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Madison, WI**

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BY-LAWS OF NIRS FORAGE AND FEED TESTING CONSORTIUM

ARTICLE I. OFFICES

1.01. Legal Office

NIRS Forage and Feed Testing Consortium
1575 Linden Drive
Madison, WI 53706

ARTICLE II. MEETINGS

2.01. Annual Meetings. The President shall determine the site and date of the annual meeting of the NIRS Forage and Feed Testing Consortium, referred to hereafter as the Consortium. The Secretary will give notice of the annual meeting to the officers, Board of Directors and participating laboratories at least 60 days prior to the meeting.

2.02. Special Meetings. Special meetings may be called by the President or Board of Directors of Consortium for any purpose or purposes pertaining to the operation of the Consortium. Notice of special meetings will be given by the Secretary to the officers, Board of Directors and participating laboratories at least 15 days prior to the meeting.

ARTICLE III. BOARD OF DIRECTORS

3.01. Number.

The Board of Directors shall consist of at least 9 individuals-three persons from participating commercial testing laboratories, three from participating universities or government facilities, and three from participating research and development company laboratories. More than 3 individuals in any particular sector are allowed.

3.02. Term of Board Members. The length of term for selected board members shall be three years. Members can serve not more than 2 consecutive terms.

Terms will begin on October 1 and end on September 30. The terms of the individuals from each sector shall be staggered to permit the introduction of one new member from each organizational branch every year.

3.03. Voting. Each fee paying laboratory shall have one vote for Board candidates. Collaborating Members elected to the Board of Directors may serve as voting Board Members. All members of the Board of Directors have a single vote in all matters. Proxy votes are acceptable with written consent from individuals not present. A quorum representing a majority of the Board of Directors is required for all voting actions other than adjournment.

3.04. Manner of Acting. The act of the majority of the directors present at a meeting at which a quorum is present shall be the act of the Board of Directors, unless the act of a greater number is required by law or by the Articles of Incorporation or these By-Laws.

3.05. Meetings. The Board of Directors will meet during the annual meeting of the Consortium. They also will meet at least two other times during the year not in association with the annual meeting. Meetings other than the annual meeting can be in-person, via teleconference or by other electronically aided methods.

3.06. Conduct of Meetings. The President, and in the absence of the President, the Vice-President, and in the absence of the Vice-President, any director chosen by the directors present, shall call meetings of the Board of Directors to order and shall act as President of the meeting. The Secretary of the Association shall act as secretary of all meetings of the Board of Directors, but in the absence of the Secretary, the presiding officer may appoint any director or other person present to act as Secretary of the meeting.

3.07. Vacancies. Any vacancy occurring in the Board of Directors, including a vacancy created by an increase in the number of directors may be filled until the next succeeding annual election by the affirmative vote of a majority of the directors then in office.

3.08. Presumption of Assent. A director of the Consortium who is present at a meeting of the Board of Directors or a committee thereof of which such director is a member at which any action on any Consortium matter is taken shall be presumed to have assented to the action taken unless the dissent of the director shall be entered in the minutes of the meeting or unless such director shall file written dissent to such action with the adjournment thereof or shall forward such dissent by registered mail to the Secretary of the Consortium immediately after the adjournment of the meeting. Such right to dissent shall not apply to a director who voted in favor of such action.

3.09. Committees. The Board of Directors by resolution adopted by the affirmative vote of a majority of board members in attendance may designate one or more committees, each committee to be chaired by a member of the Board of Directors and consist of at least three individuals, which, to the extent provided in said resolution as initially adopted, and as thereafter supplemented or amended by further resolution adopted by a like vote, shall have and may exercise, when the Board of Directors is not in session, the powers of the Board of Directors in the management of the business and affairs of the Consortium, except action in respect to election of the principal officers or the filling of vacancies in the Board of Directors or committees created pursuant to this section. The Board of Directors may elect one or more of its members as alternate members at any meeting of such committee who may take the place of any absent member or members at any meeting of such committee, upon request by the Chair or upon request of the President of such meeting. Each such committee shall fix its own rules governing the conduct of its activities. Each committee shall provide a written report of its activities at the annual meeting and at any other times as the Board of Directors may request. Every member of the Board of Directors will be a member of at least one committee.

3.10. Standing Committees

1. Nomination Committee. The Nominating Committee will be chaired by a representative from participating laboratories. It will solicit candidates to represent all three sectors of membership. By March 1 of each year, potential candidates and their biographies will be provided to the Board of Directors, after which the Committee and the Secretary will prepare ballots for an election to be completed by June 1st. The Committee will obtain biographies of all new board members and distribute them to the Board of Directors prior to the first meeting attended by each new board member.
2. Finance Committee. The Finance Committee will review all income and expenditures of the Consortium. It will prepare an annual budget, recommend fees and make recommendations regarding any contractual agreements involving the Consortium.
3. Methodology Review Committee. The Methodology Review Committee will establish policy of documentation of NIRS and Reference methods sought by the Consortium. The Committee will also review and recommend actions on acceptance of new tests or tests of new products sought by the Consortium.

