

## Appendix A

Table A.1. Conversion Factors for Weights and Measures: Proportions.

Proportions	
Metric	U.S.
100 g/ha	1.4 oz/acre
1 kg/ha	0.9 lb/acre
1 ton(metric)/ha	0.446 tons (U.S.)/acre
1 l/ha	0.4 qt/acre
1 kg/1000 l	1 lb/100 gal
g/1000 kg	1 ppm
1 km/hr	0.6 mph
U.S.	Metric
1 oz/acre	70g/ha
1 lb/acre	1.12 kg/ha
1 ton (U.S.)/acre	2.24 tons (metric)/ha
1 fl. oz/acre	73 ml/ha
1 gal/acre	9.39 l/ha
1 lb/100 gal	1 kg/1000 l
1 ppm	1 g/1000 kg
1 mph	1.6 km/hr

Table A.2. Conversion Factors for Weights and Measures: Temperatures.

Temperatures	
Celsius (Centigrade)	Fahrenheit
-30	-22
-20	-4
-10	14
0	32
10	50
20	68
30	86
40	104
Fahrenheit	Celsius (Centigrade)
0	-18
10	-12
20	-7
30	-1
40	4
50	10
60	16
70	21
80	27
90	32

*To convert Celsius to Fahrenheit—multiply by 9/5 (1.8), then add 32.*

*To convert Fahrenheit to Celsius—subtract 32, then multiply by 5/9 (0.56)*

Table A.3. Conversion Factors for Weights and Measures: Equivalents.

Common Equivalents		
	Metric	U.S.
<b>Length</b>	1 millimeter	0.039 in.
	1 centimeter (10 mm)	0.39 in.
	1 meter (100 cm)	39.4 in.
	1 kilometer (1,000 m)	0.62 mi.
<b>Area</b>	1 square centimeter	0.155 sq. in.
	1 square meter	1.2 sq. yd.
	1 hectare (10,000 sq m)	2.47 acres
	1 sq. kilometer (100 ha)	247 acres
<b>Weight</b>	1 gram	0.035 ounces
	1 kilogram (1,000 g)	2.2 pounds
	1 ton (metric) (1,000 kg)	1.1 tons (U.S.)
<b>Volume</b>	1 milliliter	0.034 fluid oz.
	1 liter (1,000 ml)	1.056 quarts
	1 cubic meter (1,000 l)	264.17 gal. (U.S.)
	U.S.	Metric
<b>Length</b>	1 inch	2.54 centimeters
	1 foot (12 in.)	30.5 centimeters
	1 yard (3 ft.)	0.91 meters
	1 mile (5,280 ft.)	1.6 kilometers
<b>Area</b>	1 square inch	6.5 square centimeters
	1 square foot (1.44 sq. in.)	930 square centimeters
	1 square yard (9 sq. ft.)	0.84 square meters
	1 acre (43,560 sq. ft.)	0.405 hectares
	1 square mile (640 acres)	259 hectares
<b>Weight</b>	1 ounce	28.3 grams
	1 pound (16 oz.)	0.454 kilograms
	1 ton (U.S.) (2,000 lb.)	0.907 tons (metric)
<b>Volume</b>	1 tablespoon (3 teaspoons)	14.79 milliliters
	1 fluid ounce (2 tablespoons)	29.6 milliliters
	1 cup (8 fl. oz.)	0.237 liters
	1 pint (2 cups)	0.473 liters
	1 quart (4 cups)	0.946 liters
	1 gallon (us) (4 qts)	3.8 liters
	1 cubic foot	28.3 liters

Metric Abbreviations: mm—millimeter; cm—centimeter; m—meter; km—kilometer; ha—hectare; mg—milligram; g—gram; kg—kilogram; ml—milliliter; l—liter.

