
Useful Information for farm & home



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PLANTING BY THE SIGNS

There are many people who scoff at the idea of using the signs of the Zodiac and the moon to garden. But, there are also many who use this method even though they don't talk about it, as though it was something to be ashamed of. It just isn't modern and scientific enough for this technological age of chemical food and insecticides. Yet, if one will take the time to read or listen, one will discover that the times to plant, rototill, spray, etc., touted by the "experts," matches almost to the day the old timers' method of planting by the signs.

The use of the signs goes back beyond recorded history. Its really quite incredible that the use of the signs has survived. Basically there are two ways of looking at the moon – the sun phases and the zodiac phases. Let's look at them individually.

The Sun Phases

The sun phases describe the way the sun shines on the moon as seen from planet earth. These phases are also called quarters, and there are four quarters as the moon goes around the earth. The first quarter begins with the new moon which occurs when the moon is between the earth and the sun and is totally dark as viewed from the earth.

As the moon (month) proceeds, it becomes visible in the shape of a crescent until it is half visible; this is the end of the first quarter and the start of the second. The second quarter proceeds until the moon is a totally visible circular pie, and we have a full moon which is the end of the second quarter and the start of the third.

Continuing, the moon now begins to darken on one side until it is again a half moon; we have the end of the third quarter and the start of the fourth. The fourth quarter occurs from this point and is again a crescent until the new moon.

The Zodiac Phases

Now for the zodiac phases. The moon, as it travels around the earth, passes through 12 sectors named after the familiar signs of

the zodiac. Each sector is associated with a group of stars discovered by the ancients and called constellations. These constellations are in turn associated with parts of the body and other qualities. The part of the body governed by an individual constellation is supposed to be more sensitive when the moon is in that constellation. The moon goes through each constellation at least once each month and is in a constellation for either two or three days at a time.

How Do You Know?

The way you know which constellation and which quarter of the moon is in, is by your trusty planting calendar. Rush down to your local hardware, auto, seed, and/or feed store and see if you can get a freebie. The zodiac signs and moon phase signs are clearly marked.

What Do You Do With It?

Now we get to the nitty gritty. You have two sets of instructions; ideally you should consult both before planting. For instance, you should plant during one of the fruitful signs of the zodiac and the appropriate quarter of the moon.

The Signs Of The Zodiac

The signs of the zodiac are listed starting below and continued on the following page along with the qualities of the signs. In general, plant during the moist and fruitful signs and do things that require dryness (burning and destroying weeds) during the dry signs. The most fruitful signs are Cancer, Taurus, Scorpio and Pisces. The barren signs are Aries, Sagittarius, Gemini, Leo, Virgo and Aquarius. One more point: never plant or graft on the sun's day (Sunday) for it is a barren hot day.

ARIES (head & face): Dry and barren. Never plant. Best sign for plowing, tilling and cultivating.

TAURUS (neck): Earthy and moist. Plant here to withstand a drought. Excellent for root crops and okay for crops above the ground and flowers.

GEMINI (arms): Airy, dry and barren. Destroy weeds, kill trees and prepare soil.

CANCER (breast): Watery and very fruitful. Plant here to withstand a drought. Excellent for above and below-ground crops. Time to graft.

LEO (head): Fiery, dry and barren. Never plant; destroy weeds, kill trees and prepare soil.

VIRGO (bowels): Earthy, dry and barren. Destroy weeds, kill trees and prepare soil.

LIBRA (balance): Airy, moist and semi fruitful. Excellent for flowers (beauty) and okay for above-ground crops.

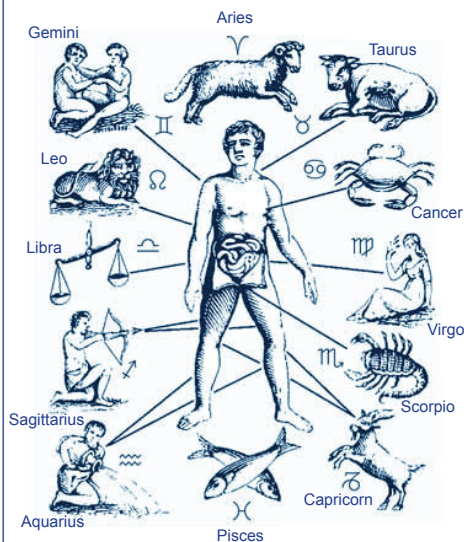
SCORPIO (loins): Watery and fruitful. Excellent for above ground crops and flowers. Okay for below-ground crops. Time to graft.

SAGITTARIUS (thighs): Fiery, dry, and barren. Destroy weeds and kill trees.

CAPRICORN (knees): Earthy, moist and productive. Good for root crops and okay for above ground crops. Root cuttings and make grafts.

AQUARIUS (legs): Airy, dry and barren. Destroy weeds and kill trees.

PISCES (feet): Watery and fruitful. Plant here to withstand a drought. Excellent for below ground crops and okay for above ground crops. Root cuttings and make grafts.



Nov. 7	Oct. 13	Aug. 17	Apr. 6	Mar. 1
Nov. 17	Oct. 23	Aug. 27	Apr. 16	Mar. 11
Nov. 27	Nov. 2	Sept. 6	Apr. 26	Mar. 21
Dec. 7	Nov. 12	Sept. 16	May 6	Mar. 31
Dec. 17	Nov. 22	Sept. 26	May 16	Apr. 10
Dec. 27	Dec. 2	Oct. 6	May 26	Apr. 20

Duration & Frequency of Heat in Farm Animals in Regular Condition

In heat for	If not pregnant heat will recur in
Mares.....4-5 days*3 to 6 weeks
Cows.....12-24 hours*3 weeks*
Ewes.....1-2 days17 to 28 days
Sows.....3-4 days21 days

