# TESTING AND CALIBRATION LABORATORY ACCREDITATION PROGRAM (LAP)

## Scope of Accreditation

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| **Legal Name of Accredited Laboratory:** | **Canadian Food Inspection Agency** |
| Location Name or Operating as (if applicable): | Saskatoon Laboratory |
| Contact Name: | Dr. Maria Matus-Cadiz |
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| **SCC File Number:** | 15318 |
| **Accreditation Standard(s)**: | ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories |
| **Fields of Testing:** | Biological<br>Chemical/Physical |
| **Program Specialty Area:** | Agriculture Inputs, Food, Animal Health and Plant Protection (AFAP)<br>Test Method Development and Non-routine Testing (TMDNRT) |
| **Initial Accreditation:** | 1997-11-05 |
| **Most Recent Accreditation:** | 2023-10-26 |
| **Accreditation Valid to:** | 2025-11-05 |

*Remarque: La présente portée d'accréditation existe également en français, sous la forme d'un document distinct.*
*Note: This scope of accreditation is also available in French as a document issued separately.*



Canada

## TEST METHOD DEVELOPMENT & EVALUTATION AND NON-ROUTINE TESTING

### Description of activities – chemical testing:

1. Modification of published / existing methods or development and validation of new methods for screening and determination of chemical residues and contaminants.
2. Development and validation of mass spectral techniques for the confirmation of the identity of chemical residues and contaminants.
3. Development of methods for the assessment and validation of commercially available test kits for the screening and determination of chemical residues and contaminants.
4. Screening, determination, and confirmation of the identity of chemical residues and contaminants for NRT.

### Description of techniques – chemical testing:

1. Gas Chromatography with Mass Spectrometer (MS) detection.
2. (Ultra) High Performance Liquid Chromatography with PhotoDiode Array, UV/Vis, Fluorescence, and Mass Spectrometer (MS, MS/MS) detection.
3. Use of commercially available test kits for screening and determination of chemical residues and contaminants.
4. Sample preparation, extraction, separation and general chemical and physical tests specific to residue and contaminant testing.

### Description of activities – parasitology testing:

1. To develop and validate new methods or modify published/existing methods for the screening and determination of parasites in animals, foods, water, and environmental samples.
2. NRT to meet customer demands.

### Description of techniques – parasitology testing:

1. Microscopic examination, morphological / morphometric identification and enumeration
2. Isolation and culture/propagation
3. Artificial digestion
4. Serological immunoassay (MAT, IFA, ELISA/cELISA, WB)
5. Magnetic capture
6. Somatic and excretory/secretory antigen production
7. Recombinant antigen production in expression systems
8. Monoclonal/polyclonal antibody production
9. Molecular detection and identification (conventional and qPCR, LAMP)
10. DNA extraction
11. Next-Generation Sequencing

**Description of activities – seed testing:**

1) Modification of published / existing methods or development and validation of new methods for determination of germination; purity and identification of other seeds; and viability in plant species of regulatory concern.
2) NRT to meet customer demands.

**Description of techniques – seed testing:**

1. Standard Germination Testing
2. Purity and Identification of Other Seeds Testing
3. Microscopic examination, and morphological identification to aid seed identification
4. Tetrazolium (TZ) Testing
5. Herbicide Bioassay Testing

