

(2) The use of the words "state tested" or "state" or the name "State of Wisconsin Department of Agriculture" or "State Seed Laboratory", or words of similar import, shall not be used in advertising, selling or labeling of seed in any way to give the impression that the state or any of its subdivisions guarantees or assumes responsibility for any data on any seed label or for the quality of any lot of seed.

History: 1-2-56; r. and recr. Register, February, 1969, No. 168, eff. 3-1-69.

**Ag 20.09 Fees.** The fees for testing seed samples submitted to the state seed laboratory are based on costs of time and materials and are as set forth in this section. Except as otherwise described, the 3 basic tests consist of the purity analysis, the noxious weed seed examination and the germination test. The fees for the various types and categories of seeds and seed tests, and the sizes of samples needed for testing, are as follows:

	Purity	Noxious	Germi- nation	Com- plete	Size of Sample Needed
<b>(1) AGRICULTURAL SEED</b>					
<b>(other than grasses):</b>					
(a) <i>Large</i> -----	\$4.50	No Charge	\$5.50	\$8.50	1 lb
Corn, field peas, pop-corn, soybeans					
(b) <i>Medium</i> -----	\$3.00	\$3.00	\$4.00	\$9.00	1 lb
Barley, buckwheat, flax, oats, rape, rye, sunflower, triticale, vetch, wheat					
(c) <i>Small</i> -----	\$4.00	\$4.00	\$4.50	\$11.00	5 oz.
Alfalfa, alsike clover, birdsfoot trefoil, crown vetch, ladino clover, millets (Japanese, proso, foxtail), red clover, sorghum, sudangrass, sweetclover, timothy, white clover					
<b>(2) GRASS SEED:</b>					
(a) <i>Large</i> -----	\$6.00	\$6.00	\$5.00	\$15.00	5 oz.
Smooth brome, chewings fescue, red fescue, meadow fescue, orchardgrass, reed canarygrass, ryegrass, tall fescue					
(b) <i>Small</i> -----	\$6.00	\$5.00	\$6.00	\$16.50	2 oz.
Bentgrass, bluegrass, Poa trivialis, redtop, tobacco					

	Purity	Noxious	Germination	Complete	Size of Sample Needed
<b>(3) VEGETABLE SEED:</b>					
(a) Brussels sprouts, cabbage, collards, cucumbers, kale, kohlrabi, leek, lettuce, muskmelon, mustard, okra, onions, radish, rutabaga .....	\$4.50	Not Applicable	\$5.00	\$8.00	800 seeds
(b) Artichoke, asparagus, beans, beets, carrots, celeriac, celery, chicory, citron, dill, eggplant, endive, mangel, New Zealand spinach, parsley, parsnip, peas, pepper, pumpkins, Swiss chard, rhubarb, salsify, squash, sweet corn, tomato, watermelon.....	\$5.00	Not Applicable	\$5.50	\$9.00	800 seeds

(4) SEED MIXTURES. The charge for seed mixtures (in which more than one kind of crop seed is present to the extent of 5% or more) is the total of the fee for the kind of crop seed in the mixture having the highest fee and 50% of the fees applicable to the other kinds in the mixture.

(5) UNUSUAL SAMPLES. The work of testing screenings, dirty samples and unusual seeds (including flowers, shrubs, weeds) will be performed on an actual cost basis to be estimated and quoted upon request after receipt of the sample.

(6) SPECIAL TESTS (a) The fee for a tetrazolium test is \$10.00.

(b) Fees for the examination of samples for noxious weed seeds of other states are the same as those for Wisconsin as set forth herein, except that the fees will double if an examination is requested both for Wisconsin and other states.

History: 1-2-56; am. Register, November, 1965, No. 119, eff. 12-1-65; renum. from Ag 20.10 to be Ag 20.09, Register, February, 1969, No. 158, eff. 3-1-69; am. Register, December, 1973, No. 216, eff. 1-1-74; am. (1) and (2), r. and recr. (4) and (6) (a), Register, January, 1981, No. 301, eff. 2-1-81; am. (intro), (1), (2) and (6) (a), r. (4), renum. (3) to be (4), cr. (3), Register, August, 1985, No. 356, eff. 9-1-85.

