



PLANT DISEASE AND INSECT ADVISORY

Entomology and Plant Pathology
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Access to Plant Management Network John Damicone, Extension Plant Pathologist



Oklahoma State University is a University sponsor of *The Plant Management Network* (PMN), an on-line resource for plant and pest management information. All OSU employees have free access to the network (<http://www.plantmanagementnetwork.org/>) and should be able to access its features without using a password through an OSU computer. According to PMN, "The Plant Management Network is a unique cooperative resource for the applied plant sciences. Designed to provide plant science practitioners fast electronic access to proven solutions, the Plant Management Network offers an extensive searchable database comprised of thousands of web-based resource pages from the network's partner universities, companies, and associations. In addition, the network's four peer-reviewed citable journals, *Applied Turfgrass Science*, *Crop Management*, *Forage and Grazinglands*, and *Plant Health Progress*, provide credible current information in areas important to practitioners, policy makers, and the public." Fungicide and Nematicide Test Reports, Arthropod Management Test Reports, variety trials, and an image database are also available on PMN. Like most computer services, problems accessing PMN are likely to arise. Miles Wimer was very helpful to me when the network apparently did not recognize my computer as part of the OSU network (mwimer@scisoc.org). We believe most problems have been worked out, but there may be issues for field staff. Miles is interested in making sure all OSU employees are able to log on to PMN. PMN also lists the following contact editorialoffice@plantmanagementnetwork.org (Telephone: (651) 454-7250 Fax: (651) 454.0766) should you be asked for a password. Let me know if you have problems.

Fungicides for the Home and Garden John Damicone, Extension Plant Pathologist

A problem with disease control for the home and garden is that the numerous fungicides registered for use on vegetable, fruit, and nut, and ornamental crops usually come in large quantities such as a 1 or even 2.5 gal container costing \$100 or more. Users generally only need and can use a few ounces. I recently searched the database of fungicides registered for use in Oklahoma with the Oklahoma Department of Agriculture and Forestry

(<http://www.kellysolutions.com/ok/>) for home and garden brands of fungicide active ingredients. The following active ingredients are registered for use in Oklahoma:

Calcium polysulfide: Lime sulfur dormant spray for fruit trees and ornamentals that is particularly useful for peach leaf curl. Lime sulfur is sold under Bonide and Hi-Yield brands.

Captan: A broad spectrum, protectant fungicide for fruit, ornamentals, turf, and seed treatment uses sold under Bonide and Hi-Yield brands.

Chlorothalonil: Same active ingredient as Bravo. Chlorothalonil is a protectant fungicide with broad-spectrum activity against most foliar diseases sold under Bonide, Ferti-lome, GardenTech, Gordon, Hi-Yield, and Ortho brands for use on vegetable crops, stone fruits, and ornamentals.

Copper hydroxide: Same active ingredient as Kocide. A broad-spectrum, protectant fungicide and bactericide labeled on vegetable crops, fruits, nuts, and ornamentals under Ferti-lome and Hi-Yield brands.

Copper octanoate: A copper soap fungicide and bactericide registered under Natural Guard and Bonide brands for use on vegetable crops, fruits, nuts, and ornamentals.

Copper sulfate: Often called Bordeaux mixture, it is the original broad-spectrum protectant fungicide and bactericide. Copper sulfate is sold under Hi-Yield and Gordon brands for use on vegetable crops, fruits, nuts, and ornamentals.

Mancozeb: Broad-spectrum fungicide for use on vegetable crops, grapes and ornamentals under the Bonide brand. Mancozeb is the same active ingredient as Dithane and is often tank-mixed with copper in tomato spray programs.

Maneb: Broad-spectrum fungicide for use on vegetable crops, grapes, and ornamentals under the Gordon and Hi-Yield brands. Maneb is often tank-mixed with copper in tomato spray programs.

Myclobutanil: A systemic triazole fungicide for use on fruit, ornamentals and turf under the Spectracide brand. It is the same active ingredient as Nova and is particularly useful for control of cedar-apple rust, other rusts, and powdery mildews.

Propiconazole: A systemic triazole fungicide for use on fruit, ornamentals, nuts, and turf under Bonide, Ferti-lome, and Gordon brands. It is the same active ingredient as Tilt. A tank mixture of propiconazole and chlorothalonil is excellent for control of black spot on rose.

Streptomycin sulfate: An antibiotic for control of fire blight on fruit and ornamentals under the Ferti-lome brand.