## ANIMAL AND PLANTS (AGRICULTURE)

**Foods and Edible Products (Human and Animal Consumption):**

**Chemistry**

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| CVDR-M-3003 | Determination of Thyreostats in Tissue by Liquid Chromatography/Tandem Mass Spectrometry<br>Mercaptobenzimidazole, methylthiouracil, phenylthiouracil, propylthiouracil, tapazole, thiouracil |
| CVDR-M-3005 | Determination of Endectocides in Animal Tissues, Milk and Eggs by LC with Fluorescence Detection<br>Abamectin, doramectin, ivermectin, moxidectin, eprinomectin |
| CVDR-M-3007 | Determination of Fluoroquinolones in Animal Tissues by UPLC with Fluorescence Detection<br>Enrofloxacin, ciprofloxacin, danofloxacin, sarafloxacin |
| CVDR-M-3011 | Determination of Tetracycline, Oxytetracycline, Doxycycline, Chlortetracycline in Eggs, Milk and Animal Tissues using LC-UV |
| CVDR-M-3014 | Determinative Method for Protein-Bound Metabolites of Nitrofurans in Muscle, Liver, Canned Processed Pork, Cooked Duck and Milk by LC-MS/MS<br>1-aminohydantoin, 3-amino-5 morpholinomethyl-1,3-oxazolidin-2-one, 3-amino-2-oxazolidinone, semicarbazide |
| CVDR-M-3015 | Determination of Desoxycarbadox in Animal Tissue by LC-MS/MS |
| CVDR-M-3016 | Determination of Melengestrol Acetate, Megestrol Acetate and Chlormadinone Acetate by LC-MS/MS<br>Animal fat |
| CVDR-M-3029 | A Determinative and Confirmatory Method for Residues of Macrolide Antibiotics in Animal Tissues, Milk and Eggs by Liquid Chromatography-Tandem Mass Spectrometry |

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| | Clindamycin, erythromycin, gamithromycin, josamycin, lincomycin, oleandomycin, pirlimycin, neospiramycin, spiramycin I, tilmicosin and tylosin, tildipirosin, tulathromycin |
| CVDR-M-3031 | Determination of Multi-Class Veterinary Drug Residues in Animal Tissues, Milk, and Eggs by LC-MS/MS<br>**Anthelmintics:** pyrantel, morantel, closantel and monepantel<br>**ß Lactams:** amoxicillin, ampicillin, cloxacillin, dicloxacillin, nafcillin, oxacillin, penicillin g, clavulanic acid<br>**Sulfonamides and related residues:** Sulfadiazine, sulfadimethoxine, sulfadoxine, sulfamethazine, sulfaquinoxaline, sulfathiazole, sulfabenzamide, sulfacetamide, sulfachloropyridazine, sulfaethoxypyridazine, sulfaguanidine, sulfamerazine, sulfamethoxypyridazine, sulfanilamide, sulfanitran, sulfisomidine, sulfameter, sulfamonomethoxine, sulfaphenazole, sulfamethoxazole, sulfamethizole, sulfisoxazole, sulfamoxole, dapsone, trimethoprim<br>**Tetracyclines:** Chlortetracycline, oxytetracycline, tetracycline, doxycycline<br>**Fluoroquinolones and related residues:** ciprofloxacin, ciprofloxacin ethylenediamine, danofloxacin, Enrofloxacin, norfloxacin, ofloxacin, sarafloxacin<br>**Quinolones:** difloxacin, flumequine, marbofloxacin, nalidixic Acid, orbifloxacin, oxolinic acid, pipemidic acid, sparfloxacin<br>**Phenicols:** chloramphenicol, florfenicol, thiamphenicol<br>**Aminocoumarin antibiotics:** novobiocin<br>**Pleuromutilin Antibiotics:** tiamulin<br>**Cephalosporins:** cefazolin, cephalexin, desacetyl cephapirin, desfuroyl ceftiofur cysteine disulfide<br>**Coccidiostats:** amprolium, clopidol, fenbendazole<br>**Macrolides:** gamithromycin, lincomycin, pirlimycin, tilmicosin, clindamycin, erythromycin, josamycin, neospiramycin, oleandomycin, spiramycin, tildiprosin, tulathromycin, tylosin, tylosin B |
| CVDR-M-3033 | Determination of Beta Agonists in Animal Tissue without Digestion by LC-MS/MS<br>Ractopamine, zilpaterol, salbutamol, terbutaline, cimaterol, ritodrine, clenbuterol, hydroxymethyl clenbuterol, tulobuterol, brombuterol, clenpenterol, isoxsuprine, mabuterol |
| CVDR-M-3034 | Determination of NSAIDS, Steroids, Hormones and Tranquilizers in Animal Tissues by LC-MS/MS<br>**NSAIDSs:** carprofen, diclofenac, etodolac, firocoxib, flunixin, ketoprofen, mefenamic acid, meloxicam, naproxen, niflumic acid, oxyphenbutazone, phenylbutazone, Tolfenamic acid, Vedaprofen<br>**Corticosteroids:** 20-Dihydroprednisone, Beclomethasone, Betamethasone, Dexamethasone, Flumethasone, Methylprednisolone, Prednisolone, Prednisone, Triamcinolone acetonide<br>**Hormones:** 19-Nortestosterone, Altrenogest, Boldenone, Clostebol, Dianabol, Epi-nortestosterone, Epi-testosterone , Progesterone, Testosterone<br>**Tranquilizers:** Acepromazine, Azaperol, Azaperone, Butorphanol, Carazolol, Chlorpromazine, Detomidine, Haloperidol, Propionylpromazine, Xylazine |