4. Annual Meeting/Workshop Committee. The Annual Meeting/Workshop Committee will identify and organize education, training and professional development opportunities for active and potential participating laboratories. It will organize the annual business meeting.

3.11. Unanimous Consent without Meeting. Any action required or permitted by the Articles of Incorporation or By-Laws or any provision of law to be taken by the Board of Directors at a meeting or by resolution, may be taken without a meeting if consent in writing, setting forth the action so taken, shall be signed by all the directors then in office.

3.12. Attendance Requirements. Any officer or member of the Board of Directors that fails to attend three (3) out of five (5) consecutive meetings shall be removed from office and/or the Board of Directors.

ARTICLE IV. OFFICERS

4.01. Number. The principal officers of the Consortium shall be a President, a Vice-President, and Secretary/Treasurer, each of whom shall be elected by the Board of Directors. Such other officers and assistant officers as may be deemed necessary may be elected or appointed by the Board of Directors. Any two or more offices may be held by the same person, except the combined offices of President and Secretary and the offices of President and Vice-President.

4.02. Election and Term of Office.

The officers of the Consortium to be elected by the Board of Directors shall be elected annually as soon as convenient at the last Board meeting prior to the beginning of the new fiscal year (October 1 through September 30). If the election of officers shall not be held at such meeting, such election shall be held as soon thereafter as conveniently may be. Each officer shall hold office until a successor shall have been duly elected or until death, resignation or removal of such officer. The President shall hold office for a term of two years; all other officers shall be elected annually.

4.03. Removal. Any officer or agent may be removed by the Board of Directors whenever in its judgment the best interests of the Consortium will be served thereby, but such removal shall be without prejudice to the contract rights, if any, of the person so removed. Election or appointment shall not of itself create contract rights.

4.04. Vacancies. A vacancy in any principal office because of death, resignation, removal, disqualification or otherwise, shall be filled by the Board of Directors for the unexpired portion of the term.

4.05. The President. The President shall be principal executive officer of the Consortium and, subject to the control of the Board of Directors, shall in general supervise and control all of the business and affairs of the Consortium. The President shall, when present, preside in all meetings of the Board of Directors. The President shall have authority, subject to such rules as may be prescribed by the Board of Directors, to appoint such agents and employees of the Consortium as the President shall deem necessary, to prescribe their powers, duties and compensation, and to delegate authority to them. Such agents and employees shall hold office at the discretion of the President. The President shall have authority to sign, execute and acknowledge, on behalf of the Consortium, all deeds, mortgages, bonds, stock certificates, contracts, leases, reports and all other documents or instruments necessary or proper to be execution in the course of the Consortium's regular business, or which shall be authorized by resolution of the Board of Directors and, except as otherwise provided by law. The Board of Directors may authorize any Vice-President or other officer or agent of the Consortium to sign, execute and acknowledge other documents or instruments necessary or proper in the place and stead of the President. In general, the President shall perform all duties incident to the office of President and such other duties as may be prescribed by the Board of Directors from time to time. The President shall appoint committees and assign individuals to perform actions approved by the Board of Directors, and will monitor progress of these actions.

4.06. The Vice-President. In the absence of the President or in the event of death, inability or refusal to act, or in the event for any reason it shall be impracticable for the President to act personally, the Vice-President shall perform the duties of the President, and when so acting, shall have all the powers of and be subject to all the restrictions upon the President. Any Vice-President shall perform such other duties and have such authority as from time to time may be delegated or assigned to the Vice-President by the President or by the Board of Directors. The execution of any instrument of the corporation by the Vice-President shall be conclusive evidence, as to third parties, of authority of the Vice-President to act in the stead of the President.

4.07 The Secretary/Treasurer. The Secretary/Treasurer shall: (a) keep the minutes of the meetings of the Board of Directors in one or more books provided for that purpose; (b) see that all notices are duly given in accordance with the provisions of these By-laws or as required by law; (c) be custodian of the corporation records and of the seal of the corporation, and see that the seal of the corporation is affixed to all documents, the execution of which on behalf of the corporation under its seal is duly authorized; (d) have charge and custody of and be responsible for all funds and securities of the corporation; (e) receive and give receipts for moneys due and payable to the corporation from any source whatsoever, and deposit all such moneys in the name of the

corporation in such banks, trust companies and other depositaries as shall be selected by the Board of Directors; and (f) in general perform all duties and exercise such authority as from time to time may be delegated or assigned to the Secretary/Treasurer by the President or by the Board of Directors.