*Subject to variation

INCUBATION AND GESTATION PERIODS

Incubation

Chickens.....	21 Days
Ducks.....	30 Days
Guineas.....	28 Days
Geese.....	30 Days
Pheasants.....	25 Days
Pigeons.....	21 Days
Swans.....	42 Days
Turkeys.....	28 Days

Gestation

Bear.....	6 Months
Bitch.....	9 Weeks
Cow.....	9 Months
Cat.....	8 Weeks
Deer.....	8 Months
Dormouse.....	31 Days
Goat.....	5 Months
Guinea Pig.....	21 Days
Mare.....	11 Months
Mule.....	12 Months
Opossum.....	26 Days
Rabbit.....	30 Days
Sheep.....	5 Months
Sow.....	16 Weeks
Squirrels & Rats.....	28 days
Wolf & Fox.....	62 Days

Gestation Table

Average Gestation Period

	Weeks or Days	Extremes (days)
Sow	16	112..... 109 to 120
Ewe	22	150
Cow	40½	283
Mare	48½	340

Date of Service	Date Animal Due to Give Birth			
	Mare	Cow	Ewe	Sow
Jan. 1	Dec. 7	Oct. 11	May 31	Apr. 25
Jan. 11	Dec. 17	Oct. 21	June 10	May 5
Jan. 21	Dec. 27	Oct. 31	June 20	May 15
Jan. 31	Jan. 6	Nov. 10	June 30	May 25
Feb. 10	Jan. 16	Nov. 20	July 10	June 4
Feb. 20	Jan. 26	Nov. 30	July 20	June 14
Mar. 2	Feb. 5	Dec. 10	July 30	June 24
Mar. 12	Feb. 15	Dec. 20	Aug. 9	July 4
Mar. 22	Feb. 25	Dec. 30	Aug. 19	July 14
Apr. 1	Mar. 7	Jan. 9	Aug. 29	July 24
Apr. 11	Mar. 17	Jan. 19	Sept. 8	Aug. 3
Apr. 21	Mar. 27	Jan. 29	Sept. 18	Aug. 13
May 1	Apr. 6	Feb. 8	Sept. 28	Aug. 23
May 11	Apr. 16	Feb. 18	Oct. 8	Sept. 2
May 21	Apr. 26	Feb. 28	Oct. 18	Sept. 12
May 31	May 6	Mar. 10	Oct. 28	Sept. 22
June 10	May 16	Mar. 20	Nov. 7	Oct. 2
June 20	May 26	Mar. 30	Nov. 17	Oct. 12
June 30	June 5	Apr. 9	Nov. 27	Oct. 22
July 10	June 15	Apr. 19	Dec. 7	Nov. 1
July 20	June 25	Apr. 29	Dec. 17	Nov. 11
July 30	July 5	May 9	Dec. 27	Nov. 21
Aug. 9	July 15	May 19	Jan. 6	Dec. 1
Aug. 19	July 25	May 29	Jan. 16	Dec. 11
Aug. 29	Aug. 4	June 8	Jan. 26	Dec. 21
Sept. 8	Aug. 14	June 18	Feb. 5	Dec. 31
Sept. 18	Aug. 24	June 28	Feb. 15	Jan. 10
Sept. 28	Sept. 3	July 8	Feb. 25	Jan. 20
Oct. 8	Sept. 13	July 18	Mar. 7	Jan. 30
Oct. 18	Sept. 23	July 28	Mar. 17	Feb. 9
Oct. 28	Oct. 3	Aug. 7	Mar. 27	Feb. 19

WEIGHTS & MEASURES

Baking Powder

1 cup.....5½ ounces

Cheese, American

1 pound.....2⅔ cup cubed

Cocoa

1 pound..... 4 cups ground

Coffee

1 pound..... 5 cups ground

Cornmeal

1 pound.....3 cups

Cornstarch

1 pound.....3 cups

Cracker crumbs

23 soda crackers 1 cup

15 graham crackers 1 cup

Eggs

1 egg..... 4 tablespoons liquid

4-5 whole 1 cup

7-9 whites 1 cup

12-14 yolks 1 cup

Flour

1 pound all-purpose.....4 cups

1 pound cake4½ cups

1 pound graham3½ cups

Lemons, juice

1 medium.....2-3 tablespoons

5-8 medium..... 1 cup

Lemons, rind

1 lemon..... 1 tablespoon grated

Oranges, juice

1 medium.....2-3 tablespoons

3-4 medium..... 1 cup

Oranges, rind

1..... 2 tablespoon grated

Gelatin

¾ ounce package, flavored ½ cup

¼ ounce package, unflavored

.....1 tablespoon

Shortening or Butter

1 pound.....2 cups

Sugar

1 pound brown.....2 ½ cups

1 pound cube..... 96-160 cubes

1 pound granulated.....2 cups

1 pound powdered.....3½ cups

SELECTED WATER RELATIONSHIPS
(APPROXIMATIONS)

1 gallon..... 8.34 pounds
 1 million gallons..... 3.07 acre-feet
 1 cubic foot..... 62.4 pounds **or**
 7.48 gallons

1 acre-foot..... 325,851 gallons
 1 acre covered by
 1 foot of water..... 43,560 cubic feet

1 cubic mile..... 1.1 trillion gallons **or**
 3,379,200 acre-feet
 1 inch of rain..... 17.4 gallons per
 square mile **or**
 27,200 gallons per
 square acre **or**
 100 tons per acre

