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62 \\
60.5 \\
0.53-13 \\
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## Conversion Factors and Weights and Measures

For Agricultural Commodities and Their Products
U.S. Department of Agriculture

Economics, Statistics, and Cooperatives Service Statistical Bulletin No. 616

crates


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# CONVERSION FACTORS AND WEIGHTS AND MEASURES FOR AGRICULTURAL COMMODITIES AND THEIR PRODUCTS 

The tables in this report were complled to provide a manual of unfform conversion factors for use in statistical, research, and service programs of the Department. A reasonably complete set of all-purpose factors is presented. However, for a particular comodity, the data may not be entirely adequate for all uses.

The data are intended to represent overall averages except where fndicated. However, In some tnstances the averages are only approximations. All conversion factors included are based on the most recent and reliable fnformation available and are intended to reflect current conditions and practices. Factors for many commodities change from year to year; therefore, caution should be exercised when using these data to compile or revise historical serfes.

The number of significant figures shown for many factors does not necessarily indicate the degree of precision. Some of the factors are in common use and carry more signtficant digits than might be justified when considering the accuracy of the data from which they were derived.

Data for the revistons in this report were compiled by Cleveland $Y$. Fley under the general supervision of Henry Badger. Instead of the task force nethod used in the last revision, commodity specialists in the Commodity Economics Division of the Economics, Statistics, and Cooperatives Service provided Leadership for revistons of the tables"in their area of interest. These include Larry Duewer and Allen Baker for Ifvestock and Ifvestock products; Alfred Burns, Charles Porter, and Jules Powell for fruits and vegetables; Charles Shaw and Floyd Lasley for dairy products; George Kromer for fats and cils products; Kenneth Blase for poultry and eggs; Frederick Gray for sugar, coffee, and tea; John Lawler for fibers; and Robert. Enochfan for dehydrated and frozen products. Other persons in the Departaent also sharing the responsibility for updating this report included Russell Hawes, W. Edmond Tyler, Larry Crabtree, and Donald Liden of the Agricultural Marketing Service; David Shenkenberger and Curtis Green In Food Safety and Quality Service; and Wilda Martinez of the Agricultural Research Service (now part of Science and Equcation Administration) who coordinated requests for data from scientists at ARS (SEA) regtonal research laboratories. L. W. Van Melr, National Ganners Association, provided data on canned fruits and vegetables.

A new table showing metric wet and dry volume conversion factors has been added. These data along with other metric information provide a basis for converting most weights and measures shown in this report to metric measures.

This report is a revision of Statistical Bulletin No. 362, Conversion Factors and Weights and Measures for Agricultural Commodities and Their Products, published by the Economic Research Service, USDA, In June 1965. Many of the revisions in this report reflect the changting structure of agricultural production and marketing patterns.

## Weights and Measures

Table l-Wactors for converting domestic and metric weights and meaaures commonly used for agricultural commodities



48 -pound bushel of barley, buckwheat, apples

| 1 bushel | $=$ | .024 | short ton | 1 short ton | $=$ | 41.667 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 1 bushel | $=$ | .021772 metric ton | i metric ton | $=$ | 45.9296 | bushels |
| 1 bushel | $=$ | .021429 long ton long ton | $=$ | 46.667 | bushels |  |

32-pound bushel of vats

| 1 bushel | $=$ | . 016 | short ton | 1 shore ton | = | 62.5 | ushels |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 bushel | = | . 01.4515 | metric ton | 1 metrif ton | $=$ | 68.8944 | ls |
| 1 bushel | $=$ | . 014286 | long ton | 1 long ton |  | 70 | bushels |

38-pound bushel of oats

| 1 bushel | $=$ | . 019 | short ton | 1 short ton | $=$ | 52.63 | $s$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 bushel | = | .0:724 | metric ton | 1 metric ton | = | 58.016 | bushels |
| 1 bushel | $=$ | . 0.6696 | long ton | 1 long ton |  | 58.94 | ushels |

Table 2--Factors for converting domestic and metric dry and liquid measures 1/


I/ In the metric system of weights and measures, designations of multiples and subdivisions of any unit, may be derived by combining with the name of the unit the prefixes deka, hecto, and kilo, meaning, respectively, 10,100 , and 1,000 , and deci, centi, and milli, meaning, respectively, one-tenth, one-hundredth, and one-thousandth.

Table 3--Factors for converting ounces to pounds

|  | Ounces | : | Plus 0 ounces | Plus $1 / 4$ ounce | Plus $1 / 2$ ounce | FIus 3/4 ounce |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | : |  |  |  |  |
|  |  | : |  |  |  |  |
| 0 |  | : | NA | 0.015625 |  |  |
| 1 |  | : | 0.062500 | 0.015625 .078125 | 0.031250 .093750 | 0.046875 |
| 2 |  | : | . 125000 | . 140625 | . 156250 | . 171875 |
| 3 |  | : | . 187500 | . 203125 | . 218750 | . 234375 |
| 4 |  | : | . 250000 | . 265625 | . 281250 | . 296875 |
| 5 |  | : | . 312500 | . 328125 | . 343750 | . 359375 |
| 6 |  | : | . 375000 | . 390625 | . 406250 | . 421875 |
| 7 |  | ; | . 437500 | . 453125 | . 468750 | . 484375 |
| 8 |  | : | . 500000 | . 515625 | . 531250 | . 546875 |
| 9 |  | ; | . 562560 | . 578125 | . 593750 | . 609375 |
| 10 |  | : | . 625000 | . 640625 | . 656250 | . 671875 |
| 11 |  | : | . 687500 | . 703125 | . 718750 | . 734375 |
| 12 |  | : | .750000 | . 765625 | . 781250 | . 796875 |
| 13 14 |  | : | . 812500 | . 828125 | . 843750 | . 859375 |
| 14 |  | : | . 875000 | . 890625 | . 906250 | . 921875 |
| 15 |  | : | . 937500 | . 9531.25 | . 968750 | . 984375 |

Table 4--Conversion factors for test weight per Winchester bushel, test weight per imperial bushel, and kilograms per hectoliter I/

| Itern | : | Factor |
| :---: | :---: | :---: |
|  | : |  |
| Pounds per Winchester bushel to-- | ; |  |
|  | ; |  |
| Pounds per fraperial bushel | : | 1.032 |
| Kilograms per hectoliter | : | 1.287 |
|  | : |  |
| Pounds per imperial bushel to-- | : |  |
|  | : |  |
| Pounds per Winchester bushel | : | . 969 |
| Kilograms per hectoliter | : | 1.247 |
|  | : |  |
| Kilograms per hectoliter to-- | : |  |
|  | : |  |
| Pounds per Winchester brsinel | : | . 777 |
| Pounds per imperial bushel | : | . 802 |
|  | : |  |

1/ Winchester bushel is the standard U.S. bushel (volume).

Table 5-Comparison of test weight per Winchester bushel, test weight per imperial bushel, and kilograms pet hectoliter
(25-to-65-pound basls Winchester bushel)


Table $6 \boldsymbol{-}$ Factors for obtaining retail weights from weights at specified market level.s


Table 6--Factors for obtaining retail weights from weights at specified market levels--Continued


Table 6-Factors for obtaining retail weights from weights at specified market levels--Continued


Table 7-Net content and approximate servings par container for vayfous canned foods $1 /$


Table 7-Net content and approximate aervings per container for various canped foods 1/-Continued


Table 7-Wiet content and approximate servings per container for various canned foods 1/--Continued

| Product | $:$ | Contalner size | $\begin{array}{lr} : & \text { Net weight } \\ : & \text { or volume } \end{array}$ | Cups or pleces | $\begin{aligned} & \text { Sexvings } \\ & : \text { per } \\ & \text { : container } \end{aligned}$ | Serving size |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mant and poultry: 4/--Cont. |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Sanll : - - 1 l - 4 lb . |  |  |  |  |  |  |
| Medium | : -- |  | $6-8 \mathrm{lb}$. | -- | 3-4 | $\begin{aligned} & 2 \text { slices } \\ & \text { lis } \mathrm{tn} .) \end{aligned}(4 \times 3 \times$ |
| Large | : - |  | $9-141 \mathrm{~b}$. | -_ | pound |  |
|  | : |  |  |  |  |  |
| Pouitry, boned, chicken andcurkey | - |  | 5-61b. | -* | 2 | 3 oz |
|  | : -- |  | 12 oz . | -- | . | 'soz. |
|  | : |  | $1 \mathrm{lb}$.14 oz , | -- | 10 | 3 oz , |
|  | : $\sim$ |  | 2 lb .3 oz . | -- | 12 | 3 oz . |
| Saucage, pork, and frankfurtere | : |  |  |  |  |  |
|  | : -- |  | $8 \text { oz. }$ | 11-12 | 3-4 | 3 sausages |
|  |  |  |  | 8-9 large | 4 | 2 gausages |
| Stew, beef and lamb | - |  | 116. | 2 cups | 2 | 3/4 cup |
|  | - |  | $1 \mathrm{lb}$.4 oz . | 212 cups | 3 | 3/4 cup |
|  | : -- |  | 1\% 1 b . | 3 cups | 4 | 3/4 cup |
| Yienna masage | : |  | 4 oz. | 8-10 | 2 |  |
|  | : |  | 9 oz . | 16-20 | 4 | 4 - 5 saurages |
|  | Fish and reafood: 4/ |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  | : -- |  | 12 Oz | 1 cup | 2 | \% cup |
| Cryb meat | : |  | 512 - 7hay | 3/4-1 cup | 2-3 | 1/3-1/ cup |
| Hinckerel | : - |  | 1 lb . | 2 cups | 4 | $3 / 2 \mathrm{cup}$ |
| Oyaters |  |  |  |  |  |  |
|  | : -- |  | 8 oz. | 1 cup | 2 | 3/2 cup |
| Salwon | : -- |  | 7-3/4 oz. | 1 cup | 2 | cup |
|  | : -- |  | 1 lb . | 2 cups | 4 | I/ cup |
| Sardines <br> Sardines, pilchards | : |  |  |  |  |  |
|  | : -- |  | 3ヶ - 4 oz . 15 oz . | $\begin{aligned} & 6-10 \\ & 6-7 \text { large } \end{aligned}$ | 112 | 5-7 sardines |
|  |  |  |  | - 7 large |  | $1{ }^{2}$ sardines |
| Shrimp $2 /$ | : $=$ |  | 4 4 - 612 | 25-35 | 3-4 | 10-12 meditum size |
|  | : |  |  |  |  | 6-8 Jumbo size |
| Tuna in oil | : -- |  | 6-7 oz. | 1 cup |  |  |
|  | -- |  | 13 oz. | 1-3/4 cups | 4 | $\begin{aligned} & \frac{1}{2} \text { cup } \\ & 1_{2}^{2} \text { cup } \end{aligned}$ |
|  |  |  |  |  |  |  |
| Infant foods: $4 /$Vegetables end fruits: |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Infant, strained and howogenized | -- |  | 4-3/4 oz. | 1/2 cup | -- | -- |
|  | -- |  | $6 \frac{1}{2}$ oz. | 3/4 cup | -_ | -- |
| Junior, chopped | - |  | 8 oz . | 7/8 cup | -- | -- |
|  |  |  |  |  |  |  |
| Meate: |  |  |  |  |  |  |
| Infant, strained | -- |  | 31208. | 7 tablespoons | -- - | -- |
| Junior, chopped | -- |  | 3\% oz. | 7 tablespoons | -- - | - |
| Soups: |  |  |  |  |  |  |
| InfantJunior | -- |  | 4-3/4 oz. |  | -- |  |
|  | -- |  | $8 \mathrm{oz}$ | $\begin{aligned} & \text { 7 cup } \\ & 7 / 5 \mathrm{cup} \end{aligned}$ | -- | $\square$ |
|  | - |  |  |  |  | . |

-     - Not applicable.

1/ The net weight of vardous fooda in the same size can or glass jar will vary with the density of the food. For the soat part only mininum seighta are shown in the table. Cups or pieces and servings in the table are approximate, and sisea of eervings are given in rounded numbers to furnish a practical guide.

2/ Declared as drained weight. (The number of pleces per container varies as to size of the piece,)
3/ Sweerpotaties also come in 1 pound 2 ounce to 1 pound 7 ounce cans.
4/ Contents usually declared as net weight. Container size is variable, strained and hamogenized foods for infints, and chopped junior foods, come in small jars and jars suitable for the smaller servings used.

Source: National Cannerg Association.

Table 8--Whole milk equivalents and milk solids factors


Table 8-Whole tallk equivalents and wilk solids factors--Continued


Table 8--Whole milk equivalents and milk solids factors--Continued


## 1/ Bose applicable

Based on Federal Food and Drug Standards of Identity and U.S. Average Factory Production Data. Industry averages are from table 45 Federal Milk Order Market Statistics Eor 1975, Stat. Bull. 554, Agr. Mktg. Serv́., U.S. Dept. Agr.
$\frac{2 /}{3 /}$ Federal Food and Drug Standards of Identity.
3/ These factors are based upon total conversion of the fat or solids not fat and do not represent actual yields attainable. For computing whole milk equivalents from milk of composition other than that of the single test ( 3.7 fat and 8.62 solids-not fat) shown, use the following: (1) Fat in the product + fat in the milk = whole milk equivalent in terms of fat as in column 5 . Example-to compute the whole milk equivalent at 4.0 percent fat of 18 percent cream: $0.18+0.04=4.50$. (2) ( 1 - fat in the product) ( 1 fat in the milk) $x$ nonfat solids in the milk monfat solids in the product. Example--for 18 percent cream: ( $1-0.18$ ) 4 ( $1-0.04$ ) provides the whole milk equivalent in terms of nonfat solids as in column 6. (3) To determine nonfat solids equivalents for mellorine type frozen desserts, use the factors for ice cream mixes of equivalent fat percentages.

4/ Compured from column 1 en basis of whole milk containing 3.7 percent fat.
5/ Computed from column 2 on basis of whole milk containing 8.62 percent solids-nonfat.
6/ Maximum total milk solids in fruit sherbet.

