

Supplement to Rose Exhibitors' Forum

2014 Rose Exhibitor Chemical Guide

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The information set forth in this guide is summarized from information contained in the manufacturer's label. It is intended for planning purposes and to assist as a reminder of the recommended rates of application. Manufacturers often formulate products with the same chemicals at different concentrations so the rates indicated apply only to the concentration indicated. The information in the label may also change and only the label can provide current and accurate information on the product's usage. It is a violation of Federal law to use any of these products in a manner inconsistent with its labeling.

You can find the labels and MSDS for information online at:
<http://www.cdms.net/manuf/manuf.asp> Products listed in this guide are not registered for use in all states and residents of states known to restrict the use of common garden chemicals should make necessary inquiry.

The chemicals selected and comments on effectiveness are based on a survey of 58 national level rose exhibitors conducted in April 2014 by the American Rose Society Quarterly Publication, *Rose Exhibitors' Forum*. Usage of chemicals by exhibitors and evaluations of effectiveness varied by geographical region and are influenced by the specific microclimate of each exhibitor. Your results may also vary.

The American Rose Society does not endorse any product mentioned in this Guide, except for those bearing the American Rose Society Endorsement Seal.

A factor in evaluating the effectiveness of a pesticide is resistance. In many cases pests can build up a resistance to a pesticide over time and with repeated use. In response, experienced rose exhibitors often seek to rotate treatment among chemical classes, especially classes with different modes of action. In most cases below the chemical class of a pesticide is identified as for example by the reference to Banner Maxx as a "triazole" fungicide.

Indicate 5:

The effectiveness of many fungicides, insecticides and miticides is optimized at a pH of 4.5 to 5.5 and by using a spreader/sticker to assure good coverage. Of exhibitors surveyed, 64% use Indicate 5 for this purpose, an adjuvant manufactured by Brandt Consolidated that contains a built in pH indicator, turning the spray water pink as soon as the optimum level of 4.5-5.5 is reached. Indicate 5 also acts as a wetting, spreading and penetrating agent resulting in an even film of spray over the leaf and better pesticide performance.

READ ALL DIRECTIONS FOR USE ON THE LABEL BEFORE APPLYING

Signal Words:

Any product intended for preventing or destroying a pest is considered under Federal law to be a “pesticide”. The term “pest” includes insects, mites and fungus diseases that affect roses. All pesticides are considered “toxic” and are required to bear labels with a “signal word” that states their relative toxicity. These signal words are:

“**DANGER**” – Highly toxic (The signal word “DANGER” without the skull and crossbones “Poison” warning means that the toxicity rating is based on eye and skin irritation). Pesticides with the signal word “DANGER” are considered to be in “Category I” of the toxicity rating system.

“**WARNING**” – Moderately toxic Pesticides with the signal word “WARNING” are considered to be in “Category II” of the toxicity rating system.

“**CAUTION**” – Slightly toxic. There are two categories of pesticides with the signal word “CAUTION”, Category IV is less toxic than Category III and the least toxic of the four categories. Most often the label does not differentiate between Category III and IV.

The word “OMRI” refers to the Organic Materials Review Institute, which provides an independent review of products intended for use in certified organic production. Acceptable products are OMRI Listed® and appear on the OMRI Products List.

CAUTION SHOULD ALWAYS BE USED WHEN HANDLING ANY PESTICIDE.

Common Abbreviations:

ai-active ingredient ; DF-dry flowable; E/EC-emulsifiable concentrate; F/FL-flowable; G-granule ; L – liquid; SC – suspension concentrate; WP-wettable powder; WSP – water soluble powder

Fungicides:

Note: Fungicides intended for the control of diseases of roses must generally be applied on a preventive basis prior to the appearance of the disease. Unless otherwise stated the fungicides listed below do not have eradicated effects on existing disease.

Agri-Fos (45.8% di-potassium salts of phosphorous acid) – A systemic fungicide for effective control of downy mildew, phytophthora and pythium. Works both as a curative and preventative treatment. **CAUTION. Mix 2½-5 teaspoons per gallon.**

Aliette WDG (80% Aluminum tris) – Aluminum based systemic organic phosphate fungicide for effective control of downy mildew. **CAUTION. Mix 1 Tablespoon per gallon.** (Do not mix with any sticker, extender or wetting agent.)

