Cattle Producer's Library - CL 1280

CONVERSIONS FOR COMMONLY USED WEIGHTS AND MEASURES

Ron Torell, Northeast Area Livestock Specialist
University of Nevada, Reno
Bill Zollinger, Extension Beef Specialist
Oregon State University

Formulas for converting measurements:

The following formulas can be used to convert from one unit of measure to another. Additionally, there are several electronic conversion calculators available on the Internet. Simply use the key words "conversion calculator" on any search engine. (To make opposite conversions, divide by the number given instead of multiplying.)

LENGTH

To Change	To	Multiply By
inches	centimeters	2.538
inches	millimeters	25.400
centimeters	inches	0.394
meters	inches	39.370
feet	centimeters	30.480
feet	meters	0.305
feet	yards	3.000
yards	meters	0.914

meters	yards	1.094
miles	kilometers	1.609
kilometers	miles	0.621

AREA

To Change	To	Multiply By
square inches	square centimeters	6.452
square centimeters	square inches	0.155
square feet	square meters	0.093
square yards	square meters	0.836
square meters	square yards	1.196
square miles	square kilometers	2.590
square acres	square hectares	0.164

VOLUME

To Change	To	Multiply By
ounces (fluid)	cubic centimeters	29.573
cubic centimeters (cc)	ounces (fluid)	0.034
quarts	liters	0.946
liters	quarts	1.057
gallons	liters	3.785
cubic inches	cubic centimeters (cc)	16.387
cubic yards	cubic meters	0.765
cubic meters	cubic yards	1.308

OTHER WEIGHTS AND MEASURES

To Change	To	Multiply By
grains	milligrams	64.799
ounces (dry)	grams	28.349
pounds (dry)	grams	453.592
pounds (dry)	kilograms	0.453
kilograms	pounds	2.205
milligrams/pound	parts/million	2.205
parts/million	grams/ton	0.907
grams/ton	parts/million	1.100
milligrams/pound	grams/ton	2.000
grams/ton	milligrams/pound	0.500
grams/pound	grams/ton	2,000
grams/ton	grams/pound	0.0005
grams/ton	pounds/ton	0.0022
pounds/ton	grams/ton	453.592
grams/ton	percent	0.00011
percent	grams/ton	9,072
parts/million	percent	move decimal 4 places to left

II. Equivalent Weights and Measures

From time to time, stockmen and those who counsel with stockmen have need to refer to such weights and measures as follows:

Length Equivalents	
12 inches	1 foot
3 feet	1 yard
5 ½ yards or 16 ½ feet	1 rod
40 rods or 220 yards	1 furlong
5,280 feet	1 mile
1,760 yards	1 mile
320 rods	1 mile
8 furlongs	1 mile
3 miles	1 league
1 hand	4 inches (height of horses)
1 fathom	6.080 feet (used in measuring depth at sea)
1 nautical mile	1.151 land miles (equals distance at sea)
1 inch	2.540 centimeters
1 foot	0.305 meter
1 yard	0.914 meter
1 mile	1.609 kilometers
1 fathom	6 feet
1 knot	6,086 feet
3 knots	1 league
1 centimeter	0.394 inch
3.281 feet or 1.094 yards	1 meter
0.621 mile	1 kilometer
AREA EQUIVALENTS	
SQUARE OR SURFACE MEASURE	
144 square inches	1 square foot

9 square feet	1 square yard
272.25 square feet	1 square rod
30 ¼ square yards	1 square rod
43,560 square feet	1 acre
160 square rods	1 acre
1 rood	40 square rods
4 roods	1 acre
1 hector	2.258 acres
640 acres	1 square mile
1 square mile	1 section
36 sections	1 township
SURVEYOR'S OR CHAIN MEASURE	
7.920 inches	1 link
25 links	1 rod
100 links	1 chain
66 feet	1 chain
4 rods	1 chain
10 chains	1 furlong
80 chains	1 mile
43,560 square feet	1 acre
160 square rods	1 acre
10 square chains	1 acre
640 acres	1 square mile
36 square miles	1 township
CIRCULAR MEASURE	
60 seconds	1 minute
60 minutes	1 degree

60 minutes	1 degree
360 degrees	1 circumference
57.296 degrees	1 radian

VOLUME EQUIVALENTS

DRY MEASURE	
2 pints	1 quart or 67.2 cubic inches
8 quarts (4 gallons)	1 peck
4 pecks	1 bushel
1 bushel	2,150.420 cubic inches or 1.244 cubic feet
36 bushels	1 chaldron
SOLID OR CUBIC MEASURE	
1,728 cubic inches	1 cubic foot
46,656 cubic inches or 27 cubic feet	1 cubic yard
24 ¾ cubic feet	1 perch (stone)
128 cubic feet (or 8 ft. x 4 ft. x 4 ft)	1 cord (wood)
144 cubic inches (or 1 ft. x 1 ft. x 1 in.)	1 board foot
231 cubic inches (liquid)	1 standard gallon (liquid)
2150.42 cubic inches	1 standard bushel
1 cubic foot	4/5 of a bushel

