DEPARTMENT OF COMMERCE BUREAU OF STANDARDS George K. Burgess, Director

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LEGAL WEIGHTS (IN POUNDS) PER BUSHEL OF VARIOUS COMMODITIES

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LEGAL WEIGHTS (IN POUNDS) PER BUSHEL OF VARIOUS COMMODITIES.

ABSTRACT.

This circular shows the weights per bushel of various commodities, as fixed by national legislation for customs purposes or by State legislation for the purpose of commerce within the State. Weights are given for about 165 commodities. The tables show wide differences in the weights of some commodities. In others more general agreement is had, and in a few complete uniformity obtains. There is a greater degree of uniformity in the weights of commodities at the present time than was formerly the case, and it may also be said that a larger number of States have discarded bushel weights and now require commodities to be sold by weight or numerical count. This circular contains also an account of the Winchester bushel, setting forth the manner in which it came to be recognized as the customary standard of the United States, the legal status of this measure, and its accepted dimensions. A short résumé is given of what is deemed to be the proper interpretations to be placed upon the State laws establishing weights per bushel, and a table has been included in the present edition giving an analysis of the degree of uniformity in weight existing in the cases of those commodities for which bushel weights have been generally established.

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I. INTRODUCTION.

This circular shows the legal weights per bushel of various commodities, as fixed by national legislation for customs purposes, or by State legislation for purposes of commerce within the State. In many cases these weights differ considerably in the various States and in only a few instances, such as wheat, oats, and peas,

Page

are the legal weights uniform throughout the entire country. It will be noticed that for some commodities, for instance, those which have, in the natural state, a husk or pod, the weights per bushel in the various States differ from one another by as much as 100 per cent. In these cases this wide discrepancy may be explained by the fact that it appears to be the practice in some States with regard to such commodities, to require that quantity for a bushel which when shelled, or husked and shelled (as the case may be), will make a struck bushel of the commodity, while in other States only that quantity in its natural state, with the husk or pod included, which will fill a bushel measure, is taken for a bushel.

The bushel in customary use in the United States is the Winchester bushel, containing 2,105.42 cubic inches. This measure is a heritage from colonial days, being the same measure that was in use in this country and in England at the time of the Declaration of Independence. It has been officially recognized by Congress by a joint resolution, approved June 14, 1836, which directed the Secretary of the Treasury "to cause a complete set of all weights and measures adopted [by that department] as standards and now either made or in the progress of manufacture for the use of the several customs houses, and for other purposes, to be delivered to the governor of each State in the Union," since among these weights and measures was a Winchester half bushel. It has been adopted as the standard in nearly all the States, since the States as a rule proceeded by acts of their legislatures to adopt as standards for use within the State the weights and measures which were furnished to them by the Government under the terms of the joint resolution mentioned above.

The dimensions of the Winchester bushel are sometimes of importance but these have never been defined by Congress, and on account of the fact that the actual standard furnished the States was a half bushel, we have no official measure from which the linear measurements can be determined. As a result we are obliged to seek the dimensions of the original standard from which ours was derived, since it seems probable that these still govern in the absence of any legislation to the contrary. We find that at the time of the Declaration of Independence a statute, passed in the first year of the reign of Queen Anne, in 1701, was in force, which read in part as follows: That the measure, commonly called water measure, shall be round, and in diameter eighteen inches and an half within the hoop, and eight inches deep, and no more, and so in proportion for any greater or lesser measure; and that every measure, commonly called water measure, by which apples and pears are sold, shall be heaped as usually * * *.

It appears that Winchester measure was at that time commonly called water measure, and hence the use of this term in the statute just quoted.

As is well known, some commodities are sold by struck measure and others by heaped measure. It is important to ascertain what amounts constitute the struck bushel and what the heaped bushel, and the kinds of commodities required to be sold by each. The former is represented by the United States standard (Winchester) bushel of 2,150.42 cubic inches, filled level full, and is used for the measurement of various kinds of grain and commodities of similar size, as well as dried beans, peas, berries, etc. The quantity represented by the heaped bushel has never been fixed by national legislation. A number of the States, however, have required that some commodities be sold by heaped measure and have described the manner in which the measure should be filled one of two phraseologies being usually employed in the statutes, namely, "heaped in the form of a cone, the outside of the measure to be the base of the cone, and such cone to be as high as the article will admit," or "heaped as high as may be without special effort or design." General custom, too, dictates this manner of filling the measure in the case of these commodities. Also in a few States the number of cubic inches required to constitute a heaped bushel of one or two specified commodities has been fixed, but these enactments are not uniform one with another.

We find only one decision in the courts which specifies the size of the heaped bushel and this decision is of very great interest. The case in question was decided by the Court of Customs Appeals in February, 1912, and was based upon a dispute as to what constituted a "bushel" of apples under the terms of a tariff law which assessed the duty in terms of "bushels" without descriptive words or without specifying any weight per bushel. The court held that it should be considered that a heaped bushel was referred to since both by custom and by the old English statute quoted above apples have always been required to be so sold; and then after an examination of authorities, decided that a heaped bushel contained 2,747,715 cubic inches. This figure is derived by adding to the volume of a struck bushel the volume of a cone having a base diameter of $19\frac{1}{2}$ inches and a height of 6 inches. The $19\frac{1}{2}$ -inch base in the diameter of the Winchester bushel mentioned in the statute quoted above, measured from outside to outside of the measure. This figure makes the heaped bushel about 27.8 per cent larger than the struck bushel.

The heaped bushel is also commonly defined as 25 per cent larger than the struck bushel, a capacity of about 2,686 cubic inches. This calculation is based on a cone of the same height heaped upon the same bushel measure described above, but the cone is considered in this case to be heaped upon the area of the open top of the measure instead of the top including the sides, the diameter thus being $18\frac{1}{2}$ instead of $19\frac{1}{2}$ inches.

Heaped measure is to be used in measuring the more bulky commodities, such as apples, pears, plums, peaches, potatoes, onions, beets, carrots, turnips, etc.

