STATE OF MAINE

ONE HUNDRED AND SEVENTH LEGISLATURE

COMMITTEE ON AGRICULTURE

December ,1976

Senator Jerrold B. Speers, Chairman
Legislative Council
State House
Augusta, Maine 04333

Dear Senator Speers:

In accordance with House Paper 1710, directing the Committee on Agriculture to study the feasibility of establishing a single uniform wood measurement standard for the State of Maine, we enclose herein the final report of the Committee.

Respectfully submitted,

Walter W. Hichens

Walter W. Hichens, Senate Co-Chairman
Agriculture Committee

Luman P. Mahany

Luman P. Mahany, House Co-Chairman
Agrculture Committee

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Report Of The Committee

On Agriculture

On Its Study Of

A Uniform Wood Measurement

Standard For Maine

H.P. 1710

Senate

Walter W. Hichens,Chairman
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House

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INTRODUCTION

LOGGERS REQUESTED A UNIFORM WEIGHT/VOLUME STANDARD

In May, 1975 the Maine Woodsmen's Association, composed of several hundred logging operators and woodcutters, requested the State Legislature to enact a law to establish a schedule of weight standards for measuring wood according to a weight/volume ratio. Specifically, the Woodsmen's Association requested that the measurement standards include a moisture content test per cord of wood for various types of wood in order for loggers to be compensated equitably. The proposal did not mandate the weight/volume standard as the exclusive standard for the measurement of all wood in Maine, but it did propose that in every situation in which a weight/volume standard is used for wood measurement, the standard of weight established by law would prevail.

THE LEGISLATURE ENACTED A LAW DIRECTING THE STATE SEALER OF WEIGHTS AND MEASURES TO ESTABLISH WEIGHT/VOLUME STANDARDS FOR SPECIES OF WOOD WHICH COULD DIFFER FROM ONE REGION TO ANOTHER.

The State Legislature enacted a law that required the State Sealer of Weights and Measures to develop weight/volume standards for various species of wood, and to formulate the standards as expeditiously as possible. The legislation also allowed the State Sealer of Weights and Measures to establish different weight/volume standards for the same specie of wood for different geographical sections of the State. The law also stated that a seller and buyer of wood could use any measurement standard that was mutually agreeable. As a result, the weight/volume standard was not mandated as the exclusive wood measurement standard for Maine.

PROPOSAL TO STUDY WOOD MEASURING STANDARDS, IN GENERAL, AND THE FEASIBILITY OF ONE STANDARD FOR THE ENTIRE STATE.

At the same time that the Woodsmen's Association requested uniform weight/volume wood measurement standards for Maine, Representative Walter A. Birt of Millinocket introduced a study order that required the Joint Standing Committee on Agriculture to study not only the proposed uniform weight/volume wood measurement standard, but all wood measuring standards used in Maine and the feasibility of mandating a uniform wood measurement standard as the exclusive standard for the entire State. The Committee was directed to report its findings and any implementing legislation to the Legislative Council by no later than the 108th Regular Session.

In order to analyze the feasibility of a single wood measurement standard for the State, the Committee sent questionnaires to wood users, wood suppliers and wood harvesters concerning various wood measurement standards. In addition, the Committee studied the findings of the State Sealer of Weights and Measures pertaining to a wood measurement standard that converts weight into cords with an adjustment for moisture content. The Committee delayed commencement of its study at the time of the dispute between wood harvesters and wood users at the request of the Commissioner of Agriculture in order not to arouse greater controversy. In addition, the Committee was reluctant to enter a dispute that might be resolved by the disputants themselves.

Chapter I.

The Feasibility of the Weight/Volume Standard

The feasibility of any wood measurement standard depends upon the ease of application, the degree of understanding, the degree of acceptance by all groups, and the degree of accuracy of the standard. The weight/volume standard,according to wood users and the Maine Department of Agriculture, does not meet any of these conditions.

The Department of Agriculture

According to the State Sealer of Weights and Measures, it has been impossible to devise a moisture content test that is accurate for the conversion of wood weights to cords. Any figures that are available cannot be scientifically supported and are subject to legal challenge.

The problem of devising an accurate schedule of weights per cord of logs for various species and specie mixtures is the result of a number of factors. These factors are listed as follows:

1. Species;
2. Specific gravity of wood;
3. Moisture content;
4. Tree size;
5. Geographic location;
6. Method of wood preparation;
7. Freshness of delivered wood.

EACH SPECIE OF TREE HAS A DIFFERENT WEIGHT, AND VARIATIONS OCCUR WITHIN EACH SPECIE.