Table 9--Whole milk, skim foilk, butterailk, and whey equivalents

| Commodity | : | Conversion tom- | . | Factors |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | : |  |
| Skim milk cheese |  | Flutd skim milk | : | 16.0 |
| Cottage, pot, and bakers* cheese |  | do. | : | 7.14 |
| Nonfat dry milk |  | do. | : | 11. 3 |
| Dry casein |  | do. | : | 35.7 |
| Condensed and evaporated skim milk, sweetened and unsweetened |  | do. | : | 3.7 3.0 |
| Concentrated skim milk (for animal Eeed) | : | do. | : | 3.0 3.0 |
| Dry buttermilk |  | Fluid buttermilk | : | 11.0 |
| Condensed or evaporated buttermilk |  | do. | : | 13.0 |
| Dry whey | : | Fluid whey | : | 13.5 |
| Dry lactose | : | do. | , | 25.0 |
| Butter |  | Fluid whole milk | : | 22.8 |
| Whole trilk cheege | : | do. | : | 10.0 |
| Evaporated milk | : | do. | : | 2.14 |
|  | : |  | : |  |

Table 10--Dairy products: Net weight of standard units

-- $=$ Not applicable.
I/ To convert pounds per gailon to kilo per Liter, multiply dndicated figure by 0.4536 and divide by 3,785 (number of iftters in 1 gailon). 2/ Weights of other can sizes: evaporated milk; 6 ounces, 6.75 pounds. Weight per galion of ifquid ice cream mix and similar products at $68^{\circ}$ can be obtained by use of the following formula:

$$
\text { Specific gravity }=\frac{100}{\frac{\% \text { Fat }}{0.93}+\frac{\% \text { Sugar }+\% \text { Nonfat milk solids }}{1.58}+\% \text { Water }}
$$

Specific gravity $\times 8.34=$ Weight of 1 gallon of product. 3 / To convert pounds to kilograms, multiply pounds by 0.4536 .

Conversion factors for meats and meat products are used to calculate the dressed weight equivalent of bone-in cuts, boneless meat, and of cooked, prepared, or canned meat items. The fundamental basis for meat conversion factors is the relation between the amount of usable meat in each cut or carcass and the amount of waste in bone, fat, tendons, ligaments, and inedible trimmings. Factors for converting boneless beef into dressed weight equivalent were developed from data on the yield of boneless meat from various grades of carcasses. The cutting was under commercial boning practices.

Dressed meat equivalent (carcass weight) for beef, veal, lamb and mutton, and pork is defined as follows:

Bief: Weight of the dressed carcass with kidney and suet in.
Vieal: Weight of dressed carcass with hide off and kidney and suet in.
Lamb and mutton: Weight of dressed carcass with kidney and suet in.
Pork: Weight. of the dressed carcass with head off and kidney and Leaf fat out.

Conversion factors for all formulated meat products are based upon the weight of boneless, and in the case of pork, skinless meat in each unit of finished product. Formulas for certain products, such as franks or weiners, may vary from the factors shown depending upon relative prlces and availability of different types of meat and edible offal, and processing methods used.

Table II--Cattie, calves, sheep and lambs, and hogs commercially slaughtered: Average live weight and dressing yields 1966-75 and 1976


1/ Cattle and calf weights for 1976 were affected by the large number of nonfed cattle marketed.

2/ Dressing yield for packer-style, pork carcass, federally inspected slaughter. To obtain shipper-style pork carcass, add 7 percent.

Table 12--Beef: Percentage yields of bone-in cuts and boneleas meat

-- = Not applicable.
$\frac{1 /}{2} /$ All cuts trimmed of fat exceeding that amount normally left on retail cuts ( $1 / 4$ co $1 / 2$ inch).
2/ Based on cattle representing the full range of yield grades but with an average of roughly yield Grade 3.

Table 13--Beef: Boneless to bone-in conversion factors

| Carcass and wholesale cuts | Factors for converting trimmed boneless meat to-- |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Untrimmed bone-in equivalents |  | Trimmed bone-in equivalents |  |
|  | Prime, Choice, and Good 1/ | $\begin{array}{cc} : & \text { Canner } \\ : & \text { and Cutter } \\ : \end{array}$ | $:$ Prime, <br> $:$ Choice, and <br> $:$ Good $1 /$ | $\begin{array}{lc} : & \text { Canner } \\ : & \text { and Cutter } \end{array}$ |
|  |  |  |  |  |
| Carcass, whole | 1.43 | 1.36 | 1.43 | 1.36 |
| Forequarter | 1.39 | 1.39 | 1.31 | 1.38 |
| Rib | 1.72 | 1.70 | 1.60 | 1.69 |
| Chuck, square cut | 1.30 | 1.29 | 1.26 | 1.29 |
| Plate | 1.38 | 1.36 | 1.18 | 1.32 |
| Brisket | 1.34 | 1.41 | 1.14 | 1.35 |
| Foreshank | 1.65 | 1.87 | 1.65 | 1.86 |
| Hindquarter | 1.48 | 1.34 | 1.25 | 1.27 |
| Round | 1.30 | 1.27 | 1.20 | 1.25 |
| Sirloin | 1.34 | 1.30 | 1.18 | 1.24 |
| Short loin | 1.50 | 1.43 | 1.15 | 1.29. |
| Flank | 1.94 | 1.34 | 1.07 | 1.08 |

1/ Baged on cattle representing the full range of yield grades but with an average of roughly yteld Grade 3.

Table 14--Veal and calf: Percentage yield of bone-in suts and boneless meat plus boneless to bone-in conversion factors


## -- * Not applicable.

1/ All cuts trimed of fat exceeding that amount normally left on retain cuts ( $\frac{1}{2}$ to $\frac{1}{2}$ inch).

Table 15-Freah pork: Percentage yields of bone-in cuts and boneless mear, plus boneless to bone-fn conversion factors 1/

| Carcass and wholesale cuts | : | Approximate percentage of live weight | Yield of bonein trimned wholegale cuts |  | Yield of boneless meat from wholesale cuts |  | Factors for converting boneless meat to bone-in equivalents |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | : | ----------..-- | -------- Perc |  | --------------- |  |  |
|  | : |  |  |  |  |  |  |
| Packer-dressed carcass | : | 71.00 | 100.00 |  | 67.0 |  | 1.49 |
| Boneless, skinless meat | : | 47.57 | 67.00 |  | 100.0 |  | 1.00 |
|  | : |  |  |  |  |  |  |
| Hams : | : |  |  |  |  |  |  |
| Skinned, bone-in | : | 16.96 | 23.89 |  | 61.5 |  | 1.63 |
| Skinned, semi-boneless | : | 13.06 | 18.40 |  | 77.0 |  | 1.30 |
| Skinless, boneless | : | 10.43 | 14.69 |  | 100.0 |  | 1.00 |
|  | : |  |  |  |  |  |  |
|  | : |  |  |  |  |  |  |
| Shoulders: | : |  |  |  |  |  |  |
| Pienfes: | : |  |  |  |  |  |  |
| Skinned, bone-in | : | 6.90 | 9.72 |  | 70.5 |  | 1.42 |
| Skinless, boneless | : | 4.86 | 6.85 |  | 100.0 |  | 1.00 |
| Butts, skinless: | : |  |  |  |  |  |  |
| Bone-1n (Boston) | : | 5.15 | 7.25 |  | 70.0 |  | 1.43 |
| Boneless | : | 3.60 | 5.08 |  | 100.0 |  | 1.00 |
|  | : |  |  |  |  |  |  |
| Loins: | : |  |  |  |  |  |  |
| Bone-1n | : | 14.16 | 19.94 |  | 30.0 |  | 3.33 |
| Boneless | : | 4.25 | 5.98 |  | 100.0 |  | 1.00 |
|  | - |  |  |  |  |  |  |
| Bellies: | : |  |  |  |  |  |  |
| Slab, skin on | : | 12.91 | 18.18 |  | 93.0 |  | 1.08 |
| Slab, skin off | : | 12.01 | 16.91 |  | 100.0 |  | 1.00 |
|  | : |  |  |  |  |  |  |
| Jowls (bscon squares) | : | 1.10 | 1.55 |  | -- |  | -- |
| Spareribs | : | 2.76 | 3.89 |  | -- |  | - |
|  | : |  |  |  |  |  |  |
| Feet, front | : | 0.60 | 0.85 |  | $\cdots$ |  | -- |
| Tails | : | 0.20 | 0.28 |  | -- |  | -- |
|  | : |  |  |  |  |  |  |
| Neckbones | : | 0.90 | 1.27 |  | -- |  | -- |
|  | : |  |  |  |  |  |  |
| Trimmings: | : |  |  |  |  |  |  |
| 80-percent lean | : | 0.71 | 1.00 |  | -- |  |  |
| 50-percent lean | : | 0.96 | 1.35 |  | -- |  | -- |
| Far, skin, etc. | : | 6.20 | 8.73 |  | -- |  | -- |
|  |  |  |  |  |  |  |  |
| Shrink and loss | : | 1.49 | 2.10 |  | -- |  | -- |

-- = Not appIlcable.
1/ Developed in cooperation with Agr. Mkrg. Serv., U.S. Dept. Agr.

Table 16--Lamb: Percentage yields of bone-in cuts and boneless meat plus boneless to bone-in conversion factors $1 /$


1/ Based on Prime, Choice, and Good yield Grade B carcasses.
2/ USDA boning practice-ncuts trimmed to $\frac{1}{4}$ inch of fat.
3/ PIuck out--heart, lungs, trachea, and esophagus have been removed.

Table 17--Edible offal: Relationship between procurement and product weights

| Product | $\begin{aligned} & \text { : Factors for converting to } \\ & \text { : equivalent weight of edible } \\ & \text { offal } \end{aligned}$ |
| :---: | :---: |
|  | : |
| Brains | $: 1$ |
| Cheek meat | 1 |
| Head meat | 1 |
| Heart | 1 |
| Kidneys 2/ | 1 |
| Liver | 1 |
| Stomach or tripe | : 1 |
| Sweetbreads | $: \quad 1$ |
| Ta11 | : I |
| Tongue | : 1 |
|  | : |

2/ Edible offal is defined as all edible parts from cattle, calves, hogs, and sheep that are not included in the carcass weight as carried in reported meat production by the U.S. Dept. Agr.

2/ Kidneys are usually left in beef, veal, lamb, and mutton carcasses, but they are classifled as edible offal.

Table 18--Choice beef: Retail cut yields as percent of carcass weight by yleld grades


Table 19--Beef, cured, corned, pickled, dried, or dehydrated: Relationship between procurement and carcass weights

| Product | : | Factors for determining equivalent carcass weight |
| :---: | :---: | :---: |
|  | : |  |
| Boneless beef: | : |  |
| Cured, corned, or pickled: $1 /$ | : |  |
|  | : |  |
| Brisket or corned beef, unspecified | : | 1.12 |
| Plate or family beef | : | 1.25 |
| Dried or chipped beef, sliced or unsliced | : | 1.94 |
|  | - | 1.94 |
| Dehydrated beef | : | 4.12 |
|  | : |  |

1/ Based on 20 -percent gain in pickling brisket from fresh weight, and 10-percent gain in pickling plate.

Table 20 --Meat and meat food products, fresh or frozen: Factors for converting to equivalent carcsss weight I/

| Product |  | Beef | : Pork | : | $\begin{aligned} & \text { other } \\ & \text { red } \\ & \text { meat } \end{aligned}$ | : Poultry |  | Vartety meats |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Cured: |  |  |  |  |  |  |  |  |
| Seef briskets |  | 1.34 |  |  |  |  |  |  |
| Beef-other |  | 1.36 | -- |  | -- | -- |  | -- |
| Pork |  | - | 1.16 |  | -- |  |  |  |
| Other meats |  | - | 1.16 |  | 1.52 |  |  |  |
| Smoked or dried or cooked: |  |  |  |  |  | -- |  |  |
| Hams-bone-in |  | $\cdots$ | 1.00 |  |  |  |  |  |
| Hams-bone-in, water added |  | -- | 1.91 |  | -- | -- |  | -- |
| Hams-semi-boneless |  | - | 1.30 |  | -- |  |  |  |
| Hams-semi-boncless, water added |  | -- | 1,18 |  | -- | - |  |  |
| Hams-boneless |  | -- | 1.63 |  | -_ |  |  |  |
| Hams-boneless, water added |  | -- | 1.48 |  | -- | -- |  |  |
| Hams-sectioned and formed |  | - | 1.63 |  | - |  |  |  |
| Hams-sectioned and formed, water added | : | - | 1.48 |  | - | -- |  | -- |
| Hams-dry cured | : | ~ | 1.25 |  | -- | - |  | - |
| Pork-regular |  | -- | 1.16 |  | - |  |  |  |
| Pork-water added | : | -- | 1.05 |  | -- | - |  | -- |
| Bacon | : | -- | 1.03 |  | -- | -- |  |  |
| Beef, cooked | : | 1.7 | 1.03 |  | -- |  |  |  |
| Beef, dried |  | 1.94 | - |  | -- |  |  |  |
| Other smoked, dried or cooked meat $2 /$ |  | -~ | -- |  |  | -- |  |  |
| Sausage: $\sim$ |  | - | - |  | -- | -- |  |  |
| Fresh beef | : | 1.26 | -- |  | -- | -- |  |  |
| Fresh pork |  | - | 1,39 |  | _ | -- |  |  |
| Fresh other |  | . 54 | . 69 |  | -- | -- |  | 0.07 |
| Uncooked cured sausage | : | . 54 | . 67 |  | -- | -- |  | . 07 |
| Dried | : | 1.36 | 1.12 |  | - | $\cdots$ |  | -- |
| Semi-dried | : | 1.09 | . 82 |  | -- | -_ |  | -- |
| Franks/weiners, regular retail | : | . 54 | . 52 |  | -- | 0.21 |  | -- |
| Franks/weiners, regular bulk |  | . 54 | . 52 |  | -- | . 21 |  | -- |
| Franks/weiners, with extenders, retail | : | . 52 | . 51 |  | - | . 21 |  | - |
| Franks/weiners, with extenders, bulk | : | . 52 | . 51 |  | -- | . 21 |  | -- |
| Franks/weiners, with variety meat, retall | : | . 34 | . 30 |  | -- | . 21 |  | . 30 |
| Franks/weiners, with variety meat, bulk |  | . 34 | . 30 |  | -- | . 21 |  | . 30 |
| Franks/weiners, with extenders aud variety meats, retail |  | . 29 | . ${ }^{+30}$ |  | -- | .21 .21 |  | .30 .30 |
| Franks, weiners with extenders and variety meats, bulk | : | . 29 | . 30 |  | -- | . 21 |  | . 30 |
| Eologra-regular |  | . 54 | . 52 |  | -_ | . 21 |  | . 30 |
| Bologna-with extenders |  | . 52 | . 51 |  | -- | . 21 |  | -- |
| Bologna-with variety meats | : | . 34 | . 30 |  | -- | . 21 |  | 30 |
| Bologna-with variety meats and extenders | : | . 29 | . 30 |  | -- | . 21 |  | . 30 |
| Liver sausige and branschweiger |  | . 27 | . 30 |  | -- | -- |  | . 50 |
| Other |  | . 34 | . 52 |  | . 03 | . 21 |  | . 10 |
| Fresh/froisen product: |  |  |  |  |  |  |  |  |
| Steaks, chopg (chopped/formed) | : | 2. 36 | -- |  | -- | -- |  |  |
| Hamburgeriggound beef |  | 1.35 | -- |  | -- |  |  |  |
| Othez-freth/frozen |  | 1.35 | - |  |  |  |  |  |
| Convenience foods (frozen and unfrozen) : |  |  |  |  |  |  |  |  |
| Pizza |  | . 12 | . 04 |  | -- |  |  |  |
| Pies |  | . 31 | .03 |  | -- |  |  |  |
| Dinners |  | . 18 | . 15 |  | -- |  |  |  |
| Entrees |  | . 34 | . 37 |  | $\ldots$ | -- |  |  |
| Others |  | . 20 | . 15 |  | -- |  |  |  |
| Miscellaneous meat product: |  |  |  |  | -- | -- |  |  |
| Cured meat loaves |  | . 54 | . 77 |  | -- | -- |  |  |
| Nonspec if ic loaves |  | . 34 | . 52 |  | . 03 | . 21 |  | . 10 |
| Meat paties |  | . 82 | . 07 |  | - | . 11 |  | . 05 |
| Other formulated products |  | . 50 | . 22 |  | . 03 | . 19 |  | . 09 |
|  |  |  |  |  |  |  |  |  |

[^0]I/ Based on product standards for processed items under Federal inspection and meat yield from carcasses provided by Agr. Mktg. Serv., U.S. Dept. Agr. 2/ Variable.