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| | **Spiroindoles:** Derquantel |
| CVDR-M-3035 | Determination of Trenbolone, Stilbenes and Resorcyclic Acid Lactones in Liver Tissues<br>**Trenbolone**: α-trenbolone<br>**Stilbenes**: diethylstilbestrol, dienestrol, hexestrol<br>**Resorcyclic Acid Lactones**: zeranol, taleranol, zearalanone, zearalenone, α-zearalenol, β-zearalenol<br>Technique: LC-MS/MS |
| CVDR-M-3036 | A Determinative Method for Five Coccidiostat Residues in Eggs by Liquid Chromatography-Tandem Mass Spectrometry<br>Narasin, 4,4'-dinitrocarbanilide, salinomycin, lasalocid, monensin |
| CVDR-M-3038 | Determination of NSAIDS and other drug residues in Milk by LC-MS/MS<br>**NSAIDS:** Carprofen, diclofenac, etodolac, firocoxib, flunixin, hydroxyflunixin, ibuprofen, ketoprofen, mefenamic acid, meloxicam, naproxen, niflumic acid, oxyphenbutazone, phenylbutazone, tolfenamic acid, vedaprofen<br>**Corticosteroids:** Dexamethasone |
| CVDR-M-3039 | Determination of Fumagillin and Multi-Class Veterinary Drug Residues in Honey by LC-MS/MS<br>**ß Lactams:** amoxicillin, ampicillin, cloxacillin, dicloxacillin, nafcillin, oxacillin, penicillin g<br>**Coccidiostats:** clopidol, fenbendazole<br>**Fluoroquinolones and related residues:** ciprofloxacin, ciprofloxacin ethylenediamine, danofloxacin, enrofloxacin, norfloxacin, ofloxacin, sarafloxacin, difloxacin, flumequine, marbofloxacin, nalidixic acid, orbifloxacin, oxolinic acid, pipemidic acid, sparfloxacin<br>**Fumagillin and related residues:** dicyclohexylamine, fumagillin<br>**Nitroimidazoles:** dimetridazole, hydroxy-ipronidazole, hydroxy-metronidazole, ipronidazole, metronidazole, ronidazole, tinidazole<br>**Macrolides:** clindamycin, erythromycin, gamithromycin, josamycin, lincomycin, neospiramycin, oleandomycin, pirlimycin, spiramycin, tildiprosin, tilmicosin, tulathromycin, tylosin, tylosin B<br>**Nitrofurans and related residues:** 1-aminohydantoin, 3-amino-2oxazolidinone, 3-amino-5-morpholinomethyl-1,3-oxazolidin-2-one, semicarbazide<br>**Pleuromutilin Antibiotics:** tiamulin<br>**Phenicols:** chloramphenicol, florfenicol, thiamphenicol<br>**Sulfonamides and related residues:** sulfadiazine, sulfadimethoxine, sulfadoxine, sulfamethazine, sulfaquinoxaline , sulfathiazole, sulfabenzamide, sulfacetamide, sulfachloropyridazine, sulfaethoxypyridazine, sulfaguanidine, sulfamerazine, sulfamethoxypyridazine, sulfanilamide, sulfanitran, sulfisomidine, sulfameter, sulfamonomethoxine, sulfaphenazole, sulfamethoxazole, sulfamethizole, sulfisoxazole, sulfamoxole, dapsone, trimethoprim<br>Tetracyclines: chlortetracycline, doxycycline, oxytetracycline, tetracycline |
| CVDR-M-3042 | Determination of Aminoglycoside Residues in and Milk and Animal Tissues by LC-MS/MS |