According to Department research data, each specie of tree has a different specific gravity of wood and moisture content. In addition, the specific gravity and moisture content can differ significantly between trees of the same specie not only in different regions of the State but also on the same woodlot. Trees in wetlands will have significantly different characterstics than trees in dry land or on slopes. The length of time from the cutting of the tree to delivery to the mill is also crucial. A fresh cut tree will weigh much more than a tree of the same specie and size which has been cut for 3 months. As a result, a cord of wood cannot be given a specific weight because there are too many variables which produce a wide range of results. Another factor that hinders the formulation of a wood weight/volume measurement standard is the length of time and the cost to conduct the test. Samples from various parts of the logs require 24 hours of laboratory tests and 3 days for final results. The Department lacks the manpower and funds to enforce the standard and to conduct such tests when disputes arise.

A WEIGHT SCALE SYSTEM WHICH ESTABLISHES PAYMENT BASED ON CWT IS MORE PRECISE & EASIER TO APPLY THAN WEIGHT/VOL. STANDARD.

According to the Department's research, a weight scale measurement system is the best system for payment. Loggers are paid a certain sum per hundred weight of logs when the logs are weighed on a scale. Loggers, in other words, would be paid according to a standard similar to that for potato farmers.

WEIGHT SCALE IS BETTER THAN A WEIGHT/VOL. SCALE.

The Department of Agriculture recommends a weight scale wood measurement method. In addition, the Department recommends that the weight/volume (1 cord of wood = x lbs.) method required in the legislation be repealed.

Wood Manufacturers

The wood products manufacturers of Maine, in general, share similar views with the Maine Department of Agriculture. These firms indicate that there are a significant number of variables involved in a weight/volume standard, and several standards would have to be developed for the same specie of tree throughout the State.

WOOD SCALING CONDUCTED BY PAPER CO. IS VERY ACCURATE & HAS BEEN IMPROVED SUBSTANTIALLY.

The paper companies point out that they have devised wood scaling methods and a wood scaling technology that is very accurate. According to Mr. J.R. Goody of the Great Northern Paper Company, GNP conducted a test survey between 1969 and 1974 of the logs scaled in the woods and then delivered to the mill where the logs were weighed. According to the firm's statistics, the differential between the two measurement systems was less than 2 percent.

The St. Regis Paper Company conducted a test of that firm's scaling method in March, 1976. A load of spruce was scaled by weight and by stick (4' lengths). Roughly 20 wood cutters participated in the test. The result of the test showed a differential of .03 cords between the two measuring standards.

A NUMBER OF MILLS HAVE ALREADY ADOPTED THE WEIGHT SCALE SYSTEM.

A number of firms which have been using various scaling methods as well as the weight method (1 cord = x lbs.) have been gradually using the weight scale method to a greater ex-

tent. In the past two years, more than 20 weight scales have been installed by several firms. The new Scott Paper mill will have two scalesand Georgia-Pacific, St. Regis, Diamond-International, and a number of other firms are already using the weight scale.

A weight/volume scale is not feasible for sales of logs to lumber mills. Lumber mills use the board foot standard and not cords. In addition, a moisture content test which requires boring would ruin a log for lumber manufacturing.

Wood Harvesters

WOOD CUTTERS NEED A STANDARD THAT ASSURES THEM OF JUST MEASUREMENT.

The wood cutters have been very much in favor of a weight/volume scale which contains a moisture content test. The wood cutters believe a legal and defined standard is necessary to assure loggers of a just measurement of their output. Since producers of other agricultural and natural resource goods have uniform standards of measurement of output, the loggers argue that they should have a uniform standard of measurement for their production. In their opinion, a moisture content test is necessary in order to establish an average amount of fibre or an average weight for each specie of tree.

LOGGERS WOULD ACCEPT WEIGHT SCALE WITH CONDITIONS.

Although Maine wood cutters want a weight/volume standard enacted into law which includes a moisture content test, the loggers are not opposed to the weight scale standard. The Maine Woodsmen's Association, however, opposes a weight scale standard which would allow wood buyers to wait more than 30 days before weighing the cut wood. At the present time, many wood cutters, who are logging on com-

pany owned lands, cut wood which is not weighed for 90 days In the 90 day period from the time the wood is cut to the time it is measured, the wood loses a considerable amount of weight, and the logger takes the loss.

CANADIAN FIRMS USE A WEIGHT/ VOLUME SCALE.