Table 2I--Canned meat and meat food products: Factors for converting to equivalent carcass weight I/

| Canned meat products | : | Beef | Pork | $\begin{aligned} & \text { : Other } \\ & \text { : red } \\ & \text { : meats } \end{aligned}$ | Poultry | $\begin{aligned} & : \\ & : \\ & : \end{aligned}$ | Variety meats |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | : |  |  |  |  |  |  |
| Luncheon meat | : | 0.41 | 0.77 | -- | -- |  | 0.10 |
| Chile con carne |  | . 52 | . 01 | -- | 0.02 |  | -- |
| Meat stew | : | . 33 | . 01 | -- | -- |  | $\rightarrow$ |
| Hash product |  | . 67 | -- | -- | -- |  | -- |
| Pasta meat product |  | . 16 | -- | -- | $\cdots$ |  | -- |
| Canned hams : |  |  |  |  |  |  |  |
| Under 3 1bs. | . | -- | 1.51 | -- | -- |  | -- |
| 3-6 Ibs. |  | -- | 1.51 | -- | -- |  | -- |
| Over 6 1bs. |  | -- | 1.51 | -- | -+ |  | -- |
| Pork shoulder, pienics, and loins |  | -- | 1.38 | -- | -- |  | -- |
| Viennas |  | . 33 | . 75 | 0.02 | . 21 |  | -- |
| Franks and weiners |  | . 54 | . 52 | -- | . 21 |  | -- |
| Miscellaneous sausage products | : | . 34 | . 60 | -- | . 21 |  | .10 |
| Deviled ham | : | -- | 1.55 | -- | -- |  | - |
| Potted meat food products and spreads |  | . 04 | . 15 | -- | . 04 |  | . 80 |
| Tamales |  | . 30 | -- | -- | -- |  | -- |
| Sliced dried beef |  | 1.94 | -- | -- | -- |  | -- |
| Chopped beef hamburgers |  | 1.33 | -- | -- | -- |  | -- |
| Vinegar pickled products |  | . 27 | 1.12 | -- | -- |  | -* |
| Byproducts, other than pickled |  | -- | -- | -- | -" |  | . 98 |
| Corned beef | : | 1.69 | -- | -- | -- |  | . 07 |
| Soup |  | . 13 | -- | -- | -- |  | -- |
| All other: |  |  |  |  |  |  |  |
| With 20 percent or mors meat | : | . 27 | . 30 | . 02 | -- |  | . 09 |
| Less than 20 percent meat | : | . 05 | . 06 | . 01 | -- |  | . 005 |
|  | . |  |  |  |  |  |  |

-- = Not available.
1/ Based on product standards for processed items under Federal inspection provided by Animal and Plant Health Inspection Service and meat yields from carcasses provided by Agr. Mktg. Serv., U.S. Dept. Agr.

Table 22--Comercial meat and meat products imports: Factors for obtaining carcass weight equivalents

| Product | : | Commodity number $1 /$ | : | Factors |
| :---: | :---: | :---: | :---: | :---: |
|  | : |  | : |  |
| Beef: | : |  | : |  |
| Fresh or chilled | - | 106.1020 | : | 1.00 |
| Frozen | : | 106.1040 | : | 1.00 |
| Boneless | : | 106.1060 | : | 1.36 |
| Sausage canned | : | 107.2000 | : | 1.26 |
| Sausage not canned | : | 107.2520 | : | 1.26 |
| Corned beef canned | : | 107.4820 \& 107.4840 | : | 1.79 |
| Canned beef | : | 107.5220\& 107.5240 | : | 1.90 |
| Beef or veal, cured or pickled | : | 107.4000 \& 107.4500 | : | 1.79 |
| Beef or veal, prepared or | : | 107.5500 | : | 1.36 |
| preserved, except | : | 107.6020 | : | 1.36 |
| sausage | : | 107.6040 | : | 1.94 |
|  | : |  | : |  |
| Veal: | : |  | : |  |
| Fresh, chilled, or frozen | : | 106.1080 | : | 1.00 |
| Pork: | : |  | : |  |
| Fresh or chilled | : | 106.4020 | : | 1.00 |
| Frozen | : | 106.4040 | : | 1.00 |
| Fresh sausage | : | 107.1000 | ; | 1. 39 |
| Canned sausage |  | 107.1500 | : | 1.37 |
| Hams and shoulders not cooked, canned, or boned |  | 107.3020 | : | 1.00 |
| Bacon not cooked |  | 107.3040 | : | 1.03 |
| Other prepared or preserved |  | 107.3060 | : | 1.16 |
| Canned hams and shoulders |  | $107.3515 \& 107.3525$ | : | 1.51 |
| Canned bacon |  | 107.3540 | : | 1.03 |
| Other canned |  | 107.3560 | : | 1.39 |
| Latnb, mutton, and goat: 2/ |  |  | : |  |
| Fresh, chilled, or frozen | - |  | : |  |
| Lamb |  | 106.3000 | : |  |
| Mutton |  | 106.2020 | : | 1.52 |
| Goat | , | 106.2040 | : | 1.64 |
| Prepared and processed |  | 107.7520 | : | 1.52 |
| Other saunages and mixtures |  | $107.2540 \& 107.7540$ | : |  |
| Beef |  |  |  | . 54 |
| Pork |  |  | : | . 77 |
| Edible offals |  | 106.8000 \& 106.8500 | : | 1.00 |
|  |  | 107.7000, and 107.7560 |  | 1.00 |

1/ Comodity numbers are from import schedule A, U.S. Dept. Comm.
2/ Most of the mutton and goat is boneless meat.

Table 23--Comercial meat and meat product exports: Factors for obtaining carcass weight equivalents

| Product | : | Commodity numbers 1/ |  | Factors |
| :---: | :---: | :---: | :---: | :---: |
|  | : |  |  |  |
| Beef: | : |  |  |  |
| Fresh or chilled: | ; |  |  |  |
| With bone | : | 106.1025 |  | 1.00 |
| Without bone | : | 106.1060 |  | 1.43 |
| Retail cuts | : | 107.3820 |  | 1.37 |
| Canned | : | 107.4200 |  | . 88 |
| Other | : | 107.4600 |  | . 79 |
|  | : |  |  |  |
| Veal: | : |  |  |  |
| Fresh or chilled | : | 106.1080 |  | 1.00 |
| Retall cuts | : | 107.3840 |  | 2.06 |
|  | : |  |  |  |
| Pork: | : |  |  |  |
| Freah or chllled | : |  |  |  |
| Carcasmes | ; | 106.4020 |  | 1.00 |
| * Hams and shoulders | : | 106.15040 |  | 1.11 |
| Other | : | 106.4060 |  | 1.47 |
| Retall cuts | : | 107.3715 |  | 1.03 |
| Canned | : | 107.3725 |  | 1.46 |
| Bacon | : | 107.3740 |  | 1.03 |
| Hams and shoulders | : | 107.3750 |  | 1.30 |
| Other | : | 107.3770 |  | 1.16 |
|  | : |  |  |  |
| Lamb and mutton: | : |  |  |  |
| Fresh or chilled | ; | 106.2500 |  | 1.00 |
|  | : |  |  |  |
| Goat: | : |  |  |  |
| Fresh or chilled | : | 106.5200 |  | . 08 |
|  | : |  |  |  |
| Sausage and stmilar products | : | 107.0100 \& | 107.0200 |  |
| Beef | : |  |  | . 41 |
| Pork | : |  |  | . 66 |
| Edible offal | : |  |  | . 05 |
|  | : |  |  |  |
|  | : | ; |  |  |
| Other meat and edible offal: | : |  |  |  |
| Fresh or chtlled | : | 107.6200 |  | 1.00 |
| Canned and other | : | $107.6400 \&$ | 107.6600 |  |
| Beef | : |  |  | . 02 |
| Pork | : |  |  | . 08 |
| Edible offal | ; |  |  | . 89 |
|  | : |  |  |  |
| Edible offal: | : |  |  |  |
| Beef: | : |  |  |  |
| Tongues | : | 106.8200 |  | 1.00 |
| Livers | : | 106.8400 |  | 1.00 |
| Other | : | 106.8600 |  | 1.00 |
| Veal | : | 106.8800 |  | 1.00 |
| Sheep and lamb | : | 106.9000 |  | 1.00 |
| Pork: | : |  |  |  |
| Livers | : | 106.9200 |  | 1.00 |
| Other | : | 106.9400 |  | 1.00 |
| Other | : | 106.9600 |  | 1.00 |

1/ Comodity numbers are from export schedule $B$, U.S. Department of Comerce.

## Poultry

Table 24--Poultry: Average Ifve weight and ready-to-cook yteld, 1973-75 I/

$\frac{1 /}{2}$ Based on total poultry slaughtered under Federal regulation.
2/ Yield of ready-to-cook weight, including neck and giblets, as a percentage of total live weight inspected.

Table 25 - Broiler parts: Weight in reiationship to carcass weight $1 /$

| Part |  | Unit |  | Weight of ready-to-cook broiler carcass. In ounces 2/ |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 26 | $: 30$ | 34 | 38 | 42 |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  | : |  |  |  |  |  |
| Wings: |  |  |  |  |  |  |  |  |
| Calculated average |  | Ounces |  | 1.9 | 2.1 | 2.4 | 2.7 | 2.9 |
| Range for $95 \%$ of parts Calculated percentage of carcasa weight |  | do. | : | 1.6-2.1 | 1.9-2.4 | 2.1-2.7 | 2.4-2.9 | 2.7-3.2 |
|  |  |  |  |  |  | 2.1-2.7 | 2.4-2.9 | 2.7-3.2 |
|  |  | Percent | : | 6-8 | $6-8$ | 6~8 | 6-8 | 6-8 |
|  |  |  | : |  |  |  |  |  |
| Drumsticks: |  |  | : |  |  |  |  |  |
| Calculated average |  | Ounces |  | 2.1 | 2.5 | 2.8 | 3.1 | 3.5 |
| Range for 95\% of parts |  | do. |  | 1.8-2.5 | 2.1-2.8 | 2.4-3.2 | 2.8-3.5 | 3.1-3.8 |
| Calculated percentage of carcass weight | : | Percent | : | 7-10 | 7-9 | 7~9 | 7-9 | 7-9 |
|  |  |  |  |  |  |  |  |  |
| Thighs: |  |  | : |  |  |  |  |  |
| Calculated average |  | Ounces | : | 2.8 | 3.2 | 3.6 | 4.1 | 4.5 |
| Range for 95\% of parts |  | do. |  | 2.2-3.3 | 2.7-3.7 | 3.1-4.2 | 3.5-4.6 | 4.0-5.1 |
| Calculated percentage of carcass weight |  | Percent | : | 9-13 | 9-12 | 9-12 | 9-12 | 9-12 |
| Backs: |  |  | : |  |  |  |  |  |
| Calculated average |  | Ounces | : | 3.6 | 4.1 | 4.6 | 5.2 | 5.7 |
| Range for 95\% of parts |  | do. |  | 2.8-4.4 | 3.3-4.9 | 3.8-5.4 | 4.4-6.0 | 4.9-6.5 |
| Calculated percentage of carcass weight |  | Percent | : | 11-17 | 11-16 | I1-16 | 12-16 | 12-16 |
|  |  |  | . |  |  |  |  |  |
| Breasts: |  |  | : |  |  |  |  |  |
| Calculated average |  | Ounces | - | 8.4 | 9.7 | 10.9 | I2.2 | 13.5 |
| Range for 95\% of parts |  | do. |  | 7.2-9.6 | 8.4-10.9 | 9.7-12.2 | 11.0-13.4 | 12.2-14.7 |
| Calculated percentage of carcass welght |  | Percent |  | 28-37 | 28-36 | 29-36 | 29-35 | 29-35 |
| Total weight of all parts 3/ |  | Ounces | : | 25.6 | 29.4 | 33.1 | 37.2 | 41.0 |
|  |  |  |  |  |  |  |  |  |

1/ Table based on equations in table 3, page 28 of Marketing Research Report No. 604, Relations for Weight and Sizes of Broiler Parts to Carcass Weights, U.S. Dept. Agr., in cooperation with the University of Georgia.

2/ Ice-packed carcass, welghed after giblets and neck were removed and free water was allowed co drain from carcass for about $I$ minute.

3/ Total of all parts adds to less than carcass weight due to loss from evaporation and weepage (dripping). Weight loss for all carcass in the above-mentioned study was 2.27 percent.

Table 26 --Broiler parts: Weights in relationship to evfscerated carcass weight

| Cut | Share of carcass weight I/ |
| :---: | :---: |
|  | Percent |
| Breast and wing (forequarter) | 25.1 |
| Breast cuts: |  |
| Split breast with back | 17.2 |
| Keel-cut breast | 13.5 |
| Keel portion | 8.8 |
| Wishbone-cut breast | 14.8 |
| Wishbone portion | 7.1 |
| Quartered breast: |  |
| Anterior | 10.6 |
| Posterfor | 7.3 |
| Split breast with shoulder | 15.3 |
| Split breast with ribs | 15.3 |
| Split breast (GI) | 13.5 |
| Wing cuts: |  |
| Wing | 7.4 |
| Wing with breast portion | 8.2 |
| Wing segments: |  |
| Proximal (Efrst joint) | 3.4 |
| Distal (second joint) | 2.8 |
| Tips | 1.9 |
| Whole leg with back (hindquarters) | 24.4 |
| Thigh cuts: |  |
| Thigh with back | 16.6 |
| Thigh with back portion | 13.9 |
| Thigh portion with back | 11.6 |
| Thigh with counecting fat and skin | 10.9 |
| Thigh | 9.1 |
| Thigh portion with back (from 3-piece leg) | 8.9 |
| Thigh-drumstick portion (from 3-piece leg) | 9.5 |
| Drumstick cuts: |  |
| Drumstick | 8.4 |
| Drumstick with thigh portion | 21.8 |
| Drumstick portion (from 3-plece leg) | 5.4 |
| Back portions removed from-- |  |
| Thigh with back portion | 2.8 |
| Split breast with shoulder and thigh with connecting fat and skin | 16.3 |
| Split breast with ribs | 5.3 |
| Split breast with thigh | 22.9 |

1/ Each percentage is the mean of 240 values.
Source: Hudspeth, J.P., Lyon, B.G., and Mercuri, A.J., Wetghts and Cooked Yields of Broiler Parts Related to Eviscerated Carcass Weights, ARS Rpt. S-46, U.S. Dept. Agr., Oct. 1974, p. 5.