Ag 20.10 Standards of germination. Standards of germination for vegetable seeds shall be:

Artichoke-----	60%	Carrot-----	55%
Asparagus-----	70%	Cauliflower-----	75%
Bean, garden-----	70%	Celery and celeriac-----	55%
Bean, lima-----	70%	Chicory-----	65%
Beets-----	65%	Citron-----	65%
Broccoli-----	75%	Collards-----	80%
Brussels sprouts-----	70%	Corn-----	75%
Cabbage-----	75%	Cress, garden-----	75%

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Cress, water -----	40%	Peas -----	80%
Cucumber -----	80%	Pepper -----	55%
Eggplant -----	60%	Pumpkin -----	75%
Endive -----	70%	Radish -----	75%
Kale -----	75%	Rhubarb -----	60%
Kohlrabi -----	75%	Rutabaga -----	75%
Leek -----	60%	Salsify -----	75%
Lettuce -----	80%	Spinach -----	60%
Muskmelon -----	75%	Spinach (New Zealand) -----	40%
Mustard -----	75%	Squash -----	75%
Okra -----	50%	Swiss chard -----	65%
Onion -----	70%	Tomato -----	75%
Parsley -----	60%	Turnip -----	80%
Parsnip -----	60%	Watermelon -----	70%

History: 1-2-56; renum. from Ag 20.11 to be Ag 20.10 and am., Register, February, 1969, No. 158, eff. 3-1-69.

Ag 20.11 Seed packaged in hermetically sealed containers. (1) Seed packaged in hermetically sealed containers may be sold for a period of 36 months after the month in which the seed was retested for germination if packaged and tested under the following conditions:

(a) The seed was packaged and tested within 9 months after harvest;

(b) The seed is packaged in a hermetically sealed container which does not allow water vapor penetration (WVP) through any wall, including the seals, greater than 0.05 grams of water per 24 hours per 100 square inches of surface at 100° F. with a relative humidity on one side of 90% and on the other side of 0%. Water vapor penetration or WVP is measured in accordance with standards of the U. S. Bureau of Standards, expressed as follows: gm. H<sub>2</sub>O/24 hr./100sq. in./100° F./90% RH V. 0% RH;

(c) The seed as packaged in the container does not exceed the percentage of moisture, on a wet weight basis, as specified below:

1. Agricultural Seed	Percent	Chives -----	6.5%
Beet, field -----	7.5%	Collards -----	5.0%
Beet, sugar -----	7.5%	Corn, sweet -----	8.0%
Bluegrass, Kentucky ----	6.0%	Cucumber -----	6.0%
Fescue, red -----	8.0%	Eggplant -----	6.0%
Ryegrass, annual -----	8.0%	Kale -----	5.0%
Ryegrass, perennial -----	8.0%	Kohlrabi -----	5.0%
All others -----	6.0%	Leek -----	6.5%
2. Vegetable Seed	Percent	Lettuce -----	5.5%
Bean, garden -----	7.0%	Muskmelon -----	6.0%
Bean, lima -----	7.0%	Mustard, India -----	5.0%
Beet -----	7.5%	Onion -----	6.5%
Broccoli -----	5.0%	Onion, Welsh -----	6.5%
Brussels sprouts -----	5.0%	Parsley -----	6.5%
Cabbage -----	5.0%	Parsnip -----	6.0%
Carrot -----	7.0%	Pea -----	7.0%
Cauliflower -----	5.0%	Pepper -----	4.5%
Celeriac -----	7.0%	Pumpkin -----	6.0%
Celery -----	7.0%	Radish -----	5.0%
Chard, Swiss -----	7.5%	Rutabaga -----	5.0%
Chinese cabbage -----	5.0%	Spinach -----	8.0%

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Squash -----	6.0%	Watermelon -----	6.5%
Tomato -----	5.5%	All Others -----	6.0%
Turnip -----	5.0%		

(d) The container is conspicuously labeled in not less than 8 point type to indicate:

1. That the container is hermetically sealed;
2. That the seed has been preconditioned as to moisture content; and
3. The calendar month and year in which the germination test was completed.

(e) The percentage of germination of vegetable seed at the time of packaging was equal to or above standards of germination under s. Ag 20.10.

(2) Seed packaged in hermetically sealed containers under sub. (1) may not be sold after expiration of the initial 36 month period unless retested in the preceding 9-month period, the seed as retested conforms to germination standards set forth in s. Ag 20.10, and the seed is re-labeled with germination retest data current within 9 months prior to date of sale.

