



GRETCHEN WHITMER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF AGRICULTURE
AND RURAL DEVELOPMENT

GARY MCDOWELL
DIRECTOR

August 13, 2020

Sent via electronic mail to Farmbill.Hemp@usda.gov

Mr. William Richmond, Chief
U.S. Domestic Hemp Production Program, Specialty Crops Program
Agriculture Marketing Service
United States Department of Agriculture
1400 Independence Avenue SW
Washington, D.C. 20250

Dear Mr. Richmond,

Since the passage of the Agriculture Improvement Act of 2018, the Michigan Department of Agriculture and Rural Development (MDARD) has worked diligently to offer Michigan growers the opportunity to grow industrial hemp. Our efforts have included establishing the state's first ever Ag Pilot Program in 2019, continuing that program in 2020, updating our state hemp law to align with USDA's Interim Final Rule (7 CFR 990), and developing a state hemp plan.

In conformance with the 2018 Farm Bill and the interim final rule, MDARD is pleased to submit its state hemp plan for review. MDARD believes this plan meets congressional and federal requirements and we look forward to your approval with an effective date of November 1, 2020.

Please feel free to contact Gina Alessandri, MDARD's Industrial Hemp Director, at alessandrig@michigan.gov, should there be any questions or if additional information is needed.

Thank you.

Sincerely,

A handwritten signature in blue ink that reads "Gary McDowell".

Gary McDowell
Director



MICHIGAN HEMP PRODUCTION PLAN

Submitted on August 13, 2020

P.O. Box 30017, Lansing, MI 48909 www.michigan.gov/mdard
www.michigan.gov/industrialhemp

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Introduction – State and Tribal Plans; General authority (7 CFR Part 990.2)

Pursuant to 7 C.F.R 990.2 (State and Tribal plans; General authority), states desiring to have primary regulatory authority over the production of hemp in the State for which it has jurisdiction, must develop and submit to the United States Department of Agriculture (hereinafter “USDA”), a state hemp plan that monitors and regulates hemp production in the State. This plan shall be developed in consultation with the Governor and chief law enforcement officer of the state and must be approved by USDA.

The Michigan Department of Agriculture and Rural Development (MDARD) (hereinafter “the Department”) works closely with regulated businesses to ensure compliance with applicable state and federal laws and regulations. This is done through monitored compliance assistance activities, strict regulatory oversight, and appropriate enforcement. Michigan growers are excited to grow hemp as a new commodity and consumers are eager to have access to hemp-derived products grown and processed locally.

To ensure the needs of Michigan growers and businesses are met, the Governor, our state legislature, and the Department, believe it is in the best interest of Michigan’s hemp industry to administer a hemp program at the state level. Doing so will ensure the industry is regulated fairly and effectively, and the agricultural and economic interests of the people of the State of Michigan are met through efficient customer service, compliance assistance, partnership, and collaboration with hemp industry partners and appropriate enforcement.

In December of 2018, Michigan’s legislature enacted the Industrial Hemp Research and Development Act, Public Act 641 of 2018. This act amended Public Act 547 of 2014 which authorized growing and cultivating industrial hemp for research purposes only and expanded authorization for the development of a commercial hemp program in the state.

On July 8, 2020, the Michigan Industrial Hemp Growers Act, Public Act 137 of 2020 was enacted authorizing the Department to establish an industrial hemp program¹. The Act authorizes the Department to develop and submit to USDA an industrial hemp plan that complies with 7 USC 1639o to 1639s and upon approval, use the industrial hemp plan to operate and administer the hemp program. Public Act 137 authorizes the Department to register persons engaged in the cultivation of industrial hemp; to sample and test industrial hemp to ensure compliance; to prohibit certain acts; and prescribe penalties and civil sanctions for violations.

Michigan’s Hemp Plan is comprised of multiple sections that address the requirements of the 2018 Farm Bill and USDA’s Interim Final Rules. Within each section is a description of the federal requirement(s), an explanation on the Department’s compliance with the requirement(s) and highlighted citation of its legal authority. The Department believes this plan meets federal hemp plan requirements and we look forward to your approval.

¹ Enrolled Senate Bill 850 has been assigned Public Act 137 of 2020. A codified version of PA 137 will be forwarded to USDA when available.

State and Tribal Plans; General Requirements

Section 1 - Maintaining Relevant Producer and Land Information (990.3 (a) (1))

FEDERAL REQUIREMENTS

State plans must include a practice to collect, maintain and report to USDA, relevant, real time information for each hemp producer (herein after “grower”) including, the legal description and geospatial location of the land on which hemp is produced in the state and the status and authorization number (hereinafter “registration number”) of each grower, for a period of not less than 3 calendar years. In addition to specific reporting requirements for the Department, state plans must also include procedures for all registered growers to report specific information directly to USDA Farm Service Agency (FSA). Requirements include:

- (i) Collection, maintenance and reporting of relevant, real-time hemp producer contact information specifically, full name, authorization identifier, business address, telephone number and electronic mail address (if available).
- (ii) Collection, maintenance and reporting of information where hemp is being grown, specifically, the legal description and geospatial location of growing areas.
- (iii) Maintenance of the above records for 3 years.
- (iv) Collection, maintenance and reporting to USDA the status of licensed hemp producers (and any changes) and their authorization identifier numbers.
- (v) Requirement for registered growers to report their hemp crop acreage to USDA Farm Service Agency (FSA).

DEPARTMENT RESPONSE to (i) and (ii) - Collection, maintenance and reporting of grower information and land where hemp is being grown.

PA 137 (Attachment A) requires any person growing industrial hemp in Michigan must be registered with the Department. Persons applying for a grower registration are required to apply to the Department and complete an application. Applicants are required to include the following information on their grower application:

- (a) The applicant’s full name, date of birth, mailing address, telephone number and electronic mail address. If the applicant is not an individual, the application must include the EIN number of the applicant and for each key participant, his or her full name, date of birth, title, and electronic mail address.
- (b) The total acreage and greenhouse or other indoor square footage where industrial hemp will be grown.
- (c) The address, legal description and GPS coordinates for each field, greenhouse, building, or other location where industrial hemp will be grown.
- (d) Maps depicting each field, greenhouse, building, or other location where industrial hemp will be grown that indicate entrances, field boundaries, and specific locations corresponding to the GPS coordinates provided.

Legal Authority - Chapter 2, Application and Registration Requirements, Section 201 (1) and (2) (a-d)

DEPARTMENT RESPONSE to (iii) – Maintenance of records for 3 years.

The Department will maintain license applications for a period of 5 years as required by the Act. In addition to being required by the Act, maintenance of public records, including hemp applications, are covered by the Department's Record Retention Schedule. This schedule will be updated appropriately to include the requirement to maintain all hemp applications for 5 years.

Legal Authority – Chapter 5, Administration, Section 507

DEPARTMENT RESPONSE to (iv) – Reporting to USDA.

The Department will report specific information to USDA on a monthly and annual basis. This information includes grower contact information, grower registration number, the status of each grower registration, any changes to reports previously submitted and the period covered by the report. The Department will maintain hemp grower registration data in its department-wide licensing system and will use that system to generate all data required by USDA. The Department will utilize the forms required by USDA for monthly and annual data submission and will follow USDA procedures for submitting these forms.

Legal Authority – Chapter V, Administration, Section 503 (1) (a-g) and (3) (a-c)

DEPARTMENT RESPONSE to (v) – Grower reporting of acreage to USDA FSA.

The Department will require growers to report the following information directly to USDA FSA immediately upon receiving their grower registration:

- The address, total acreage and GPS coordinates for each field, greenhouse, building or other location where hemp will be grown, and
- The grower's registration number.

To facilitate this reporting, the Department will develop instructions for growers on how to submit their acreage. In addition, Department staff will verify submission of acreage to FSA during annual field inspections and recordkeeping audits.

Legal Authority – Chapter III, Grower Registration, Section 301 (1) (a-b)

Section 2 - Accurate and Effective Sampling of all Hemp Produced

FEDERAL REQUIREMENTS

State plans must include procedures for accurate and effective sampling of industrial hemp that includes all of the following:

- (i) Procedures for State designated individuals to conduct sampling and testing 15 days prior to the anticipated harvest date.
- (ii) Procedures for collecting samples from the flower material of plants.
- (iii) Procedures to ensure the method used for sampling represents a homogenous composition of the lot.
- (iv) Procedure/statement/allowance to require the grower or an authorized representative of the grower to be present at the growing site during sample collection.
- (v) Procedures to allow for representatives of the sampling agency to have complete and unrestricted access during business hours to all hemp and other cannabis plants and all land, buildings, etc. used for cultivation and/or handling.
- (vi) Procedures to ensure that a grower does not harvest any cannabis prior to samples being taken.

DEPARTMENT RESPONSE to (i) and (iv) - Procedures for requesting samples be taken by the Department

Section 401 (1) of PA 137 requires growers intending to harvest or destroy their hemp crop to contact the Department at least 20 days in advance of harvest or destruction to schedule an appointment for preharvest sample collection. Initially, the Department will utilize centralized office staff to receive and schedule requests for sample collection. Samples will be collected by authorized Department staff or contracted third-party samplers who have received USDA AMS hemp sample training. Actual sample collection is required to occur at least 15 days before the growers anticipated harvest or destruction date and the grower or the grower's authorized representative must be present during sample collection. The Department is currently developing an on-line inspection system and once completed, will utilize this system to schedule sampling appointments and monitor completion of sampling requests. This inspection system will also allow the Department to cross check hemp growing locations (sampling sites) with growing location data provided by grower registrants during the application process thereby ensuring compliance with land use reporting.