ARTICLE V. MEMBERS

Membership consists of either Voting Members or Collaborating Members. Each fee-paying laboratory shall have one vote in all NIRS Consortium matters. Collaborating Members may contribute to the NIRS Consortium from a research and extension standpoint or may act as a reference laboratory. Collaborating Members are not required to pay annual fees, and do not vote. Collaborating Members elected to the Board of Directors may serve as voting Board Members.

5.01. Categories

Membership consists of the categories listed below. Each fee-paying laboratory shall have one vote in all NIRS Consortium matters. Collaborating Members elected to the Board of Directors may serve as voting Board Members.

1. Regular Membership

- Annual fee \$2500
- Expected to participate by submitting spectra & samples
- Use NIRSC equations for commercial use
- Voting members

2. Research/Non-Profit

- Annual fee \$1000
- A public entity, test non-commercial samples (= samples that may be from various sources, but the member does not receive money for testing the samples), and do not compete with commercial labs
- Use NIRSC equations for research and/or non-profit uses
- Expected to participate by submitting spectra & samples
- Do not make money from the use of NIRSC equations
- Voting members

3. Sponsorship

- Annual fee \$1500
- A commercial entity
- Do not receive NIRSC equations
- Not required to pay new member set-up fee
- Contribute to NIRSC with expertise, collaboration, samples, spectra, etc., and want to expand the utility of NIRS
- Voting members

4. Collaborators

- No annual fee

- A public and non-profit entity
- Collaborate from a research and extension standpoint or act as a reference laboratory
- Letter of understanding of use required for loaned equations from NIRSC with approval of board
- Non-voting members

5. Instrument Manufacturers

- Annual fee \$2000
- A commercial entity
- Not required to submit spectra or chemistry
- Receive NIRSC equations for marketing and demonstration purposes only
- Sign Research Agreement (and a specific research plan as appropriate; may be obligated to contribute money above and beyond annual fee if the specific research plan requires it)
- Not required to pay new membership fee
- Contribute to NIRSC with expertise, collaboration, and want to expand the utility of NIRS; e.g. technical articles for newsletter, workshop presentations, NIRSC member contact
- Voting members
- Equal time on rotating annual basis on annual meeting agenda; display space included annually

ARTICLE VI. NIRSC INTELLECTUAL PROPERTY

6.01. Use of Aggregate Materials

Use aggregate spectra (SPECTRA), chemistry data (CHEMISTRY), and/or forage and feed samples (SAMPLES) submitted to NIRSC:

1. Spectra shall be defined in this case as being the absorbance or reflectance data collected by a Near Infrared Reflectance instrument, used to describe chemical, biological, or physical properties of a sample. Chemistry data shall be defined in this case as being the data collected from chemical analysis to describe chemical, biological, or physical properties of a sample. Samples shall be defined in this case as being the physical samples from any physical material used in predicting spectra or determining chemical data.

2. NIRSC Aggregate spectra shall be defined as spectra pooled by NIRSC from Spectra submitted by NIRSC Members and/or collaborators to be used as defined in paragraph 5 and 6 below.

3. NIRSC Aggregate chemistry shall be defined as chemistry pooled by NIRSC from chemistry data submitted by NIRSC Members and/or collaborators to be used as defined in paragraph 5 and 6 below.
4. NIRSC Aggregate samples shall be defined as samples pooled by NIRSC from samples submitted by NIRSC Members and/or collaborators to be used as defined in paragraph 5 and 6 below.
5. NIRSC shall not sell, lease, or donate any aggregate spectra, chemistry, or samples to any non-member of the NIRSC without a vote of the membership. Approval of sale, lease or donation of aggregate spectra, chemistry, or samples will require at least a 75% approval of NIRSC voting members. NIRSC aggregate spectra, chemistry, and samples can be used for the formulation of NIRSC global calibrations, expandable calibrations, validation sets, etc.
6. NIRSC aggregate spectra, chemistry, or samples may be used by instrument manufacturers for the purpose of evaluation of their instruments, or spectral transfer to their particular format. This will require an approval from the NIRSC Board of Directors. Any research group or instrument manufacturer receiving approval for use of the NIRSC spectra, chemistry, or samples will be required to complete a Research Agreement.

6.02. Definition of NIRSC Equation

An NIRSC equation is defined as- an NIRS equation (calibration) derived from NIRSC aggregate spectra and chemical data submitted to the NIRSC. The equation (calibration) can not be biased or modified in any way.

ARTICLE VII. AMENDMENTS

These Bylaws may be amended at any regular meeting by a three-fourths vote (seven votes in favor) of the directors, or by a like vote at any special meeting called for that purpose, provided all directors have received written notification thirty days prior to the meeting.