**Table A.4. Oral, Dermal, and Inhalation Toxicity Ratings of Pesticides.<sup>1</sup>**

Toxicity Rating	Label Signal Words	Oral LD <sub>50</sub> (mg/kg)	Dermal LD <sub>50</sub> (mg/kg)	Lethal Oral Dose, 150-pound Man
High	Danger-Poison	0-50	0-200	few drops to teaspoon
Moderate	Warning	50-500	200-2,000	1 teaspoon to 1 ounce (2 tablespoons)
Low	Caution	500-5,000	2,000-20,000	1 ounce to 1 pint, or 2 pounds
Very Low	Caution	5,000+	20,000+	1 pint or more, or 2 pounds or more

<sup>1</sup> Note that values in these categories indicate LETHAL (deadly) doses; much lower doses may cause severe injury or chronic health effects.

**Table A.5. Soybean Pesticides—Toxicity.**

Product	Oral LD <sub>50</sub>	Dermal LD <sub>50</sub>	Bee Toxicity
<b>Fungicides</b>			
Bravo WeatherStik (chlorothalonil)	9,000	>2,000	>181 ug/bee
Bumper (propiconazole)	>2,000	>5,000	not available
Domark (tetraconazole)	>5,000	>2,000	not available
Echo 720 (chlorothalonil)	3,260	>2,020	not available
Folicur (tebuconazole)	3,776	2,011	not available
Headline (pyraclostrobin)	>500	>4,000	>100 ug/bee
Laredo EC (mycobutanil)	2,800	>5,000	>362 ug/bee
Propimax EC (propiconazole)	not determined	not determined	not available
Quadris (azoxystrobin)	>5,000	>4,000	>200 ug/bee
Quilt (azoxystrobin + propiconazole)			>200 ug/bee >25 ug/bee
Stratego (propinonazole + trifloxystrobin)	4,757	5,050	not available
Tilt (propiconazole)	1,310	>5,000	>25 ug/bee
<b>Insecticides</b>			
Asana (esfenvalerate)	458	>2,000	highly toxic
Dimethoate (dimethoate)	571	>2,020	highly toxic
Lorsban (chlorpyrifos)	>5,000	776	highly toxic
Mustang (zeta-cypermethrin)	234	>2,000	highly toxic
Warrior (lambda-cyhalothrin)	350	>2,000	0.038 ug/bee

**Table A.6. Azoxystrobin Toxicity to Apples.**

**Warning: Azoxystrobin Phytotoxic to Certain Apple Varieties.** Field and laboratory tests have shown that azoxystrobin is extremely toxic to certain apple varieties, mainly Macintosh apples and Macintosh-derived varieties. To date, the phytotoxic symptoms include necrosis, leaf drop, and fruit drop. Incidents have been reported on both grapes and apples in the past. Specific apple varieties that have had problems include:

Akane	Discovery	McCoun	Stark Gala
Asahi	Gala	Macintosh	Starkpur Mac
Bramley	Galaxy	Molly Delicious	Summared
Courtland	Grimes Imperial	Mondial Gala	Warabi
Cox's Orange	Kent	Ontario	Worcester
Pippin	Kizashi	Queen Cox	Pearmain
Cox	Lurared	Royal Gala	
Celbarestival		Spartan	

The most practical means of describing the droplet sizes produced by a nozzle is to categorize the droplet sizes using the entire droplet size spectrum, not just the VMD or the percentage of volume in small droplets. The classification system used in the American Society of Agricultural Engineers (ASAE) standard S-572: Spray Nozzle Classification by Droplet Spectra is an example. This classification system has six categories: very fine (VF), fine (F), medium (M), coarse (C), very coarse (VC), and extra coarse (XC). Using these categories, a nozzle and operating pressure can be selected that produce a specific droplet size spectrum. The droplet size spectrum required for a job is based on the type of pesticide being applied and is often stated on the label. Table A.6 shows the six droplet spectrum categories and their VMD ranges. Keep in mind that even though a VMD range is given for each category, the classification is based on the entire droplet spectrum produced by a nozzle, not just the VMD. The VMD is given for reference.

**Table A.7. ASAE Droplet Spectrum Classification Categories, Symbols, and VMD Range.**

ASAE Standard S-572 Droplet Spectrum Category	Symbol	VMD (µm)
Very fine	(VF)	< 150
Fine	(F)	150-250
Medium	(M)	250-350
Coarse	(C)	350-450
Very coarse	(VC)	450-550
Extremely coarse	(XC)	>550