Legal Authority – Chapter IV, Sampling, Testing and Disposal, Section 401(1)

DEPARTMENT RESPONSE to (ii) and (iii) – Sampling floral material of a homogenous variety.

PA 137 defines “sample” as a sample from the floral material of a representative part of a homogenous cannabis variety. Sample collection requirements are documented in the Pesticide and Plant Pest Management Division procedures and included in field inspector sample training.

Legal Authority – Chapter I, General Provisions, Section 103 (w) and Chapter IV, Sampling, Testing and Disposal, Section 401 (1).

DEPARTMENT RESPONSE to (v) – Unrestricted Access

Growers must provide the Department with complete and unrestricted access during normal business hours to all cannabis and all acreage, greenhouses, indoor square footage, fields, buildings, or other locations, including any location listed on their grower application, where cannabis is growing or being stored as required by Sections 401(2) and 701(h) of the Act.

Legal Authority – Chapter IV, Sampling, Testing and Disposal, Section 401 (2) (a-b)

DEPARTMENT RESPONSE to (vi) – Prohibitions on harvesting before sample collection.

The Act prohibits a grower from harvesting their industrial hemp crop before receiving a certified laboratory report documenting the total delta-9-THC test results. Doing so would be a violation of the Act and the grower would be subject to enforcement as prescribed in the Act. This requirement will be emphasized verbally during sample scheduling requests, will be documented as a legal requirement in an appointment confirmation and sent the grower and will be randomly monitored during inspection activity.

Legal Authority – Chapter IV, Sampling, Testing and Disposal, Section 401 (1) and Chapter 3, Section 303 (g).

Section 3 - Accurate and Effective Testing of all Hemp Produced

FEDERAL REQUIREMENT

State plans must include procedures for accurate and effective testing of industrial hemp to ensure that cannabis grown and harvested does not exceed acceptable THC (tetrahydrocannabinol) levels. Procedures must include all of the following:

- (i) Use of a DEA registered laboratory that uses reliable, validated post-decarboxylation methodology or other similarly reliable method where the total THC concentration level reported accounts for the conversion of delta-9-tetrahydrocannabinolic acid (THCA) into THC. The total THC is determined and reported on a dry weight basis. Hemp exceeding an acceptable THC level may not be further handled, processed, or enter the stream of commerce.
- (ii) Procedures to ensure the hemp plant material from one lot not be commingled with hemp plant material from other lots.
- (iii) Procedures to require hemp testing laboratories to adhere to standards of performance for detecting THC concentration, including factoring in and reporting the Measurement of Uncertainty (MU).

DEPARTMENT RESPONSE to (i) – DEA registration, post decarboxylation, total THC.

The Department's analytical chemistry lab, the Geagley Laboratory, is ISO 17025 accredited (Attachment B) and registered with the U.S. Drug Enforcement Agency (DEA) (Attachment C) and will be the primary laboratory that will be utilized for analyzing hemp samples for compliance. The Department may also contract with a third-party laboratory to conduct hemp testing. Any such contract would contain provisions that require the laboratory to be DEA registered and use reliable, validated post-decarboxylation methodology or other similarly reliable method. Procedures related to sample documentation, sample collection, chain of custody, sample storage, analysis procedures, equipment usage and employee safety have been validated through these accreditations and will be explicitly followed.

Legal Authority – Chapter 1, General Provisions, Section 103 (t) and (y), Chapter 4, Sampling, Testing and Disposal, Section 403 (1)(a) – (f), Chapter V, Administration, Section 509 (1) and (2)

DEPARTMENT RESPONSE TO (ii) – No comingling of samples

The Act requires a testing facility to ensure that a preharvest sample of industrial hemp is not comingled with any other preharvest sample of industrial hemp.

Legal Authority - Chapter IV, Sampling, Testing and Disposal, Section 403 (2)

DEPARTMENT RESPONSE TO (iii) – Laboratory standards of performance for testing THC.

The Department implemented its inaugural hemp pilot program in 2019 during which it utilized the practice of testing total delta-9-THC. That practice will continue for the 2020 growing season and beyond as required by the interim final rules and as authorized by PA 137 which requires the Department to adopt a laboratory quality assurance program that:

- a) Adopts a laboratory quality assurance program that ensures the validity and reliability of the total delta-9-THC test results.
- b) Adopts an analytical method selection, validation, and verification procedure that ensures that the total delta-9-THC testing method is appropriate.
- c) Demonstrates that the total delta-9-THC testing ensures consistent and accurate analytical performance.
- d) Adopts method performance selection specifications that ensure that the total delta-9-THC testing methods are sufficient to detect the total delta-9-THC as required by the Act.

The Department's standard operating procedures for determining total THC, total CBD, and CBN using chromatographic methods is attached (Attachment D).

Legal Authority – Chapter I, General Provisions, Section 103 (aa) and Chapter IV, Sampling, Testing and Disposal, Section 403 (1) (a) – (d)

DEPARTMENT RESPONSE TO (iii) –, continued. – Measurement of Uncertainty

The Department will identify the Measure of Uncertainty in accordance with the attached procedure (Attachment E) and will report the measurement of uncertainty on its certified lab reports of the total delta-9-THC test. Should the Department contract with other labs, they will be required to do the same.

Legal Authority – Chapter I, General Provisions, Section 103 (r) and Chapter IV, Sampling, Testing and Disposal, Section 403 (e).

Section 4 - Plan for Disposal Procedures

FEDERAL REQUIREMENT

State plans must contain procedures for the effective disposal of hemp plants that exceed acceptable THC levels. Disposal procedures must be in accordance with CSA and DEA regulations and must include procedures to notify USDA of said disposal.

DEPARTMENT RESPONSE - Procedures for effective disposal.

A grower shall destroy any hemp crop if the sampling and testing results of the total delta-9-THC yield a concentration that is greater than 0.3% on a dry weight basis.

- (1) Disposal must occur within 15 days using a method that renders the crop irretrievable and non-ingestible.
- (2) Growers may destroy the hemp crop by a method approved by USDA which includes plowing under using a curved plow blade to rotate the subsoil to the surface and bury the hemp below the subsoil, mulching, disking, composting, mowing, shredding, deep burial, or burning.
- (3) The grower must submit to USDA and the Department, a destruction report that contains the date of disposal, the method of disposal, the total acreage disposed of, and a copy of the certified testing report.

The Department shall report crop destruction activities to USDA as part of its monthly and annual report and will include, the grower's registration number and the total acreage that was destroyed.

Legal Authority – Chapter III, Grower Registration, Section 301 (e) (i) & (ii), Chapter IV, Sampling, Testing and Disposal, Section 407 (1) (a-c), (2), (3) (a-b)(i – iv) and Chapter V, Administration, Section 503 (2) (a-d), (3) (c)

Section 5 – Plan for Conducting Annual Inspections

FEDERAL REQUIREMENT – Conducting annual inspections.

State plans must include procedures for conducting annual inspections of, at a minimum, a random sample of hemp producers to verify that hemp is not produced in violation of 2018 Farm Bill and Interim Final Rules.

DEPARTMENT RESPONSE – Conducting annual inspections

- (1) The department will conduct annual inspections of a random sample of growers to verify that hemp is produced in compliance with the Act. The Department's licensing system will be utilized to identify growers to inspect.
- (2) The Department's Pesticide and Plant Pest Management Division (PPPM) will be responsible for performing hemp inspection activities. The PPPM Division will conduct workload planning on an annual basis and will utilize workload planning processes to assign annual inspection numbers.
- (3) In addition to the random inspections and consistent with activities for other regulatory programs, the division will identify risk factors associated with the regulated industry and will target a portion of registered growers annually to perform risk-based inspections. For example, the division may identify new firms, firms with past enforcement history or firms operating under a corrective action plan, as priority for inspection.
- (4) The Division will target approximately 25% of all registered growers (approximately 150) for annual inspections. Approximately 50% of the inspections will be random and approximately 50% of the inspections will be risk-based.
- (5) Inspection assignments will be determined in coordination with other program assignments and may include desk audits, physical inspections, and sampling to ensure compliance with the Act and state hemp plan.

Legal Authority – Chapter V, Administration, Section 515

Section 6 – Collection of Information

FEDERAL REQUIREMENT

State plans must include procedures for submitting the information described in the interim final rules (Section 990.70) to USDA not more than 30 days after the date on which the information is received. The information required includes contact information for each grower or grower business entity covered under the state hemp plan and the status of their registration. States must submit the information no later than 30 days after it is received using the appropriate reporting requirements as determined by USDA.

DEPARTMENT RESPONSE – Reporting to USDA.

The Department will report the following information to USDA in a digital format by the first of each month:

- a) For each new registered grower who is an individual, the full name of the individual, license or authorization identifier, business address, telephone number, and email address (if available).
- b) For each new registered grower who is an entity, the full name of the entity, the principal business location address, license or authorization identifier, and the full name, title, and email address (if available) of each employee for whom the entity is required to submit a criminal history record report.
- c) Each grower registration number.
- d) The status of each grower's registration.
- e) Any changes to previously submitted grower information.
- f) An indication that there were no changes or updates to previously submitted reports, if applicable.
- g) Report date.
- h) Period covered by the report.

Legal Authority – Chapter V, Administration, Section 503 (1) (a-g).

The Department will report to USDA any occurrence of non-conforming plant material and provide a disposal record for those plants and materials. The report shall contain the following information and be provided to USDA in a digital format by the first of each month:

- a) The grower's name and address.
- b) The grower's registration number.
- c) Location information, such as lot number, location type, and geospatial location or other location descriptor for the production area subject to disposal.
- d) Information on the agent handling the disposal.
- e) The total acreage of hemp that was destroyed.
- f) The date the hemp was destroyed.