Table 27--Turkey parts: Approximate weights and percentage of carcass 1/

| Part |  | Cut from <br> 7/8-pound fryer-roaster | $\begin{gathered} \text { Cut from } \\ : 13 / 14-\text { pound } \\ : \quad \text { hen } \end{gathered}$ | $\begin{aligned} & \text { Cut from } \\ & 19 / 20-\text { pound } \\ & \text { tom } \end{aligned}$ |  | Percentage of carcass |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |
|  |  | - | Pounds |  |  | Percent |
|  | : | 2.63 | 5.75 | 7.75 |  | 40.0 |
| Half breast, bone in | : | (1.81) | (2.88) | (3.88) |  | 40.0 |
| Three-joint wing (each) | : | . 47 | . 66 | 1.00 |  | 10.0 |
| Two-joint wing or onejoint wingettes (each) |  | (.24) | (.33) | (.50) |  | -- |
| Thigh, bone in (each) | : | . 67 | 1.17 | 1.53 |  | 16.0 |
| Drumatick, bone in (each) |  | . 59 | . 78 | 1.17 |  | 12.0 |
| Giblets, excluding neck |  | . 40 | . 43 | . 69 |  | 3.5 |
| Tail | : | . 19 | . 22 | . 31 |  | 1.5 |
| Soup pack, including back and neck | : | 1.15 | 1.94 | 3.25 |  | 15.0 |
| Cutting loss | : | -- | -- | -- |  | 2.0 |
|  |  |  |  |  |  |  |
| Total | : | -- | -- | -- |  | 100.0 |

-- = Not applicable.
1/ Weights and jercentage vary depend 1 g on turkey size and conformation and method of cutting.

Source: Price Schroeder, "California Turkey Industry," paper, California Banker's Short Course, Modesto, Calif., Feb. 1976.

E88s
Table 28-Factors relating to shell eggs


Table 29-Estimated conversion factors for yields of liquid eggs and dried eggs and the moisture content of dried eggs, by types of product, 1977


Note: Data represent recent comencial experience as well as the effect of current sanitary regulations on yields of egg products.

1/ Based on: Whole eggs, 24.7 percent total egg solids; egg whites, 11 percent total egg solids; and yolks, 43 percent minimum total egg solids.
2/ Concentration factors used by U.S. Dept. Agr. for estimating the conversion of liquid to dried to check yields and volume reports.

3/ Values recommended for "Approximate Moisture Content of Dried Egg Product," Poultry Division, Agr. Mktg. Serv., U.S. Dept. Agr., 1etter dated Dec. 7, 1976.

## Fish and Shelifish

Table $30-$ Fish and shellfish: Factors relating to specified weights $1 /$


Table 31--Shellfish: Net weight per gallon

|  | Product | $:$ | Pounds per gallon |
| :--- | :---: | :---: | :---: |
|  | $:$ | $:$ | 8.75 |
| Clams | $:$ | 8.75 |  |
| Oysters |  | 8.75 |  |
| Scallops |  |  |  |

Table 32--Canned fish and shellfish: Net weight per standard case

| Product | : | Pounds per case |
| :---: | :---: | :---: |
|  | : |  |
| Alewives | : | 45 |
| Anchovies | : | 31.25 |
| Mackerel | : | 45 |
| Salmon |  | 48 |
| Sardines: | : |  |
| Maine | : | 23.4 |
| Pacific | : | 45 |
| Shad |  | 45 |
| Tuna and tuna-like fish: | : |  |
| Solidd | : | 21 |
| Chunks | : | 19.5 |
| Flakes and grated | : | 18 |
| Crab meat, natural | : | 19.5 |
| Shrimp, wet pack 1/ | : | 6.75 |
| Clam products: - | : |  |
| Whole and minced 1/ | : | 15 |
| Juices, chowders, broth, etc. | : | 30 |
| Oysters, natural 1/ | : | 7 |
| All other | : | 48 |
|  |  |  |

1/ Cut out or drained weights of can contents. All others are net can contents.

Table 33-0il-bearing materials: U.S. conversion factors relating
to yield of oil and meal per unit crushed $1 /$

| Oil-bearing material | : | Unit |  | Factors for obtaining-- |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | : |  | : | $\begin{gathered} \text { Crude oil } \\ \text { yield } \end{gathered}$ |  | Loss in refining crude oil |  | $\begin{gathered} \text { Cake or meal } \\ \text { yield } \\ \hline \end{gathered}$ |  |
|  | ; |  |  | Pounds | Percent | Pounds | Percent | Pounds | Percent |
| Babassu kernels |  | Short ton |  | 1,260 | 63.0 | 75.6 | 6.0 | -- | -- |
| Castor beans $2 /$ |  | do. |  | 900 | 45.0 | $3 /$ | 3/ | 1,080 | 54.0 |
| Copre (coconut oil) |  | do. |  | 1,280 | 64.0 | 84.9 | 6.6 | 704 | 35.0 |
| Corn gern 4/ |  | do. |  | 1,000 | 50.0 | 80.0 | 8.0 | 1,000 | 50.0 |
| Cottonseed |  | do. |  | 320 | 16.0 | 23.0 | 7.2 | 910 | 45.4 |
| Flaxseed (linseed) 5 / $6 /$ |  | Bu. (56 1b.) |  | 19.9 | 35.6 | $7 /$ | $7 /$ | 37.1 | 66.2 |
| Mustard seed |  | Short ton |  | 460 | 23.0 | $3 /$ | 3/ | -- | -- |
| Olives |  | do. |  | 300 | 15.0 | 3/ | 3/ | -- | -- |
| Paim (fresh fruit bunches) |  | do. |  | 400 | 20.0 | NA | NA | -- | -- |
| Palm Kernels |  | do. |  | 940 | 47.0 | 63.0 | 6.7 | 1,020 | 51.0 |
| Peanuts: 6/ |  |  |  |  |  |  |  |  |  |
| Farmers ${ }^{\text {' }}$ stock |  | do. |  | 634 | 31.7 | 24.1 | 3.8 | 838 | 41.9 |
| Shelled peanuts 8/ |  | do. |  | 843 | 42.2 | 32.0 | 3.8 | 1,114 | 55.9 |
| Rapeseed |  | do. |  | 700 | 35.0 | NA | NA | 1,200 | 60.0 |
| Safflower seed |  | do. |  | 720 | 36.0 | 3/ | 3/ | 1,200 | 60.0 |
| Sesame seed |  | Bu. ( 56 1b.) |  | 26.3 | 47.0 | 3/ | 3/ | 27.3 | 48.7 |
| Soybeans 6/ |  | Bu. ( 60 lb .) |  | 10.7 | 17.9 | . 41 | 3.8 | 47.3 | 78.8 |
| Sunflower seed, oil type |  | Short ton |  | 800 | 40.0 | NA | NA | 9/1,100 | $\underline{9 / 55.0}$ |
| Tung nuts (fruit basis) $10 /$ |  | do. |  | 318 | 15.9 | 3/ | 3/ | - -- | -- |

## NA = Not available. -- = Not applicable.

1/ Based on 1970-74 crop year averages for soybeans, cottonseed, flaxseed, and peanuts. 2/ Castor oil also is reported as dehydrated. To convert crude to dehydrated, multiply by 0.88 ; to convert dehydrated to crude, multiply by 1.136. $3 /$ Not customarily reported as refined oil. $4 /$ Includes both wet and dry processing. The wet process accounts for about 85 percent of the total crush. $5 /$ Total outturn per bushel of flaxseed processed may exceed 55 pounds since some mills add flaxseed screenings to the meal. $6 /$ See separate tables on flaxseed, peants, and soybeans for additional factors. $7 /$ Customarfly, linseed oil is refined from raw (degumed) oil rather than crude. The loss in refining is about 2.5 percent, $8 /$ Straight run peanuts included shelled No. 1 and 2 grades and oil stock. Estimated oil content of peanuts exported averages about 43.5 percent. Some additions shells are added to residue to produce cake and meal. 9/ Includes about 36 percent meal and 19 percent hulls. $10 / 15$ percent moisture.

Table 34 --Vegetable ofls and products: Conversion factors relating to crude and refined oils and to pounds and gallons

| 011 and product | Factors for obtaining-- |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | : | Refined oll from crude 011 | Equivalent crude oil from refined oil | $\begin{aligned} & \text { Pounds } \\ & \text { from } \\ & \text { gallons } \end{aligned}$ | Gallons from pounds |
|  | : |  |  |  |  |
| 0i1: | : |  |  |  |  |
| Babassu | : | 0.94 | 1.06 | 7.5 | 0.133 |
| Castor | : | 1/ | $1 /$ | 8.0 | . 125 |
| Coconut | : | . 93 | 1.08 | 7.5 | . 133 |
| Corn | : | . 92 | 1.09 | 7.7 | . 130 |
| Cottonseed | ; | . 93 | 1.08 | 7.7 | . 130 |
| Fish (menhaden) | : | $1 /$ | $1 /$ | 7.7 | . 130 |
| Grain screenings | : | $1 /$ | $1 /$ | 7.7 | . 130 |
| Linseed | : | 1/ | $1 /$ | 7.7 | . 130 |
| Murumara | : | I/ | 1/ | 7.5 | . 133 |
| Mustardseed | : | 1/ | 1/ | 7.7 | . 130 |
| Oiticica | : | 1/ | $1 /$ | 7.8 | . 128 |
| Olive | : | 1/ | I/ | 7.6 | . 132 |
| Ouricuri | : | $\underline{1} /$ | $\underline{1} /$ | 7.5 | . 133 |
| Palm | : | -. 93 | 1.08 | 7.7 | . 130 |
| Palm kernel | : | . 93 | 1.08 | 7.5 | . 133 |
| Peanut | : | . 96 | 1.04 | 7.7 | . 130 |
| Perilla | : | $1 /$ | $1 /$ | 7.7 | . 130 |
| Rapeseed | : | $\underline{1 /}$ | $\underline{1 /}$ | 7.7 | . 130 |
| Safflower | : | I/ | $1 /$ | 7.7 | . 130 |
| Sesame seed | : | I/ | 1/ | 7.7 | . 130 |
| Soybean | : | -96 | 1.04 | 7.7 | . 130 |
| Sunflower seed | : | $1 /$ | $1 /$. | 7.7 | . 130 |
| Tucum | : | I/ | $\underline{1} 1$ | 7.5 | . 133 |
| Tung | ; | $\underline{1} /$ | $\underline{1}$ | 7.8 | . 128 |
| Product: | : |  |  |  |  |
| Cooking and salad oils | : | -- | -- | 7.4 | . 135 |
| French dressing | : | -- | -- | 8.7 | . 115 |
| Mayonnaise | : | -- | -- | 8.0 | . 125 |
| 011 and vinegar dressing | : | -- | -- | 8.4 | . 11.9 |
| Salad dressing | : | -- | -- | 8.7 | . 115 |
| Sandwich spread | : | -- | -- | 8.7 | . 115 |

-- = Not available.
1/ Not customarily reported as refined oil.
Additional factors: A standard tank car usualiy contains about 60,000 pounds or 8,000 gallons of oil. A jumbo tank car usually contains about 150,000 pounds or 20,000 gallons of oil. A standard size oil-drum contains 55 gallons of oil.

Table 35--U.S. oilseeds: Average yield per harvested acre 1/


1/ Yields of oilseeds are 5-year averages, 1970-74. Yields of oil and cake or meal are based on the 5 -year average yields of oilseeds converted to oil and cake or meal equivalents on the basis of 5-year, 1970-74, crop year average percentage outturns, as follows:

Ofl outturn: Cottonseed, 16.0 percent; flaxseed (1inseed oil), 35.6 percent; peanuts, 31.7 percent; safflowers, 36.0 percent; soybeans, 17.9 percent; and sunflowers, 40.0 percent.

Cake or meal outturns: Cottonseed, 45.4 percent; 1 inseed, 66.2 percent; peanuts, 41.9 percent; safflowers, 60.0 percent; soybeans, 78.8 percent; and sunflowers, 55.0 percent.

[^1]Table $36-$ Fat and ofl products: Approximate serving size quantity to purchase 100 servings, and measures

| Product | Serving size <br> : | Quantity to purchase for 100 servings | $:$ $:$ |
| :---: | :---: | :---: | :---: |
| Table fat, butter or margarine | 1 teaspoon | 1.04 pounds | 1 pound - 2 cups |
| Salad dressing, mayonnaise or French | : 1 tablespoon | 1.60 quarts | $1 \underset{\substack{\text { gallon } \\ \text { pounds }}}{ }=8$ |
| Peanut butter | : 4 tablespoons | 14.10 pounds | $1 \begin{aligned} & \text { pound }=13 / 4 \\ & \text { cups } \end{aligned}$ |
| ```Peanuts, roasted, shelled, and chopped``` | : 4 tablespoons <br> : (1.6 ounces) <br> $:$ | 10.00 pounds | $\begin{aligned} & 1 \text { pound }=21 / 2 \\ & \text { cups } \end{aligned}$ |

Source: Food Buying Guide for Type A School Lunches, 1972, Food Nutr. Serv., U.S. Dept. Agr.

Table 37--Conversion factors for obtaining fat content of selected foods based on fat analysis


1/ The unroasted peanut contains from 45 to 50 percent fat. Approximately 2 percent fat is added during the roasting process. 2/ Based on milk marketing order data.
3/ Fat content varies based on State 'laws.
Source: Composition of Foods, Agr. Handb. 8, and based on data in Nutritive Value of American Foods, Agr. Hdbk. 456, Agr, Res. Serv., U.S. Dept. Agr.

Table $38-$ Fat content and major fatty acid composition of selected foods


[^2]Source: Fats in Food and Diet, AIB-361, U.S. Dept. Agr.

