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PGR Dilution Guide

A critical factor for effective use of plant growth regulators (PGRs) is that the solution is mixed in the appropriate proportion. Dilution mistakes, which are not uncommon, result in a lack of a plant response (from too little PGR) or an excessive response (too much PGR). Most of the product labels contain dilution charts but a few do not. Tables 1 and 2 provide the dilutions required to mix the desired parts per million (ppm) of active ingredient of common plant growth regulators used in the commercial production of ornamental crops.

These tables are in the format of the number of milliliters (mL) per gallon (gal) of solution. Below are some examples of how to make specific solutions using the tables.

1. Goal: Make a 5-ppm solution of Sumagic in a 50-gallon tank:

38 mL/gal × 50 gal = 1900 mL/50 gal

= 1.9 liters Sumagic per 50 gallons water

2. Goal: Make a 3,500-ppm solution of Dazide in a 100-gallon tank

This direct dilution is not in the chart, but it can be computed easily by choosing the value for a 1,000 ppm (4.5 mL/gal) and multiplying it by 3.5:

3.5 × 4.5 mL/gal × 100 gal = 1575 mL/100 gal

= 1.575 liters Dazide per 100 gallons water

The product labels contain the legal mixing directions as well as other helpful application guidance and information. To make the solutions, always start by partially filling the tank with water, then add the calculated amount of the plant growth regulator, and finish by filling the tank to the desired total volume. Only mix the amount of PGR solution that is to be used that day; storing PGR solutions is not recommended.

PGR dilutions can also be calculated using the PGRCALC tool that is available online free at http://extension.unh.edu/Agric/AGGHFL/Plantgrowthregulatorcalculator.cfm. This tool was developed by the University of New Hampshire and North Carolina State University and allows a user to specify more detailed information than what simple charts can provide.

Table 1. Dilution guide for PGRs that are typically used at low concentrations of active ingredient.

Active ingredient	Ancymidol	Gibberellic acid (GA) 3	GA 4+7 + benzyl-adenine (BA)	Flurprimidol	Paclobutrazol		Uniconazole
Product example	Abide A-Rest	Florgib 4L ProGibbT&O	Fascination Fresco	Topflor	Bonzi Paczol Piccolo	Piccolo 10XC	Concise Sumagic
PPM	mL/gal	mL/gal	mL/gal	mL/gal	mL/gal	mL/gal	mL/gal
0.5	7			0.5	0.5	0.05	3.8
1	14	0.1	0.2	1	1	0.1	7.6
2.5	36	0.3	0.5	2.4	2.5	0.25	19
5	72	0.6	1.1	4.8	5	0.5	38
10	143	1.2	2.1	9.6	10	1	76
25	359	3.0	5.3	23.9	25	2.5	189
50	717	5.9	10.5	47.8	50	5	379

Table 2. Dilution guide for PGRs that are typically used at relatively high concentrations of active ingredient.

Active ingredient	Benzyl-adenine (BA)	Chlormequat chloride	Daminozide	Dikegulac-sodium	Ethephon	
Product example	Configure	Citadel Cycocel	B-Nine Dazide	Augeo	Collate	Florel
PPM	mL/gal	mL/gal	mL/gal	mL/gal	mL/gal	mL/gal
50	9				0.8	4.7
100	18				1.6	9.5
250	45	8		4.5	3.9	23.7
500	90	16		9.1	7.9	47
750	135	24	3.4	13.7	11.8	71
1,000	180	32	4.5	18.2	15.8	95
2,500	450		11.1	35.5		
5,000			22.3			

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