Legal Authority – Chapter V, Administration, Section 503 (2) (a-d).

The Department will report the following information to USDA in a digital format by December 15 of each year:

- a) The total acreage of industrial hemp that was grown in the state.
- b) The total acreage of industrial hemp that was harvested in the state.
- c) The total acreage of industrial hemp that was disposed of in the state.

Legal Authority – Chapter V, Administration, Section 503 (3) (a-c).

Section 7 – Plan to comply with Enforcement Procedures

FEDERAL REQUIREMENT

State plans must include procedures for handling violations. Although the 2018 Farm Bill allows states with hemp plans certain flexibilities in determining whether a violation has occurred, there are certain compliance requirements that all plans must include.

They include:

- (i) Corrective action plan for negligent violations.
- (ii) Procedures to provide for the correction of negligent violations.
- (iii) Procedures for grower violations made with a culpable mental state greater than negligence.
- (iv) Reporting grower violations to the U.S. Attorney General and the chief law enforcement officer of the state.
- (v) Procedures for prohibiting any person convicted of a felony related to a controlled substance under State or Federal law before, on, or after the enactment of the 2018 Farm Bill from participating in the state plan.
- (vi) Procedures for business entities to determine which participants are considered to be “key” or have executive managerial control.
- (vii) Procedures stating that any persons who materially falsify any information in their application shall be deemed ineligible to participate in the program.

DEPARTMENT RESPONSE to (i) and (ii) – Negligent violations and Corrective Action Plans.

The Act specifies what a negligent violation is and authorizes the Department to issue a Notice of Violation and the terms of a corrective action plan. Negligent violations under the Act are not subject to criminal enforcement. In addition to the specific language in the act related to violations and corrective action plans, the Department will follow established Pesticide and Plant Pest Management Division standard operating procedures and the Administrative Procedures Act (PA 306 of 1969, MCL 24.201-24.328) for pursuing appropriate enforcement action against hemp growers who have committed violations of Public Act 137 of 2020.

Legal Authority – Chapter VI, Violations and Penalties, Section 601 (1) (a-c), (2), (3) (a-b), (4) and (5).

DEPARTMENT RESPONSE TO (iii) – Violations made with a culpable mental state greater than negligence.

The Act authorizes the Department to issue an administrative fine to any person that individually, or by the action of an agent or employee negligently or with a culpable state greater than negligence, violates the Act or any rule promulgated under the Act. Any violation made with a culpable mental state greater than negligence must be reported to the U.S. Attorney General, the USDA and the chief law enforcement officer of the state. . In addition to the specific language in the Act related to these violations, the Department will follow established Pesticide and Plant Pest Management Division standard operating procedures and the Michigan Administrative Procedures Act (PA 306 of 1969, MCL 24.201-24.328) for pursuing appropriate enforcement action against hemp growers who have committed violations of Public Act 137 of 2020.

Legal Authority – Chapter VI, Violations and Penalties, Section 609 (1) (a-c), (2)

DEPARTMENT RESPONSE TO (iv) – Reporting grower violations

The Department will report any violations to the U.S. Attorney General, the USDA, and the Michigan Attorney General's office.

Legal Authority – Chapter VI, Violations and Penalties, Section 609 (2).

DEPARTMENT RESPONSE TO (v) and (vi) – Criminal History of growers and key participants.

1. Grower applicants must submit criminal history reports with their grower registration application. The criminal history report must be prepared by the United States Federal Bureau of Investigation and includes fingerprint-based criminal history record information.
2. The Department will deny an application for registration if the applicant or, if the applicant is not an individual, a key participant in the applicant's organization was convicted of a controlled substance felony in the immediately preceding 10-year period.

Legal Authority – Chapter 1, General Provisions, Section 103 (d), (f), (g), (p), Chapter II, Application and Registration, Section 201 (2) (e), Section 213 (2) (h).

DEPARTMENT RESPONSE TO (vii) – Falsifying information.

The grower registration application will contain a statement that the grower acknowledges that if the grower provides any materially false information or otherwise falsifies the application or materials required by the application, the grower will be ineligible to participate in the program.

Legal Authority – Chapter VI, Violations and Penalties, Section 607 (2).

Section 8 - Certification of Resources

FEDERAL REQUIREMENT

All state plans submitted for approval must also have a certification stating that the State has the resources and personnel necessary to carry out the practices and procedures described in the plan.

DEPARTMENT RESPONSE

The Department certifies that it has the resources and personnel necessary to carry out the practices and procedures contained in this state hemp plan. This certification includes support needed for issuing grower registrations to persons meeting all requirements, conducting a random number of inspections, taking samples, performing sample testing, and implementing needed enforcement actions.

STATE OF MICHIGAN,
Michigan Department of Agriculture and Rural Development (MDARD)



Gary McDowell, Director
MDARD

Date: August 13, 2020

(Attachment A)

Act No. 137
Public Acts of 2020
Approved by the Governor
July 8, 2020
Filed with the Secretary of State
July 8, 2020
EFFECTIVE DATE: July 8, 2020

**STATE OF MICHIGAN
100TH LEGISLATURE
REGULAR SESSION OF 2020**

Introduced by Senator Lauwers

ENROLLED SENATE BILL No. 850

AN ACT to create an industrial hemp program; to authorize certain activities involving industrial hemp to require the registration of persons engaged in certain activities; to provide for the sampling and testing of industrial hemp; to provide for the collection of fees; to create certain funds; to provide for the powers and duties of certain state departments and officers and state agencies and officials; to prohibit certain acts; and to prescribe civil sanctions.

The People of the State of Michigan enact:

CHAPTER I

General Provisions

Sec. 101. This act shall be known and may be cited as the “industrial hemp growers act”.

Sec. 103. As used in this act:

(a) “Acceptable THC level” means the application of the measurement of uncertainty to the reported total delta-9-THC concentration level on a dry weight basis that produces a distribution or range that includes 0.3% or less total delta-9-THC.

(b) “Applicant” means a person that submits an application for a registration.

(c) “Cannabis” means the plant *Cannabis sativa* L. and any part of that plant, whether growing or not.

(d) “Controlled substance felony” means a felony violation of the laws of any state having to do with controlled substances or a felony violation of federal law having to do with controlled substances.

(e) “Corrective action plan” means a plan created under section 601.

(f) “Criminal history record information” means that term as defined in section 1a of 1925 PA 289, MCL 28.241a.

(g) “Criminal history report” means a report prepared by the United States Federal Bureau of Investigation that includes fingerprint-based criminal history record information.

(h) “DEA” means the United States Drug Enforcement Administration.

(i) “Department” means the department of agriculture and rural development.

(j) “Fund” means the industrial hemp fund created in section 107.

(k) “GPS coordinates” means latitude and longitude coordinates derived from a global positioning system.

(l) “Grow” or “growing”, unless the context requires otherwise, means to plant, propagate, cultivate, or harvest live plants or viable seed. Grow or growing includes drying and storing harvested industrial hemp, possessing live industrial hemp plants or viable seed on a premises where the live industrial hemp plants or viable seed are grown, and selling harvested industrial hemp to a processor or a processor licensed under the medical marijuana facilities licensing act, 2016 PA 281, MCL 333.27101 to 333.27801, as authorized under this act. Grow or growing does not include selling an industrial hemp product or smokable hemp flower.

(m) “Grower” means a person that is registered under section 201.

(n) “Industrial hemp” means that term as defined in section 7106 of the public health code, 1978 PA 368, MCL 333.7106.

(o) “Industrial hemp plan” means the plan created under section 105.

(p) “Key participant” means any of the following:

(i) For a sole proprietorship, a sole proprietor.

(ii) For a partnership, a partner.

(iii) For a corporation, an individual with executive managerial control including, but not limited to, a chief executive officer, a chief operating officer, or a chief financial officer.

(q) “Marijuana” means that term as defined in section 7106 of the public health code, 1978 PA 368, MCL 333.7106.

(r) “Measurement of uncertainty” means the parameter associated with the result of a measurement that characterizes the dispersion of the values that could reasonably be attributed to the particular quantity subject to the measurement.

(s) “Person” means an individual, partnership, corporation, association, or other legal entity.

(t) “Postdecarboxylation test” means a test of cannabis for delta-9-THC after a carboxyl group is eliminated from delta-9-THC acid.

(u) “Program” means the industrial hemp program established by this act.

(v) “Registration” means a grower registration granted under this act.

(w) “Sample” means a sample from the floral material of a representative part of a homogenous cannabis variety taken from a grower at the location where the cannabis is growing.

(x) “Sampling” means the process of taking a sample.

(y) “Testing facility” means a laboratory approved by this state and registered with the DEA to conduct chemical analysis of controlled substances pursuant to 21 CFR 1301.13 and that meets the requirements under section 403.

(z) “THC” means tetrahydrocannabinol.

(aa) “Total delta-9-THC” means the total available tetrahydrocannabinol measured as the sum of delta-9-tetrahydrocannabinol and 87.7% of the delta-9-tetrahydrocannabinol acid reported on a dry weight basis.

(bb) “USDA” means the United States Department of Agriculture.

(cc) “Variety” means a subdivision of a species that has the following characteristics:

(i) The subdivision is uniform, in the sense that variations between the subdivision and other subdivisions in essential and distinctive characteristics are describable.

(ii) The subdivision is distinct, in the sense that the subdivision can be differentiated by 1 or more identifiable morphological, physiological, or other characteristics from all other known subdivisions.

(iii) The subdivision is stable, in the sense that the subdivision will remain uniform and distinct if reproduced.

(dd) "Viable seed" means seed that has a germination rate of greater than 0.0%.

Sec. 105. (1) The department shall establish, operate, and administer an industrial hemp program.