It is at once apparent that the quantity which may be heaped upon a measure will depend very largely on the area of the top of the measure; and so it becomes important that there should be a standard diameter for each size of measure. While, as previously noted, this matter has never been determined by national legislation, nevertheless an attempt has been made toward securing a minimum diameter for measures in commerical use, and consequently the following minimum diameters of cylindrical dry measures of various capacities are approved by the Bureau of Standards, and have also been adopted by the Annual Conference on Weights and Measures:

	Mini	in inches.
½ bushel		133/4
1 peck		107/8
¹ / ₂ peck		
2 quarts		65/8
1 quart		53/8
1 pint		4

Another factor of importance in buying commodities for which bushel weights have been established is the knowledge of whether one may demand, under the laws of any particular State, the weight specified in the law, regardless of whether the commodities are sold by weight or measure. This depends on the phraseology used in the statute in question, and as to this there is no general uniformity throughout the States. The question is often one of interpretation, and it is rendered more difficult by the fact that few cases are to be found in which the courts have passed upon these laws. However, information is given below as to what is believed to be the force and effect of the statutes.

(a) STATES REQUIRING SALES BY WEIGHT.—Some States have laws requiring that all dry commodities be sold by weight, while others require that those for which a legal weight has been established be so sold. In the latter class when a unit of dry measure is called for, this must be determined by weight in accordance with the standard schedule of weight per bushel. In some of these States a special contract may be made by the parties, specifying some other method of sale.

The list of States follows: Florida, Idaho, Indiana, Iowa, Kansas, Massachusetts, Michigan, Nebraska, Nevada, Ohio, Oregon, South Dakota, Utah, Wisconsin, and the District of Columbia.

In these States purchasers may demand that all orders be actually weighed before delivery, and that full weight as specified in the State law be delivered. It is desirable for purchasers to check the deliveries by weight and compare them with the standard legal weights.

(b) STATES REQUIRING DEFINITE WEIGHTS.—In the second class may be grouped a number of States having statutes similar to each other in wording and apparently similar in legal effect. These statutes read somewhat as follows: "The bushel shall consist of or will mean, a stated weight," sometimes with the qualification, "When sold by the bushel." This list includes: California, Delaware, Illinois,¹ Kentucky, Minnesota, Missouri, Montana, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Vermont, West Virginia, and Wyoming, and the Territory of Hawaii.

In these cases it appears to be the clear intent of the legislatures that the weights stated in the laws should be delivered by the dealers, whether the commodities in question are actually weighed or whether they are measured. Therefore, although the purchaser has no legal right to demand that the commodities be weighed by the dealer before delivery, it appears to be perfectly proper to check delivery by weight and to demand that the legal weight be delivered in all cases. As in the first group, some of these States allow the statute to be superseded by special agreement and, therefore, the purchaser should be careful to refrain from any action from which such agreement might be inferred.

¹ In some of the cities of Illinois, notably Chicago, the conditions given under the first class of States obtain, on account of city ordinances to that effect.

(c) STATES ESTABLISHING LEGAL OR STANDARD WEIGHTS.—The next group are those States which establish a legal or standard weight per bushel, usually without a provision for a special agreement clause: Alabama, Arkansas, Colorado, Connecticut, Georgia, Louisiana, Maine, Maryland, and Rhode Island.

This list is shown separately from that immediately preceding on account of the distinctive wording of the laws. The meaning is not essentially different and therefore the checking should be done in the same way as is suggested there.

(d) STATES REQUIRING DEFINITE WEIGHTS FOR SALES BY WEIGHT.—The States in the next list establish a legal weight for various commodities, but specifically limit it to apply to cases where the sale is actually made upon a basis of weight: Mississippi, North Carolina, and Virginia.

In these States if the purchaser has not demanded that the transaction be upon a weight basis, the purchase must be checked by the use of dry measures.

(e) STATES NOT REGULATING THIS MATTER.—The States of Arizona and Washington have no laws establishing standard weights per bushel or requiring sales of dry commodities by weight.

While dry measures appear to be legal in these States, the usual practice is to sell dry commodities by weight and therefore they will usually be checked by weight.

(f) CHECKING DRY COMMODITIES BY DRY MEASURES.—In States of all the above classes if a legal weight for any dry commodity is not established and it is not provided that dry commodities be sold by weight only, the checking must be done by dry measures.

(g) INTERPRETATION OF STATE LAWS.—A legal question is presented whether many of the above laws require for fractional parts of the bushel, such as pecks, quarts, etc., the same fractional parts of the legal weight established. However, a reasonable view of the matter would be that such was the intention of the law. Therefore, when a peck, quart, or other fractional part of a bushel is purchased, the weight calculated by taking the same fractional part of the legal weight per bushel may be used for checking purposes.

In regard to weights per bushel in general, it should be remembered that on account of the variations in the densities of commodities in different localities and in different seasons it is impossible to fix with any degree of certainty the weight of a given volume, and in any event the best figure that could be obtained for any commodity would be the average of all localities for a number of years. This figure is only an approximate one, and it may vary considerably from the true weight of a bushel of the commodity at the time of any transaction. Therefore it is important that it be distinctly understood whether a bushel by volume or a bushel by weight is the amount intended to be delivered or received. Since amounts determined by weight are much more nearly accurate than similar amounts attempted to be determined by measure, transactions upon a basis of weight are much to be preferred to those upon a basis of measure, and therefore it is recommended that in so far as possible all purchases and sales be made by weight, as is now the practice in many localities.

Attention is called to the fact that dry commodities have in some localities not infrequently been sold by liquid measure instead of dry measure. This should be guarded against, since a given liquid measure is about 14 per cent smaller than the corresponding dry measure.

It does not appear to be generally known, and the fact may be of sufficient interest to justify a statement in this place, that the British imperial bushel is about 3 per cent larger than the United States standard bushel. The former contains 2,219.36 cubic inches, and is defined as the volume of 80 pounds of pure water, at 62° F., when weighed against brass weights in air at a pressure of 30 inches of mercury; while the latter measure, as before stated, contains 2,150.42 cubic inches.

The following tables cover all available legislation in relation to weights per bushel up to and including the 1921–22 legislative term, and also changes made in 1923 for the States of Pennsylvania, South Carolina, and West Virginia.

II. COMMODITIES FOR WHICH BUSHEL WEIGHTS HAVE BEEN ESTAB-LISHED IN NOT MORE THAN THREE STATES.

BEGGARWEED SEED, 62 pounds (Florida).
BLUEBERRIES, 42 pounds (Maine).
BUTTERNUTS, dried, 28 pounds (Vermont).
CANE SEED, 50 pounds (Kansas and South Carolina).
CANTALOUPE MELON, 50 pounds (North Carolina, South Carolina, and Tennessee).
CHUFAS, 54 pounds (Florida).
COWPEAS, 60 pounds (Indiana, Maryland, and Virginia).
73576°-24-2

CULM, 80 pounds (Maryland).