History: Cr. Register, April, 1975, No. 232, eff. 5-1-75.

**Ag 20.12 Preinoculated legume seeds; standards of effectiveness. (1) TEST STANDARDS.** The effectiveness of inoculum in or on legume seeds when preinoculated with rhizobial inoculum shall be determined in accordance with test methods, standards and procedures prescribed in this section.

(2) **QUALITY STANDARDS.** (a) Rhizobial inoculum applied to legume seed shall be considered ineffective unless 90% of the seedlings are found to be satisfactorily nodulated under laboratory tests as prescribed under this section.

(b) A seedling to be considered satisfactorily nodulated shall show evidence of vigorous growth and green color almost equal to positive check seedlings after 21 days, and the formation of at least one pink nodule on the roots of small seeded legumes such as alfalfa, red clover, sweetclover, alsike clover or seeds of similar size, and 3 pink nodules on the roots of large seeded legumes such as soybeans, garden beans, peas or seeds of similar size.

(c) A positive test in the acetylene-reduction method will be determined by the formation of ethylene in the test.

(3) **TEST METHODS AND PROCEDURES.** (a) Tests to determine satisfactory seedling nodulation shall be conducted as prescribed in Preinoculated Testing Handbook, revised 1974 edition, published by the Association of Official Seed Analysts, P. O. Box 1705, North Brunswick, New Jersey 08902, as Contribution No. 30 to the Handbook on Seed Testing (Growth Performance Tests for the Presence of Rhizobia on Preinoculated Seed), except as modified under par. (b). Copies may be obtained from the Association and are also on file in offices of the department, the secretary of state and the revisor of statutes.

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(b) Department modifications of the above test are: the test tubes containing media are autoclaved at 121° C for 30 minutes; 2 seeds are placed in each tube, 35 tubes used per test; one ml of sterile distilled water is added to each tube after approximately ¼ inch of sterile media or fine gravel is placed upon the seed; and the planted tubes are placed in a dark room or chamber where the temperature is maintained at 20° C for 2 days.

(c) Acetylene-reduction tests to determine nitrogen fixation shall be conducted as prescribed under section IV (37) "Nitrogen Fixation—Assay Methods and Techniques," in *Methods of Enzymology*, Vol. XXIV, *Photosynthesis and Nitrogen Fixation*, Part B, edited by Anthony San Pietro, Department of Plant Sciences, Indiana University, Bloomington, Indiana, 1972 edition, except as modified under par. (d). Copies may be obtained from Academic Press, Inc., 111 Fifth Avenue, New York, New York 10003, and are on file in offices of the department, the secretary of state and the revisor of statutes.

(d) Preparation of the test seedlings prior to the standard acetylene-reduction test is as follows: place the root systems of test seedlings to be analyzed in a 20 ml vial. Remove 1 ml of air, add 1 ml of 1 atmosphere acetylene and allow to react at room temperature for 24 hours. Place the root systems of nodulated control seedlings and the root systems of non-nodulated control seedlings in 20 ml vials. Remove 1 ml of air, add 1 ml of 1 atmosphere acetylene to each and allow to react for 24 hours at room temperature. Add 0.3 ml of air, withdraw 0.3 ml of gas from the test seedling vial and inject into a gas chromatograph packed with separating material that can distinguish ethylene from acetylene. Inject 0.3 ml of gas from the non-nodulated control vial into the gas chromatograph. Inject standards of ethylene and acetylene for comparison of retention times.

(e) Methods of sampling seed to determine compliance with this section shall be those specified in the Rules for Testing Seed described in s. Ag 20.01.

(4) TEST EVALUATION: (a) All seedlings produced from each test will be used for nodule evaluation.

(b) Failure in the performance of positive or negative controls will eliminate, from evaluation, those tests established on the same planting date.

(c) The department shall use the acetylene-reduction test to determine the nitrogen-fixing ability of test seedlings prior to initiating enforcement action.

(5) COMPLIANCE. The sale or distribution of legume seed labeled or represented as having been preinoculated is prohibited under s. 94.41 (1) (j) of the statutes unless the inoculum applied to such seed meets standards of effectiveness as prescribed in this section.

History: Cr. Register, December, 1975, No. 240, eff. 1-1-76; am. (2) (a) and (b), Register, January, 1981, No. 301, eff. 2-1-81.