(2) The department shall develop and submit to the USDA for approval an industrial hemp plan for this state that complies with 7 USC 1639o to 1639s. Upon approval, the department shall use the industrial hemp plan to implement the program.

Sec. 107. (1) The industrial hemp fund is created within the state treasury.

(2) The state treasurer may receive the fees collected under section 511 for deposit into the fund. The state treasurer may also receive money or other assets from any other source for deposit into the fund. The state treasurer shall credit to the fund interest and earnings from fund investments.

(3) Money in the fund at the close of the fiscal year remains in the fund and does not lapse to the general fund.

(4) The department is the administrator of the fund for auditing purposes.

(5) The department shall expend money from the fund to establish, operate, and enforce the program.

CHAPTER II

Application and Registration

Sec. 201. (1) A person shall not grow industrial hemp in this state unless the person is a grower.

(2) A person applying for a registration under this section shall do so on an application and in a manner provided by the department. The applicant shall include with the application all of the following information:

(a) The applicant's full name, date of birth, mailing address, telephone number, and electronic mail address. If the applicant is not an individual, the application must include the EIN number of the applicant and for each key participant, his or her full name, date of birth, title, and electronic mail address.

(b) The total acreage and greenhouse or other indoor square footage where industrial hemp will be grown.

(c) The address and legal description of and GPS coordinates for each field, greenhouse, building, or other location where industrial hemp will be grown.

(d) Maps depicting each field, greenhouse, building, or other location where industrial hemp will be grown that indicate entrances, field boundaries, and specific locations corresponding to the GPS coordinates provided under subdivision (c).

(e) A criminal history report for the applicant, or, if the applicant is not an individual, a criminal history report for each key participant.

(3) The department shall grant an applicant described in this section a registration to grow industrial hemp if the applicant does all of the following:

- (a) Submits a completed application under subsection (2).
- (b) Pays the applicable fees under section 511.
- (c) Meets the qualifications for registration.

Sec. 211. (1) An initial registration granted by the department under this act expires at midnight on November 30 in the year in which the registration is granted.

(2) Other than a registration granted under subsection (1), a registration is valid for 1 year beginning on December 1 and expiring at midnight on the following November 30.

(3) To renew a registration, an applicant must submit an application in a form and manner provided by the department. The application must be submitted on or before November 30. An application submitted after November 30 is subject to a late fee of \$250.00.

(4) If an applicant provides express written consent to disclose personal information on an application, the applicant's name, electronic mail address, and telephone number may be disclosed to a grower or another person authorized by the department. If the applicant does not provide express written consent to disclose personal information on the application, any information submitted by the applicant to the department is exempt from disclosure under the freedom of information act, 1976 PA 442, MCL 15.231 to 15.246. This subsection does not apply to the disclosure of personal information to a law enforcement agency.

(5) A registration is nontransferable.

Sec. 213. (1) The department shall approve or deny an application for a registration within 120 days after the completed application is submitted.

(2) The department shall deny an application for a registration if any of the following apply:

- (a) The application is incomplete.
- (b) If the applicant is an individual, the applicant is under the age of 18.
- (c) The applicant's location for growing industrial hemp is not located in this state.
- (d) The applicant has not demonstrated, as determined by the department, a willingness to comply with this act or rules promulgated under this act.
- (e) The applicant has unpaid fees or civil fines owed to this state under this act.
- (f) The applicant has made a false statement or representation, as determined by the department, to the department or a law enforcement agency.
- (g) The applicant had a registration revoked in the immediately preceding 5-year period.
- (h) The applicant or, if the applicant is not an individual, a key participant was convicted of a controlled substance felony in the immediately preceding 10-year period.

(3) If the department denies an application because it is incomplete, the department shall notify the applicant of the denial within 120 days after the application is submitted, by letter or by electronic mail, and state the deficiency and request additional information.

Sec. 215. The department shall issue a document to a grower that evidences the granting of a registration.

Sec. 217. (1) If the department denies an application for a registration, the applicant may appeal the denial by submitting a written request for a hearing to the department. The applicant must submit the request to the department not more than 15 days after the date of the denial.

(2) The department shall conduct a hearing requested under this section pursuant to the administrative procedures act of 1969, 1969 PA 306, MCL 24.201 to 24.328.

CHAPTER III

Grower Registration

Sec. 301. (1) A grower shall report the following information to the USDA Farm Service Agency immediately after the grower is granted a registration under chapter II:

(a) The address and total acreage of and GPS coordinates for each field, greenhouse, building, or other location where industrial hemp will be grown.

(b) The grower's registration number.

(2) A grower shall do all of the following:

(a) Allow the department or a law enforcement agency to enter onto and inspect all premises where industrial hemp is or will be located, with or without cause and with or without advance notice.

(b) On request from the department or a law enforcement agency, produce a copy of the grower's registration for inspection.

(c) Contact the department to collect a sample under section 401.

(d) Harvest the industrial hemp crop within 15 days after receiving a certified report under section 405.

(e) Destroy any of the following, without compensation, under section 407:

(i) If the results of the total delta-9-THC test under section 405 indicate a total delta-9-THC concentration of more than the acceptable THC level, all cannabis grown within the contiguous area where the sample was taken.

(ii) Industrial hemp that is at a location that is not disclosed on the grower's application under section 201.

(iii) Industrial hemp that is grown in violation of this act.

(f) Report all of the following information to the department by November 15 of each year:

(i) Total acreage of industrial hemp that the grower grew in the immediately preceding growing season.

(ii) Total acreage of industrial hemp that the grower harvested in the immediately preceding growing season.

(iii) Total acreage of industrial hemp that the grower disposed of in the immediately preceding growing season.

Sec. 303. A grower shall not do any of the following:

(a) Grow industrial hemp that is not in compliance with the grower's registration.

(b) Grow industrial hemp in a location that is not disclosed on the grower's application under section 201.

(c) Grow industrial hemp in a location that is not owned or completely controlled by the grower. As used in this subdivision, "completely controlled" means to be solely responsible for all of the industrial hemp grown at a location.

(d) Grow industrial hemp in a dwelling.

(e) Grow a variety of industrial hemp that is on the list created under section 505.

(f) Sell or transport, or permit the sale or transport of, viable industrial hemp plants or viable seed to a location that is not disclosed on the grower's application under section 201 or to a person in this state that is not a grower.

(g) Harvest industrial hemp before receiving the certified report of the total delta-9-THC test results under section 405.

(h) Sell industrial hemp to a person in this state that is not authorized by the department to receive industrial hemp.

(i) Destroy industrial hemp without submitting a notice to the department under section 407(3)(a). This subdivision does not apply to a grower that destroys male industrial hemp plants to prevent cross-pollination.

Sec. 305. (1) A grower shall post signage in a conspicuous location at each boundary line of each location where industrial hemp is grown. The signage must include all of the following:

(a) The statement, "Industrial Hemp Registered with the Michigan Department of Agriculture and Rural Development".

(b) The grower's name.

(c) The grower's registration number.

(2) The signage described under subsection (1) must meet all of the following requirements:

(a) Be a minimum of 8 inches wide and 10 inches tall.

(b) Use writing that is clearly legible.

(c) Be made of weather-resistant material.

Sec. 307. A grower shall provide a record of sale to each person that purchases industrial hemp from the grower. The record of sale must contain all of the following information:

(a) The name of the person purchasing the industrial hemp.

(b) Evidence that the person purchasing the industrial hemp is authorized by the department to purchase industrial hemp.

(c) The total weight of industrial hemp purchased.

(d) The total sale price of the industrial hemp.

(e) The date of the sale.

(f) The certified report of the total delta-9-THC testing under section 405 for each variety of industrial hemp purchased.

Sec. 309. (1) A grower shall maintain records containing all of the following information:

(a) Each record of sale generated under section 307.

(b) The name and mailing address of any person from whom the grower purchased viable industrial hemp seed.

(c) The name of each variety of industrial hemp the grower grows.

(d) Evidence that the information required to be reported under section 301 was submitted and received by the USDA Farm Service Agency.

(e) A destruction report generated under section 407(3)(b), if applicable.

(2) A grower shall maintain the records under subsection (1) for 5 years and make the records available to the department upon request.

Sec. 311. (1) Before implementing a modification to a site location listed in a registration, the grower must submit a site location modification request on a form provided by the department and the required fee under section 511, based on the number of requested modifications, and obtain written approval from the department.

(2) The department shall not approve a site location modification request under this section unless the grower has paid the site location modification fee in full.

Sec. 313. A grower may sell industrial hemp to a processor that is licensed under the medical marihuana facilities licensing act, 2016 PA 281, MCL 333.27101 to 333.27801.

CHAPTER IV

Sampling, Testing, and Disposal

Sec. 401. (1) A grower that intends to harvest or destroy an industrial hemp crop shall contact the department at least 20 days in advance of harvest or destruction to collect a representative sample of each variety of industrial hemp. Sampling must be conducted at least 15 days before the grower's anticipated harvest or destruction, and the grower or the grower's authorized representative must be present.

(2) When the department conducts the sampling, the grower shall provide the department with complete and unrestricted access to both of the following during normal business hours:

(a) All cannabis.

(b) All acreage, greenhouses, indoor square footage, fields, buildings, or other locations, including any location listed in the application under section 201, where cannabis is growing or stored.

(3) The department shall transport or cause to be transported a sample collected under this section to a testing facility for total delta-9-THC testing under section 403.

Sec. 403. (1) A testing facility that performs total delta-9-THC testing must do all of the following:

(a) Adopt a laboratory quality assurance program that ensures the validity and reliability of the total delta-9-THC test results.

(b) Adopt an analytical method selection, validation, and verification procedure that ensures that the total delta-9-THC testing method is appropriate.