FEED, 50 pounds (Maine).

FETERITA, 56 pounds (Kansas).

GRASS SEED: 2

All meadow and fescue except tall, 14 pounds (North Carolina).

Bermuda, 40 pounds (New Mexico and Oklahoma); 14 pounds (North Carolina).

Italian rye, 20 pounds (North Carolina, South Carolina, and Tennessee).

Johnson, 28 pounds (Arkansas); 25 pounds (North Carolina).

Perennial rye, 14 pounds (North Carolina).

Rye, 22 pounds (Nebraska).

Sudan, 40 pounds (Kansas); No. 1, 32 pounds, No. 2, 30 pounds, No. 3, 28 pounds (Texas).

Tall meadow and tall fescue, 24 pounds (North Carolina).

Velvet, 7 pounds (North Carolina, South Carolina, and Tennessee).

GUAVAS, 54 pounds (Florida).

INDIA WHEAT, 46 pounds (Vermont). (This is a species of buckwheat.)

LAND PLASTER, 100 pounds (North Carolina, South Carolina, and Tennessee).

LENTILS, 60 pounds (Pennsylvania).

MANGELWURZEL, 60 pounds (Connecticut and Maine).

MEAL, except oatmeal, 50 pounds (Maine).

MIDDLINGS, coarse, 30 pounds (Indiana).

MILO MAIZE, 56 pounds (Kansas), 50 pounds (Texas).

MUSTARD SEED, 58 pounds (North Carolina).

PARSLEY, 8 pounds (Maine, New Hampshire, and Vermont).

PEACH SEED, 50 pounds (North Carolina).

PEAS, black-eye and other cowpeas, 60 pounds (Virigina).

PIEPLANT (see under rhubarb in following table).

RADISH SEED, 50 pounds (Iowa and South Dakota).

Root Crops (not otherwise specified), 50 pounds (Iowa, Nebraska, and South Dakota).

SAGE, 4 pounds (North Carolina, South Carolina, and Tennessee).

SALADS, (mustard, spinach, kale, and turnips), 10 pounds (North Carolina); 12 pounds (South Carolina); and 30 pounds (Tennessee).

SUNFLOWER SEED, 24 pounds (North Carolina).

TEOSINTE, 59 pounds (North Carolina).

² Other kinds of grass seed than those given here will be found under their specific names on pp. 9-16.

Legal Weight per Bushel of Commodities.

III. COMMODITIES FOR WHICH BUSHEL WEIGHTS HAVE BEEN ESTABLISHED IN MORE THAN THREE STATES.

•	Apples.									Bean	s.					
	Alfalfa seed.	Apples.1	Dried.	Apple seeds.	Barley.	Beans.1	Castor.	Green (un- shelled).	Green or string.	Lima.	Miscellaneous varieties.	Scarlet or white runner pole.	Shell.	Soy.	Beet greens.	Beets.
Federal Statutes Alabama Arizona Arkansas California.		² 50 ³ 50	24 24	·····	48 47 48 50	60 4 60	·····	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·							
Colorado. Connecticut. Delaware. District of Columbia Florida.		48 3 48	25 24	 	48 48 48	60 60 6 60	 6 48						•••••	· · · · · · · · · · · · · · · · · · ·	 	⁵ 60
Georgia. Hawaii. Idaho. Illinois. Indiana.	 60 60 60	³ 48 ³ 47 48	24 24 24 25	· · · · · · · · · · · · · · · · · · ·	47 48 48 48 48	⁴ 60 60 ⁴ 60 60	 46 46				· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·	 56 60 60
Iowa Kansas. Kentucky. Louisiana Maine	60 60 60	48 48 44	24 24 24 	· · · · · · · · · · · · · · · · · · ·	48 48 47 32 48	⁹ 60 60 4 60 	⁶ 50 46 45 	56 38 	 24	 					····· ···· 12	56 56 ¹¹ 60
Maryland Massachusetts Michigan. Minnesota. Mississippi	 60	³ 50 48 ³ 50	28 22 28 26	· · · · · · · · · · · · · · · · · · ·	48 	9 60 60 4 60	¹² 50 46 46	1	· · · · · ·	 56	 10 47	P		 	 	 50
Missouri Montana Nebraska Nevada. New Hampshire	60 60	48 45 3 48 3 48 48 48	24 24 24 25	· · · · · · · · · · · · · · · · · · ·	48 48 48 48 48	60 60 9 60 60 4 60	46 6 50 46	56 56	 24	56				· · · · · ·		50 56 56 60
New Jersey New Mexico New York North Carolina. North Dakota	60 	48 45 50	25 24 25 24 28	 40	48 48 48 48 48 48	60 60 9 60 60	46 46 			56 55	8 24 9 47			60	12 	60 56 50 60
Ohio. Oklahoma Oregon Pennsylvania Rhode Island	60 	48 48 48 48 48	24 24 25 25	 40	48 48 48 48	60 60 9 60 60	46 6 46 46									56 60 5 6 50
South Carolina South Dakota Tennessee Texas Utah	60 	³ 50 48 3 50 3 50	24 24 24 28	40 40	48 48 48 48	9 60 9 60 9 60 4 60	46 6 50 46 46	30 50 30	24	⁹ 56	 8 24				· · · · · · · · · · · · · · · · · · ·	50 56 50 60
Vermont. Virginia Washington West Virginia Wisconsin Wyoming	60 60 60	48 45 ³ 48 44 ³ 48	25 28 24 25	40	48 48 48 48 48 48	60 14 60 15 60 60 60	46 46 46 46	28 38	24 24			16 50		58	12	60 56 50 56

Not defined, except as noted.
 Green or ripe.
 Green apples.
 White.
 Sugar and mangelwurzel.
 Shelled.
 Y velvet in hull.
 Wax.

⁹ Dry or dried.
¹⁰ Windsor (broad).
¹¹ Also sugar, turnip, and mangelwurzel.
¹² Called '('castor beans or seed'' in the law.
¹³ White runner pole only.
¹⁴ Navy and soja.
¹⁵ Dried, shell.
¹⁶ Scarlet runner pole only.