QUANTITIES TO SERVE 100 PEOPLE

Coffee..... 3 pounds
 Loaf Sugar..... 3 pounds
 Cream..... 3 quarts
 Whipping Cream..... 4 pints
 Milk..... 6 gallons
 Fruit Cocktail..... 2½ gallons
 Fruit Juice..... 4 No. 10 cans (26 pounds)
 Tomato Juice..... 4 No. 10 cans (26 pounds)
 Soup..... 5 gallons
 Oysters..... 18 quarts
 Wieners..... 25 pounds
 Meat Loaf..... 24 pounds
 Ham..... 40 pounds
 Beef..... 40 pounds
 Roast Pork..... 40 pounds
 Hamburger..... 30-36 pounds
 Chicken for Chicken Pot Pie.....
 40 pounds
 Potatoes..... 35 pounds
 Scalloped Potatoes..... 5 gallons
 Vegetables..... 4 No. 10 cans (26 pounds)
 Baked Beans..... 5 gallons
 Beets..... 30 pounds
 Cauliflower..... 18 pounds
 Cabbage for Slaw..... 20 pounds
 Carrots..... 33 pounds
 Bread..... 10 loaves
 Rolls..... 200
 Butter..... 3 pounds
 Potato Salad..... 12 quarts
 Fruit Salad..... 20 quarts
 Vegetable Salad..... 20 quarts

Heart-girth	Weight
80	1,423
80½	1,446
81	1,469
81½	1,492
82	1,515
82½	1,538
83	1,561
83½	1,584
84	1,607
84½	1,630
85	1,653
85½	1,676
86	1,699

Heart-girth	Weight
86½	1,722
87	1,745
87½	1,768
88	1,791
88½	1,814
89	1,837
89½	1,860
90	1,883
90½	1,906
91	1,929
91½	1,952
92	1,975

CRIB AND BIN CAPACITY

Shelled Corn Formulas

Rectangular Bin

Bushels..... 0.8 x Length x Width x
 Average Depth (all in feet)

Round Bin

Bushels..... 0.6283 x Diameter x Diameter x
 Average Depth (in feet)

Ear Corn Formulas

Rectangular Crib

Bushels..... 0.4 x Length x Width x
 Average Depth (in feet)

Round Crib

Bushels..... 0.31416 x Diameter x
 Diameter x Average Depth (in feet)

Piled Grain

Shelled Corn

Bushels..... 0.20944 x Height x Diameter
 of base x Diameter of
 base (in feet)

Ear Corn

(shelled basis)

Bushels..... 0.10472 X Height X Diameter
 of base X Diameter of
 base (in feet)

Heart-Girth Measurements cont.

Heart-girth	Weight	Heart-girth	Weight
37½	174	57½	565
38	180	58	579
38½	186	58½	593
39	192	59	607
39½	200	62	700
40	208	62½	716
40½	216	63	732
41	224	63½	749
41½	232	64	766
42	240	64½	783
45	294	65	800
45½	304	65½	817
46	314	66	835
46½	324	66½	853
47	334	67	871
47½	344	67½	889
48	354	68	908
48½	364	68½	927
49	374	69	947
49½	384	69½	967
50	397	70	987
50½	404	70½	1,007
51	414	71	1,027
51½	424	71½	1,048
52	434	72	1,069
52½	445	72½	1,090
53	456	73	1,111
53½	467	73½	1,132
54	478	74	1,153
54½	489	74½	1,175
55	501	75	1,197
55½	513	75½	1,219
56	526	76	1,241
56½	539	79	1,377
57	552	79½	1,400

Lettuce..... 20 heads
 Salad Dressing 3 quarts
 Pies 18
 Cakes 8
 Ice Cream 4 gallons
 Cheese 3 pounds
 Olives..... 1¼ pounds
 Pickles 2 quarts
 Nuts 3 pounds, sorted

*To serve 50 people, divide by 2
 To serve 25 people, divide by 4*

**ONE INGREDIENT
 FOR ANOTHER**

For these: You may use these:

1 whole egg for thickening or baking 2 egg yolks or 2 tablespoons dried whole egg plus 2½ tablespoons water.

1 cup butter or margarine for shortening ¾ cup lard, or rendered fat, with ½ teaspoon salt or 1 cup hydrogenated fat (cooking fat sold under brand name) with ½ teaspoon salt.

1 square (ounce) chocolate 3 or 4 tablespoons cocoa plus ½ tablespoon fat.

1 teaspoon double-acting baking powder 1½ teaspoons phosphate baking powder or 2 teaspoons tartrate baking powder.

Sweet milk and baking powder, for baking Equal amount of sour milk plus ½ teaspoon soda per cup. (Each half teaspoon soda with 1 cup sour milk takes the place of 2 teaspoons baking powder and 1 cup sweet milk.)

1 cup sour milk, for baking 1 cup sweet milk mixed with one of the following: 1 tablespoon vinegar, 1 tablespoon lemon juice or 1¼ teaspoons cream of tartar.

1 cup whole milk	½ cup evaporated milk plus ½ cup water or 4 tablespoons dry whole milk plus 1 cup water or 4 tablespoons nonfat dry milk plus 2 teaspoons table fat and 1 cup water.
1 cup skim milk	4 tablespoons nonfat dry milk plus 1 cup water.
1 tablespoon flour, for thickening	½ tablespoon cornstarch, potato starch, rice starch, or arrowroot starch or 1 tablespoon granulated tapioca.
1 cup cake flour, for baking	⅞ cup all-purpose flour.
1 cup all-purpose flour, for baking breads	Up to ½ cup bran, whole-wheat flour, or cornmeal plus enough all-purpose flour to fill cup.

PLANTING & PLOWING AN ACRE

Miles Traveled in Planting an Acre 3'6" Rows

1-Row Planter.....	2.34 miles
2-Row Planter.....	1.17 miles
4-Row Planter.....	0.58 miles

Acres Planted in Traveling One Mile 3'6" Rows

1-Row Planter.....	0.42 acre
2-Row Planter.....	0.84 acre
4-Row Planter.....	1.68 acres

• There are 10,677 stalks in an acre planted in 3'6" rows, 3 stalks to the hill, hills 3'6" apart, or drilled 1 stalk every 14 inches.

• There are 3,556 hills in an acre planted in 3'6" rows, hills 3'6" apart.