Table 39--Soybean products: Factors relating to yields of selected items

| Product | Factors for obtaining-- |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{aligned} & \text { : Pounds of } \\ & : \text { product from } \\ & : \text { pound of } \\ & : \text { soybeans } \\ & \hline \end{aligned}$ | : Equivalent <br> : pounds of <br> : soybeans <br> : from pound <br> : of product | Pounds of product from: bushel of soybeans | Equivalent bushels of soybeans from pound of product | Pounds of product from short ton of soybeans |
|  | : |  |  |  |  |
| Soybean oil, crude 1/ | : 0.179 | 5.59 | 10.7 | 0.092 | 358 |
| Soybean ofl, refined 1/ | : 171 | 5.85 | 10.3 | . 098 | 342 |
| Soybean cake or meal, 44 percent protein 1/ | $\begin{array}{ll}: & \\ : & \\ \\ & \end{array}$ | 1.27 | 473 | 021 |  |
| Soybean | : |  |  |  | 1,576 |
| Hulls 2/ | : . 070 | 14.29 | 4.2 | . 238 | 140 |
| Flour, flakes or grits: | : |  |  |  |  |
| Full fat | : . 833 | 1.20 | 50.0 | . 020 | 1,666 |
| Low fat | : . 592 | 1.69 | 35.5 | . 028 | 1,184 |
| Defatted, indus- | : 4 |  |  |  |  |
|  | : $\quad .558$ | 1.79 | 33.5 | . 030 | 1,116 |

1/ 1970-74 crop year average. 2/ Removed when 50 -percent protein meal produced.

Table 40--Flaxseed products: Factors relating to yields of selected items

| Product | Factors for obtaining-- |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | : Pounds of : product from : pound of <br> : flaxseed | : Equivalent : : pounds of : flaxseed : from pound : of product : | Pounds of product from: bushel of : flaxseed | Equivalent bushels of flaxseed from pound of product | : Pounds of <br> : product <br> : from short <br> : ton of <br> : flaxseed |
|  | : |  |  |  |  |
| Linseed ofl, crude 1/ | 0.356 | 2.81 | 19.9 | 0.0502 | 712 |
| $\begin{aligned} & \text { Linseed oil, } \\ & \text { refined 2/ } \end{aligned}$ | . 266 | 3.76 | 14.9 | . 0671 | 532 |
| Linseed cakeor meal 1/ | : |  |  |  |  |
|  | . 662 | 1.51 | 37.1 | . 0270 | 1,324 |
|  | : |  |  |  |  |

I/ 1970-74 crop year average.
2/ Customarily, linseed oil is refined from raw (degummed) oil, rather than crude. The loss in refining is about 2.5 percent.

Table 4l--Conversion factors and weights for obtaining peanuts and peanut products

| Peanuts and peanut products | : Factors and weights : |
| :---: | :---: |
|  | Factors |
| Peanuts, unshelled: $1 /$ | : |
| Cleaned unshelled stock from farmers' stock 2/ | 1.00 |
| Equivalent farmers' stock from cleaned unshelled | : |
| stock 2/ | 1.00 |
|  | : |
| Peanuts, shelled: $\qquad$ | : 1.33 |
| Equivalent farmers' stock from total shelled peanuts | 1.33 |
| Total shelled peanuts from farmers' stock | . 7519 |
| Shelled oil-stock peanuts from farmers' stock (oil | : 195 |
| stock pickouts and straight run ungraded peanuts) | . 195 |
| Shelled edible peanuts from famers' stock 4/ | . 556 |
| Equivalent farmers' stock from shelled edible peanuts 4/ | 1.80 |
|  | : . |
| Peanut butter: | : |
| Peanut butter from farmers' stock peanuts | . 528 |
| Equivalent farmers' stock peanuts from peanut butter | 1.89 |
| Peanut butter from shelled edible peanuts 5/ | . 95 |
| Equivalent shelled edible peanuts from peanut butter | 1.05 |
| Pounds of peanut butter from short tons of farmers' stock | : 1.056 |
| Equivalent short tons of farmers' stock from pounds of peanut butter | . 00094 |
|  | : |
|  | Pounds |
| Oil, oil cake, and meal: 1/ | : |
| Yield per short ton of farmers' siock: 6/ | : 634 |
| Crude peanut oil - | 634 |
| Peanut cake or meal | 838 |
|  | : |
| Estimated product outturn per short ton of shelled peanuts crushed: | , |
| Crude peanut oil | $: 843$ |
| Peanut cake and meal 7/ | $: \quad 1,114$ |
|  | : |

[^3]Table 42--Factors relating to dry edible beans and peas and their products 1/

| Products | : | Factors fo Dry beans and peas from product | $\begin{aligned} & \text { r obtaining } \\ & \text { : Products from dry } \\ & : \text { beans and peas } \end{aligned}$ |
| :---: | :---: | :---: | :---: |
|  | : |  |  |
| Canned: | : |  |  |
| Light and dark red kidney | : | 0.262 | 3.81 |
| Dry 1imas | : | . 258 | 3.87 |
| Garbanzos | : | . 255 | 3.92 |
| Pinto | : | . 257 | 3.89 |
| Blackeye peas | : | . 267 | 3.74 |
| Navy (pea) | : | . 287 | 3.49 |
| Red beans | : | . 272 | 3.68 |
| Black turtle soup | : | . 306 | 3.27 |
| Great Northern (small white | : | . 258 | 3.88 |
| Dried peas (whole) | : | . 250 | 4.00 |
|  | : |  |  |
| Dehydrated: | : |  |  |
| Green pea soup | : | . 611 | 1.64 |
|  | : |  |  |

1/ Data from four canners.

Table 43--Factors relating to whole grain and processed wheat

| Cormodity | : | Factors | converting-- |
| :---: | :---: | :---: | :---: |
|  | $:$ $:$ | $:$ Units of <br> $:$ wheat to <br> $:$ pounds of <br> $:$ commodity | $:$ Units of <br> $:$ commodity <br> $:$ to bushels <br>  of wheat |
| Wheat, whole grain | : | : |  |
|  | Pound: | 1.0 | 0.01667 |
|  | Bushel | 60.0 | 1.0 |
|  | Short ton | : 2,000.0 | 33.33 |
|  | Metric ton | 2,204.622 | 36.744 |
|  | Long tan | 2,240.0 | 37.33 |
|  | : | : 730 |  |
| White flour | Pound | : $\quad .730$ | . 0228 |
|  | :100-pound sack | : 73.00 | 2.283 |
|  | : Bushel | : 43.80 | -- |
|  | Short ton | : 1,460.0 | 45.66 |
|  | : Metric ton | : 1,609.4 | 50.33 |
|  | : Long ton | : 1,635.2 | 51.14 |
|  | : | \# |  |
| Semolina or farina $1 /$ | : Pound | . 58 | . 02887 |
|  | : 100-pound sack | : 58.00 | 2.874 |
|  | : Bushel | : $\quad 34.80$ | -- |
|  | Short ton | : 1,160.0 | 57.47 |
|  | Metric ton | : 1,278.7 | 63.35 |
|  | Long ton | 1,299.2 | 64.37 |
|  | : | : |  |
| Whole wheat flour or cracked wheat | d | : 908 |  |
|  | : Pound | : 908 | . 01701 |
|  | :100-pound sack | 98.0 | 1.700 |
|  | : Bushel | : 58.8 | -- |
|  | Short ton | : 1,960.0 | 34.01 |
|  | : Metric ton | 2,160.5 | 37.49 |
|  | : Long ton | 2,195.2 | 38.09 |
|  | : | : 9 |  |
| Wheat meal or whole wheat meal | : Pound | : $\quad .990$ | . 01684 |
|  | :100-pound sack | : 99.0 | $1.684$ |
|  | : Bushel | : $\quad 59.4$ | -- |
|  | ; Short ton | : 1,980.0 | 33.67 |
|  | : Metric ton | : 2,182.6 | 37.12 |
|  | : Long ton | 2,217.6 | 37.71 |

-- $=$ Not applicable.
1/ At a 73 -percent extraction rate, semolina and farina comprise approximately 58 percent and flour 15 percent.

Table 44-Factors relating to wheat and white flour content of specified products 1/


Table 44--Factors relating to wheat and white flour content of specified products $1 /-$ Continued

| Product | : Factors for converting--$:$ Bushels of :Pounds of $:$ Pounds of $:$ Pounds of$:$ wheat to $:$ product $:$ wheat $:$ product to:pounds of :to bushels: to pounds :pounds of$:$ product $:$ of wheat $:$ of product: wheat |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |
| Wheat cereals: | : |  |  |  |
| Ready-to-serve: | : |  |  |  |
| 40 percent bran flakes | : 29 | 0.0345 | 0.49 | 2.04 |
| Malted cereal, granules | 53 | . 0190 | . 88 | 1.14 |
| Malted wheat flakes | : 55 | . 0183 | . 91 | 1.10 |
| Puffed wheat | $: 51$ | . 0196 | . 85 | 1.18 |
| Shredded wheat I/ | $: \quad 55$ | . 0182 | 1/. 92 | 1.09 |
| Sugar-coated wheat cereal | : 103 | .0097 | 1.72 | . 58 |
| Premixed cereal 4/ | : 240 | . 0042 | 4.00 | . 25 |
| Precooked, infant-type mixed cereal | : 120 | . 0083 | 2.00 | . 50 |
| Wheat flakes | 65 | . 0154 | 1.08 | . 93 |
| Uncooked and quick-cooking: | .01.54 . 93 |  |  |  |
| Bulgur | $: \quad 52$ | . 0192 | . 87 | 1.15 |
| Rolled wheat | : 56 | $.0180$ | . 93 | $1.08$ |
| Whole wheat meal | $:$. $0.916{ }^{\text {a }}$ |  |  |  |
|  |  |  |  |  |

-- = Not applicable.
I/ All factors are based on 60 pounds of wheat per bushel except for shredded wheat cereal which is based on 54 pounds per bushel.

2/ Baked and finished tweight.
3/ About 4-percent moisture loss below flour's normal moisture content.
4/ Premixed cereal is ready to eat.

Table $45-$ Factors relating to corn content of specified products I/


1/ A11 factors are based on 56 pounds of shelled corn per bushel. Product spectrum varies with corn milled and product mix sought. Factors presented are based on maximum yield of product. $2 /$ Five bushels of shelled corn $=1$ barrel; 10 bushels of ear corn = 1 barrel; 70 pounds of ear corn $\Rightarrow 1$ bushel of shelled corn. 3/ From 17-percent molsture corn. 4/ Based on continued reprocessing of uncrystallized dextrose liquors.

5/ Corn-soya cereal contains approximately 34 percent soya flour. 6/ Conversion factors cover all corn feeds combined. Data are not available to show separate components of corn feeds, though gluten feed is generally about $55-60$ percent of total corn feeds, gluten meal around 40 percent, and corn oll meal only about 2 percent.

Table 46 -Factors relating to oat content of specified products


I/ This bushel weight represents the bulk of the oats processed for human food.

## Barley and Barley Products

Table 47--Factors relating to barley and malt content of specified products

$--=$ Not applicable.

Table 48-Factors relating to rye content of specified products


Buckwheat and Buckwheat Products
Table 49.--Factors relating to buckwheat content of specified products


## Rice and Rice Products

Table 50--Factors relating to rice conteni of specified products 1 /


Note: Miscellaneous factors relating to rice:
I bushel rough rice equals 45 pounds
1 hundredweight rough rice equals 100 pounds or 2.22 bushels
1 barrel rough rice equals 162 pounds or 3.6 bushels

Grain Sorghum and Grain Sorghum Products
Table 51--Factors relating to grain sorghum content of specified products


1/ Starch calculated at 89.5 percent recovery.
2/ Assumes complete conversion of starch to dextrose.

## Sugar, Beet and Cane

Many products contain not only beet or cane sugar but also other sweeteners, such as conventional corn sirup, high fructose corn sirup, dextrose (corn sugar), honey, or molasses. The conversion factors refer to typical beet or cane sugar content. In view of substitutability, products may contain a smaller or larger proportion of beet or cane sugar than those indicated. Other sweeteners are particularly important in the manufacture of candy.

Table 52-Raw sugar content of specified sugar products


Table 53--Refined beet and cane sugar in confectionery products


Table 53--Refined beet and cane sugar in confectionery products--Continued

|  | $:$ | Percentage of refined |
| :---: | :---: | :---: |
| sugar in product |  |  |,

Table 54-Refined beet and cane augar content of apacified products

| Product | : Unit | : | Pounds of refined augar per unit of product |
| :---: | :---: | :---: | :---: |
|  | ; | : |  |
|  | : | : |  |
|  | : | : |  |
| Dalry products: | : | : |  |
| Chocolate milk | : Pound | : | . $05-.07$ |
| Condensed milk, sweetened | : do. | : | . 42 |
|  | : 4814 ounce cans | : | 17.64 |
| Condensed skim milk, sweetened | : Pound | : | . 40 |
| Ice cream | : do. | : | . 15 |
|  | : Gailon (4.7 pounds) | ! | . 70 |
|  | : | ; |  |
| Ice areatu mix: | : | : |  |
| Paste | : Pound | : | , 36 |
| Powder | : do. | : | . 40 |
| Sherbet | : do. | : | . 28 |
| Water ice | : do. | : | . 29 |
|  | : | : |  |
| Dessert powders: | : | : |  |
| Cuscuind or atarch pudding powder | : do. | : | . 61 |
| Gelatin-base powders | : do. | : | . 85 |
|  | : | : |  |
| Fountain sifups and soft drinks: | : | : |  |
| Beverage powders, synthetic lemon or orange 1/ |  | : | -- |
| Butterscotch or marshmallow topping | : Pound | : | . 40 |
|  | : Gallon (11 pounds) | : | 4.40 |
|  | : 6 No. 10 cans | : | 19.80 |
| Chocolate sirup for topping |  | : | . 26 |
|  | : Gailan (11 pounds) | : | 2.86 |
|  | : 6 No. 10 cans | : | 12.87 |
| Chocolate airup for beverages | : Yound | ; | . 38 |
|  | : Gallon (10.27 pounds) | : | 3.90 |
|  | : 6 No. 10 cans | : | 17.55 |
| Cola, clear frait or other soft drink sirups | : Pound | : | . 55 |
|  | : Gallon (10.5 pounds) | : | 5.80 |
| Cola~type soft drinks, bottled | : Pound | : | . 10 |
|  | Gailon (8.65 pounds) | : | . 866 |
|  | : 247 ounce bottles | : | 1.14 |
|  | : 2412 ounce bottles | : | 1.95 |
| Fruit flavored soft drinks | : Pound | : | . 12 |
|  | : Gallon (8.7 pounds) | : | 1.05 |
|  | : 247 ounce bottles | : | 1.37 |
|  | : 2412 ounce bottles | : | 2.36 |
| Gingerale, bottled | : Pound | : | . 084 |
|  | : Gallon (8.6 pounds) | : | . 722 |
|  | : 2412 ounce bottles | : | 1.62 |
|  | : | : |  |
| Fruit, frozen | : Pound | : | . 20 |
| Fruit products, other-- | : | : |  |
| Apple butter | : do. | : | . 29 |
| Jellies, Jams, preserves | : do. | : | . 55 |
| Marmalade | do. | : | . 67 |
| Mincement | : đo. | : | . 35 |
|  | : | : |  |
| Mracellaneous: | : | : |  |
| Misyonnaise | : do. | : | . 10 |
|  | : Gallon | : | . 81 |
| Pickies, aweet | : Pbund | : | . 35 |
| Salad dreasing | : do. | : | . 24 |
|  | : Gallon | : | 2.11 |
|  | : | : |  |

-- - Not applicable.
I/ Synthetic beverage powders are sweetened with com sirup and dextrose.