	1				,			1			1			
	Blackberries.	Blue-grass seed.	Blue-grass seed (English).	Bran.	Bromus Inermus.	Broom-corn seed.	Buckwheat.	Cabbage.	Canary seed.	Carrots.	Cement.	Charcoal.	Cherries.	Chestnuts.
Federal Statutes. Alabama Arizona Arkansas. California				20		48	52 40							
Colorado. Connecticut Delaware. District of Columbia. Florida.			••••••	20 20			52 48				•••••	¹ 20 ¹ 20		· · · · ·
Georgia Hawaii Idaho Illinois Indiana		14 ³ 14 14 14	22	² 20 20 20 20	· · · · · · · ·	48	52 50 52 50			50 50 50		20 20		
Iowa Kansas Kentucky Louisiana Maine	 40	³ 14 ³ 14 14 	22 14	20 20 20	14 	50 30	48 48 56 	· · · · · · ·		50 50 	· · · · · · ·		40 4 56	
Maryland Massachusetts Michigan Minnesota Mississippi	· · · · · · · ·	14 14 14 14	· · · · · · · · · · · · · · · · · · ·	20 	· · · · · · ·	57	48 48 50 48			50 	 		• • • • • • • • • • • • • • • • • • •	50
Missouri. Montana Nebraska Nevada New Hampshire		14 14 18 14	22	20 20 20 20 20	 14	50	52 52 50 50 48			50 50 50 50 50	· · · · · · ·	20	40	
New Jersey. New Mexico. New York. North Carolina. North Dakota.	⁵ 48	³ 14 14 14 14		20 20 20 20 20	····· ···· 14	 44 30	48 52 48 50 42	50 50	60	50 50 50 50 45	80 80	20 20 22	4 56	50 50 50
Ohio Oklahoma Oregon Pennsylvania	• • • • • • •	14 14	 	20 20 20		45 48 50	50 52 48	50	· · · · · · ·	50 50 50	100	20	4 56	 6 50
Rhode Island South Carolina South Dakota Tennessee	⁵ 48 5 48	14 14 14 14	 	20 20 20	 14	42 50 42	48 50 48 50	50 50	60 60	50 50 50 50	80 80	20 22 22	4 56 4 56	50 50
Texas. Utah. Vermont. Virginia.	• • • • • •	14 14		20 20	· · · · · ·	48 	52 48 48		 	50 50 50	· · · · · ·	22 20	· · · · · ·	50 57
Washington. West Virginia. Wisconsin. Wyoming.	48	14 14 14	22	20 20		57	48 50	50	60 	50 50 50	100	20	4 56	50

III. Commodities for which bushel weights have been established in more than three States-Continued.

¹ Commercially dry. ² Wheat bran. ⁸ Native

⁴ With stems; without stems, 64 pounds. ⁸Undefined; dried, 28 pounds. ⁹Hulled.

Legal Weight per Bushel of Commodities.

			(Coal.				Co	orn, ir	ıcludi	ng In	dian c	orn o	maiz	ze.
	Clover seed.	Coal. ¹	Anthracite.	Bltuminous.	Mineral.	Stone.	Coke.	Cracked.	In the ear.	In the ear, unhusked.	Popcorn (in ear).	Popcorn (shelled).	Rice corn.	Shelled.	Sweet.
Federal Statutes								56	70	75				² 56 56	
Arizona						1111									1
Arkansas	60								a 70	74				56	
California														² 52	1
Colorado	60				80	• • • •			70			• • • • •		² 56	
Connecticut Delaware	60	• • • • •	80								• • • • •		• • • • •	² 56 ² 56	
District of Columbia	• • • • •			••••		• • • •								* 50	1
Florida						••••				70				56	
Georgia	60					80			70					56	
Hawaii														² 56	
daho	60								70				56	56	
Illinois	4 60	80					40		70		70	56		56	
Indiana	60				80		40		(5)			2 56		56	1
owa	60	80				• • • •	40		6 70	6 75	70	56	• • • • •	⁶ 56	5
Kansas Kentucky	60 60	• • • • •	776	7 76		176			³ 70 870		70		• • • • •	56 56	1
Louisiana	00		. 10	. 10		. 10			0 /0				••••	2 56	1
Maine	60					••••		50			1			2 56	1
	⁹ 60	80							70					56	
Massachusetts															
Michigan	60				80				70					56	
Minnesota	60								70					56	4
Mississippi	60					80			72					56	1
Missouri	60	• • • • •			80 76				70					56	
Montana Nebraska	60 60				170		1.10		70 10 70	6 75	70	56		56 656	1.15
Nevada	60	80		••••			40		70	015	10	30	56	56	1 -
New Hampshire	60				••••			50	10				50	2 56	1
New Jersey	60		75	76			40	50	70					56	
New Mexico	60				80		40		70	72	70	56		56	1
New York	60													2 56	
	11 60					80	40		3 70	74	12 70			56	
North Dakota	60					80			70					56	4
Ohio	60	18 70		80			40		68		42			56	14 4
	⁹ 60				80				70	72				56	1
Oregon Pennsylvania	60						40		3 70	* • • • •				56	1
Rhode Island	60		75	76		80	40		70				• • • • •	56	
South Carolina	15 60	00		• • • •		80	40		3 70	16 74		56		56	1
South Dakota	60					00			70		70	56		56	5
	15 60					80	40		6 70	16 74	12 70			56	
Texas	60		80			80	40		(5)		70	56		56	
Utah															
Vermont	60								3 70	72		2 56		56	
Virginia	60		80						70					56	
Washington						• • • •			17.00		• • • • •		10 50		1
	60	80	3				40	50	17 68				18 56	56	5
West Virginia		00						00							
West Virginia Wisconsin Wyoming	⁹ 60								70					² 56 56	

III. Commodities for which bushel weights have been established in more than three States-Continued.

¹ Not defined, except as noted.

² Not stated whether shelled or unshelled, but presumed from the weight shown to be shelled.

⁸ Husked.

⁸ Husked.
⁴ Clover seed, sweet, unhulled, 33 pounds.
⁵ Corn in the ear in Indiana, 70 pounds until Dec. 1 next after grown; 68 pounds thereafter; in Texas, 70 pounds after Dec. 1 and 72 pounds for new crop before Dec. 1.
⁶ Field corn.
⁷ ('Stone coal''; the term includes anthracite, cannel, bituminous, and other mined coal.
⁸ Corn in the ear, 70 pounds from Nov. 1 to May 1 following, and from May 1 to Nov. 1 following, 68

Polinds.
 Also alsike (or Swedish), 60 pounds.
 Pield corn, husked.
 Red and white; clover burr (for seed in the burr), 8 pounds; German clover (also more commonly known as crimson clover), 60 pounds; Japan, lespedeza, in hulls, 25 pounds.
 Not stated whether in the ear or not, but from the weight shown it is presumed to be in the ear.
 Cornel cool

¹³ Cannel coal.
¹⁴ Shelled.