Banner Maxx (14.3% Propiconazole) – Multipurpose triazole fungicide for effective control of black spot and powdery mildew. Also effective for rust. **WARNING. Mix 1/3 to 2/3 teaspoon per gallon.**

Bayer's Advanced Disease Control (2.9% Tebuconazole) – A systemic triazole fungicide for control of black spot, powdery mildew and rust. **CAUTION. Mix 1 1/2 Tablespoon per gallon.**

Cleary's 3336-F (46% Thiophanate-Methyl) – Broad-spectrum benzimidazole fungicide exhibiting preventative, curative, and systemic properties for control of anthracnose, black spot, botrytis and powdery mildew. **CAUTION. Mix 1/2 to 1 teaspoon per gallon.**

Compass O – (50% Trifloxystrobin) Mesosystemic and contact broad spectrum strobilurin fungicide with protective and curative activity for effective control of blackspot, powdery mildew and rust. Also for control of botrytis and downy mildew. Strobilurin chemistry is derived from a fungus that has a suppressive effect on other fungus. Found to be most effective when used in rotation with other fungicide classes. **CAUTION. Mix 1/4 to 1/2 teaspoon per gallon.**

Daconil Ultrex (82.5% Chlorothalinol) – Broad spectrum benzonitrile fungicide for effective control of blackspot, anthracnose, alternaria leaf spot, and cercospora leafspot. Known to have phytotoxic effect on foliage. **DANGER. CAUSES IRREVERSIBLE EYE DAMAGE. Mix 1/2 Tablespoon per gallon.**

Decree 50 WDG (50% Fenhexamid) – A contact hydroxyanilide fungicide for the prevention and control of botrytis. Prevents botrytis spores from attaching themselves to the plant, or stops the growth of spores if the disease is already active. **CAUTION. Mix 1/4 to 1/2 teaspoon per gallon.**

Dithane M-45 (80% Mancozeb) – See Mancozeb. A broad spectrum dithiocarbamate fungicide containing manganese and zinc ions for effective control of black spot, alternaria leaf spot, and anthracnose. Also for control of downy mildew and botrytis. **CAUTION. Mix 1 1/2 Tablespoon per gallon.**

Eagle 20 EW (19.7% Myclobutanil) – A systemic triazole fungicide for effective control of powdery mildew. Also labelled for control of black spot and rust. **CAUTION. Mix 1/3 to 2/3 teaspoon per gallon.**

E-Rase (0.5% Jojoba oil) A jojoba seed oil-based fungicide with moderate effect for the control of powdery mildew. Leaves oily residue on foliage. **CAUTION. Comes in a ready to use 32 oz. spray bottle.**

Fore 80WP (80% Mancozeb) – See Mancozeb. Powdered Mancozeb formulation designed for use on turf but also approved for ornamentals. See Dithan M-45. **CAUTION. Mix 1 Tablespoon per gallon.**

Green Cure (86% potassium bicarbonate) – A potassium bicarbonate-based fungicide effective on powdery mildew. Also claimed to be effective on blackspot,

downy mildew and rust. **CAUTION. OMRI. ARS ENDORSED. Mix 1 to 2 teaspoons per gallon**

Heritage (50% Azoxystrobin) – A broad spectrum, preventative strobilurin fungicide with systemic and curative properties for the control of alternaria leaf spot, downy mildew, powdery mildew and rust. Found to be most effective when used in rotation with other fungicide classes. **CAUTION. Mix 1/4 to 1/2 teaspoon per gallon.**

Honor Guard PPZ (14.3% Propiconazole) – Same as Banner Maxx. Multipurpose triazole fungicide for effective control of black spot and powdery mildew. Also effective for rust. **WARNING. Mix 1/3 to 2/3 teaspoon per gallon.**

Immunox – (1.55% Myclobutanil) – A systemic triazole fungicide for control of black spot, powdery mildew and rust. Much less concentrated version of Eagle 20 EW. **CAUTION. SPECTRACIDE BRAND ARS ENDORSED. Mix 2 Tablespoons per gallon.**