Table 55--Sugar content of canned fruits

| Canned product | : | $\begin{aligned} & \text { Natural } \\ & \text { fruit } \\ & \text { sugar } \end{aligned}$ | Added refined cane and beet sugar $1 /$ |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Weight in 24 No. $2-1 / 2$ cans | : Percent |
|  | : | Percent | Pounds | Percent |
|  | : | 14.4 | 2.97 | 6.6 |
|  |  |  |  |  |
| Cherries (sweet) | : | 13.9 | 2.75 | 6.1 |
|  | : | 19.0 | . 90 | 2.0 |
| Figs |  | 19.0 |  |  |
| Fruit cocktall | : | 11.0 | 3.15 | 7.0 |
| Fruit for salad | : | 9.9 | 3.52 | 8.1 |
|  |  |  |  |  |
| Peaches | : | 11.8 | 3.13 | 7.2 |
| Pears | : | 11.6 | 2.78 | 6.4 |
|  | : |  |  |  |
| Plums |  | 14.8 | 2.79 | 6.2 |
|  |  |  |  |  |

1/ Based on the finished canned product packed in heavy syrup.

Table $56-$ Net weights, sugar solids content, and total solids content per unit of specified products at $20^{\circ}$ Celsius

| Product | Unit 1/ | ```Net weight per unit``` | $\begin{array}{lc} : \text { Total sugar } \\ : \text { solids } \\ : \text { content } 2 / \\ \hline \end{array}$ | Total solid content |
| :---: | :---: | :---: | :---: | :---: |
| Corn sfrup, regular $42^{\circ}$ Bame: |  | : |  |  |
|  |  | : | Pounds |  |
|  |  | $: ~$ |  |  |
|  | Pound | $: 1.00$ | 0.78 | 0.783 |
|  | No. 10 can | : 8.88 | 6.92 | 6.95 |
|  | Galion | : 11.68 | 9.11 | 9.15 |
|  |  | : |  |  |
| Corn sugar or dextrose (hydrate) |  | : |  |  |
|  | Pound | 1.00 | . 92 | .92 |
|  |  | : |  |  |
| Honey | Pound | 1.00 | . 78 | . 83 |
|  | Gallon | 11.84 | 9.24 | 9.83 |
|  |  | : 11.8 |  |  |
| Maple sirup | Pound | 1.00 | . 64 | . 66 |
|  | Ga11on | 11.03 | 7.06 | 7.28 |
|  |  | : |  |  |
| Maple sirup, imitation: Thin type |  | $: \longrightarrow$ |  |  |
|  | Pound | 1.00 | . 66 | . 66 |
|  | GaIlon | 11.03 | $7.28$ | $7.28$ |
|  |  | : 1.00 |  |  |
| Thick type | Pound | 1.00 | . 73 | . 73 |
|  | Gallon | 11.39 | 8.31 | 8.31 |
|  |  | : |  |  |
| Maple sugar | Pound | 1.00 | . 87 | .90 |
|  |  | : |  |  |
| ```Molasses, edible, first centrifugal: 3/ U.S. Grade A``` |  | : |  |  |
|  |  | : |  |  |
|  | Pound | 1.00 | . 635 | . 79 |
|  | No. 10 can | 8.91 | 5.66 | 7.04 |
|  | Gallon | 11.72 | 7.44 | 9.26 |
|  |  | : |  |  |
| U.S. Grade B | Pound | 1.00 | . 615 | . 79 |
|  | No. 10 can | 8.91 | 5.48 | 7.04 |
|  | Gallon | 11.72 | 7.21 | 9.26 |
|  |  | : |  |  |
| U.S. Grade C | Pound | 1.00 | . 58 | . 79 |
|  | No. 10 can | 8.91 | 5.17 | 7.04 |
|  | Gallon | 31.72 | 6.80 | 9.26 |
|  |  | , |  |  |
| Molasses, inedible blackstrap 4/ 5/ | Pound | $: \quad 1.00$ |  | . 795 |
|  | Galion | $11.74$ | $5.87$ | $9.33$ |
|  | Tank car | : 93,920 | 46,960 | 74,666 |
|  |  | : |  |  |
| $\begin{aligned} & \text { Refiner's sirup: } \underline{6} \\ & \text { U.S. Grade A } \end{aligned}$ |  | * |  |  |
|  | Pound | $=1.00$ | . 6624 | . 72 |
|  | Gailon | $: 11.34$ | 7.51 | 8.16 |
|  |  | : |  |  |
| .U.S. Grade B $\quad$ : | Pound | : 1.00 | . 6192 | . 72 |
|  | Gallon | : 11.34 | 7.02 | 8.16 |
| See footnotes at end of table |  | : |  | ContInued-- |

Table $56-$ Net weights, sugar solids content, and total solids content per unit of specified products at $20^{\circ}$ Celsius--Continued

| Product | $:$ Unit $1 /$ |  | Net weight per unit | $\begin{aligned} & : \\ & : \\ & : \end{aligned}$ | $\begin{gathered} \text { Total sugar } \\ \text { solids } \\ \text { content } 2 / \end{gathered}$ | Total solid content |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | : |  |  |  |  |  |
|  | : | - |  |  | Pounds |  |
| Refiner's sirup: 6/--Cont. | : | : |  |  |  |  |
| U.S. Grade C | : Pound |  | 1.00 |  | 0.5928 | 0.76 |
|  | : Gallon |  | 11.55 |  | 6.85 | 8.78 |
|  | : |  |  |  |  |  |
| U.S. Grade D | : Pound |  | 1.00 |  | . 532 | . 76 |
|  | : Gallon |  | 11.55 |  | 6.14 | 8.78 |
|  | : |  |  |  |  |  |
| Sugar can sirup: | : |  |  |  |  |  |
| U.S. Grade B, unsulfured | : Pound |  | 1.00 |  | . 68 | . 74 |
|  | : No. 10 can |  | 8.70 |  | 5.92 | 6.44 |
|  | : Gallon |  | 11.45 |  | 7.79 | 8.47 |
|  | : |  |  |  |  |  |
| U.S. Grade B, sulfured | : Pound |  | 1.00 |  | . 65 | . 74 |
|  | : No. 10 can | : | 8.70 |  | 5.66 | 6.44 |
|  | : Gallon | : | 11.45 |  | 7.44 | 8.47 |
|  | : |  |  |  |  |  |
| Sorgo sirup | : Pound | : | 1.00 |  | . 68 | . 76 |
|  | : No. 10 can | : | 8.78 |  | 5.97 | 6.67 |
|  | : Gallon | : | 11.55 |  | 7.85 | 8.78 |
|  | : | . |  |  |  |  |

1/ The No. 10 can is estimated to contain 0.76 gallon, based on internal volume of $18 \overrightarrow{9} .7$ cubic inches and 93 percent fill when cold.

2/ Total sugar solids refers to all sugars, not only sucrose. The sugar content of a11 products except corn sirup and honey consists of one or more of the following sugars: dextrose, levulose (monosaccharides), and sucrose (a disaccharide). Corr. sirup, regular, $42^{\circ}$ Baume contains 34 percent of mono, di, tri saccharides, which types of sugars are generally assoctated with sweetness. These types include dextrose and maltose (a disaccharide). In addition, corn sirup contains 44 percent higher sugars (polymers of dextrose) which have little or no sweetness. The sugar content of honey averages 38 percent levulose, 31 percent dextrose, 7 percent maltose, 1.5 percent sucrose, and 1.5 percent higher sugars.

3/ U.S. Grade $A$ is based on a minimum total sugar content of 63.5 percent and mintmum density of $79^{\circ}$ Brix.
U.S. Grade $B$ is based on a minimum total sugar content of 61.5 percent and minimum density of $79^{\circ} \mathrm{Brix}$.
U.S. Grade $C$ is based on a minimum total sugar content of 58.0 percent and mintmum denstty of $79^{\circ} \mathrm{Brix}$.

4/ Based on ayerage total sugar content of 50 percent and minimum denaity of $79.5^{\circ}$ Brix.

5/ One gallon of ethanol made from 2.4 gallons of inedible blackstrap molasses.
$\overline{6} /$ U.S. Grade A is based on a Brix solids content of not less than 72 percent and a ratio of total sugars to Brix solids of not less than 92 percent.
U.S. Grade $B$ is based on a Brix solids content of not less than 72 percent and a rat io of total sugars to Brix solids of not less than 86 percent.
U.S. Grade $C$ is based on a Brix solids content of not less than 76 percent and a ratio of total sugars to Brix solids of not less than 78 percent.
U.S. Grade D is based on a Brix solids content of not less than 76 percent and a ratio of total sugars to $B r i x$ solids of not less than 70 percent.

In processing, cocoa beans are roasted and hulied with a resultant loss in weight of 20 percent. The 60 percent remaining is chocolate liquor, sometimes called ground or bitter chocolate. About 53 percent of the liquor ia composed of cocoa butter or fat and 47 percent is composed of a nonfat powder residual. Since it is impossible to completely separate the butter from the nonfat powder residual, the manufacturer will leave a minimum of fat in the powder--usually about 12 percent, but if breakfast cocoa is desired, about 22 percent is left.

Table 57--Factors relating to cocoa bean content of specified products


See footnotes at end of table.
Continued~-

Table 57--Factors relating to cocoa bean content or specified products--Continued


## Fruits and Vegetables

Table 58-Fruit, vegetable, and juice containers: Dimensions, capacities, and conversion factors


1/ The first figures represent the diameter of the container and the second figures the height. The first digit in each figure represents inches and the second two digits sixteenths of an inch; i.e., 307 is 3-7/16 inches

Source: National Canners Association.

Table 59--Canned fruits and vegetables: Case conversion factors by container designation

| Container designation | Containers per case |  | Factor to multiply by to convert to-- |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 24/303's | 24/2's | 24/2-1/2' 8 |
|  | : | Number |  |  |  |
|  | : |  |  |  |  |
| 62 | : | 48 | 0.72 | 0.59 | 0.41 |
| 82 short | : | 72 | 1.41 | 1.16 | . 80 |
| 82 tall | - | 24 | . 52 | . 42 | . 29 |
| No. 1 flat | - | 48 | 1.05 | . 87 | . 60 |
| No. 1 picnic | : | 48 | 1.30 | 1.06 | . 73 |
|  |  |  |  |  |  |
| No. 211 cylinder | : | 24 | . 80 | . 66 | . 46 |
| No. 2 vac. (12 ounce vac.) | : | 24 | . 87 | . 72 | . 49 |
| No. 300 | - | 24 | . 90 | . 74 | . 51 |
| No, 1 tall | : | 24 | . 99 | . 81 | . 56 |
| No. 303 | : | 24 | 1.00 | . 82 | . 57 |
|  |  |  |  |  |  |
| No. 300 cylinder | : | 24 | 1.15 | . 94 | . 65 |
| No. 2 | : | 24 | 1.22 | 1.00 | . 69 |
| No. 3 vacuum | : | 24 | 1.42 | 1.16 | . 80 |
| No. 2 1/2 | : | 24 | - 1.77 | 1.45 | 1.00 |
| 292 | : | 12 | . 96 | . 79 | . 55 |
|  |  |  |  |  |  |
| 32 Z (quart) | : | 12 | 1.05 | . 86 | . 60 |
| No. 3 cylinder | : | 12 | 1.53 | 1.26 | . 87 |
| No. 5 squat | : | 6 | 1.01 | . 83 | . 57 |
| No. 10 | : | 6 | 1.62 | 1.33 | . 92 |

Source: Natfonal Canners Association.

Table 60--Shipping containers for fresh fruits and vegetables


[^4]Table 60--Shipping containers for fresh fruits and vegetables--Continued


Table 60-Shipping containers for fresh fruits and vegetableg--Continued

| Commodity | $\begin{array}{ll}: \\ : & \text { Shipping container } \\ \\ \\ \end{array}$ | Approximate net weight 1/ |  |
| :---: | :---: | :---: | :---: |
| Fresh fruits--Continued | $\frac{\text { Pounds }}{\text { (range) }}$ |  |  |
|  |  |  |  |
| Tangelos: | : |  |  |
| Florida | : $4 / 5$ bushel carton | 40 | 45 |
| California | : 1/2-bushel carton | 25 | 30 |
|  | : |  |  |
| Tangerines: | : |  |  |
| Florida | : 4/5-bushel carton | 47 | 50 |
| California | : 1/2-bushel carton | 25 | 30 |
| Fresh vegetables: Anise | $\vdots$ : |  |  |
|  |  |  |  |
|  | : 15-1/2-inch wirebound crate <br> : Carton and crate packed, 1-1/2 <br> : to $2-1 / 2$ dozen <br> : Crate | 40 25 | 50 |
|  |  | 60 | 70 |
| Artichokes | Carton or box by count or <br> : loose pack |  |  |
|  |  | 20 | 25 |
| Asparagus | : Pyramid crate | 30 | 36 |
|  | : 1/2-pyramid crate or carton <br> : Carton of $161-1 / 2$ pound packages | 15 | 17 |
|  |  | 24 | 25 |
| Beans, snap and 11ma | : Bushel crate, hamper, or basket | 28 | 32 |
|  |  | 28 | 32 |
| Beets | : $1-2 / 5$-bushel crate, 24 s: $4 / 5$-bushel crate, 12 s | 36 | 40 |
|  |  | 15 | 20 |
| Topped | : Sack, as marked ${ }^{\text {a }}$ | 25 | 50 |
| Broccoli | : 14 to 18 bunches, carton | 20 | 24 |
| Brussels oprouts | : Carton | $\begin{aligned} & 25 \\ & 7-1 / 2 \end{aligned}$ |  |
|  | 12 10-ounce cups, flat or carton |  | 8 |
| Cabbage Savoy | : Sack, crate, or carton | 50 | 55 |
|  |  | 37 |  |
|  | : Sack, crate, or carton |  |  |
| Carrots: |  |  |  |
| Bunched Topped | : Carton, 2-dozen bunches | $23 \quad 27$ |  |
|  | : 48 1-pound bags or 242 -pound <br> : bags in master container |  |  |
|  | : bags in master container <br> : Mesh bag, loose, as marked | 48 | 55 |
| Mini | : 20 12-ounce cello | 15 | 17 |
| Cauliflower | : Flat or 2-1ayer carton of 9 to <br> : 16 trimmed heads |  |  |
|  |  | 18 | 24 |
|  | Long Island type crate | 45 | 55 |

[^5]Table 60--Shipping containers for fresh fruits and vegetables-Continued


[^6]Table 60-Shipping containers for fresh fruits, and vegetables--Continued


Table 60--Shipping containers for fresh fruits and vegetables-Continued


Table 60--Shipping containers for fresh fruits and vegetables--Continued


Table 6l--Gmared fruits and fulces: Net wefght per case 1/

-- = Not availsble.
1/ Weights are derived from Net Contents Statements for Canned Food Labels - 1977. National Canners Association.