¹⁵ Red and white.
¹⁶ Corn, green, with shucks, 100 pounds per bushel.
¹⁷ In car, dry; in ear, green, 72 pounds.
¹⁸ Shelled; unshelled, 45 pounds.

III. Commodities for which bushel weights have been established in more than three States—Continued.

	(ir	orn m icludi ian m	ng	Col	tton se	ed.						5. To many many many many many many many many		
	Corn meal. ¹	Bolted.	Unbolted.	Cotton seed. ¹	Sea island cotton seed.	Upland cotton seed.	Cranberries.	Cucumbers.	Currants.	Dandelions.	Emmer. ²	Flaxseed (linseed).	Gooseberries.	Grapes.
Federal Statutes Alabama Arizona Arkansas. California	48	46	48	32 33								56 56	· · · · · · · · · · · · · · · · · · ·	
Colorado Connecticut Delaware District of Columbia Florida	50 50 48	44	48	 	44 44	30						55	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·
Georgia Hawaii Idaho. Illinois Indiana	 48 48 50	48	48 	30 32			33 33	 48 48			40	56 56 56 56	40 40	· · · · · · · · · · · · · · · · · · ·
Iowa Kansas. Kentucky Louisiana Maine.	48 50 50		· · · · · · · · · · · · · · · · · · ·		 44	30	32	48 48	40	 12	40 40	56 56 56 		³ 40 4 48
Maryland Massachusetts Michigan Minnesota Mississippi	48 50 48	 44	48	 			40 36	48				56 56 56 56		
Missouri. Montana Nebraska Nevada. New Hampshire	50 50 48 48 50	· · · · · · · · · · · · · · · · · · ·		33			32	48 48		 12	48	56 56 56 56 56		³ 40
New Jersey. New Mezico New York North Carolina North Dakota	50 50 50			32 30	44 ••••• 44 44 •••••	30 30	32 36	48 48 48 48	40	12		56 56 55 56 56	40 48	4 48
Ohio Oklahoma Oregon Pennsylvania	48 50 50			32 			 	48 48	40	 	· · · · · · ·	56 56 	40	48 48
Rhode Island South Carolina South Dakota Tennessee.	50 	48 	48 48	⁵ 30 28	44	30	32	48 48 48	40		 	56 56 56 56	48 48	⁴ 48 ³ 40 ⁴ 48
Texas. Utah. Vermont. Virginia.	50 50 48		48	32 30			33 32	48 48		 12	40	56 55 56	40	
Washington West Virginia Wisconsin Wyoming	48 50	46	 	32 	44 44	30	36 35	⁶ 50 ⁶ 50	40	 	45	56 56 56	40	⁷ 60

Not defined.
 See also "Spelt or speltz."
 With stems.
 With stems; without stems, 60 pounds.

⁶ Cotton seed, long staple 30 pounds.
⁶ Green.
⁷ With stems, 48 pounds.

12

		Hair							grass			Lir	ne.		Mil	let.
	Plastering, ¹	Plastering (unwashed).	Plastering (washed).	Hempseed.	Herds grass.	Hickory nuts.	Hominy.	Horseradish.	Hungarian g	Kafir corn.	Kale.	Lime. ¹	Slacked.	Malt.	Millet. ¹	Japanese barnyard.
Federal Statutes Alabama Arizona Arkansas. California					· · · · · · · · · · · · · · · · · · ·	· · · · ·		 		· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·	 	50	
Colorado Connecticut. Delaware District of Columbia Florida.	 			44				 	 			80 70		 	50	
Georgia Hawaii. Idabo. Illinois. Indiana.		 8 8	····· 4 4	44 44 44 44	····· ···· 45	 50 50	 	· · · · · · · · · · · · · · · · · · ·	 50 50	56 56 56	 	² 80 ² 80 80	 	 32 38 335	 50 50 50	35
Iowa Kansas Kentucky Louisiana Maine	8	8	 4 	44 44 44 	····· ···· 45	⁴ 50 50 	 	 	50 50 48	56 56	 12	80 2 80 2 35 70	 	38 	50 50 50 50	
Maryland. Massachusetts. Michigan Minnesota. Minsissippi.			····· ···· 4	44 44 50 44	45 	 50		••••• ••••	50 50 48 50	· · · · · ·		80 70 80 2 80	 	7 34 38	⁸ 50 50 48 50	
Missouri Montana Nebraska Nevada New Hampshire		••••	 	44 44 44 48	 45	4 50	 	••••• ••••	48 50 	56 56	 	2 80 80 70		38 30 	50 50 50	
New Jersey. New Mexico. New York North Carolina. North Dakota			····· ···· 4	44 44 44 50	45 	50 ⁹ 50 50	 62	50 50	50 50 48 48	56 56 	12 10 	² 80 70 ² 80 80	 40	 	50 50 50 50 50	· · · · · · · · · · ·
Ohio. Oklahoma Oregon Pennsylvania		 	 	44 44 	 45	50 50	60 60	 50	50 48 50	56 56 		70 80 80	 	34 38 	50 50 50	
Rhode Island South Carolina South Dakota Tennessee	8		 	44 44 44 44		50 4 50 50	62 62	 50 	50 48 50 48	56 56	12 12 30	$ \begin{array}{r} 70 \\ 2 \\ 80 \\ 80 \\ 2 \\ 80 \end{array} $	40 40	38 	50 10 50 50 10 50	
Texas Utah Vermont Virginia	 8	8	4	44 .44	45	50 		 	48 50 48	50 	 	····· 2 80		 38	50 50 50	3:
Washington West Virginia Wisconsin Wyoming		8	••••• 4 •••••	44 44	45	50 50	 60 	50 	 50 48	56 	15 	² 70 (¹¹)	40	34 7 34	50 50	 3:

III. Commodities for which bushel weights have been established in more than three States—Continued.

Not defined, except as noted.
 Unslacked.
 Rye malt.
 Hulled.

⁴ Hulled.
⁵ Hungarian.
⁶ Well dried and cleaned, used in masonry.
⁷ Barley malt.
⁸ German and American.
⁹ Without hulls.
¹⁰ German, Missouri, and Tennessee.
¹¹ "Seventy pounds for a bushel of coarse salt or lime; 80 pounds for a bushel of unslacked lime."