Miles Traveled in Plowing an Acre

Width of Furrow	Miles
10 inches.....	9 9/10
11 inches.....	9
12 inches.....	8 ¼
13 inches.....	7 ½

Hundred Weight-Bushel Conversion

Pounds	Bushels*	Pounds	Bushels*
500	8.92	7,100	126.78
1,000	17.85	7,200	128.57
1,500	26.78	7,300	130.35
2,000	35.71	7,400	132.14
2,500	44.64	7,500	133.92
3,000	53.57	7,600	135.71
3,500	62.50	7,700	137.50
4,000	71.42	7,800	139.28
4,500	80.35	7,900	141.07
5,000	89.28	8,000	142.85
5,100	91.07	8,100	144.64
5,200	92.85	8,200	146.42
5,300	94.64	8,300	148.21
5,400	96.42	8,400	150.00
5,500	98.21	8,500	151.78
5,600	100.00	8,600	153.57
5,700	101.78	8,700	155.35
5,800	103.57	8,800	157.14
5,900	105.35	8,900	158.92
6,000	107.14	9,000	160.71
6,100	108.92	9,100	162.50
6,200	110.71	9,200	164.28
6,300	112.50	9,300	166.07
6,400	114.28	9,400	167.85
6,500	116.07	9,500	169.64
6,600	117.85	9,600	171.42
6,700	119.64	9,700	173.21
6,800	121.42	9,800	175.00
6,900	123.21	9,900	176.78
7,000	125.00	10,000	178.57

*Based on 56 lb. bushel

Estimating Weights of Dairy Cows from Heart-Girth Measurements

Heart-girth	Weight	Heart-girth	Weight
28½	92	33	128
29	95	33½	133
29½	98	34	138
30	101	34½	143
30½	104	35	148
31	108	35½	153
31½	113	36	158
32	118	36½	163
32½	123	37	168

Fluid Ounces	
(fl. oz.).....	30..... Milliliters (ml.)
Cups (c.).....	0.24..... Liters (l.)
Pints (pt.).....	0.47..... Liters (l.)
Quarts (qt.).....	0.95..... Liters (l.)
Gallons (gal.).....	3.8..... Liters (l.)

BUSHEL WEIGHTS OF COMMON WEST VIRGINIA COMMODITIES (In Pounds)

Grains

Barley	48	Tomatoes	56
Corn (ear)	72	Turnips.....	55
Corn (shelled).....	56		
Oats.....	32	<u>Grasses</u>	
Rye	56	Bluegrass.....	14
Sorghum	57	Bluegrass,	
Soybean	58	English.....	22
Wheat	60	Clover Seed.....	60
		Herds Grass	45
		Hungarian Grass	50
		Orchard Grass.....	14

Fruits & Vegetables

Apple Seed	40	Redtop	
Apples.....	44	(unhulled).....	14
Beans		Timothy	45
(dried, shelled)	60		
Beans, Castor.....	46	<u>Miscellaneous</u>	
Beans		Alfalfa.....	60
(unshelled).....	38	Bran.....	20
Beans		Buckwheat.....	48
(stringed)	24	Canary Seed.....	60
Beans (lima)	56	Cement.....	100
Beans,		Charcoal	20
Scarlet Pole	50	Chestnuts	50
Beets	56	Coal (contents for	
Blackberries.....	48	80 lbs.)	80
Blueberries	42	Cornmeal.....	48
Cabbage.....	50	Cottonseed	32
Carrots.....	50	Flaxseed	56
Cucumbers	50	Gooseberris	40
Onions	55	Hickory Nuts	50
Onions		Hominy	60
(bottom sets).....	32	Horseradish	50
Onions		Huckleberries.....	52
(top sets).....	28	Millet	50
Peaches.....	44	Millet (Japan).....	35
Pears	50	Oats	32
Peas (dry).....	60	Osage Orange	
Peas		Seed	33
(green shelled).....	50	Parsnips.....	42
Potatoes (Irish).....	60	Peanuts	23
Potatoes (sweet).....	50	Quinces	48
Spinach.....	15	Rape Seed.....	50
Strawberries	42	Rye	56
		Walnuts.....	50

14 inches	7
15 inches	6½
16 inches	6⅙

Recommended Garden Planting Distances*

Plant	Distance between plants in inches
Beans, bush Lima	6-8
Beans, bush Snap	3-4
Beans, pole Snap	6-8
Beets	2-3
Carrots.....	1-2
Chard.....	8-12
Cucumbers	10-12
Kohlrabi	3-6
Lettuce, leaf	3-4
Muskmelons	10-12
Onions	2-4
Parsnips.....	3-6
Peas	1-2
Pumpkin.....	15-18
Radishes.....	1-1½
Rutabagas	6-8
Spinach.....	2-3
Squash	15-18
Sweet Corn.....	10-12
Turnips.....	3-4
Watermelon	24-36

Varies in locations*

Time Needed For Garden Seeds To Germinate*

Seed	Days
Bean	5-15
Beet	4-10
Cabbage.....	4-10
Carrot.....	6-10
Cauliflower.....	5-10
Celery	10-20
Corn.....	4-12
Lettuce.....	2-8
Onion	4-7
Pea	6-10
Parsnip	5-20
Pepper.....	9-25
Radish	3-6
Tomato.....	6-14
Turnip	2-5