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| | amikacin, apramycin, dihydrostreptomycin, gentamycin, hygromycin, kanamycin, streptomycin, tobramycin |

**Parasitology**

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| CFAP-M-0008 | C-ELISA for the Detection of Antibodies to *Babesia caballi* and *Theileria equi* (syn. *Babesia equi)* in Horse Serum |
| CFAP-M-0010 | Detection of *Tritrichomonas foetus* by Microscopic Examination and Culture |
| CFAP-M-0036 | Indirect Fluorescent Antibody Test for the Detection of *Theileria equi* and *Babesia caballi* Antibodies in Horse Sera |
| CFAP-M-0013 | The Double Separatory Funnel Digestion Procedure for the Detection of *Trichinella* Larvae in Pork |
| CFAP-M-0039 | The Double Separatory Funnel Digestion Procedure for the Detection of *Trichinella* Larvae in Horse Meat |
| CFAP-M-0046 | Isolation and Detection of *Cyclospora cayetanensis* Oocysts from Fresh Leafy Green Vegetables and Berry Fruits by qPCR |
| CFAP-M-0047 | Isolation and Detection of *Giardia* Cysts from Leafy Green Vegetables by Loop Mediated Isothermal Amplification (LAMP) |
| CFAP-M-0040 | Confirmation Method for Detection of Giardia DNA by Nested PCR |

**Seeds:**

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| ISTA Rules (Chapter 5) | Germination: Determine the germination potential. Germination on 400 seeds<br>In: grasses, cereals, small legumes, pulses, other agricultural crops, vegetables and flower species<br><br>Implemented as supplemental method SSTS-M-3023 Germination Testing |
| ISTA Rules (Chapters 5, 11) | Germination on Coated Seeds<br>In: grasses, cereals, small legumes, pulses, other agricultural crops, vegetables and flower species<br><br>Implemented as supplemental method SSTS-M-3023 Germination Testing |
| ISTA Rules (Chapters 5, 18) | Germination of Seeds Mixture<br>In: grasses, cereals, small legumes, pulses, other agricultural crops, vegetables, flower species<br><br>Implemented as supplemental method SSTS-M-3023 Germination Testing |
| ISTA Rules (Chapters 3, 4) | Purity and Identification of Other Seeds: Determine the percentage composition and identity of species - Separation and weighing of fractions, determination of other seeds<br>In: grasses, *Poa pratensis*, *Poa trivialis*, *Dactylis glomerata*, cereals, small legumes, pulses, other agricultural crops, vegetables, flower species<br><br>Implemented as supplemental methods SSTS-M-5009 (Percent Purity Test and Other Species Search) and SSTS-S-5012 (Uniform Blowing Method) |