Circular of the Bureau of Standards.

		C	Onions	5.					Peac	ches.			Pe	ars.
	Oats.	Onions. ¹	Bottom onion sets.	Top onion sets.	Orchard grass seed.	Osage orange seed.	Parsnips.	Peaches. ¹	Dried.	Dried (peeled).	Dried (unpeeled).	Peanuts.	Pears. ¹	Dried.
Federal Statutes. Alabama Arizona Arkansas. California. Colorado Connecticut Delaware.	² 32 32 32 32 32 32 32 32	57 57 52			14 	· · · · · · · · · · · · · · · · · · ·	45		33 	38	33		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·
District of Columbia. Florida Georgia. Hawaii. Idaho Illinois. Indiana. Iowa.	32 32 32 32 32 32 32 32 32 32	56 57 57 57 57 57 57 52	32	30	14 14 14	33	50 50 55 45	3 54 48 48 48 48 48	24 33 33 33 33 33	38	33	22 4 25 ⁶ 20 22	55 58 50 45	· · · · · · · · · · · · · · · · · · ·
Kansas Kentucky Louisiana Maine Maryland.	32 6 32 32 32 32 32	55 57 52 54	36		14 14 14 14		48 45	48 48 7 40	33 39 	(7)		24 5 20 22	50 58	
Massachusetts Michigan Minnesota Mississippi	32 32 32 32	54 52 57	 32	28	 14 14 	33	 42	 48	28 28 33	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	 22 24	45	· · · · · · · · · · · · · · · · · · ·
Missouri. Montana. Nebraska. Nevada. New Hampshire	32 32 32 32 32 32	57 57 57 57 57 52	32	28 28 	14 14 	36 32	44 50 50 50 45	48 48 48 48	33 33 33 33	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	22 5 20	48 45 45 58	
New Jersey. New Mexico. New York. North Carolina. North Dakota.	32 32 32 32 32 32	57 57 57 8 57 52	32 32 32 32	28 30 28 28	14 14 14 14	 33	50 42 50 42	48 48 ⁸ 50	33 33 33 25 28	· · · · · · · · · · · · · · · · · · ·		⁵ 20 22 ⁹ 22 22	58 48 ⁸ 56 45	 26
Ohio Okiahoma Oregon Pennsylvania	32 32 	56 57 		10 28 28 10 28	14 14	36	50 44 	48 48 48	33 33 			22 22	 48 50	· · · · · · · ·
Rhode Island South Carolina South Dakota Tennessee	32 32 32 32 32	50 9 56 52 9 56	32 32 32 32	28 30 28	14 14 14	33 32 33	50 50 48 50	48 9 50 48 9 50	33 25 33 26			23 20 23	9 36 45 9 56	26
Texas. Utah. Vermont. Virginia.	32 32 32	57 52 57	32	30	14 14		50 45 50	50 	28	 40		¹¹ 20 ⁵ 20 ¹² 22	58 	
Washington West Virginia Wisconsin Wyoming	32 32 32	55 50 57	32 10 32	28	14 	33	42 44 50	48 48 48	33 33	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	23	50 48	· · · · · · · · · · · · · · · · · · ·

III. Commodities for which bushel weights have been established in more than three States-Continued.

¹ Not defined, except as noted. ² Hulled or unhulled.

- ² Hulled or unnulled.
 ³ Green.
 ⁴ Called ground peas in the law.
 ⁵ Roasted; gireen, 22 pounds.
 ⁶ Shelled.
 ⁷ Peaches, peeled; unpeeled, 32 pounds; not stated whether dried or not.
 ⁸ Matured.
 ⁹ Spanish 20pounds.

⁹ Spanish, 30pounds.
¹⁰ Not stated whether top or bottom onion sets.
¹¹ Roasted; green, Georgia or Virginia, 32 pounds; Spanish, 24 pounds.
¹² Virginia; Spanish, 30 pounds.

	Peas.			Pot	atoes				q.		lled).					
	Peas. ¹	Green, unshelled.	Split.	Wrinkled.	Plums.	Irish or white.	Sweet.	Quinces.	Rapeseed.	Raspherries.	Red top or red top seed.	Rhubarb or pie plant.	Rice, rough (or unhulled)	Rutabagas.	Rye.	Rye meal.
Federal statutes Alabama	60 60						55								56 56	
Arizona. Arkansas. California.	60 60		· · · · · · · · · · · · · · · · · · ·	· · · · ·	· · · · · · · · · · · · · · · · · · ·	60	50		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	···· 14			 	56 54	
Colorado Connecticut Delaware	60		 	 		60 60	54	 	 	 	 		45	 60	56 56	50
District of Columbia Florida					40	60	56	48			 				56	
Georgia Hawaii Idaho Illinois Indiana	60 ² 60 ³ 60	32	 	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	60 60 60 60	55 50 50 50	 48 48	50 50	• • • • • • • • • • • • • • •	 14 14		43 45 45	 50	56 50 56 56 56	
Iowa Kansas . Kentucky . Louisiana . Maine .	³ 60 60 60 	50 30 28	 		48 52	60 60 60	50 4 50 55 	48 48 48	50	 40	14		· · · · · · · · · · · · · · · · · · ·	60 50 60	56 56 56 32 56	
Maryland Massachusetts Michigan. Minnesota. Mississippi	³ 60 6 60 6 60 6 0			 56 	·····	60 60 60 60 60	60 54 56 55 54	 48 	50 50		⁵ 14 14 14	 			56 56 56 56	50
Missouri. Montana. Nebraska Nevada. New Hampshire.		56 50 28	60 		48	60 60 60 60 60	56 50 50 54	48	50		7 14 14			50 60	56 56 56 56 56	
New Jersey New Mexico New York North Carolina North Dakota	³ 60 60 60 7 60 60	28 30			64 64	60 60 60 56 60	54 50 54 56 46	48 48 	50	48	14 14	9 50 50	45 45 44	60 50 52	56 56 56 10 56 10 56	50 50
Ohio. Oklahoma. Oregon.	60 60 3 60	56	60		50	60 60	50 55		50		7 14			50	56 56	
Pennsylvania Rhode Island South Carolina South Dakota Tennessee	60 7 60 3 60 7 60	11 30 56 30	60 	· · · · · ·	64 64 48 64	60 60 60	54 54 50 54 50	48 * 48 * 48 * 48 * 48 * 48	50 50 50	48 48 	7 14 14 14 14	⁹ 50	45	60 60 50	56 56 56 56 56	50 50
Texas. Utah. Vermont. Virginia.	³ 60 60	32 28			48	60 60 60 60	50 54 56	48	50		14 14 14 40		45	50	56 56 56	50
Washington West Virginia Wisconsin Wyoming	⁷ 60 60	¹² 30		56 56	60	56 60 60	50 54 50	 48 	50 50	48	14 14 		45	50 56	56 56 56	51 51