(c) Demonstrate that the total delta-9-THC testing ensures consistent and accurate analytical performance.

(d) Adopt method performance selection specifications that ensure that the total delta-9-THC testing methods are sufficient to detect the total delta-9-THC as required under this act.

(e) Report the measurement of uncertainty on the certified report of the total delta-9-THC test.

(f) Adopt a total delta-9-THC testing method that includes a postdecarboxylation test or other similar method.

(2) A testing facility shall ensure that a sample of industrial hemp is not commingled with any other sample of industrial hemp.

(3) A testing facility shall assign a sample identification number to each sample of industrial hemp.

(4) A testing facility shall report all of the following information to the department and to the USDA for each test performed:

(a) The grower's full name and mailing address.

(b) The grower's registration number.

(c) Each sample identification number assigned under subsection (3).

- (d) The testing facility's name and DEA registration number.
- (e) The date the total delta-9-THC testing was completed.
- (f) The certified report under section 405 of the total delta-9-THC testing.

Sec. 405. (1) If the results of the total delta-9-THC test indicate a total delta-9-THC concentration of not more than the acceptable THC level, the testing facility shall provide to the grower, the department, and the USDA a certified report stating the results of the total delta-9-THC test.

(2) If the results of the total delta-9-THC test indicate a total delta-9-THC concentration that is greater than the acceptable THC level, the testing facility shall provide the grower and the department a certified report stating the results of the total delta-9-THC test, and the grower must destroy the industrial hemp crop under section 407.

(3) The grower shall harvest an industrial hemp crop within 15 days after receiving the certified report under subsection (1). If the grower fails to harvest the industrial hemp crop within the 15 days, the grower may submit a request for a second collection of a sample. The second sample must be tested under section 403, and the grower must harvest the remaining industrial hemp crop within 15 days after receiving a second certified report.

Sec. 407. (1) A grower that receives a certified report under section 405(2) shall destroy that crop within 15 days using 1 of the following methods:

(a) Plowing under using a curved plow blade to rotate the subsoil to the surface and bury the industrial hemp below the subsoil.

(b) Mulching, disking, or composting the industrial hemp and blending the industrial hemp with existing soil, manure, or other biomass material.

(c) Mowing, shredding, deep burial, or burning.

(2) The industrial hemp destroyed under subsection (1) must be rendered irretrievable or not ingestible.

(3) A grower that destroys industrial hemp shall do both of the following:

(a) Submit a notice to the department at least 48 hours before destroying the industrial hemp. The grower shall submit the notice in a form and manner provided by the department. The grower shall include in the notice the reason for the destruction of the industrial hemp.

(b) Submit to the USDA and the department a destruction report that contains all of the following information:

(i) The date of the disposal.

(ii) The method of disposal.

(iii) The total acreage disposed of.

(iv) A copy of the certified report under section 405(2).

Sec. 409. The provisions of this chapter are effective beginning November 1, 2020.

CHAPTER V

Administration

Sec. 501. The department may promulgate rules to implement this act under the administrative procedures act of 1969, 1969 PA 306, MCL 24.201 to 24.328.

Sec. 503. (1) By the first of each month, the department shall report all of the following to the USDA:

(a) For each grower, the information provided on an application submitted under section 201.

(b) Each grower's registration number.

(c) The status of each grower registration.

(d) Any changes or updates to a grower's information provided under subdivision (a).

(e) An indication that there were no changes or updates to the reports previously submitted under this subsection, if applicable.

(f) The date for which the information contained in subdivisions (a), (b), (c), and (d) is current.

(g) The period covered by the report.

(2) If a grower is required to destroy an industrial hemp crop under section 407, by the first of each month, the department shall report all of the following to the USDA:

(a) The information provided on the grower's application submitted under section 201.

(b) The grower's registration number.

(c) The total acreage of industrial hemp that was destroyed.

(d) The date on which the industrial hemp was destroyed.

(3) Not later than December 15 of each year, the department shall report all of the following information to the USDA:

(a) The total acreage of industrial hemp that was grown in the immediately preceding growing season.

(b) The total acreage of industrial hemp that was harvested in the immediately preceding growing season.

(c) The total acreage of industrial hemp that was disposed of in the immediately preceding growing season.

Sec. 505. The department may create and maintain on its website a list of prohibited industrial hemp varieties.

Sec. 507. The department shall maintain an application submitted under section 201 for 5 years.

Sec. 509. (1) The department's testing laboratory is the official regulatory laboratory for testing under chapter IV.

(2) The department may contract with a third-party laboratory to conduct the testing under chapter IV. A third-party laboratory must meet the standards under chapter IV.

Sec. 511. (1) A grower is subject to the following fees, as applicable:

(a) A registration fee of \$1,250.00.

(b) A site location modification fee of \$50.00 for each location modification request form submitted under section 311.

(2) A grower shall pay a fee required under this act at the time an application is submitted under section 201 or at the time the location modification request form is submitted under section 311. The fee must be paid with a check or money order payable to this state.

(3) A fee required under this act is nonrefundable and nontransferable.

(4) A fee charged for total delta-9-THC testing under chapter IV is limited to the reasonable costs of conducting the testing.

(5) The department shall charge a reasonable sampling fee not to exceed the costs of the sampling.

Sec. 513. A political subdivision of this state shall not adopt a rule, regulation, code, or ordinance that restricts or limits the requirements under this act.

Sec. 515. The department shall conduct an annual inspection of randomly selected growers to verify that industrial hemp is grown in compliance with this act.

CHAPTER VI

Violations and Penalties

Sec. 601. (1) A grower negligently violates the program if the grower does any of the following:

(a) Fails to provide a legal description for each field, greenhouse, building, or other location where industrial hemp will be grown under section 201.

(b) Fails to obtain a registration.

(c) Grows industrial hemp that exceeds the acceptable THC level.

(2) If a grower violates subsection (1), the department shall issue the grower a notice of violation and the terms of a corrective action plan. The grower must comply with the terms of the corrective action plan.

(3) The department shall develop a corrective action plan under subsection (2) that includes the following terms:

(a) A reasonable date by which the grower will correct the negligent violation.

(b) A requirement that for not less than 2 years after a violation under subsection (1), the grower shall make periodic reports to the department about the grower's progress and compliance with the requirements of the corrective action plan.

(4) A grower that negligently violates the industrial hemp plan 3 times in a 5-year period is ineligible to grow hemp for 5 years from the date of the third violation.

(5) A negligent violation under this section is not subject to criminal enforcement.

Sec. 603. (1) If any of the following allegations are made concerning a grower, the department shall investigate and may suspend the grower's registration for not more than 60 days:

(a) The grower intentionally grew or was in possession of cannabis with a total delta-9-THC content greater than the acceptable THC level.

(b) The grower violated a provision of this act.

(c) The grower made a false statement, as determined by the department, to the department or a law enforcement agency.

(d) The grower failed to comply with an order from the department or a law enforcement agency.

(2) If the department suspends a registration under this section, the department shall notify the grower in writing that the registration is suspended.

(3) If a registration is suspended under this section, the grower shall not harvest or remove industrial hemp from the location where the industrial hemp was located at the time the

department issued the notice of suspension, except as authorized in writing by the department.

Sec. 605. (1) The department shall not permanently revoke a registration suspended under section 603 unless the department notifies the grower of the allegation against the grower and gives the grower an opportunity for a hearing to appeal the revocation.

(2) The department shall schedule a hearing on a revocation under subsection (1) for a date as soon as practicable that is not more than 60 days after the date of notification of a registration suspension.

(3) The department shall conduct the hearing required under this section pursuant to the administrative procedures act of 1969, 1969 PA 306, MCL 24.201 to 24.328.

(4) If the department finds by a preponderance of the evidence that an allegation under section 603(1) is true, the department shall revoke the registration. The revocation is effective immediately, and the department or a law enforcement agency must do either of the following:

(a) Order the grower to destroy all cannabis that is in the grower's possession under section 407.

(b) Confiscate all cannabis that is in the grower's possession.

(5) The department or a law enforcement agency shall not compensate or indemnify the value of the cannabis that is destroyed or confiscated under this section.

(6) If the department revokes a registration, the grower is barred from participating in the program in any capacity for a minimum of 5 years from the date on which the registration was revoked.

(7) If the department does not find by a preponderance of the evidence that an allegation under section 603(1) is true, the department shall remove the suspension imposed under section 603 within 24 hours of the department's determination.

(8) If a grower violates the program 3 times within a 5-year period, the grower is barred from participating in the program in any capacity for a minimum of 5 years from the date of the grower's third violation.

Sec. 607. A grower shall not materially falsify information required under section 201. A grower that violates this section is ineligible to participate in the program.

Sec. 609. (1) A person that individually, or by the action of an agent or employee, or as the agent or employee of another, negligently or with a culpable mental state greater than negligence, violates this act or a rule promulgated under this act is subject to an administrative fine. On the request of a person to whom an administrative fine is issued, the department shall conduct a hearing pursuant to the administrative procedures act of 1969, 1969 PA 306, MCL 24.201 to 24.328. The department shall impose an administrative fine authorized under this section as follows:

(a) For a first violation, an administrative fine of not less than \$100.00 or more than \$500.00, plus the actual costs of the investigation and double the amount of any economic benefit associated with the violation.

(b) For a second violation that occurs within 5 years after a violation under subdivision (a), an administrative fine of not less than \$500.00 or more than \$1,000.00, plus the actual costs of the investigation and double the amount of any economic benefit associated with the violation.

(c) For a third or subsequent violation that occurs within 5 years after a violation under subdivision (a), an administrative fine of not less than \$1,000.00 or more than \$2,000.00, plus

the actual costs of the investigation and double the amount of any economic benefit associated with the violation.