*Planted in shallow depth

MISCELLANEOUS EQUIVALENTS

1 pint.....1 pound (approx.) of water, wheat, butter, sugar, or blackberries
 196 pounds of flour..... 1 barrel
 200 pounds of beef or pork..... 1 barrel
 165 pounds of potatoes..... 1 barrel
 135 pounds of apples..... 1 barrel
 280 pounds of salt..... 1 barrel
 1 barrel of fish..... 200 pounds
 1 gallon of water..... about 8½ pounds
 1 gallon of milk..... about 8.6 pounds
 1 gallon of cream..... about 8.4 pounds
 46½ quarts of milk..... 100 pounds
 1 cubic foot of water..... 62½ pounds and contains 7½ gallons
 1 gallon of kerosene..... about 6½ pounds
 1 barrel of cement.....3.8 cubic foot
 1 barrel of oil.....42 gallons
 1 barrel of dry commodities.....7,065 cubic inches **or** 105 dry quarts
 1 standard bale of cotton..... 480 pounds
 1 keg of nails..... 100 pounds
 1 keg of powder..... 25 pounds
 1 stone **or** lead of iron..... 14 pounds
 1 pig of lead **or** iron......21½ stones
 1 cubic foot of Anthracite broken coal.....
 about 54 pounds
 1 cubic foot Bituminous broken coal.....
 about 49 pounds
 1 ton of loose Anthracite....40-43 cubic feet
 1 ton of loose Bituminous..40-48 cubic feet
 1 horsepower..... 33,000 pounds,
 1 foot per minute
 ½ inch.....one size in measuring shoes
 4 inches..... 1 hand in measuring horses
 9 inches..... 1 span
 6 feet..... 1 fathom
 6,080 feet..... 1 nautical mile
 1 board foot..... 144 cubic inches
 1 cylindrical foot......5½ gallons
 1 cubic foot.....0.8 bushel
 12 dozen..... 1 gross

CAN SIZES

Size	Product	Cups	Servings (approx.)
No. 2	Fruits, vegetables & juices	2½	4-6
No. 2½	Fruits & vegetables	3½	6-8
46 ounces	Juices	5¾	6-8
No. 10	Fruits, vegetables & juices	13	18-25

Capacity

Liter..... 61.0250 Cubic Inches
 Liter.....0.0353 Cubic Foot
 Liter..... 0.2652 Gallon (U.S.)
 Liter.....0.0284 Bushel (U.S.)
 Cubic Inch..... 0.0164 Liter
 Cubic Foot..... 28.3162 Liters
 Gallon..... 3.7853 Liters
 Bushel..... 35.2383 Liters

Weight

Gram.....15.4324 Grains
 Gram.....0.0353 Ounces
 Kilogram..... 2.2046 Pounds
 Kilogram.....0.0011 Tons
 Ton (met.)..... 1.1023 Tons
 Ton (met.)..... 0.9842 Ton (large)
 Grain..... 0.0648 Grams
 Ounce..... 28.3495 Grams
 Pound..... 0.4536 Kilograms
 Ton..... 907.1848 Kilograms
 Ton.....0.9072 (met.)
 Ton (large)..... 1.0160 Tons (met.)

METRIC CONVERSION CHART - Approximations -

Length

When You Know: _____ Multiply By: _____ To Find: _____
 Inches (in.)..... 2.54.... Centimeters (cm.)
 Feet (ft.)..... 30..... Centimeters (cm.)
 Yards (yd.)..... 0.9.....Meters (m.)
 Miles (mi.)..... 1.6..... Kilometers (km.)
 Millimeters (mm.).... 0.04..... Inches (in.)
 Centimeters (cm.)... 0.4..... Inches (in.)
 Meters (m.)..... 3.3..... Feet (ft.)
 Meters (m.)..... 1.1..... Yards (yd.)
 Kilometers (km.) .. 0.6..... Miles (mi.)

Weight

Ounces (oz.)..... 18..... Grams (g.)
 Pounds (lb.)..... 0.45..... Kilograms (kg.)
 Short Tons
 (2,000 lb.)..... 0.9..... Tonnes (t.)
 Grams (g.)..... 0.035..... Ounces (oz.)
 Kilograms (kg.) 2.2.....Pounds (lb.)

Liquid Measure

Milliliters (ml.)..... 0.03.. Fluid Ounces (fl. oz.)
 Liters (l.)..... 2.1.....Pints (pt.)
 Liters (l.)..... 1.06..... Quarts (qt.)
 Liters (l.)..... 0.26..... Gallons (gal.)
 Teaspoon (tsp.).... 5..... Milliliters (ml.)
 Tablespoon (tbsp.).. 16..... Milliliters (ml.)

Metric Multiples

Prefix	Factor	Symbol
Mega.....	1,000,000	M
Kilo	1,000	k
Hecto	100	h
Deca	10	da
The Unit.....	1	m, g, l, s, or A
Deci	0.1	d
Centi	0.01	c
Milli	0.001	m
Micro.....	0.000001	u

Length

Centimeter.....	0.3937 Inches
Meter	3.2808 Feet
Meter	1.0936 Yards
Kilometer	0.6214 Miles
Inch	2.5400 Centimeters
Foot	0.3048 Meters
Yard	0.9144 Meters
Mile	1.6093 Kilometers
Rod	5.029 Meters

Area

Square Centimeter	0.1550 Square Inches
Square Meter.....	10.7639 Square Feet
Square Meter.....	1.1960 Square Yards
Hectare	2.4710 Acres
Square Kilometer.....	0.3861 Square Miles
Square Inch	6.4516 Square Centimeters
Square Foot.....	0.0929 Square Meters
Square Yard.....	0.8361 Square Meters
Acre	0.4047 Hectares
Square Mile	2.5900 Square Kilometers

Volume

Cubic Centimeter.....	0.0610 Cubic Inches
Cubic Meter	35.3145 Cubic Foot
Cubic Meter	1.3079 Cubic Yard
Cubic Inch.....	16.3872 Cubic Centimeter
Cubic Foot	0.0283 Cubic Meter
Cubic Yard	0.7646 Cubic Meter

Temperature

°C	°F
100.....	212
90	194
80	176
70	158
60	140
50	122
40	104
37	96.6
30	86
20	68
10	50
5	41
0	32
-5	23
-10	14
-20	-4
-30	-22
-40	-40