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| ISTA Rules (Chapters 3, 4, 18) | Purity and Identification of Seeds Mixture<br>In: grasses, *Poa pratensis*, *Poa trivialis*, *Dactylis glomerata*, cereals, small legumes, pulses, other agricultural crops, vegetables, flower species<br><br>Implemented as supplemental methods SSTS-M-5009 (Percent Purity Test and Other Species Search) and SSTS-S-5012 (Uniform Blowing Method) |
| ISTA Rules (Chapters 3, 11) | Purity and Identification of Other Seeds on Coated Seeds<br>In: grasses, *Poa pratensis*, *Poa trivialis*, *Dactylis glomerata*, cereals, small legumes, pulses, other agricultural crops, vegetables, flower species<br><br>Implemented as supplemental methods SSTS-M-5009 (Percent Purity Test and Other Species Search) and SSTS-S-5012 (Uniform Blowing Method) |
| ISTA Rules (Chapter 6) | Viability: Estimate viability in general and of dormant seeds<br>Biochemical viability test<br>In: grasses, cereals, small legumes, other agricultural crops, vegetables<br><br>Implemented as supplemental method SSTS-M-3028 Tetrazolium Test |
| ISTA Rules (Chapter 11) | Viability on Coated Seeds<br>In: grasses, cereals, small legumes, other agricultural crops, vegetables<br><br>Implemented as supplemental method SSTS-M-3028 Tetrazolium Test |
| ISTA Rules (Chapter 18) | Viability of Seeds Mixture<br>In: grasses, cereals, small legumes, other agricultural crops, vegetables<br><br>Implemented as supplemental method SSTS-M-3028 Tetrazolium Test |
| CM&P (Chapter 4) | Germination: Determination of maximum germination potential<br>For: species listed in section 4.6.2, Table 5<br><br>Implemented as supplemental method SSTS-M-3023 Germination Testing |
| CM&P (Chapter 3) | Purity Analysis: Determination of percentage by weight; Determination of numbers per unit weight; Uniform blowing method; and Purity procedures for coated seed<br><br>Implemented as supplemental methods SSTS-M-5009 (Percent Purity Test and Other Species Search) and SSTS-S-5012 (Uniform Blowing Method) |
| CM&P (Chapter 4, section 4.7.6) | Tetrazolium Testing: Determination of viability<br><br>Implemented as supplemental method SSTS-M-3028 Tetrazolium Test |

Number of Scope Listings: 36

Number of TMDNRT Techniques: 20

**NOTES:**

**Seed testing is conducted at:** CFIA Saskatoon Laboratory, Seed Science & Technology Section, 301 421 Downey Road, Saskatoon SK S7N 4L8 Canada

**ISO/IEC 17025:2017:** General Requirements for the Competence of Testing and Calibration Laboratories
**RG-TMDNRT:** SCC Requirements and Guidance for Accreditation of Laboratories Engaged in Test Method Development and Non-Routine Testing
**TMD/NRT:** Test Method Development and Non-Routine Testing
**CFIA:** Canadian Food Inspection Agency
**CFAP:** Centre for Food-Borne & Animal Parasitology
**CVDR:** Centre for Veterinary Drug Residues
**SSTS:** Seed Science & Technology Section
**CM&P:** Canadian Methods and Procedures for Testing Seed
**ISTA:** International Seed Testing Association Rules for Testing Seed
**LC:** Liquid Chromatography
**LC-UV:** Liquid Chromatography – ultraviolet
**LC-MS/MS:** Liquid Chromatography with tandem mass spectrometry
**MAT:** Microscopic agglutination test
**NSAIDS:** Non-steroidal anti-inflammatory drugs
**IFA:** Indirect fluorescent antibody test
**ELISA:** Enzyme-linked immunosorbent assay
**C-ELISA:** Competitive enzyme immunoassay
**WB:** Western Blot
**PCR:** Polymerase chain reaction
**qPCR:** Real-time / quantitative polymerase chain reaction
**LAMP:** Loop-mediated isothermal amplification

This document forms part of the Certificate of Accreditation issued by the Standards Council of Canada (SCC). The original version is available in the Directory of Accredited Laboratories on the SCC website at www.scc.ca.

Elias Rafoul
Vice-President, Accreditation Services
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