(2) Any violation made with a culpable mental state greater than negligence must be reported to the attorney general, the USDA, and the chief law enforcement officer of this state.

(3) A decision of the department under this section is subject to judicial review as provided by law.

(4) The department shall advise the attorney general of the failure of any person to pay an administrative fine imposed under this section. The attorney general shall bring an action to recover the fine.

(5) Any administrative fine, investigation costs, or recovery of an economic benefit associated with a violation that is collected under this section must be paid to the state treasury and deposited into the fund.

CHAPTER VII

Emergency Rule Codification

Sec. 701. For a grower registered under the industrial hemp research and development act, 2014 PA 547, MCL 286.841 to 286.859, beginning August 15, 2020 and until October 31, 2020, all of the following apply to the sampling, testing, and disposal of industrial hemp:

(a) A grower that intends to harvest or destroy an industrial hemp crop shall contact the department to schedule a total delta-9-THC test of a representative sample of each variety of industrial hemp by a testing facility. A grower that schedules a total delta-9-THC test under this subdivision shall submit a representative sample of each variety of industrial hemp to the department. A representative sample of each variety of industrial hemp must contain leaves and pistillate inflorescence. The department shall prescribe a sampling procedure and publish the sampling procedure on the department's website. All representative samples submitted to the department under this subdivision are the property of the department.

(b) A testing facility shall perform total delta-9-THC testing on a representative sample of a variety of industrial hemp submitted to the department under subdivision (a) not less than 15 days before the grower intends to harvest or destroy the industrial hemp crop.

(c) A testing facility that performs total delta-9-THC testing under subdivision (b) shall do all of the following:

(i) Test representative samples of industrial hemp in accordance with ASTM International or other nationally or internally recognized test methods, or any other test method approved by the department.

(ii) Perform the test postdecarboxylation.

(iii) Make a quantitative laboratory determination of the total delta-9-THC on a dry weight basis.

(d) The department or a grower may conduct additional testing on a representative sample of industrial hemp. The additional testing may include any of the following:

(i) Cannabidiol and cannabidiol acid levels.

(ii) Foreign matter inspections.

(iii) Microbial and mycotoxin screening.

(iv) Pesticides.

(v) Chemical residue.

(vi) Fungicides.

(vii) Insecticides.

- (viii) Metals screenings.
- (ix) Residual solvents levels.
- (x) Terpene analysis.
- (xi) Water activity content.

(e) The testing facility that conducts total delta-9-THC testing under subdivision (b) shall provide to the department and grower a certified report that states the results of the total delta-9-THC. The certified report must include the following information:

- (i) The grower's registration number.
- (ii) The grower's name.
- (iii) The grower's address.
- (iv) The industrial hemp growing location.
- (v) The total delta-9-THC on a dry weight basis.

(f) Within 15 days after receipt of a certified report of compliant industrial hemp under subdivision (e), the grower shall harvest the compliant industrial hemp. If the grower is unable to complete harvesting of the compliant industrial hemp within 15 days, the grower shall contact the department to schedule an additional total delta-9-THC test of a representative sample of each variety of industrial hemp by a testing facility. A grower that schedules an additional total delta-9-THC test under this subdivision shall submit a representative sample of each variety of industrial hemp that has not been harvested to the department. Within 15 days after receipt of an additional certified report of compliant industrial hemp under this subdivision, the grower shall harvest the remaining compliant industrial hemp.

(g) If the certified report of the total delta-9-THC test under subdivision (e) indicates a total delta-9-THC concentration that is more than 0.3% on a dry weight basis, the grower may destroy the industrial hemp crop or repeat the total delta-9-THC testing under subdivision (e) up to 2 additional times. If a third total delta-9-THC test is conducted under this subdivision and the certified report of the total delta-9-THC test indicates a total delta-9-THC concentration that is more than 0.3% on a dry weight basis, the testing facility shall provide to the department and grower a certified report that states the results, and the department shall issue to the grower a destruction order that contains the following information:

- (i) The industrial hemp crop to be destroyed.
- (ii) The date by which the destruction of the industrial hemp crop must occur.
- (iii) If applicable, the method of destruction.
- (iv) Whether department oversight of the destruction is required.

(h) All growers are subject to inspection and sampling of industrial hemp by the department at reasonable times to ensure compliance with this section. If a grower fails to comply with a department inspection, the department may initiate enforcement proceedings. The grower or an authorized agent of the grower shall be present during a department inspection or sampling and shall provide the department with unrestricted access to all industrial hemp, including all buildings and structures used for the cultivation or storage of industrial hemp, and documents regarding the growing of industrial hemp.

(i) As used in this section:

(i) "Compliant industrial hemp" means industrial hemp with a total delta-9-THC concentration of not more than 0.3% on a dry weight basis.

(ii) "Grower" means that term as defined in section 2 of the industrial hemp research and development act, 2014 PA 547, MCL 286.842.

(Attachment B)

DEA REGISTRATION NUMBER	THIS REGISTRATION EXPIRES	FEE PAID
PM0085440	01-31-2021	FEE EXEMPT

SCHEDULES	BUSINESS ACTIVITY	ISSUE DATE
1,2,2N, 3,3N,4,5	ANALYTICAL LAB	12-03-2019

MICHIGAN DEPT OF AGRICULTURE
GINA LYNN-BAUMAN DEWITT
1615 S HARRISON RD
LABORATORY DIVISION
EAST LANSING, MI 48823-5224

CONTROLLED SUBSTANCE REGISTRATION CERTIFICATE
UNITED STATES DEPARTMENT OF JUSTICE
DRUG ENFORCEMENT ADMINISTRATION
WASHINGTON D.C. 20537

Sections 304 and 1008 (21 USC 824 and 958) of the Controlled Substances Act of 1970, as amended, provide that the Attorney General may revoke or suspend a registration to manufacture, distribute, dispense, import or export a controlled substance.

THIS CERTIFICATE IS NOT TRANSFERABLE ON CHANGE OF OWNERSHIP, CONTROL, LOCATION, OR BUSINESS ACTIVITY, AND IT IS NOT VALID AFTER THE EXPIRATION DATE.

Form DEA-223 (8/2016)

DEA REGISTRATION NUMBER	THIS REGISTRATION EXPIRES	FEE PAID
PM0085440	01-31-2021	FEE EXEMPT

SCHEDULES	BUSINESS ACTIVITY	ISSUE DATE
1,2,2N, 3,3N,4,5	ANALYTICAL LAB	12-03-2019

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SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

MICHIGAN DEPARTMENT OF AGRICULTURE & RURAL DEVELOPMENT
FOOD, AND FEED SAFETY LABORATORY

1615 S. Harrison Road
East Lansing, MI 48823
Gina DeWitt Phone: 517-337-5082

CHEMICAL

Valid To: December 31, 2021

Certificate Number: 3911.01

In recognition of the successful completion of the A2LA evaluation process (including an assessment of the laboratory's compliance with the A2LA Food Testing Program Requirements, containing the 2018 AOAC *International Guidelines for Laboratories Performing Microbiological and Chemical Analyses of Food, Dietary Supplements, and Pharmaceuticals*), accreditation is granted to this laboratory to perform the following tests on food ingredients and processed foods:

<u>Test Type/Methodology</u>	<u>Test Method</u>	<u>Internal Procedure</u>
Amprolium in Animal Feed and Premixes by HPLC/PDA Detection	-----	FFD.02.MTQ.00
Carbadox in Animal Feed and Premixes by UPLC/PDA Detection	-----	FFD.02.MTAB
Crude Fat in Comminuted Meats using Dionex ASE 350	-----	FFD.03.MTI
Crude Fat in Feed using Dionex ASE 350	-----	FFD.02.MTAA
Crude Fiber Analysis in Feeds using ANKOM Technology	AOCS Ba6a-05	FFD.02.MTC.00
Decoquinatate in Animal Feeds and Premixes by HPLC/Fluorescence Detection	AOAC 2008.08	FFD.02.MTM.00
Determination of THC Total CBD and CBN in Hemp by GC/FID	-----	FFD.08.MTA
Estimation of Total Dissolved Solids in Drinking Water by Conductivity	-----	FFD.03.MTG
Lasalocid in Animal Feed and Premixes by UPLC/Fluorescence Detection	AOAC 2008.01	FFD.02.MTD.00
Monensin in Animal Feed by HPLC Post Column Derivatization	AOAC 2006.01	FFD.02.MTE.00
Mycotoxins in Animal Feed by LC/MS/MS	-----	FFD.02.MTAC
Nitrogen and Protein Determination of Various Products by Combustion	-----	FFD.02.MTS.00

<u>Test Type/Methodology</u>	<u>Test Method</u>	<u>Internal Procedure</u>
Nitrogen Determination of Fertilizer Products by Combustion	-----	FFD.06.MTB*
Nutritive Metals in Animal Feed by ICP-OES	-----	FFD.02.MTI.00
Patulin in Apple Products	AOAC 2000.02	FFD.03.MTE.00
pH by Potentiometry	AOAC 981.12	FFD.03.MTA.00
Phosphorus and Potassium in Fertilizers by ICP-OES	-----	FFD.06.MTC*
Ractopamine in Animal Feed and Premixes by HPLC/Fluorescence Detection	-----	FFD.02.MTW.00
Sulfamethazine in Animal Feed and Premixes by HPLC/PDA Detection	AOAC 999.16	FFD.02.MTT.00
Tetracyclines in Animal Feed UPLC-FD	AOAC.2008.9	FFD.02.MTF.00
Tilmicosin in Animal Feed and Premixes by UPLC/PDA Detection	-----	FFD.02.MTY
Tylosin in Animal Feed and Premixes by UPLC/PDA Detection	-----	FFD.02.MTO.00
Water Activity by Dew Point (Chilled Mirror)	AOAC 978.18	FFD.03.MTC.00

*This method does not fall under the A2LA Food Testing Program Requirements.