NAILS

Size	Length Inches	Wire Gage	Approx. No./ Lb.	Approx. Strength Pounds	
				Pull	Lateral
Common Nails				(1)	(2)
2d	1	15	847	Douglas Fir, Larch or Southern Pine	
3d	1¼	14	543		
4d	1½	12½	294		
5d	1¾	12½	254		
6d	2	11½	167	29	63
7d	2¼	11½	150		
8d	2½	10¼	101	34	78
9d	2¾	10¼	92		
10d	3	9	69	38	94
12d	3¼	9	63	38	94
16d	3½	8	49	42	107
20d	4	6	31	49	139
30d	4½	5	24	53	154
40d	5	4	18	58	176
50d	5½	3	14	63	202
60d	6	2	11	68	223
Spikes					
10d	3	6	32	49	139
12d	3¼	6	31	49	139
16d	3½	5	24	53	155
20d	4	4	19	58	176
30d	4½	3	14	63	202
40d	5	2	12	68	223
50d	5½	1	10	73	248
60d	6	1	9	73	248
5 16	7	5 16	6	80	289
3 8	8-12	3 8	5-3	96	380
Hardened Threaded Nails					
6d	2	12	190	80	69
8d	2½	11	117	90	82
10d	3	10	78	100	94
12d	3¼	10	73	100	94
16d	3½	9	57	110	107
20d	4	7	36	135	139
30d	4½	7	31	135	139
40d	5	7	27	135	139
50d	5½	7	23	135	139
60d	6	7	18	135	139

(1) Per inch penetration of point

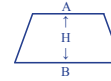
(2) For penetration of 11 diameters

BOARD MEASURES

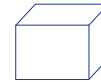
Size		Length in Feet							
		8	10	12	14	16	18	20	
Nom.	Actual								
	1x2	1 1/3	1 2/3	2	2 1/3	2 2/3	3	3 1/3	3 2/3
1x3	25/32x1 5/8	2	2 1/2	3	3 1/2	4	4 1/2	5	5 1/2
1x4	25/32x2 5/8	2 2/3	3 1/3	4	4 2/3	5 1/3	6	6 2/3	7 1/3
1x6	25/32x3 5/8	4	5	6	7	8	9	10	11 1/3
1x8	25/32x5 5/8	5 1/3	6 2/3	8	9 1/3	10 2/3	12	13 1/3	15 1/3
1x10	25/32x7 1/2	6 2/3	8 1/3	10	11 2/3	13 1/3	15	16 2/3	18 2/3
1x12	25/32x9 1/2	8	10	12	14	16	18	20	22 2/3
1x14	25/32x11 1/2	9 1/3	11 2/3	14	16 2/3	18 2/3	21	23 1/3	26 2/3
1x16	25/32x13 1/2	10 2/3	13 1/3	16	18 2/3	21 1/3	24	26 2/3	30 2/3



Area of an Octagon
(8 equal sides)
Length of one side Squared x 4.838.



Area of a Trapezoid
 $\frac{(a + b)}{2} \times h$



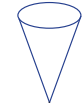
Volume of a Cube or Rectangular Box
Length x width x height.



Volume of a cylinder
Radius squared x 3.1416 x length
of cylinder.



Volume of a Sphere
Radius cubed x 4.1888.



Volume of a Cone or Pyramid
Area of base x 1/3 the height
(e.g. square or round hopper bottom).

Volume Conversion Factors

Cubic Foot x 0.8Bushels Grain
or Shelled Corn
Cubic Foot x 0.4 Bushels Ear Corn
Cubic Foot x 7.48 Gallons
Cubic Foot x 62.4Pounds Water
Gallons x 8.330.....Pounds Water
Gallons x 0.1337.....Cubic Feet
Cubic inches + 1,728.....Cubic Feet
Cubic Yard x 27Cubic Feet
Cubic Foot ÷ 27Cubic Yards

METRIC EQUIVALENTS

(Based on National Bureau of Standards)

The Six Basic Metric Units

Unit	Measures
Meter (M).....	Length
Kilogram (kg).....	Weight
Liter (L).....	Volume
Second (S).....	Time
Celsius (°C).....	Temperature
Ampere (A).....	Electricity

Water Requirements of Animals

Horse..... 7-10 gallons daily,
average about 8½ gallons.
Cow..... 6-10 gallons daily,
average about 8½ gallons.
Hog 2-3 gallons daily,
average about 2½ gallons.
Sheep 1-2 gallons daily,
average about 1½ gallons.
100 Chickens..... 40 pounds of water a day;
5½ gallons.

HANDY FORMULAS

- To find circumference of a circle when diameter is known, multiply diameter by 3.1416 (approx. 3½).
- To find diameter when circumference is known, divide circumference by 3.1416 or multiply by 0.3183.



Area of a Circle
Radius squared x 3.1416 or
diameter squared x 0.7854.



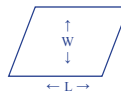
Area of a Rectangle or Square
Length x Width



Area of a Right Triangle
 $\frac{\text{Length} \times \text{Width}}{2}$



Area of Other Triangles
 $\frac{\text{Base} \times \text{height at right angle to base}}{2}$



Area of a Parallelogram
Length x Width



Area of a Pentagon
(5 equal sides)
Length of one side squared x 1.720.



Area of a Hexagon
(6 equal sides)
Length of one side squared x 2.598.

Size	Length in Feet								
	Board Feet								
	8	10	12	14	16	18	20		
Norm.									
Actual	2½	3½	4	4¾	5½	6	6¾	7½	8
1½x1½	2	3	4	5	6	7	8	9	10
1½x2½	4	6	8	10	12	14	16	18	20
1½x3½	5	7½	10	12½	15	17½	20	22½	25
1½x5½	8	12	16	20	24	28	32	36	40
1½x7½	10	15	20	25	30	35	40	45	50
1½x9½	12	18	24	30	36	42	48	54	60
1½x11½	14	21	28	35	42	49	56	63	70
1½x13½	16	24	32	40	48	56	64	72	80
1½x15½	18	27	36	45	54	63	72	81	90

