

PALADIN™ (DIMETHYL DISULFIDE) EUP AND R&D TRIAL EFFICACY DATA SUMMARY

C. D. Owens*, C. S. McKown, P.W. Robinson, & W. A. Perdue

Studies demonstrating the behavior and efficacy of Paladin as a soil fumigant have been conducted under laboratory conditions and in field trials. Over 100 efficacy studies (including 38 studies conducted under US EPA 4581-EUP) have been conducted in the United States, beginning in 2003. An additional 140+ studies have been conducted in Europe. Paladin has been applied using shank injection as well as drip chemigation. In these studies, Paladin has demonstrated effective control of many soil borne plant pathogens, parasitic nematodes, and weeds. Paladin was often but not exclusively compared to current commercial use rates of methyl bromide and other alternative fumigants, as well as to untreated controls.

Paladin (dimethyl disulfide) was authorized for large scale (up to 10 acres) grower trials under Experimental Use Permit No. 4581-EUP-1 in May of 2007 and extended to May 1, 2010. States that were included in the EUP are North Carolina, Georgia and Florida. Crops included under the EUP include strawberries, fruiting vegetable and cucurbit vegetable crops.

Paladin applications were either alone or tank mixed with chloropicrin. The Paladin tank mix with chloropicrin ratio was 79:21, 79% by weight DMDS and 21% by weight chloropicrin. Rates of this tank mix were generally 40 to 60 gallons per acre, 302 – 454 lb ai DMDS and 80 – 120 lb ai chloropicrin per acre.

Results for this summary included 38 EUP notebooks/sites with 52 data points. These include multiple rates at several sites. R&D efficacy trials include 62 locations conducted in 8 states for 13 crops. Yield assessment data and pest efficacy data including; parasitic nematodes, soil-borne disease and weeds assessments, are compared to a standard/control within each trial, generally methyl bromide.

Taken on whole, both the yield and the pest-control performance of Paladin in these trials have been generally demonstrated to be equivalent or superior to that of methyl bromide.

An EPA decision for Paladin registration is expected for late November 2009.

United Phosphorus, Inc., the exclusive distributor of Paladin, and Arkema Inc. are cooperating to develop Paladin as a soil fumigant.