Sulfur: Effective against powdery mildew on a range of vegetable, fruit, and ornamental crops under the Hi-Yield, Ferti-lome, Green Light, and Bonide Brands. All are 90% wettable sulfur that can be applied as a spray or dust. Wettable powder formulations of sulfur can be difficult to mix with water.

Tebuconazole: A systemic triazole fungicide for use on ornamentals and turf under the Bayer Advanced brand. It is the same active ingredient as Folicur.

Thiophanate-methyl: A systemic benzimidazole fungicide for use on ornamentals and turf under the Ferti-lome, Green Light, and Bonide brands. It is the same active ingredient as Topsin.

Triademifon: A systemic triazole fungicide for use on ornamentals and turf under the Green Light brand. It is the same active ingredient as Bayleton.

Triforine: A systemic triazole fungicide for use on ornamentals under the Ortho brand. It is mostly used for control of black spot on rose.

The next challenge is to find a source for these products.

Spray Program for Tomato Diseases

John Damicone, Extension Plant Pathologist



Recent rains and high humidity should serve as a reminder for tomato growers to implement a preventive timely spray program for managing foliar diseases. Foliar diseases damage plants by causing premature defoliation and blemishing of fruit. The most common foliar diseases of tomato are bacterial spot, bacterial speck, and Septoria leaf spot, a fungal disease. These diseases can be difficult to distinguish, particularly in the early stages of disease development. On older plants with fruit, bacterial spot and speck may produce spots on fruit. Early blight

apparently is a problem in southern Oklahoma, but I have personally never seen it. Control of these diseases is important in maintaining productive foliage and for providing shade to fruit for prevention of sunscald.

A spray program is needed to achieve adequate disease control because resistance to common foliar diseases is not available in tomato varieties. Formulations of chlorothalonil (e.g., Bravo) and mancozeb (e.g., Dithane) are effective against Septoria leaf spot and early blight. Where bacterial spot and speck are anticipated, sprays with a copper such as copper hydroxide (e.g., Kocide) are effective. Kocide can be used alone, but it is less effective than chlorothalonil or mancozeb on Septoria and early blight. Therefore, tank-mixes of mancozeb + copper hydroxide or chlorothalonil + copper hydroxide should be used where the grower is uncertain of the cause of the disease or where both fungal and bacterial diseases are present (a common occurrence). A problem with treatments containing mancozeb for tomato is the 5-day pre-harvest restriction. Consider applying chlorothalonil, coppers, or chlorothalonil + coppers during the harvest periods.

The first spray should be made at bloom and a 7-10 day schedule should be maintained thereafter. A preventive schedule is critical because these diseases are difficult to control once they become established. The fungicides must be reapplied regularly to protect new growth and

because fungicides weather over time. Rates applied on a per acre basis should be applied a volume sufficient to achieve good coverage. Rates applied on a per gallon basis should be applied to runoff. Try to make applications before an anticipated rain because infections occur during wet periods.

Consult the article above for home and garden brands of recommended products and follow label instructions. For products that only list per acre rates, there is a table on page 514 of the OSU Extension Agents Handbook for converting per acre rates to per gallon rates for small plantings.

New Peanut Fungicide

John Damicone, Extension Plant Pathologist



Provost is a Bayer product that is a 2:1 mixture of two triazole fungicides, tebuconazole (Folicur) and prothioconazole, respectively. Prothioconazole was slated to replace Folicur as it went off patent. It has superior activity on leaf spot, but was less active against southern blight and apparently expensive to manufacture. Therefore a mixture was developed to take advantage of tebuconazole activity on southern blight and prothioconazole activity on leaf spot. The resulting mixture has improved activity on leaf spot compared to Folicur and similar activity on southern blight. It should be useful where less than satisfactory control of leaf spot has resulted following Folicur application. Prothioconazole alone has been similar in performance to Headline for leaf spot control in OSU trials. However, the mixture being marketed as Provost is intermediate in leaf spot activity between Headline (best) and Folicur (worst). There has not been sufficient southern blight in recent years to compare products. Provost, recommended for fields with a history of southern blight, should be applied in a block of mid-season sprays at 7 to 8 oz/A, either alone or in alternation with Abound or Headline (12-15 oz). To my knowledge, Folicur and its generic counterparts are still available. All of the above-mentioned products also control *Rhizoctonia* limb rot.

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