Junction (15% Mancozeb; 46.1% copper hydroxide) – A coordination fungicide/bactericide for control of black spot, alternaria leaf spot, and anthracnose. It is also effective against downy mildew and botrytis. Copper hydroxide is the active ingredient in Kocide and Phyton 27, which see. **DANGER. CORROSIVE. CAUSES IRREVERSIBLE EYE DAMAGE. HARMFUL IF SWALLOWED OR INHALED. Mix 1 and 1/2 teaspoons per gallon.**

Kocide 3000 (46.1% copper hydroxide) – A fungicide/bactericide not labelled for use on roses but see Junction for a coordination product and Phyton 27. If applied in a spray solution having a pH of less than 6.5, phytotoxicity may occur. Do not mix with “Aliette” because severe phytotoxicity may result. **CAUTION.**

Mancozeb (ai) – Mancozeb is a broad spectrum dithiocarbamate fungicide containing manganese and zinc ions for effective control of black spot, alternaria leaf spot, and anthracnose. It is also effective against downy mildew and botrytis. Mancozeb is also closely related to maneb and zineb. Mancozeb is marketed under a number of product names, including Dithane M-45, Fore TO, Manzate 200DF, Pentathlon DF and Protect T/O, which see in this guide.

Manzate Pro-Stick (75% Mancozeb). See Pentathlon DF. **CAUTION. Mix 1 Tablespoon per gallon.**

Medallion WDG (50% fludioxonil). A phenylpyrole fungicide for control of botrytis, cercospora leaf spot and alternaria leaf spot. **CAUTION. Mix 1/8 to 1/4 teaspoon per gallon.**

Ortho’s Rose Pride Funginex (6.5% Triforine) – Systemic amide fungicide for control of black spot, powdery mildew and rust. **DANGER. CAUSES IRREVERSIBLE EYE DAMAGE. Mix 1 Tablespoon per gallon.**

Ortho Rose & Flower Insect & Disease Control (0.78% Triticonazole) A systemic triazole fungicide for control of black spot and botrytis. Also contains 0.26% Acetamiprid, an insecticide, which see. **CAUTION. ARS ENDORSED. Mix 6 Tablespoons per gallon.**

Pageant (12.8% Pyraclostrobin & 25.2% Boscalid) – Broad spectrum strobilurin combination fungicide for the control of powdery mildew, alternaria leaf spot, cercospora leafspot, downy mildew, phytophthora, pythium and rust. **CAUTION. Mix 3/4 to 1 teaspoon per gallon.**

Palladium (37.5% Cyprodinil & 25% Fludioxonil) – A foliar pyrimidine fungicide from Syngenta with a dual mode of action that offers both contact and systemic activity against botrytis as well as anthracnose, alternaria leafspot., cercospora leafspot, and powdery mildew. **CAUTION. Mix 1/8 to 1/4 teaspoon per gallon.**

Pentathlon DF (75% Mancozeb) – See Mancozeb. A broad spectrum dithiocarbamate fungicide containing manganese and zinc ions for very effective control of black spot, alternaria leaf spot, and anthracnose. It is also effective against downy mildew and botrytis. **CAUTION. Mix 1 Tablespoon per gallon.**

Phyton-27 (21.36% Copper Sulphate) – A copper based bactericide/fungicide for control of black spot, botrytis; and powdery mildew. Has known phytotoxic effects. **DANGER. CAUSES IRREVERSIBLE EYE DAMAGE AND SKIN BURNS. HARMFUL IF ABSORBED THROUGH THE SKIN OR SWALLOWED. Mix 1 and 1/2 teaspoons per gallon.**

Rubigan EC (12% Fenarimol) – A locally systemic pyrimidine fungicide for control of powdery mildew in grapes. Leaf puckering on roses noted when sprayed under cool, foggy or overcast conditions; development of resistance has been noted. **WARNING. Mix 1/2 teaspoon per gallon.**