(A2LA Cert. No. 3911.01) 04/28/2020



ACCREDITED LABORATORY

A2LA has accredited

MICHIGAN DEPARTMENT OF AGRICULTURE & RURAL DEVELOPMENT FOOD AND FEED SAFETY LABORATORY

East Lansing, MI

for technical competence in the field of

Chemical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of A2LA R204 - *Specific Requirements - Food and Pharmaceutical Testing Laboratory Accreditation Program*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

Presented this 28th day of April 2020.



A blue ink signature of the Vice President of Accreditation Services for the Accreditation Council.

Vice President, Accreditation Services for the Accreditation Council
Certificate Number 3911.01 Valid to December 31, 2021

For the tests to which this accreditation applies, please refer to the laboratory's Chemical Scope of Accreditation.

(Attachment D)

Standard Operating Procedure			
Michigan Department of Agriculture and Rural Development, Laboratory Division			
Title: Determination of Total THC, Total CBD, and CBN Using Chromatographic Methods		Effective Date: September 18, 2019	
SOP No: FFD.08.MTA.01	Revision: 01	Replaces: Original	Revision Date: September 13, 2019
1. Title: Determination of Total THC, Total CBD, and CBN Using Chromatographic Methods			
2. Scope, Application, Rationale: Michigan Public Act 641 specifies “Industrial hemp” means the plant <i>Cannabis sativa</i> L. and its parts including the viable seeds of that plant and all derivatives, extracts, cannabinoids, isomers, acids, salts, and salts of isomers, whether growing or not, with a delta-9-tetrahydrocannabinol concentration of not more than 0.3% on a dry weight basis. Industrial hemp includes industrial hemp commodities and products and topical or ingestible animal and consumer products derived from the plant <i>Cannabissativa</i> L. with a delta-9-tetrahydrocannabinol concentration of not more than 0.3% on a dry weight basis. If the reported total THC quantitation exceeds 0.3%, the plant is considered violative and cannot be used or labeled as hemp.			
3. Summary of Method: A small portion of a homogenized <i>Cannabis sativa</i> L. plant is extracted, analyzed and quantitated using gas chromatography flame ionization detection (GCFID) to determine the amount of total THC, total CBD, and CBN in the sample. The total THC amount shall be used to determine whether the plant is legally considered industrial hemp or marijuana. The amounts of total CBD and CBN shall be provided for additional information. Any sample with a reported total THC quantitation that exceeds 0.3% shall be confirmed by LCMSMS.			
4. Definitions:			
4.1 CBD: Cannabidiol			
4.2 CBDa: Cannabidolic acid			
4.3 CBN: Cannabinol			
4.4 GCFID: Gas chromatography with flame ionization detection			
4.5 Industrial Hemp Sample Prep Sheet: form FFD.08.FOAA current revision; located in folder S:\FFD_Section\CANNABIS\SAMPLE DATA\Worksheet Templates			
4.6 LCMSMS: Liquid chromatography with tandem mass spectroscopy			
4.7 QC Worksheet: an excel spreadsheet detailing quantitation standard and spike information; located in folder S:\FFD_Section\CANNABIS\SAMPLE DATA			
4.8 THC: Δ9-Tetrahydrocannabinol			
4.9 THCa: Tetrahydrocannabinolic acid			
4.10 Total CBD: Summation of quantified amounts of CBD and CBDa in a sample			
4.11 Total THC: Summation of quantified amounts of THC and THCa in a sample			
4.12 Worksheet Template: an excel spreadsheet that shall be saved under the appropriate set name that contains sample numbers, weights, and other information related to the current set; located in folder S:\FFD_Section\CANNABIS\SAMPLE DATA\Worksheet Templates.			
5. Safety:			
5.1 Acetonitrile (CH ₃ CN); CAS No. 75-05-8; Caution. Flammable. Poisonous.			
5.2 Air, compressed; Contains gas under pressure and may explode if heated.			
5.3 Formic Acid (CH ₂ O ₂); CAS No. 64-18-6; Caution. Caustic. Corrosive. Combustible liquid and vapor. Causes burns by all exposure routes. Hygroscopic.			

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- 5.4 Helium, compressed; CAS No.7440-59-7; Contains gas under pressure and may explode if heated.
 - 5.5 Hydrogen, compressed; CAS No. 1333-74-0; Extremely flammable gas. Contains gas under pressure and may explode if heated. Burns with invisible flame.
 - 5.6 Methanol (CH₃OH); CAS No. 67-56-1; Caution. Flammable. Poisonous.
- 6. Significance:** Legal matters may result from analysis of submitted samples. Accurate quantitation is necessary to provide the grower and department with the information to determine if the crop is legally considered industrial hemp or is in violation.
- 7. Apparatus:**
- 7.1 GCFID analytical system consisting of Shimadzu GC-2010 Plus Gas Chromatograph; Shimadzu AOC-20s Auto Sampler; Shimadzu AOC-20i Auto Injector; Hydrogen Flame Ionization Detector; Agilent J&W Capillary GC Column HP-5 (30 m length x 0.320 mm I.D. x 0.25 µm film thickness) part number 19091J-413 or equivalent. Windows based computer and data acquisition storage system called LabSolutions.
 - 7.2 LCMSMS analytical system consisting of Shimadzu model LCMS-8045 Liquid Chromatograph Mass Spectrometer; model DGU-20A_{SR} degassing unit; model LC- 20AD_{XR} liquid chromatograph pumps; model SIL-20AC_{XR} autosampler; model CTO- 20A column oven; Shimadzu NexLeaf CBX for Potency analytical column (2.7 µm, 150 x 4.6 mm) part number 220-91525-70 or equivalent. Also includes NexLeaf Guard cartridge (5 x 4.6 mm) part number 220-91525-72 and Guard holder part number 220- 91525-73. Windows based computer and data acquisition storage system called LabSolutions.
- 8. Materials or Reagents:**
- 8.1 2010 Geno/Grinder – SPEX SamplePrep LLC; use for sample extraction
 - 8.2 Acetonitrile – HPLC grade or better
 - 8.3 Air – compressed gas cylinder; used for GCFID analysis
 - 8.4 Aluminum pans and lids – various sizes; used for samplepreparation
 - 8.5 Analytical balance
 - 8.6 Autosampler vials and caps
 - 8.7 Biohazard bag – bag that shall be used for disposal of extraneous material following sample homogenization and for final sample disposal following analysis
 - 8.8 Blixer 2 – Robot-coupe USA, Inc.; use for sample homogenization
 - 8.9 Brushes – various sizes/types to be used in sample transfer following homogenization and for washing the Blixer 2 and glassware
 - 8.10 Centrifuge tubes – 50 ml disposable polypropylene tubes with caps
 - 8.11 Dispensette, S Organic, Digital – automatic solvent dispenser set to dispense 40.0 ml
 - 8.12 Filter (degas LC solvents) – 0.45 µm nylon (or equivalent)
 - 8.13 Filter (sample clarification) – 13 mm, 0.2 µm PTFE acrodisc (or equivalent)
 - 8.14 Formic acid – reagent grade
 - 8.15 Glass Wool – Shimadzu catalog number 221-48600
 - 8.16 Gloves, heat resistant – should be worn when removing items from oven

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- 8.17 Gloves – disposable; nitrile or equivalent
- 8.18 Graduated cylinders – various sizes
- 8.19 Helium – compressed gas cylinder; used for GCFID analysis
- 8.20 Hydrogen – compressed gas cylinder; used for GCFID analysis
- 8.21 Inlet liner – Cycloplitter, 3.5 mm x 5.0 x 95, Restek catalog number 22073
- 8.22 Methanol – lab grade for rinsing Blixer 2 components and HPLC grade or better for sample extraction
- 8.23 Micropipettes – various sizes; with appropriate tips
- 8.24 Mobile phase A – water + 0.1% formic acid; used for LCMSMS analysis
- 8.25 Mobile phase B – acetonitrile + 0.1% formic acid; used for LCMSMS analysis
- 8.26 Moisture Analyzer – Mettler-Toledo, Model HC103; with aluminum sample pans
- 8.27 Oven – use for sample drying
- 8.28 Paper plates – disposable; nine inch or equivalent
- 8.29 Reference standard solutions
 - 8.29.1 *Quantitation standards*
 - Using the appropriate pipets and methanol, follow the dilution schedule as outlined in the latest QC Worksheet to produce a set of quantitation standards. Each quantitation standard is good for one week.
 - 8.29.2 *Spike solution*
 - There is no spike solution that contains all the compounds. Each compound must be spiked separately into the same control material portion, either from an original stock solution or an intermediate stock solution. Follow the spiking pattern as outlined in the latest QC Worksheet.
- 8.30 Sieve – U.S.A. Standard Testing Sieve; 1.00 mm (metric)
- 8.31 Syringe – disposable; 3 ml slip tip (or equivalent)
- 8.32 Test tubes – disposable; used for sample dilution as needed
- 8.33 Volumetric flasks – various sizes
- 8.34 Water – HPLC grade or better

9. Sampling:

- 9.1 Samples shall be gathered and shipped per MDARD-HEMP-201908-1. Per Michigan Public Act 641, a grower may transfer up to 2-1/2 ounces of plant material per transfer to a testing facility for the purpose of measuring THC, cannabidiol, or other phytocannabinoid levels.
- 9.2 All samples shall be contained in a paper bag with the appropriate documentation attached.