Table 62--Fruit juices and concentrates: Factors relating to farm and processed weights 1/


Table 63--Canned fruits: Factors relating to farm and processed weights


Note: Relationships between farm and processed weights for most conmodties vary widely from season to season and between iocalities. Factors shown in chis table represent average relationships for all producing areas.
I/ Basic figure is $24 / 2^{\prime}$ s for citrus; $24 / 303$ 's for applesauce and berries; 6/10's for apple slices and red tart cherries: $24 / 300$ 's for cranberries; and $24 / 21 / 2$ 's for other products. Case conversion factors based on table 61.
$\frac{2}{3} /$ Basis 24 cases of No. $300^{\prime} \mathrm{s}$.
$3 /$ Drained weight.

Table 64--Canned vegetables: Eactors relating to farm and processed weights


1/ Basic figure is yieid of $24 / 303^{\prime} s$ per ton. One case $24 / 303^{\prime}$ s is equivalent to 0.57 cases $24 / 21 / 2{ }^{\prime} s$ and 0.62 cases $6 / 10^{\prime}$ s. 2/ Shelled basis.
3/ 33 percent solids.
4/ 11 percent solids.

Table 65-Dehydrated and dried fruits: Relationship between
farm and processed weights


NA = Not available.
1/ Includes only farm sales of dates for human consumption after farm cullage. Average farm sales of cull dates directly into nonfood channels estimated at 14 percent of U.S. production.

2/ To convert canned dried prunes to dried prunes, multiply by 0.691085.
3/ Includes unseeded muscats.

Table 66--Fruits and vegetables: Relationship of freeze-dried product to frozen weight i/f

| Frozen food |  | Moisture enntent | Weight of freezedried products as percentage of frozen counterpart |  | ```Factors to convert freeze-drfed weight to frozen weight``` |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Percent | Percent |  |  |
|  |  |  |  |  |  |
| Apples, uncooked, sliced, |  |  |  |  |  |
| sweetened |  | 73.3 | 27.2 |  | 3.7 |
| Apricots, uncooked |  | 85.4 | 14.9 |  | 6.7 |
| Blueberries, uncooked, |  |  |  |  |  |
| unsweetened |  | 85.0 | 15.3 |  | 6.5 |
| Broccoli, cooked or uncooked |  | 90.6 | 9.6 |  | 10.4 |
| Brussels sprouts, cooked or uncooked |  | 89.3 | 10.9 |  | 9.2 |
| Cauliflower, cooked or uncooked |  | 92.9 | 7.2 |  | 13.9 |
| Green peas, cooked |  | 81.7 | 18.7 |  | 5.4 |
| Green peppers, cooked |  | 94.7 | 5.4 |  | 18.5 |
| Mushrooms, uncooked, whole, pleces or sliced |  | 90.4 | 9.8 |  | 10.2 |
| Pears, uncooked pieces or slices |  | 82.7 | 17.6 |  | 5.7 |
| Pineapple, uncooked slices or chucks, sweetened |  | 77.1 | 23.4 |  | 4.3 |
| Plutns, Itallan, uncooked slices or pieces |  | 78.7 | 21.7 |  | 4.6 |
| Raspberries, red, uncooked |  | 74.3 | 26.2 |  | 3.8 |
| Snap beans, cooked | : | 91.6 | 8.6 |  | 11.6 |
| Strawberries, whole, uncooked | - | 75.5 | 24.8 |  | 4.0 |
|  |  |  |  |  |  |

Table 67--Dehydrofrozen fruits and vegetables: Relationship between moisture content of product and weight reduction

| Percentage original mofsture content | : | Percentage moisture content in product at percentage weight reduction of-- |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | : | 50 | - | 60 | $\div$ | 70. | , | 80 |
|  | : | Percent |  |  |  |  |  |  |
| 95 | : | 90 |  | 87.5 |  | 83.3 |  | 75 |
| 90 | : | 80 |  | 75.0 |  | 66.7 |  | 50 |
| 85 | : | 70 |  | 62.5 |  | 50.0 |  | 25 |
| 80 | : | 60 |  | 50.0 |  | 33.3 |  | 0 |
| 75 | : | 50 |  | 37.5 |  | 16.7 |  | -- |
| 70 | : | 40 |  | 25.0 |  | 0 |  | -- |
| 65 | : | 30 |  | 12.5 |  | -- |  | -- |
| 60 | : | 20 |  | 0 |  | -- |  | -- |
| 55 | : | 10 |  | -- |  | -- |  | -- |
| 50 | : | 0 |  | -- |  | -- |  | -- |
|  | : |  |  |  |  |  |  |  |

-.. $=$ Not applicable.

Table 68--Dehydrofrozen fruits and vegetables: Relationship between prepared matertal and product.

| Commodity | : | Pounds of prepared material to produce pound dehydrofrozen product $1 /$ |
| :---: | :---: | :---: |
|  | : | Pounds |
| Apples | : | 2 |
| Carrots | : | 2 |
| Cherries | : | 2-2.5 |
| Green peas | : | 2 |
| Pimentos | : | 3 |
| Potatoes: | : | - |
| Plece form | : | 2 |
| Mashed | : | 4 |

1/ After peeling, triming, and cutting. Preparation losses shoild be the some as for freezing.

Table 69—-Fruits, dehydrated (low moisture): Relationship between farm and processed weights


Table 70--Vegetables, dehydrated: Relationship between farm and processed weights and weight of product per 5 -gallon container


Continued-

[^7]Table 70 --Vegetables, dehydrated: Relationship between farm and processed weights and weight of product per 5 -gallon container--Continued


- = Not applicable.

1/ Includes fines and defects removed during final inspection of dried product and other process losses.
$\underline{\underline{2} / \text { Successful dehydration of many of these vegetables depends upon the ability to divert undesirable sizes and/or }}$ grades to other kinds of processing. If such outlets are not avallable, shrinkage ratios will be greater than shown.

Table 71--Frozen fruits and vegetables: Estimated average relation between farm and processed weights

| Commodity | : | Percentage recovery | Factors for conveFarm weight <br> from <br> frozen weight $1 /$ | Frozen weight from farm weight $1 /$ | Approximate fruit-tosugar ratio 2/ |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | : | Percent |  |  |  |
|  | : |  |  |  |  |
| Frozen fruits: | : |  |  |  |  |
| Apples | : | 60 | 1.67 | 0.60 | 0 or 7 to 1 |
| Apricots | : | 78 | 1.10 | . 91 | 6 or 8 to 1 |
| Berries: | : |  |  |  |  |
| Blackberries | : | 95 | 1.05 | . 95 | 0 |
| Blueberries | : | 97 | 1.03 | . 97 | 0 |
| Boysenberries | : | 88 | 1.14 | . 88 | 0 |
| Gooseberries | : | 97 | 1.03 | . 97 | 0 |
| Loganberries | : | 88 | 1.14 | . 88 | 0 |
| Raspberries | : | 95 | 1.05 | . 95 | 0 |
| Strawberries | : | 93 | . 89 | 1.12 | 5 or 4 to 1 |
| Cherries, sour | : | 75 | 1.11 | . 90 | 5 to 1 |
| Cherries, sweet | : | 85 | 1.18 | . 85 | 0 |
| Grapes | : | 85 | 1.18 | . 85 | 0 |
| Peaches | : | 67 | 1.25 | . 80 | 5 to 1 |
| Pineapples | : | 50 | 1.60 | . 625 | 4 to 1 |
| Prunes | : | 85 | 1.18 | . 85 | 0 |
| Frozen vegetables: | : |  |  |  |  |
| Asparagus | : | 52 | 1.92 | . 52 | $2 /$ |
| Lima beans 3/ | : | 95 | 1.05 | . 95 | 2/ |
| Snap beans | : | 85 | 1.18 | . 85 | 2/ |
| Broccoli | : | 75 | 1.33 | . 75 | $\underline{2 /}$ |
| Brussels sprouts | : | 75 | 1.33 | . 75 | $\frac{2}{2} /$ |
| Cauliflower | : | 70 | 1.43 | . 70 | $\underline{2} 1$ |
| Corr, cut | : | 27 | 3.70 | . 27 | $\underline{2} /$ |
| Carrots | : | 55 | 1.82 | . 55 | 2/ |
| Okra | : | 85 | 1.18 | . 85 | $\underline{2} /$ |
| Peas, green 3/ | : | 92 | 1.09 | . 92 | 2/ |
| Peas, southern | : | 50 | 2.00 | . 50 | $\underline{2 /}$ |
| Potatoes, white | : | 40 | 2.50 | . 40 | $2 /$ |
| Peppers, sweet | : | 70 | 1.43 | . 70 | 2/ |
| Spinach | : | 70 | 1.43 | . 70 | 2/ |
| Other greens | : | 75 | 1.33 | . 75 | $\frac{2}{2 /}$ |
| Squash | : | 55 | 1.82 | . 55 | $\underline{2} /$ |
| Sweetpotatoes | : | 50 | 2.00 | . 50 | 2/ |

1/ Frozen weight is weight of frozen fruit plus sugar content. Where more than one fruit-to-gugar ratio is shown, the first is used in this computation.

2/ Fruft-to-sugar ratio does not apply to vegetables.
3/ Shelled.

Table 72--Fruit and vegetable fuice powders: Factors relating to farm and processed weights

| Ifems | : | Approximate percentage solids content of juice | Yield of juice <br> as a percentage <br> of raw material $\qquad$ | Factors for <br> Processed weight <br> from <br> farm weight | ```converting to-- : Equivalent farm weight from : processed wetght``` |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |
| Apple | : | 12 | 75 | 0.092 | 8 |
|  | : |  |  |  |  |
| Citrus: | : |  |  |  |  |
| Grapefruit | : | 11 | 49 | . 055 | 18 |
| Lemon | : | 9 | 40 | . 037 | 27 |
| Orange | ; | 13 | 55 | . 072 | 14 |
| Grape | : | 17 | 75 | . 130 | 8 |
|  | : |  |  |  |  |
| Pineapple 1/ | : | 15 | 58 | . 089 | 11 |
|  | : | 32 | 74 | . 250 | 4 |
| Prune |  |  |  |  |  |
| Tomato | : | 6.4 | 70 | . 045 | 24 |

I/ Assuming juice is only product. In practice, however, juice is made only from edible grade peels, cores, trimmings, and sortouts.

Table 73--Potatoes: Estimated conversion factors for selected products


Table 74--Hop content of beer

| Size of container | $:$ | Factor for converting to hop <br> content (cured weight) |
| :--- | :--- | :--- |
|  | $:$ | Pounds |
| Barrel (31 gallons) | $\vdots$ | 0.2 |

## Tree Nuts

Table 75--Tree nuts: Relationship between shelled and in-shell, and between farm and retail weights


NA $=$ Not avallable.
1/ Orchard-run weight before culling. Both orchard-run and retail weight are inshell basis.

2/ Average for domestic crop in recent years. The following illustrate the variation among various varleties: Nonpareli, Merced, and Thompson 0.60; Mission 0.40; Peerless 0.35. Peerless is frequently marketed in-sheli.

3/ Average for portion of crop shelled commercially. Equivalent shelled-in-shell ratio for graded walnuts sold in-shell is 0.45 , and average for entire U.S. walnut crop is 0.40.

## Coffee and Tea Products

Table 76--Factors for obtaining equivalents of green coffee beans and leaf tea from specified products

| Product | : Description : | Factors |
| :---: | :---: | :---: |
|  | : |  |
| Coffee: | : |  |
| Green, bag 1/ | Standard bag of 60 kilograms , number of pounds | 132.276 |
|  | ; |  |
| Parchment | The green coffee bean contained in the parchment skin | . 800 |
|  | : |  |
| Roasted | Green coffee roasted to any degree <br> : and includes ground coffee | 1.190 |
|  | : |  |
| Pure instant soluble | The water-soluble solids derived from roasted coffee | 2.500 |
|  | ; |  |
| Decaffeinated | : Green roasted or soluble coffee from <br> : which caffein has been extracted: |  |
|  | : Green | 1.000 |
|  | : Roasted | 1.190 |
|  | : Instant soluble | 2.500 |
|  | : |  |
| Tea, pure instant soluble | : 2.5 pounds of dry leaf tea yields 1 pound of soluble tea | 2.500 |

1/ All coffee in the naked bean form before roasting.

## Yeast

Table 77--Relationship between yeast solids of specified types of yeast and yeast products


Table 78-Tobacco: Factors for adjusting stocks reporfad by dealers and manufacturers to a faxm-sales-weight equivalent


1/ Types 11-37 are reported on the brete of packed weight.
2/ Farm-sales-weight equivalent based on unstemad sweated weight factor.
3/ The instructions for reporting unstemmed cigar-.leaf of the domestic types require that dealers and manufacturers indicate the weight basis on which the tobacco is reported, namely, farm-saleswweight, marked weight, or sweated weight. The stocks are converted to the farm-sales-weight equivalent on the basis of average factors reflecting the percentage reported each quarter in each of these categories,

Naval Stores
Table 79--Naval stoxes: Neights and measures

| Item | : | Unit | : | Amount |
| :---: | :---: | :---: | :---: | :---: |
|  | - |  | : |  |
| Crude pine gum: | : |  | : |  |
| Gum naval stores (crops) : | : |  | : |  |
| Faces 1/ | : | Number | : | 10,000 |
| Barrels, standard | : | do. | ; | 215 |
| Net weight (each) | : | Pounds | : | 435 |
| Yleld (each) : | : |  | : |  |
| Gum turpentine) | : | Gallons | : | 9.8 |
| Rosin | : | Pounds | : | 299 |
|  | : |  | : |  |
| Rosin: | : |  | : |  |
| Gum: | : |  | : |  |
| Drum: | : |  | : |  |
| Net weight | : | Pounds | ; | 2/517 |
| Gross weight | : | do. | : | 534 |
| Volume | : | Cubic feet | : | 8.27 |
| Shipping space | : | do. | ; | 9.4 |
| Bag, net weight | : | Pounds | : | 100 |
| Other types: | : |  | : |  |
| Drum: | : |  | : |  |
| Net weight | : | do. | : | 500-520 |
| Average | : | do. | : | 515 |
| Volume | ; | Cubic feet | : | 8.27 |
| Shipping space | : | do. | : | 9.4 |
| Bag, net weight | : | Pounds | : | 100 |
|  | . |  | : |  |
| Turpentine: | : |  | : |  |
| Drum: | : |  | : |  |
| Net weight | : | do. | ; | 396 |
| Gross weight. | : | do. | : | 450 |
| Liquid measure at $70 \%$ Fahrenheit | : | Gallons | : | 55 |
| Barrel, 11 quid measure at $70^{\circ}$ | : |  | : |  |
| Fahrenheit | : | do. | : | 50 |
| Gailon, measure at $70^{\circ}$ Fahrenheit | : | Pound | : | 7.2 |
| Tank car, average | : | Gallons | : | 6,000-8,000 |
| Tank truck, average | : | do. | : | 4,000 |

1/ Usualiy one "face" per tree in the United States.
2/f Statistical data published by USDA are in terms of 520 -pound drums.