Serenade (1.34% QST 713 strain of Bacillus subtilis) – A broad spectrum biological fungicide for the control or suppression of anthracnose, blackspot, botrytis, downy mildew and powdery mildew. **CAUTION. OMRI. Mix 2 to 4 Tablespoons per gallon.**

Stature SC (43.5% dimethomorph) – A morpholine fungicide for preventive control of downy mildew. **CAUTION. Mix 1/8 to 1/4 teaspoon per gallon.**

Subdue Maxx (22% Mefenoxam) - A systemic phenylamide fungicide used as a soil drench for control of downy mildew, phytophthora and pythium. Do not apply more often than every six weeks. **CAUTION. Mix 1 Tablespoon per 32-gallon trash can and apply 1-2 gallons of mix per bush.**

Terra-Guard (42.14% Triflumizole) An imidazole fungicide for the control of botrytis, powdery mildew and rust. **CAUTION. Mix 1/4 to 1 teaspoon per gallon.**

Insecticides

Bayer Advanced Rose & Flower Insect Killer (0.0015% Cyfluthrin & 0.012% Imidacloprid) – Low concentration combination contact and systemic insecticide for control of aphids, Japanese beetles (adult), scale and thrips. **CAUTION. Comes in ready-to-use spray bottle.**

Bayer 2-in-1 Systemic Rose & Flower Care granules (0.22% imidacloprid) See also, Merit. A systemic neonicotinoid insecticide that is moderately effective for the control of aphids, Japanese Beetles and Thrips. Much lesser concentration than Merit. Also contains a 6-9-6 fertilizer. **CAUTION. Sprinkle granules evenly over bed at one capful per plant.**

Botanigard ES (11.3 %Beauveria bassiana) – See also, Naturalis L. A contact biological pesticide containing a strain of a naturally occurring fungus that is reported to have limited effect on the control of thrips. not mix with fungicides. Store between 40° F and 85° F. **CAUTION. Mix 2 to 4 teaspoons per gallon.**

Conserve SC (11.6% Spinosad) - Contact biological pesticide of mixed effectiveness for thrips, with some reporting effect on regular use and others reporting no effect at all. Derived through the fermentation of a naturally occurring soil bacterium. Contact toxicity to several species of beneficial insects is very low, when compared to broad-spectrum synthetic insecticides. **CAUTION. OMRI . Mix 1 teaspoon per gallon.** Lesser concentration available as Captain Jack's Deadbug Brew Concentrate (0.5% spinosad).

Cyanora 9.7 (9.7% Lambda-cyhalothrin) – A synthetic pyrethroid insecticide for commercial use only for effective control of aphids, budworms, Japanese beetles (adult), midge and thrips. **WARNING. Mix 1/8 to 1/4 teaspoon per gallon.**

Dominion 2L (21.4% Imidacloprid) – A contact and systemic neonicotinoid insecticide for effective control of aphids. Also effective for control of Japanese beetles (adult), scale and thrips. **CAUTION. Mix 1/8 teaspoon per gallon.**

Flagship (25% Thiamethoxam) – A systemic and contact neonicotinoid insecticide for control of aphids, and when applied to the soil, for larvae of Japanese and Oriental beetles. **CAUTION. Mix 1/8 to 1/4 teaspoon per gallon.**

Malathion (50% ai) – Multiple manufacturers. Contact organothiophosphate insecticide for control of aphids, Japanese beetles (adult), leafhoppers, scale and thrips. **CAUTION. Mix 1-2 teaspoons per gallon.**

Merit 75WP (75% Imidacloprid) – A contact and systemic neonicotinoid insecticide for very effective control of aphids. Also effective for control of Japanese beetles (adult), scale and thrips. **CAUTION. Mix 1/8 teaspoon per gallon.**

Naturalis L (7.16% Beauveria bassiana) – See also, Botanigard ES. A contact biological contact pesticide containing a strain of a naturally occurring fungus that is reported to have limited effect on the control of thrips. Do not mix with fungicides. Store between 40° F and 85° F. **CAUTION. Mix 1 to 2 Tablespoons per gallon.**

Orthene WP (97.4% Acephate) – Systemic organophosphate insecticide for effective control of aphids. Also for control of Japanese beetles (adult), midge and thrips. **CAUTION. Mix 3/4 teaspoon per gallon.**