OTHER WEIGHTS AND MEASURES	
AVOIRDUPOIS WEIGHT	
27 11/22 grains	1 dram
16 drams	1 ounce or 437.5 grains
16 ounces	1 pound
2,000 pounds	1 short ton
2,240 pounds	1 long ton (or 1 British ton)

LIQUID MEASURE	
4 gills	1 pint
2 pints	1 quart
4 quarts	1 gallon
31 ½ gallons	1 barrel
2 barrels	1 hogshead
7.48 gallons of water	1 cubic foot
1 U.S. gallon	231 cubic inches
1 gallon of milk	8.6 pounds approximately
1 teaspoon	1/6 ounce
1 tablespoon	½ ounce
16 fluid ounces	1 pint
1 ounce	29.57 cc
1 cc	1 ml
1 cc	.034 ounces
HOUSEHOLD MEASURE	
60 drops	1 teaspoon or 1/6 ounce
2 teaspoons	1 dessert spoon
3 teaspoons	1 tablespoon or ½ ounce
16 tablespoons	1 cup
2 gills	1 cup
2 cups	1 pint or 16 fluid ounces

III. Temperature conversions: TEMPERATURE

To Change	To	Formula
Fahrenheit	Celsius	(° F -32) x 0.555
Celsius	Fahrenheit	(° C x 1.8) +32

One centigrade © degree is 1/100 the difference between the temperature of melting ice and that of water boiling at standard atmospheric pressure. **One centigrade degree equals 1.8 degrees F.**

One Fahrenheit (F) degree is 1/180 the difference between the temperature of melting ice and that of water boiling at standard atmospheric pressure. **One Fahrenheit degree equals 0.556 degrees C.**

IV. Content Equivalents:

A rule of thumb that is most useful is: *to convert ppm to percentage, move the decimal point 4 places to the left. And, to convert percentage to ppm move the decimal point 4 places to the right.* Using this rule of thumb it is easy to see that 124 ppm is the same as 0.0124% and that 0.5% is the same as 5,000 ppm.

Determining Percentage Equivalent of 1 ppm.		Degrees centigrade	Degrees Fahrenheit	Multiply by 1.8 and add 32
a. 1 ppm = 1 mg/kg = 1 mg/1,000,000 mg.				
b. 1 divided by 1,000,000 = 0.000001.				
c. Convert to % by multiplying by 100.				
d. 0.000001 x 100 = 0.0001%				
e. Therefore, 1 ppm is the same as 0.0001%				
Relationship Between PPM and Percentage				
PPM	Percentages			
0.001 ppm = 1 pph	0.0000001%			
.01 ppm = 10 pph	0.000001%			
.1 ppm = 100 pph	0.00001%			
1 ppm	0.0001%			
10 ppm	0.001%			
100 ppm	0.01%			
1,000 ppm	0.1%			

10,000 ppm	1.0%
1 ppm = 1 mg/liter	1 ounce of sand in 31 ¼ tons of cement is 1 ppm
1 ppm = 1 microgram/ml	A book 1/16 inch is 1 ppm of a stack 1 mile high
1 ppm = .0001%	1 minute is 1 ppm of 1.9 years

V. Determining tank capacity: <u>Average Daily Water Consumption</u>

1. Swine, horses and poultry consume about ¼ gallon (2 to 3 pounds) of water per pound of dry feed eaten.

2. Cattle and sheep drink ½ gallon (3 to 4 pounds) of water to each pound of dry matter eaten.

Stock Tank Capacities Height: 2 feet				
Circular Type		Round-End Type		
Dia. (Ft.)	Cap. (Gal)	Width (Ft.)	Length (Ft.)	Cap. (Gal.)
3	100	2	4	95
3 ½	140	2	5	120
4	185	2	6	140
4 ½	235	2	7	185
5	290	2	8	195
5 ½	350	2	10	250
6	420	3	5	175
6 ½	495	3	6	220
7	570	3	7	260
7 ½	660	3	8	300
8	750	3	10	385
9	950	3	12	475
10	1170	3	14	560

VI. Animal units of different classes and ages of livestock.

Type of Livestock	**Animal Units**
Cattle:	
Cow, with or without unweaned calf at side, or heifer 2 years old or older	1.0
Bull, 2 years old or older	1.3
Young cattle, 1 to 2 years old	0.8
Weaned calves to yearlings	0.6
Horses:	
Horse, mature	1.3
Horse, yearling	1.0
Weaning colt or filly	0.75
Sheep:	
5 mature ewes, with or without unweaned lambs at side	1.0
5 rams, 2 years old or older	1.3
5 yearlings	0.8
5 weaned lambs to yearlings	0.6
Swine:	
Sow	0.4
Boar	0.5
Pigs to 200 lb. (91 kg)	0.2
Chickens:	
75 layers or breeders	1.0
325 replacement pullets to 6 months of age	1.0
650 8-week-old broilers	1.0
Turkeys:	
35 breeders	1.0
40 [illegible]	1.0

40 turkeys raised to maturity	1.0
75 turkeys to 6 months of age	1.0

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