The Woodsmen's Association points out that Canadian firms have devised a moisture content test and a uniform weight/volume standard for the measurement of wood. Specifically, the Valley Forest Products company in New Brunswick and the Irving Mill in St. George are examples of Canadian firms that use a weight/volume standard. According to Mr. Clowater, Assistant Superintendant of the Valley Forest Products mill, a weight/volume standard and a moisture content test for logs have been discussed throughout the industry for years. The Valley Forest Products Corporation has used the standard since the mill commenced operation.

THE CANADIAN EXPERIENCE

The weight/volume standard of the VFP Corporation is based on cunits. One hundred cubic feet of solid wood equals 1 cunit. The following table shows the weight standard established for 1 cunit (100 cubic feet of solid wood) of greenwood.

A. HARDWOOD=3 1/4 TONS PER CUNIT
EXCEPT POPLAR
AND BIRCH

B. POPLAR=3.025 TONS PER CUNIT

C. WHITE BIRCH=3.0 TONS PER CUNIT

D. SOFTWOOD-2.7 TONS PER CUNIT

THE WEIGHT/ VOLUME STANDARD USED BY THE VFP CORP. IS NOT BASED ON CORDS WHICH PRODUCE SIGNIFICANT INACCURACIES.

It is very important to realize that the weight/volume standard devised by the VFP Corporation is not based on cords. According to Mr. Clowater, a standard based on cords is subject to too many variables that constantly fluctuate. The cunit is based on solid wood, and there is much less variation involved compared to the cord standard.

THE WEIGHT/ VOLUME STANDARD HAS REDUCED SCALING COSTS.

One reason the VFP Corporation developed the weight/volume (cunit) standard was to reduce wood scaling costs. The firm uses only 2 or 3 wood scalers for their entire operation. Since the standard has been developed, there is no need to scale greenwood. A truckload of logs is weighed at the mill, and the number of cunits and level of payment to the logger can be calculated very quickly. The moisture content tests are conducted exclusively on old, dry wood. Loggers are compensated for the loss in weight incurrred by the length of time in which logs are left in the woods. Samples are taken from some truckloads for moisture content tests which require roughly 24 hours of laboratory tests. Despite the sampling and the tests, the VFP Corporation saves wood measurement costs because wood scaling activity has been greatly reduced.

A WEIGHT SCALE SYSTEM IS THE SIMPLEST AND MOST EFFICIENT MEASUREMENT STANDARD.

Although more and more Canadian firms are using the weight/volume standard for wood measurement, these firms consider a weight scale measure, to be the best standard. A weight scale measure by which loggers are paid according to per CWT (hundred weight) of wood cut is very simple and efficient. A moisture content test, however, would have to be performed on wood that is old and dry in order

to compensate loggers for the loss of moisture.

Chapter II

Wood Measurement Standards Utilized in Maine

There are a number of wood measurement standards employed by wood manufacturers and harvesters in the State. Some of the standards pertain to pulpwood and others pertain to logs for lumber.

1. Pulpwood Measurement Standards

A. Weight Volume Standard. This weight measurement standard which has been described in Chapter 1 is based on the weight of the wood which is converted into cords. This standard is composed of a number of variables that are often very subjective. One variable that is very difficult to stipulate in the law or standard is the moisture content of wood.

B. The Weight Scale System. The Weight Scale System which is becoming much more popular throughout the State as a standard utilized to measure pulpwood, is based on one variable which is the weight of the wood. The International Paper (IP) Company along with several other paper companies are using the weight scale standard, and payment to logging contractors is made according to the pound or ton. The following table is the weight scale system used by I.P.

INTERNATIONAL PAPER COMPANY
WOODLANDS DEPARTMENT

PULPWOOD PRICES PER GREEN TON — Effective July 1, 1976

Species Group		Delivered by Truck to: Androscoggin Mill
Spruce - Fir	4'	$17.50
Spruce - Fir	8'	17.00
Pine	8'	13.65
Hemlock	8'	14.10
Hardwood	8'	12.40

The disadvantages of the weight scale system is the difficulty of ascertaining the weight of cull and unacceptable wood in the load.

C. Stick Scale. Stick scale is a measuring stick to determine heights and lengths of stacked wood. Each tier of wood must be 48 inches long, knots and limbs must be reasonably trimmed, and the wood must be stacked neatly without "undue" holes. Payment is made for each 128 cubic foot cord delivered.

The greatest criticism of stick scaling is its subjectivity and the variations of volume as determined by different scalers.