Ortho Rose & Flower Insect & Disease Control (0.26% Acetamiprid) – A systemic neonicotinoid insecticide for control of aphids, Japanese beetles (adult), scale and thrips. Also contains 0.78% Triticonazole, a fungicide, which see. **CAUTION. ARS ENDORSED. Mix 6 Tablespoons per gallon.**

Saf-T-Side Insecticidal Oil (80% petroleum oil) – Oil-based contact insecticide/miticide/fungicide for control of aphids, scale and spider mites. Reported to have phytotoxic effects if sprayed in direct sunshine; will foul certain sprayers. **CAUTION. OMRI. Mix 2 1/2 to 5 Tablespoons per gallon.**

Safari 20 SG (20% Dinotefuran) – A systemic neonicotinoid insecticide for control of aphids, Japanese beetles (adult), scale and thrips. **CAUTION. Mix 1/4 to 1/2 teaspoon per gallon.**

Safer Insect Killing Soap Concentrate (49.52% Potassium Salts of Fatty Acid) – Contact insecticide for control of aphids, spider mites and thrips. **CAUTION. OMRI. Mix 5 Tablespoons per gallon.**

Sevin Concentrate (22.5% Carbaryl) – Contact carbonate insecticide for effective control of Japanese beetles (adult). Also effective on aphids, scale and thrips. **CAUTION. Mix 3 Tablespoons per gallon.**

Sevin SL (43% Carbaryl) – Higher concentration contact carbonate insecticide for effective control of Japanese beetles (adult). Also effective on aphids, scale and thrips. **CAUTION. Mix 1 Tablespoon per gallon.**

Talstar P (7.9% bifenthrin) A contact pyrethroid insecticide for the control of aphids, Japanese beetles (adults), and thrips. **CAUTION. Mix 1/2 to 1 teaspoon per gallon.**

Tempo SC Ultra (11.8% Cyfluthrin) A contact pyrethroid insecticide for pest management professionals and commercial use only for effective control of aphids, budworms, Japanese beetles (adult), midge and thrips. **CAUTION. Mix 1/8 to 1/3 teaspoon per gallon.**

Ultra-Fine Oil (98.8% paraffin oil)– A refined petroleum distillate used as a contact insecticide/miticide for control of aphids, scale and spider mites. Reported to have phytotoxic effects if sprayed in direct sunshine; will foul certain sprayers. **CAUTION. Mix 2 1/2 - 5 Tablespoons per gallon.**

Miticides:

Avid 0.15 EC (1.90% Abamectin) – Broad-spectrum systemic avermectin miticide for very effective control of adult spider mites and moderately effective for the suppression of aphids and thrips. A bacteria-based miticide derived from a naturally occurring soil microorganism. **WARNING. Causes substantial but temporary eye injury. Harmful if inhaled or absorbed through the skin. Mix 1/4 teaspoon per gallon.**

Floramite SC (22.6% Bifenazate) – Contact carbazate miticide for effective control of spider mites with long residual. Also has ovicidal activity. Due to its carbazate chemistry, mode of action and selective nature, Floramite SC is relatively inactive against beneficial / predacious mites and insects. **CAUTION. Mix 1/4 to 1/2 teaspoon per gallon.**

Forbid 4-F (45.2% Spiromesifen) – A miticide effective against all stages of mites, but more so at juvenile stages of development. Has unique mode of action that works against mites that have developed resistance to other more common miticides. **CAUTION. Mix 1/4 teaspoon per gallon.**

Shuttle 15 SC (15.8% Acequinocyl) – A miticide effective for the control of spider mites. When applied to the foliage as directed, it provides quick knockdown and long residual control. Due to its unique mode of action, Shuttle does not show cross-resistance to existing miticides and is relatively harmless to most predacious mites and beneficial insects. **CAUTION. Mix 1/2 to 3/4 teaspoon per gallon.**

Tetra San 5 WDG (5% Etoxazole) – A miticide/ovicide for the effective control of spider mites in egg and nymph stages. **CAUTION. Mix 1/4 to 1/2 teaspoon per gallon.**