Table 80--Technical data on spirits of turpentine by type

| Item |  | Unit |  | Gum spirits |  | Steam $:$ <br> distilled : <br> wood  | Sulfate wood |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | : |  |  |  | Refined | : | Crude |
| Specific gravity at $15.5{ }^{\circ} / 15.5^{\circ}$ Celsius: |  |  |  |  |  |  |  |  |  |
|  |  | Lbs/in. 2 |  |  |  |  |  |  |  |
| Typical for fresh turpentine |  | do. | : | 0.868 |  | 0.862 | 0.867 |  | -- |
| Specification range, U.S. standard |  | do. | : | .860-. 875 |  | .860-. 875 | .860-.875 |  | -- |
| Specific gravity change per degree Fahrenheit |  | do. | : | . 00045 |  | . 000045 | . 00045 |  | - |
| Specific gravity change per degree Celsius |  | do. |  | . 09082 |  | . 00082 | . 00082 |  | -- |
|  |  |  |  |  |  |  |  |  |  |
| Average weight per U.S. standard gallon at700 Fahrenheit |  |  |  |  |  |  |  |  |  |
|  |  | 1bs. |  | 7.2 |  | 7.14 | 7.2 |  | -- |
|  |  |  |  |  |  |  |  |  |  |
| Coefficient of expansion: |  |  |  |  |  |  |  |  |  |
| Per degree Fahrenheit |  | coef. |  | . 000525 |  | . 000525 | . 000525 |  | -- |
| Per degree Celsius |  | do. |  | . 000945 |  | . 000945 | .000945 |  | -- |
|  |  |  |  |  |  |  |  |  |  |
| Refractive index at $20^{\circ}$ Celsius: |  |  | : |  |  |  |  |  |  |
|  |  | Index | : | $1.470$ |  | 1.466 | $1.468$ |  | -- |
| Specification range (U.S. standard) |  | do. | : | 1.465-1.478 |  | 1.465-1.478 | $1.465-1.478$ |  | -- |
| Refractive index change per degree Celsius |  | do. | : | . 00045 |  | .00045 | . 00045 |  | - |
|  |  |  |  |  |  |  |  |  |  |
| Distillation range, U.S. standard: |  |  |  |  |  |  |  |  |  |
| Initial distillation temperature |  | ${ }^{\circ} \mathrm{C}$ | : | 150-160 |  | 150-160 | 150-16 |  | -- |
| Distilling below $170^{\circ} \mathrm{Celsius}$, minimum |  | Pct. | : | 90 |  | 90 | 90 |  | -- |
|  |  |  |  |  |  |  |  |  |  |
| Flash point range: |  |  |  |  |  |  |  |  |  |
| Fag closed cup |  | Of | - | 90-95 |  | 90-95 | 90-95 |  | -- |
| Cleveland open cup |  | do. | : | 100-110 |  | 100-110 | 100-110 |  | -- |
|  |  |  |  |  |  |  |  |  |  |
| Aniline point, typical range | : | ${ }^{\circ} \mathrm{C}$ |  | 14-25 |  | 18-25 | 14-25 |  |  |
|  |  |  |  |  |  |  |  |  |  |
| Composition of American turpentines:Alpha-pineneBeta-pinene | : | Pct. |  |  |  |  |  |  |  |
|  | ; | do. |  | 60-65 |  | 75-80 | 60-65 |  | 50-65 |
|  | : | do. |  | 25-35 |  | 2 | 25-30 |  | 20-30 |
| Dipentene and other monocyclic terpenes | : | do. | : | 5-8 |  | 15-20 | 5-7 |  | 16-18 |
| Camphene | : | do | : |  |  | 4-8 | 0-2 |  | 0-2 |
| Total |  |  |  |  |  |  |  |  |  |
|  | : |  | : | 100 |  | 100 | 100 |  | 100 |
|  | : |  | : |  |  |  |  |  |  |

[^8]
# Cotton, Cottonseed, and Cottonseed Products 

Computation and use of factors
Basis of computation. Factors have been computed on the basis of the 5-crop seasons from 1971/72 thraugh 1975/76 and represent ratios of the 5 -season averages. The 5-season average was used to bring the factors more nearly into conformity with current experience.

Use of factors. Users of these factors are cautioned with respect to the following limitations: The factors are not "official," even though they are based upon latest avallable official figures. Nor are they permanentiy fixed at the stated values because later finformation and shifts in relationships may necessitate revisions. Since basic data underlying certain series have differing variabilities, it should be kept clearly in mind that application of the factors will not necessarily result in the most satisfactory figure for use in current work if other evidence suggests that base period relationships are not continuing. Factors should be applied to U.S. totals only and not to State or area totals. These factors apply to fulluseason totals only.

## Definitions

| Seed cotton | - Cotton as harvested but before ginning. It is the raw product which has been harvested and contains the lint, seed, and foreign matter. |
| :---: | :---: |
| Ricked seed cotton | One of two forms used to store seed cotton in the field before ginning. It is a free standing stack of seed cotton which has been mechanfcally compacted (to about 7 to 8 pounds per cubic foot) after harvesting into a form of varying length, 20 to 200 feet, 4 to 5 feet high, and about 7 feet wide. Because it sits on the ground, the rick is not often used in areas of frequent rafnfall. |
| Module seed cotton | One of two forms used to store seed cotton in the field before ginning. Modules may be 24 to 32 feet long and about 7 feet wide. Stripped cotton is mechanically compacted 9 to 12 pounds per cubic foot to a height of 9 to 10 feet. Picked cotton is compacted to 10 to 13 pounds per cubic foot to a height of 7 to 8 feet. |
| Lint | Cotton which has been separated from the seed by the ginning process. |
| Bale | A package of compressed cotton lint as it comes from the gin. Including the bagging and ties, it weighs about 500 pounds and its dimensions vary depending upon the degree of compression that may range from 12 to 32 pounds per cubic foot. A bale is the form of package by which cotton moves in domestic and foreign commerce. However, cotton is bought and sold on a net weight (pound or kilogram) basis. |
| Running bale | Any bale of varying lint weight as it comes from the gin. |
| $\begin{aligned} & \text { 480-pound net welg } \\ & \text { bale } \end{aligned}$ | An average bale weight used to maintain statistical comparability. It has superseded the formerly used term, 500 -pound gross weight bale. |


| Universal density bale | -- A bale pressed in a gin or repressed in a compress one time to a density of at least 28 pounds per cubic foot. |
| :---: | :---: |
| Tare | -- Weight of the ties (or bands) and bagging materials which contain the bale. The weight of these packaging materiais varies and is excluded from the reported or sale weight of the lint. The bands can be steel straps or wire. The bagging material can be jute, woven polypropylene fiber, or polyethylene plastic film, or cotton (woven or warp knit) depending on the type of bale packaged. |
| Oflseed | -- The cottonseed which is crushed for the ofl and meal. |
| Planting seed | -- The cottonseed that is planted. Seed not planted is crushed in oil mills for the oil, meal, linters, hulls, etc. |
| Motes | - Itmature cottonseeds with fibex attached. |
| Linters | $\rightarrow$ Short fibers which remain attached to the cottonseed after ginning. They are separated from the seed and used in cushioning products, as stuffing, or as a source of cellulose for a variety of chemical products. |

Table 81~-Cotton bale size by various agencies in compiling statistical data


Table 82-Factors for converting cotton acreages, cotton, and cotton products to various equivalents I/

| From | $:$ To obtain | : MuItiply by |
| :---: | :---: | :---: |
| Acreage: | : | : |
| Planted | : Acreage harvested | 0.932 |
|  | : Cottonseed produced, tons | . 358 |
|  | : Cottonseed crushed, tons | . 338 |
|  | : Cotton produced, 480-pound bales | . 919 |
|  | : Cotton produced, pounds | . 441 |
|  | : Linters, pounds | 60.700 |
|  | : Linters, tons | . 030 |
| Harvested | : Acreage planted | 1.073 |
|  | : Cottonseed produced, tons | . 384 |
|  | : Cottonseed crushed, tons | . 362 |
|  | : Cotton produced, 480-pound bales | . 986 |
|  | : Cotton produced, pounds | . 473 |
|  | : Linters, pounds | 65.200 |
|  | : Linters, tons | : . 033 |
| Cottonseed produced: Tons | : | : |
|  | : Cottonseed crushed, tons | . 944 |
|  | : Linters, tons | . 085 |
| Pounds | : Seed cotton, pounds | 1.616 |
| Cottonseed crushed, tons | Linters, tons | . 090 |
|  | : Cottonseed crude oil produced, tons | . 161 |
|  | : Cottonseed meal produced, tons | . 451 |
| Cotton produced: 480-pound bales | : Cottonseed produced, tons | . 389 |
|  | : Cottonseed crushed, tons | . 367 |
|  | : Cottonseed crude oil produced, tons | . 059 |
|  | : Cottonseed meal produced, tons | . 166 |
|  | : Linters, tons | . 033 |
| Pounds | : Cottonseed produced, pounds | 3.622 |
|  | : Cottonseed crustied, pounds | 1.531. |
|  | : Cottonseed crude oil produced, pounds | . 246 |
|  | : Cottonseed meal produced, pounds | . 691 |
|  | : Linters, pounds | : 138 |
|  | : Seed cotton, pounds | : 2/ 2.622 |
| Cotton: | : | : |
| 480-pound bale | Running bales | . 961 |
| Running bales | : 480-pound bales | 1.040 |
| Seed cotton, pounds | : Cotton produced, pounds | $2 / .381$ |
|  | : Cottonseed produced, pounds | : $\quad 2 / .619$ |

1/ All figures based on the 5-year average, 1971/72-1975/76. 2/ Cotton procuction plus cottonseed production. Cottonseed for planting: The 1971/72-1975/76 5-year average quantity of cottonseed used for planting 1 acre of cotton was 27.4 pounds per acre. One pound per acre equals 1.12085 kilograms per hectare. One kilogram per hectare equals 0.89218 pound per acre.

Table 83--Factors relating to cottonseed products $1 /$

| Product | : | Factors for converting cottonseed products to |  |
| :---: | :---: | :---: | :---: |
|  | : | Tons per ton | Pounds per ton |
|  | : |  |  |
| Crude oil | : | 0.161 | 322 |
| Cake and meal | : | . 451 | 902 |
| Hulls | : | . 251 | 502 |
| Linters | : | . 090 | 181 |
| Waste | : | . 047 | 93 |
|  | : |  |  |

I/ All figures are based on the 5-year average, 1971/72-1975/76.

Table 84--Space displacement of cotton and cotton products 1 /

| Product | : | Cusic feet per short ton | : Pounds per <br> : cubic foot |
| :---: | :---: | :---: | :---: |
|  | : |  |  |
| Seed cotton: | : |  |  |
| Untramped | : | 400 | 5 |
| Ricked | : | 286-333 | 6-7 |
| Module | : |  |  |
| Stripped | : | 167-222 | 9-12 |
| Picked | : | 154-200 | 10-13 |
| Cottonseed: | : |  |  |
| Dry, delinted | : | 57 | 35 |
| Dry, not delinted | : | 80-111 | 18-25 |
| Hu11s | : | 167 | 12 |
| 011 | : | 35-36 | 56-57 |
| Cake, crushsd or lumpy Meal, extracted | : | 44- 50 | 40-45 |
| Meal, extracted | : | 50-57 | 35-40 |

$1 /$ Industry sources.

Table 85--Scoured yield of greasy shorn and pulled domestic wools

| Grades | Domestic  <br> $:$ production <br> of  <br> $:$ greasy wool 1/ |  | Scoured yield 1/ |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Shorn | Pulled |
|  | : |  | Percent |  |
| Fine; 64's and finer | : | 29.0 | 46.0 | 67.0 |
| 1/2 blood; $60 . \mathrm{s}$ and $62^{\prime} \mathrm{s}$ | : | 14.7 | 47.0 | 72.0 |
| 3/8 blood; 56's and 58's | : | 26.4 | 56.0 | 79.0 |
| 1/4 blood; 50 's and 54's | : | 24.6 | 59.0 | 81.0 |
| Low 1/4 blood; $46^{\prime \prime} \mathrm{s}$ and 48's | : | 4.6 | 61.0 | 82.0 |
| $\text { Common and braid; } 36^{\prime} \mathrm{s}, 40^{\circ} \mathrm{s}$ $\text { and } 44^{\prime} \mathrm{s}$ | : | . 7 | 64.0 | 84.0 |
| Weighted average, all grades | : | 1.00 .0 | 52.8 | 72.9 |

1/ Based on Current Industrial Report: MA-22M, "Stocks of Wood and Related Fibers," Bur. of the Census, U.S. Dept. Comm., 1971-76 reports. Percent of production by grade was based on the stocks reports and wool supply and use data for 1971-75.

$:$
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[^0]:    -- * Not applicabie.

[^1]:    2/ Bushel wefght: Flaxseed, 56 pounds; and soybeans, 60 pounds. 3/ Usually reported in short tons.

[^2]:    I/ Total is not expected to equal "Total fat."
    2/ Includes fatty acids with chains from 8 through 18 carbon atous.
    3/ Suitable as salad oil.
    4/ From Fatty Acids in Food Fats, Home Econ. Res. Rpt. 7, Agr. Res. Serv., U.S. Dept. Agx., 1959.

    5/ Mean values of selected samples and may vary with brand name and date of manufacture.

    6/ Includes small amounts of mono-unsaturated and di-unsaturated fatty acids that are not oleic of ifnoleic.

    * 7/ Linoleic acid includes higher polyunsaturated fatty acids.

[^3]:    1/ Based on 1970-74 crop averages.
    $\underline{2} /$ Beginning 1966 crop year, farmers' stock peanuts are reported in terms of net weight so no adjustments are necessary.

    3/ Excludes roasting stock.
    $\overline{4} /$ Excludes shelled oil stock peanuts.
    5/ Including additives.
    6/ Yields from farmers' stock are provided for statistical convenience. In actual practice, only the shelled peanuts are crushed for oil. Some of the shells are then added to the residue to produce the cake and meal.

    7/ Some additional shells are added to the residue to produce cake and meal.

[^4]:    See footnote at end of table.

[^5]:    See footnote at end of table.

[^6]:    See footnote at end of table.

[^7]:    See footnotes at end of table.

[^8]:    _- = Not available.