BOARD MEASURES, cont.,

Size		Length in Feet							
		8	10	12	14	16	18	20	
Nom.	Actual	Board Feet							
3x3	2 5/8 x 2 5/8	6	7 1/2	9	10 1/2	12	13 1/2	15	
3x4	2 5/8 x 3 3/8	8	10	12	14	16	18	20	
3x6	2 5/8 x 5 5/8	12	15	18	21	24	27	30	
3x8	2 5/8 x 7 1/2	16	20	24	28	32	36	40	
3x10	2 5/8 x 9 1/2	20	25	30	35	40	45	50	
3x12	2 5/8 x 11 1/2	24	30	36	42	48	54	60	
3x14	2 5/8 x 13 1/2	28	35	42	49	56	63	70	
3x16	2 5/8 x 15 1/2	32	40	48	56	64	72	80	
4x4	3 5/8 x 3 5/8	10 2/3	13 1/3	16	18 2/3	21 1/3	24	26 2/3	
4x6	3 5/8 x 5 5/8	16	20	24	28	32	36	40	
4x8	3 5/8 x 7 1/2	21 1/3	26 2/3	32	37 1/3	42 2/3	48	53 1/3	
4x10	3 5/8 x 9 1/2	26 2/3	33 1/3	40	46 2/3	53 1/3	60	66 2/3	
4x12	3 5/8 x 11 1/2	32	40	48	56	64	72	80	
4x14	3 5/8 x 13 1/2	37 1/3	46 2/3	56	65 1/3	74 2/3	84	93 1/3	
4x16	3 5/8 x 15 1/2	42 2/3	53 1/3	64	74 2/3	85 1/3	96	106 2/3	

Table of Live & Dressed Weights For Hogs & Cattle

Dressing Percentages

Cattle	Percentage
Thin cattle (dairy cows).....	40-50
Barely warmed steers.....	50-55
Good conditioned steers.....	55-60
Prime cattle – long fed steers.....	60 up
Average for cattle	55

Hogs

(Chilled Carcass-Head Removed)

Extremely heavy	
butchers	280-350 lbs..... 71-73
Heavy	
butchers	230-280 lbs..... 69-71
Desirable	
butchers	190-230 lbs..... 68.5-70
Light	
butchers	170-190 lbs..... 67.5-68.5
Heavy packing	
sows	350-500 lbs..... 70.5-72
Medium packing	
sows	300-350 lbs..... 68.5-70.5
Light packing	
sows	under 300 lbs.... 67.5-69

Sheep

Wide range.....	40-65
Average lambs.....	48-52

Average Dressing 1,200 lb. Steer

Live weight.....	1,200 lbs.
Carcass	700 lbs. 58.3
Hide	75 lbs. 6.2
Head, feet,	
knees	45 lbs. 3.7
Oleo fat.....	80 lbs. 6.6
Liver.....	12 lbs. 1.0
Heart.....	3 lbs. 0.25
Lungs.....	20 lbs. 1.6
Tongue.....	5 lbs. 0.41
Cheek meat	5 lbs. 0.41
Rough tallow &	
entrails.....	84 lbs. 7.0
Liquid blood	46 lbs. 3.8
Paunch &	
contents.....	106 lbs. 8.8
Lips & weasand	
meat	4 lbs. 0.3
Tail, bung,	
casings.....	15 lbs. 1.2

99.57

Liquid Measure

- 2 Cups 1 Pint
- 4 Gills..... 1 Pint
- 16 Fluid Ounces 1 Pint
- 2 Pints..... 1 Quart
- 4 Quarts..... 1 Gallon
- 31½ Gallons 1 Barrel
- 2 Barrels 1 Hogshead
- 1 Gallon 231 Cubic Inches
- 1 Cubic Foot 7.48 Gallons
- 1 Teaspoon17 Fluid Ounces
($\frac{1}{6}$ ounce)
- 3 Teaspoons (level) 1 Tablespoon
($\frac{1}{2}$ ounce)
- 2 Tablespoons 1 Fluid Ounce
- 1 Cup (liquid) 16 Tablespoons
(8 ounce)
- 1 Teaspoon 5-6 Cubic Centimeters
- 1 Tablespoon 5-16 Cubic Centimeters
- 1 Fluid Ounce 29.57 Cubic Centimeters

Apothecaries' Weight

- 20 Grains 1 Scruple
- 3 Scruples..... 1 Dram
- 8 Drams 1 Ounce
- 12 Ounces 1 Pound
- 27 Grains 1Dram
- 16 Drams 1 Ounce
- 16 Ounces 1 Pound
- 2,000 Pounds 1 Ton (short)
- 2,240 Pounds 1 Ton (long)

DRESSED WEIGHTS OF SLAUGHTERED ANIMALS

- Cattle Percentage**
- Dairy Cows 40-50
 - Prime Cattle 60 up
 - Average for Cattle 55
- Hogs**
- Prime Heavy 82-84
 - Medium Butchers 78-80
 - Shipper Hogs 72-76
- Sheep**
- Wide Range 40-65
 - Average Lamb 48-52
- Chickens**
- Cocks 76
 - Hens 76
 - Pullets 74

Size		Length in Feet							
		8	10	12	14	16	18	20	
	Actual	Board Feet							
Nom.	Actual	24	30	36	42	48	54	60	
6x6	5½x5½	32	40	48	56	64	72	80	60
6x8	5½x7½	40	50	60	70	80	90	100	80
6x10	5½x9½	48	60	72	84	96	108	120	100
6x12	5½x11½	56	70	84	98	112	126	140	120
6x14	5½x13½	64	80	96	112	128	144	160	140
6x16	5½x15½								160
8x8	7½x7½	42½	53½	64	74½	85½	96	106½	
8x10	7½x9½	53½	66½	80	93½	106½	120	133½	
8x12	7½x11½	64	80	96	112	128	144	160	
8x14	7½x13½	74½	93½	112	130½	149½	168	186½	
8x16	7½x15½	85½	106½	128	149½	170½	192	213½	
10x10	9½x9½	66½	83½	100	116½	133½	150	166½	
10x12	9½x11½	80	100	120	140	160	180	200	
10x14	9½x13½	93½	116½	140	163½	186½	210	233½	
10x16	9½x15½	106½	133½	160	186½	213½	240	266½	