III. Commodities for which bushel weights have been established in more than three States—Continued.

Not defined, except as noted.
 Shelled, dried peas.
 Dried.
 Sweet potatoes, seed, sorted, 1¼ inches diameter and under 45 pounds.
 Smooth peas.
 Smooth peas.
 Tory.
 Matured.
 Called pieplant in the law.
 Seed.
 Not stated whether shelled or unshelled.
 Green, shelled, 50 pounds.

		Salt.				d.	Z. ²							
	Salt.1	Coarse salt.	Fine salt.	Sand.	Shorts.	Sorghum seed.	Spelt or speltz. ²	Spinach.	Strawberries.	Timothy seed.	Tomatoes.	Turnips.	Walnuts.	Wheat.
Federal Statutes Alabama Arizona Arkansas California	50					50			• • • • •	60		55 57		60 60 60 60
Colorado Connecticut Delaware District of Columbia Florida.	80 60	70	50		20					45 45 	· · · · · ·	³ 50		60 60 60
Georgia. Hawaii. Idaho. Illinois. Indiana.	80	55 50	50 55		20	50 50 50	40	12		45 45 45 45	56 56 60	55 55 55 55	50 50	60 60 60 60 60
Iowa Kansas. Kentucky. Louisiana Maine.	80 80 50	7 70	55 8 60	130	20	⁴ 50 50 50	40 40	14 12	 40	45 45 45 	50 56 56	55 55 60 3 50	⁵ 50 6 50	60 60 60 60 60
Maryland Massachusetts Michigan Minnesota Mississippi	⁹ 56	70	56	 		50 57 42	40		 	45 45 45 45	60 50	60 58 55 55	50	60 60 60 60
Missouri Montana Nebraska Nevada New Hampshire	50 50 80 80	70	 50	 130	20 20	42 50 50	48		• • • • • •	45 45 45 45 45	45 56 56 56	10 42 50 55 56 55	⁵ 50	60 60 60 60 60
New Jersey. New Mexico. New York. North Carolina. North Dakota.		70	 56 	130	20 20	50 50 50 57	 40	12 10	48	45 45 45 45 45	56 50 56 50	55 56 50 60	50 ⁵ 50 50	60 60 60 60 60
Ohio Oklahoma Oregon	80					50 50				45 45	56 45	10 42	¹¹ 50	60 60
Pennsylvania Rhode Island South Carolina South Dakota Tennessee		85 70 80	¹² 62 50	100 130	20 20	50 50 50 50	40	12 12 12 30	48 48 48 48	45 45 45 45 45	56 56 56 50 56	50 50	10 50 50 5 650 50	60 60 60 60 60
Texas. Utah. Vermont. Virginia.	50	55 70	50 		20	50 	40	12 12 12	• • • • •	45 45 45	56 56 60	55 60 55	50	60 60 60
Washington West Virginia Wisconsin Wyoming		70 70 70	50 50	130	20 20	57	40 45	15 	48	45 45	56 56 56	55 42 55	50 	60 60 60

III. Commodities for which bushel weights have been established in more than three States-Continued.

¹ Not defined, except as noted.
² See also "Emmer." Spring emmer has frequently been erroneously called speltz, this name being a misspelling of spelt, which is a distinct crop. The differences between spelt and emmer are pointed out in U. S. Dept. Agr. Farmers' Bulletin 466.
³ Common English.
⁴ Sorghum saccharatum seed.
⁵ Hulled.
⁶ Block

⁶ Funcea.
⁶ Black.
⁷ Turk's Island salt or other grades of coarse salt.
⁸ Liverpool salt or other grades of fine salt.
⁹ Michigan salt.

¹⁰ Common. ¹¹ Domestic. ¹² Ground.

IV. THE FOLLOWING TABLE GIVES AN ANALYSIS OF THE DEGREE OF UNIFORMITY IN WEIGHT EXISTING IN THE CASES OF THOSE COMMODITIES FOR WHICH BUSHEL WEIGHTS HAVE BEEN ES-TABLISHED IN 17 OR MORE STATES.