2. Sawlog Wood Measurement Standards

A. Butt scale is used primarily on tree length material that cannot be hauled immediately to the mill for measurement. The butt scale is based on

the relationship between the diameter of the butt of the tree and the length of the tree. An estimation is made based on the measurements of the number of cords or the number of board feet in the tree. The butt scale is very subjective, and there are a number of variables in the standard that are subject to variation.

B. Bangor Rule, International Rule, & The Caliper Rule. The Bangor (Holland & Hudson), International, and Caliper rules are based on the base cut of the tree and the length of the tree. The length and the diameter of the base are converted into board feet which are standardized in tables. In general, the Bangor, Holland, and Hudson Rule and the Caliper Rule provide similar estimates of board feet in various sized trees. The International Rule estimates are roughly 10 board feet less than the Bangor Rule estimates. For example, under the Bangor Rule, a 16 foot long log with a 12 inch butt contains 105 board feet compared to 95 board feet under the International Rule. A 16 foot log with a 10 inch butt measures 85 board feet under the Bangor Rule and 75 board feet under the International Rule.

Findings & Recommendations

A single wood measurement system for all wood buyers in Maine must be simple to apply, easy to understand, efficient, objective, and applicable to every wood purchaser. There are two standards that may incorporate this criteria. The Weight/Scale system and the butt

Scale Without Conversion to Cords. The Weight Scale system, as described in Chapter II, is dependent only upon one variable which can be scientifically established. The butt Scale without conversion to cords is based on variables which are the diameter of the tree at the base and length of the tree. A logging contractor would be paid according to the number of inches at the base cut and the length of the tree.

While the Committee has delineated two possible standards, there may not be general acceptance of a single uniform standard. In some areas of the State such as northern Maine and in remote regions, weight scales for weight measurement are not readily available at all job locations. Nearly every lumber mill would have to install weight scales. The butt scale system would require the industry to determine the volume of wood it would obtain from different size trees and establish its payment rates accordingly. This may require a considerable amount of scaling. A third reason for opposition to a single standard may be the unwillingness of landowners to accept a new system of payment to which they may not be accustomed.

The Joint Standing Committee on Agriculture has found that the present wood measurement law enacted in 1975 has a very profound deficiency which makes it inoperable. The Committee recommends that the provisions concerning a moisture content test be removed from the present law. In addition, the weight measurement standard should not be mandated as the exclusive measurement

standard throughout Maine because different types of wood processors can not use the weight standard.

In order to protect the wood harvesters in Maine, it is recommended that wood which has been cut but not weighed for a long period of time and has thereby lost considerable weight should be measured by volume.

AN ACT To Amend The Law Establishing Uniform Standards For The Measurement Of Wood.

Be it enacted by the People of the State of Maine, as follows:

Sec. 1. 10 MRSA §2362, as enacted by P.L. 1975, c. 598, is repealed and the following enacted in place thereof to read:

§2362. Measurement of Wood.

1. Weight scale. In all transactions in which payment for wood is based upon the weight of the wood, the weight shall not be converted to volume, and payment shall be made according to weight only except that wood cut but not weighed for 30 days or longer shall be measured by volume and except that wood less than tree length may be sold by volume at the request of the seller.

Sec. 2. 10 MRSA §2363, as enacted by P.L. 1975, c. 598, is repealed and the following enacted in place thereof:

§2363. Regulations for use of butt scale.

The State Sealer of Weights and Measures shall, after a public hearing preceded by at least 2 weeks' notice in 3 daily newspapers in Maine, adopt and promulgate regulations for the use of butt scale for the measurement of wood.

Sec. 3. 10 MRSA §2364, as enacted by P.L. 1975, c. 598, is repealed and the following enacted in place thereof:

§2364. Official State Log Rule.

The International Log Rule shall be the standard State Rule for the measurement of logs. Nothing in this section, however, shall prevent the use of any other log rule which is mutually agreeable to all parties concerned.

Statement of Fact

The intent of this bill is to make the existing wood measurement law practicable. Presently, the law requires a moisture content test to determine the moisture content of trees to be used in the determination of wood weight in the conversion of tree weights to cords. Specific standards of weights for each specie of trees, cannot be established because the existing technology has not developed a method to determine tree weights. Since payment for wood sold by weight is made by weight only at the present time, this bill permits the present system of payment to continue.

The bill also establishes the International Log Rule as the standard rule to be used by the State Sealer of Weights and Measures. Any log rule however can be used for log measurement as long as all parties agree.

This bill allows wood buyers and wood sellers to formulate agreements that are mutually agreeable in regard to wood that has been cut, but not measured for a long period of time.