10. Interferences or Bias:

- 10.1 To help ensure complete decarboxylation of THCa to THC and CBDa to CBD, a small wad of glass wool is inserted into the GC inlet liner and placed just above the start of the cycle configuration.

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10.2 GCFID analysis will result in three peaks appearing in the chromatogram, one each for total THC, total CBD, and CBN.

10.3 LCMSMS analysis will result in five peaks appearing in the chromatogram, one each for THC, THCa, CBD, CBDa, and CBN. THC and CBD are structural isomers, as are THCa and CBDa. Therefore, the identification of these compounds is possible only through comparison of their respective retention times.

11. Instrument Parameters:

11.1 GCFID

11.1.1 Injection volume: 1.0 µl

11.1.2 Injection Mode: Split

11.1.3 Split Ratio: 20:0

11.1.4 Injector Temperature: 320° C

11.1.5 Detector Temperature: 300° C

11.1.6 Detector Makeup Gas: Helium

11.1.7 Detector Makeup Flow: 25.0 ml/min

11.1.8 Detector H₂ Flow: 30.0 ml/min

11.1.9 Detector Air Flow: 350.0 ml/min

11.1.10 Column Oven Temperature Program (10 minute total run time):

Rate (°C / min)	Temperature (°C)	Hold Time (min)
initial condition	200.0	0.00
15.0	300.0	3.33

11.2 LCMSMS

11.2.1 Injection volume: 1.0 µl

11.2.2 Column Temperature: 40.0° C

11.2.3 Flow Rate: 0.5000 ml/min

11.2.4 Data Acquisition Start Time: 4.000 min

11.2.5 Data Acquisition End Time: 9.000 min

11.2.6 LC Gradient Program (10 minute total run time):

Time (minutes)	% Mobile Phase A	% Mobile Phase B
initial condition	25.0	75.0
1.00	10.0	90.0
8.50	10.0	90.0
8.60	25.0	75.0

11.2.7 LCMSMS parameters are found in annex 1.

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12. Calibration:

- 12.1 GCFID calibration standards shall be made based upon a total response of THC and THCa, total response of CBD and CBDa, and CBN. The resulting chromatogram shall display three peaks, one for total THC, one for total CBD, and one for CBN.
- 12.2 A minimum four-point calibration curve shall be created for total THC, total CBD, and CBN with each set of samples analyzed.
- 12.3 The correlation coefficient (r^2) shall be ≥ 0.995 for each calibration.

13. Procedure:

13.1 Drying and Weighing

- 13.1.1 Empty entire sample from the paper bag into a labeled aluminum pan.
- 13.1.2 Gently agitate the pan to disperse the sample evenly, then loosely fit a cover on the pan and place the pan into an oven for a minimum of two hours at 95° C (200° F).
- 13.1.3 On an Industrial Hemp Sample Prep Sheet, record the start date and time the sample and placed into the oven and the end date and time when it was removed.

13.2 Grinding

- 13.2.1 Allow the sample to come to room temperature, then transfer the entire sample to the Blixer 2 and homogenize thoroughly.
- 13.2.2 Pour the sample through the appropriate sieve and collect it on a paper plate. Discard any stems, seeds, or other extraneous material left in the sieve into a biohazard bag.

13.3 Moisture Content

- 13.3.1 Working with the moisture analyzer, tare an aluminum sample pan and then add 2.0 ± 0.1 g of sample, spreading the sample evenly in the sample pan.
- 13.3.2 Close the lid and start the analysis. Normal reading time is between 3 and 15 minutes.
- 13.3.3 A moisture reading of below 15% indicates the sample is dry enough to begin extraction; a moisture reading of 15% or greater will require the sample to be re-dried. Record the data on the Industrial Hemp Sample Prep Sheet.

13.4 Extraction

- 13.4.1 Weigh 0.20 ± 0.02 g of each sample and of the control material for a matrix blank into separate and correctly labeled polypropylene centrifuge tubes. Record the weights on a Worksheet Template.
- 13.4.2 Weigh 0.20 ± 0.02 g of the control material for a matrix spike into a separate and correctly labeled polypropylene centrifuge tube (see section 8.29.2). Record the weight on the Worksheet Template
- 13.4.3 Add 40 ml of methanol to each tube using the dispensette or a graduated cylinder and screw cap on tightly, then place the tube(s) into the Geno/Grinder and lock into place. Set the rate value to 500 rpm and the total shake time shall be 5 minutes.
- 13.4.4 Remove the tube(s) and allow the sample(s) to settle for several minutes.

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- 13.4.5 Filter a portion of the final sample extract through a sample clarification filter attached to a disposable syringe, discarding the first few drops, and into a labeled autosampler vial, then cap. Extract is now ready for injection and analysis.
- 13.4.6 If the original analysis of a sample reveals a dilution is necessary, dilute an aliquot of the filtered extract with methanol as required.

14. Quality Control:

- 14.1 This SOP shall be reviewed biennially by Section staff.
- 14.2 This SOP shall be audited biennially by the QAO.

15. Calculations: The following calculation shall be used for quantitation purposes:

$$\text{Amount (\%)} = [(R \times V) / W] / 10,000$$

R = raw result calculated from calibration curve (µg/ml) V = volume of extraction solution (ml)
W = sample weight (g)

10,000 is the conversion factor from ppm to percent

- 16. **Report:** All sample quantitation shall be truncated to one decimal place for reporting purposes.
- 17. **Method Performance:** Refer to S\FFD_Section\CANNABIS\CANNABIS Control Data.
- 18. **Responsibilities:**
 - 18.1 The analyst shall be responsible for ensuring proper quantitation procedures are followed when reporting results.
 - 18.2 The analyst shall be responsible for data interpretation and ensuring all quality control criteria have been met and additional analysis completed if needed.
 - 18.3 Section staff will dispose of dried samples in a biohazard bag and sample containers in the trash when notified by section supervisor or scientist. Sample extracts shall be disposed in the appropriate hazardous waste container and centrifuge tubes shall be disposed in the trash.
- 19. **References:**
 - 19.1 Citte, C, et al. (2019). Cannabinoid Profiling of Hemp Seed Oil by Liquid Chromatography Coupled to High-Resolution Mass Spectrometry. *Frontiers in Plant Science* 10:120.
 - 19.2 Michigan Public Act 641
 - 19.3 SOP PT-METH-031, Colorado Department of Agriculture. (2014).
- 20. **Troubleshooting:** To help prevent sample carryover during the sample preparation step, a new aluminum pan shall be used for each sample, and the Blixer 2 mixing bowl and blade shall be washed with soap and water, rinsed with methanol, and air dried between samples.

21. Approval:

Standard Operating Procedure
Michigan Department of Agriculture and Rural Development, Laboratory Division

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SOP No: FFD.08.MTA.01	Revision: 01	Replaces: Original	Revision Date: September 13, 2019
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Approval:	
Reviewed by:	
Signature	Date
Approved by:	
Signature	Date
<p>Michigan Department of Agriculture & Rural Development Laboratory Division Geagley Laboratory 1615 S. Harrison Rd. East Lansing, MI 48823-5224 (517) 337-5040</p>	

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Standard Operating Procedure
Michigan Department of Agriculture and Rural Development, Laboratory Division

Title: Determination of Total THC, Total CBD, and CBN Using Chromatographic Methods **Effective Date: September 18, 2019**

SOP No: FFD.08.MTA.01 **Revision: 01** **Replaces: Original** **Revision Date: September 13, 2019**

Annex 1

LCMSMS Parameters

Compound Name	Precursor Ion (m/z)	Product Ion (m/z)	Dwell Time (msec)	Q1 Pre Bias (V)	Collision Energy (V)	Q3 Pre Bias (V)
CBDa (Q)	359.40	341.30	30.0	-13.0	-15.0	-24.0
CBDa (C1)	359.40	219.30	30.0	-27.0	-31.0	-23.0
CBDa (C2)	359.40	261.30	30.0	-26.0	-22.0	-28.0
CBD (Q)	315.30	193.30	30.0	-11.0	-23.0	-21.0
CBD (C1)	315.30	123.30	30.0	-11.0	-35.0	-23.0
CBD (C2)	315.30	259.30	30.0	-11.0	-19.0	-18.0
CBN (Q)	311.40	223.30	30.0	-23.0	-21.0	-16.0
CBN (C1)	311.40	293.30	30.0	-23.0	-15.0	-22.0
CBN (C2)	311.40	195.30	30.0	-23.0	-26.0	-20.0
THC (Q)	315.30	193.30	30.0	-11.0	-23.0	-21.0
THC (C1)	315.30	123.30	30.0	-11.0	-35.0	-23.0
THC (C2)	315.30	259.30	30.0	-11.0	-19.0	-18.0
THCa (Q)	359.40	341.30	30.0	-13.0	-15.0	-24.0
THCa (C1)	359.40	219.30	30.0	-27.0	-31.0	-23.0
THCa (C2)	359.40	261.30	30.0	-26.0	-22.0	-28.0

Standard Operating Procedure			
Michigan Department of Agriculture and Rural Development, Laboratory Division			
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Annex 2			
Revision History			
Revision Level	Description	Initials	Date (mm/dd/yyyy)
01	Clarification and rewriting of various sections to incorporate a more accurate overall SOP.	EKS/TG	9/13/2019

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(Attachment E)



Laboratory Division

The measurement uncertainty for the process titled, "Determination of Total THC, Total CBD, and CBN Using Chromatographic Methods," was determined using guidelines published by the United States Food and Drug Administration (FDA) and the Association of Official Analytical Chemists (AOAC). A certified reference material was procured and analyzed at the necessary detection levels and statistically relevant repetitions. The measurement uncertainty (μ) for these data was then calculated using the procedure laid out in the National Institute of Standards and Technology (NIST) SOP 29.