	Magta		moight					
	IVIOSI CO	ommon			itional ghts.		Summary of individual	
		Fixe	d by—	wei	guts.	Total num-	weights.	Per- cent-
Commodity.	Num- ber of pounds.	Num- ber of States.	having weights	ber.	Num- ber of States fixing.	ber of States fixing a weight.	Values-first figure, number of States; second figure, weight fixed (most common weight in bold face).	age range from mini- mum weight.
Alfalfa seed. Apples. Apples, dried Barley. Beans. Castor.	60 48 24 48 60 46	21 20 20 38 40 20	100 61 54 88 100 77	4 4 3 3	$ \begin{array}{c} 13 \\ 17 \\ 5 \\ \dots \\ 6 \end{array} $	21 33 37 43 40 26	21-60. 2-44, 3-45, 1-47, 20-48, 7-50 1-22, 20-24, 10-25, 1-26, 5-28 1-32, 3-47, 38-48, 1-50 40-60 1-45, 20-46, 1-48, 4-50	14 27 56 11
Beets Bluegrass seed Bran Buckwheat	56 14 20 48	11 29 31 16	39 97 100 42	2 1 5	17 1 22	28 30 31 38	$\begin{array}{c} 7-50, 11-56, 10-60. \\ 29-14, 1-18. \\ 31-20. \\ 1-40, 1-42, 16-48, 10-50, 9-52, \end{array}$	20 29 40
Carrots Clover seed Corn:	50 60	30 37	94 100	1 1	2	32 37	1-56. 2-45, 30-50 37-60	11
In the ear Shelled Cornmeal Cucumbers	¹ 70 56 50 48	30 43 19 18	88 98 61 90	2 1 1 1	4 1 12 2	34 44 31 20	3-68, 30-70, 1-72. 1-52, 43-56. 12-48, 19-50. 18-48, 2-50.	6 8 4 4
Flaxseed Hempseed Hickory nuts Hungarian grass seed.	56 44 50 50	34 29 17 17	92 91 100 61	$\begin{array}{c} 1\\ 2\\ \cdots\\ 1\end{array}$	3 3 11	37 32 17 28	3-55, 34-56 29-44, 1-48, 2-50 17-50 11-48, 17-50	14
Kafir corn	56	17	89	1	2	19	2-50, 17-56	12
Lime. Millet. Oats. Onion sets, top Onions.	80 50 32 28 57	21 31 43 13 20	70 97 100 76 51	2 1 1 5	9 1 4 19	30 32 43 17 39	$\begin{array}{c} 1-35, 8-70, 21-80. \\ 1-48, 31-50. \\ 43-32. \\ 13-28, 4-30. \\ 3-50, 8-52, 2-54, 2-55, 4-56, \\ 20-57. \end{array}$	129 4 7 14
Orchard grass	14	23	100			23	23–14	
seed. Parsnips	50	15	50	5	15	30	4-42, 3-44, 5-45, 2-48, 15-50,	31
Peaches Dried	48 33	22 22	81 71	2 5	5 9	27 31	1-55. 22-48, 4-50, 1-54 1-24, 2-25, 1-26, 4-28, 22-33,	12 62
Peanuts	22	15	62	6	9	24	1-39. 1-20, 15-22, 3-23, 2-24, 1-25, 1-30, 1-32.	60
Pears	² 58	6	25	6	18	24	1-36, 6-45, 4-48, 4-50, 1-55,	61
Peas Green, un- shelled. Potatoes:	60 28	37 6	100 33	4	12	37 18	2-56, 6-58. 37-60 6-28, 5-30, 2-32, 2-50, 3-56	100
Irish Sweet	60 50	39 15	95 38	1 5	2 24	41 39	2-56, 39-60. 1-46, 15-50, 12-54, 5-55, 5-56, 1-60.	7 30
Quinces Red top seed	48 14	19 21	100 95	1	1	19 22	19–48 21–14, 1–40	
Rutabagas Rye Salt Sorghum seed	50 56 50 50	8 42 9 19	44 93 47 76	3 3 3 3	10 3 10 6	18 45 19 25	8-50, 2-52, 1-56, 7-60 1-32, 1-50, 1-54, 42-56 9-50, 1-56, 1-60, 8-80 2-42, 19-50, 1-56, 3-57	20 75 60 36
Timothy seed Tomatoes Turnips	45 56	36 19 17	97 66 45	1 3 7	1 10 21	37 29 38	36-45, 1-60 2-45, 5-50, 19-56, 3-60 3-42, 7-50, 1-54, 17-55, 3-56,	33 33 43
Wheat	60	45	100]	45	1-57, 1-58, 5-60. 45-60.	

¹ Indiana and Texas have established weights of 70 pounds and 72 pounds, respectively, for green corn before Dec. 1; West Virginia requires 72 pounds for green corn, and Kentucky 68 pounds for corn from May 1 to Nov. 1. These weights are not included in the figures given in the table, but the weights fixed for the other seasons of the year are included. ² A weight of 45 pounds is also established by six States.

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V. BUSHEL WEIGHTS (FOUND IN THE PRECEDING PAGES) WITH CORRESPONDING PROPORTIONAL WEIGHTS FOR VARIOUS SUB-DIVISIONS OF THE BUSHEL

Bushel weight in pounds.	One bus	-half hel.	One	peck.		-half ck.		juarter ck.	One	quart.
	Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.
4	2 4 5 5 6	0 0 0 8 0	1 2 2 2 3	0 0 8 12 0	0 1 1 1 1	8 0 4 6 8	0 0 0 0 0	7 8 10 11 12	0 0 0 0 0	2 4 5 5.5 6
14 15 18 20 22	7 7 9 10 11	0 8 0 0 0	3 3 4 5 5	8 12 8 0 8	1 1 2 2 2	12 14 4 8 12	0 0 1 1 1	14 15 2 4 6	0 0 0 0	7 7.5. 9 10 11
23 24 25 26 28	11 12 12 13 14	8 0 8 0 0	5 6 6 7	12 0 4 8 0	2 3 3 3 3 3	14 0 2 4 8	1 1 1 1 1	7 8 9 10 12	0 0 0 0	11.5. 12 12.5 13 14
30	15 16 16 16 17	0 0 8 10.7 0	7 8 8 8 8	8 0 4 5.3 8	3 4 4 4 4	12 0 2 2.7 4	1 2 2 2 2	14 0 1 1.3 2	0 1 1 1 1	15 0 0.5 0.7 1
35 36 38 39 40	17 18 19 19 20	8 0 0 8 0	8 9 9 9 10	12 0 8 12 0	4 4 4 5	6 8 12 14 0	2 2 2 2 2 2	3 4 6 7 8	1 1 1 1 1	1.5 2 3 3.5 4
42	21 21 22 22 23	0 8 0 8 0	10 10 11 11 11	8 12 0 4 8	5 5 5 5 5 5	4 6 8 10 12	2 2 2 2 2	10 11 12 13 14	1 1 1 1 1	5 5.5 6 6.5 7
47	23 24 25 26 27	8 0 0 0	11 12 12 13 13	12 0 8 0 8	5 6 6 6	14 0 4 8 12	2 3 3 3 3 3	15 0 2 4 6	1 1 1 1 1	7.5 8 9 10 11
55 56 57 58 60	27 28 28 29 30	8 0 8 0 0	13 14 14 14 15	12 0 4 8 0	6 7 7 7 7 7	14 0 2 4 8	3 3 3 3 3	7 8 9 10 12	1 1 1 1 1	11.5 12 12.5 13 14
62. 64. 68. 70.	31 32 34 35	0 0 0 0	15 16 17 17	8 0 0 8	7 8 8 8	12 0 8 12	3 4 4 4	14 0 4 6	1 2 2 2	15 0 2 3
72. 74. 75. 76.	36 37 37 38	0 0 8 0	18 18 18 19	0 8 12 0	9 9 9 9	0 4 6 8	4 4 4 4	8 10 11 12	2 2 2 2 2	4 5 5. 5 6
80	40 42 50 65	0 8 0 0	20 21 25 32	0 4 0 8	10 10 12 16	0 10 8 4	5 5 6 8	0 5 4 2	2 2 3 4	8 10.5 2 1

×