FREEZING POINTS, RECOMMENDED STORAGE CONDITIONS, & LENGTH OF STORAGE PERIOD OF VEGETABLES & FRUITS

Commodity	Freezing Point °F	Place to Store	Storage Conditions		Length of Storage Period
			Temperature °F	Humidity	
Vegetables:					
Dry beans and peas	30.4	Any cool, dry place.	32-40	Dry	As long as desired.
Late cabbage	30.4	Pit, trench, or outdoor cellar.	Near 32 as possible.	Moderately moist.	Through late fall & winter.
Cauliflower	30.3	Storage cellar.	Do	Do	6-8 weeks.
Late Celery	31.6	Pit or trench; roots in soil in storage cellar.	Do	Do	Through late fall & winter.
Endive	31.9	Roots in soil in storage cellar.	Do	Do	2-3 months.
Onions	30.6	Any cool, dry place.	Do	Dry	Through fall & winter.
Parsnips	30.4	Where they grew, or in storage cellar.	Do	Moist	Do
Peppers	30.7	Unheated basement or room.	45-50	Moderately moist.	2-3 weeks.
Potatoes	30.9	Pit or in storage cellar.	35-40	Do	Through fall & winter.

Cubic Measure

1,728 Cubic Inches.....1 Cubic Foot
 27 Cubic Feet 1 Cubic Yard
 144 Cubic Inches..... 1 Board Foot
 128 Cubic Feet 1 Cord

Weights and Volumes of Water

- One cubic inch of water weighs .03617 pounds.
- One cubic foot weighs 62.5 pounds.
- One cubic foot equals 7.48052 gallons.
- One pint (liquid) weighs 1.044375 pounds.
- One pint (liquid) weighs 1.044375 pounds.
- One gallon weighs 8.355 pounds.
- One liquid quart equals 57.75 cubic inches.

Circles and Globes

- To find the circumference of a circle, multiply the diameter by 3.1416.
- To find the area of a circle, multiply the square of the diameter by .7854.
- To find the surface of a globe, multiply the square of the diameter by 3.1416.
- To find the solidity of a globe, multiply the cube of the diameter by .5236.

STANDARD MEASURES

Measure of Length (linear measure)

4 Inches1 Hand
 9 Inches1 Span
 12 Inches1 Foot
 3 Feet1 Yard
 6 Feet1 Fathom
 5½ Yards - 16½ Feet..... 1 Rod **or** 11 Poles
 40 Poles..... 1 Furlong
 8 Furlongs.....1 Mile
 5,280 Feet - 1,760 Yards.....320 Rods **or**
 1 Mile
 3 Miles 1 League

Measure of Surface (area)

144 Square Inches 1 Square Foot
 9 Square Feet..... 1 Square Yard
 30¼ Square Yards..... 1 Square Rod
 40 Square Rods.....1 Rood
 4 Square Roods..... 1 Square Area
 160 Square Rods..... 1 Acre
 43,560 Square Feet 1 Acre
 640 Square Acres..... 1 Square Mile
 36 Square Miles..... 1 Township

Weights & Measures



COMMON MEASURES

Long Measure

12 Inches 1 Foot
 3 Feet 1 Yard
 5½ Yards 1 Rod
 320 Rods 1 Mile
 1 Mile 5,280 Feet
 1 Hand 4 Inches
 (Used in measuring horse height)

Square Measure

144 Square Inches 1 Square Foot
 9 Square Feet 1 Square Yard
 43,560 Square Feet 1 Acre
 30¼ Square Yards 1 Square Rod
 160 Square Rods 1 Acre
 640 Acres 1 Square Mile
 • An acre is equal to a square whose side is 208.71 feet.

Surveyor's Square Measure

10,000 Square Links 1 Square Chain
 10 Square Chains 1 Acre
 10 Chains Square 10 Acres

Surveyor's Linear Measure

7.92 Inches 1 Link
 100 Links 1 Chain
 80 Chains 1 Mile
 • Gunter's Chain is the unit and is 66 feet long.

Dry Measure

2 Pints 1 Quart
 8 Quarts 1 Peck
 4 Pecks 1 Bushel
 • 1 Bushel contains 2150.42 cubic inches or approximately 1¼ cubic feet.

Liquid Measure

4 Gills 1 Pint
 2 Pints 1 Quart
 4 Quarts 1 Gallon
 • 1 gallon contains 231 cubic inches
 • 1 cubic foot equals 7½ gallons

Commodity	Freezing Point °F	Place to Store	Storage Conditions		Length of Storage Period
			Temperature °F	Humidity	
Pumpkins and squashes	30.5	Home cellar or basement.	55	Moderately dry.	Do
Root crops (miscellaneous)	--- ----	Pit or in storage cellar.	Near 32 as possible.	Moist	Do
Sweet potatoes	29.7	Home cellar or basement.	55-60	Moderately dry.	Do
Tomatoes (mature green)	31.0	Do	55-70	Do	4-6 weeks.
Fruits: Apples	29.0	Fruit storage cellar.	Near 32 as possible.	Moderately moist.	Through fall & winter.
Grapefruit	29.8	Do	Do	Do	4-6 weeks.
Grapes	28.1	Do	Do	Do	1-2 months.
Oranges	30.5	Do	Do	Do	4-6 weeks.
Pears	29.2	Do	Do	Do	

Contact Information

Animal Health Division
Phone: 558-2214
Fax: 558-2231

Communications Division
Market Bulletin
Phone: 558-3708
Fax: 558-3131
marketbulletin@wvda.us

Executive Division
Phone: 558-3200
Fax: 558-2203
agriculture.wv.gov

Meat & Poultry Division
Phone: 558-2206
Fax: 558-1882

Plant Industries Division
Phone: 558-2212
Fax: 558-2435

Kent A Leonhardt, Commissioner

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