither hard nor dormant nor have produced any part of a seedling.

PURITY TESTS

A contamination check of a seed sample performed in a sequential manner which includes examination for pure seed, other crop seeds, weed seeds, specific disease bodies and inert material. Guidelines and regulations are carefully followed.

In most seed laboratories throughout the world, purity analysis means the determination of the percentage by weight of pure seed, other seeds and inert matter. In Canada, however, such determinations do not fully meet the requirements of the grading system as prescribed by the Seeds Act and Regulations. The principal criteria of purity employed in our grading system are based on the number of weed seeds, other crop seeds and other impurities per unit weight, although in some cases percentages by weight may also be grading factors. The Grade Tables indicate the criteria of purity used in grading the various kinds of crop seeds to which the Regulations apply.

CLUBROOT TEST

Clubroot is a serious soil-borne disease affecting canola and other cruciferous crops from the cabbage family. Clubroot is caused by the Plasmodiophora brassicae parasite which promotes the formation of galls on the root, thus starving the plant of water and nutrients. Testing of soil and plant tissue is conducted using a DNA-based method.

VARIETAL IDENTIFICATION & VARIETAL PURITY

The delivery of quality systems within the seed and grain industry has driven the demand for varietal testing. Varietal identification is the analysis of a sample for the presence of a single variety, while varietal purity is the percentage breakdown of a sample by variety. BioVision employs electrophoresis and chromatography technologies to meet the demand for accurate varietal testing.

MYCOTOXIN TESTS

Mycotoxins are produced by fungi that infect stored and growing cereal crops, and by nature are difficult to destroy. The ingestion of infected grain by animals or humans, will result in severe illness or death. In Western Canada, the most prevalent mycotoxin fungi in grain crops are vomitoxin and ochratoxin.