

*IPFP Satellite Project***Literature and Research Review of Prune Aphid Control Using Oils
over the Past Ten Years - 2001**

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Carolyn Pickel, and Steve Southwick

Olson, Bill, Carolyn Pickel, and Nick Bertagna. 2000. Oil Evaluation for Mealy Plum Aphid Control. Prune Research Reports.

- Oil takes several days (perhaps as many as six) to control aphids.
- Six gallons of Gavicide oil or two gallons of Stylet oil per acre plus four ounces of the wetting agent Breakthrough in 100 gallons of water per acre, provided 60 and 35 percent control of mealy plum aphids, respectively. When both treatments were applied in 200 gallons of water per acre, they both achieved 100 percent control.
- Four gallons of Omni oil or two gallons of Stylet oil applied at green tip traveling at 1.8 miles per hour provided 80 and 100 percent control of leaf curl plum aphid, respectively.

Krueger, Bill and Zachary Heath, 2000. The Use of Fall Aphid Prediction and Oil Sprays at Bloom to Control Plum Aphids. Prune Research Reports.

- Four Gallons of Stylet oil per acre, four gallons of Omni oil per acre or four gallons of Omni oil per acre plus 24 ounces of Sylguard spreader applied at popcorn by air blast back pack sprayer provided no control of leaf curl plum aphids.
- Four Gallons of Omni oil per acre applied during dormancy and again at bloom-time provided 62 percent control of mealy plum aphid.

Norton, Maxwell. 2000. Evaluation of m-pide and Oil for Mid-Summer Mealy Plum Aphid Control. Prune Research Reports.

- Six gallons of Omni oil per acre applied on May 21, 2000 to an orchard with a high population of mealy plum aphids provided little, if any, control.

Buchner, Richard P. and Cyndi K. Gilles. 1999. Efficacy of Omni oil plus Breakthrough for Leaf Curl Plum Aphid Control. Prune Research Reports, pp. 95.

- Six Gallons of oil per acre with 64 ounces of Breakthrough per 100 gallons of water applied during the growing season by air blast backpack sprayer resulted in 84 percent control, fruit phytotoxicity occurred.

Olson, Bill, Nadeem Shawareb and Carolyn Pickel, 1999. Evaluation of Low Toxicity Materials for Control of Mealy Plum Aphid. Prune Research Reports, pp. 98-101.

- Four gallons of oil per acre applied at greentip by air blast sprayer traveling at 1.8 m.p.a. resulted in 75 percent control.
- Six gallons of oil per acre applied in May using an air blast backpack sprayer provided 62 percent control.

- Eight gallons of oil per acre applied in May with and without the wetting agent Breakthrough by air blast backpack sprayer provided 65 percent control.

Krueger, Bill, Zachary Heath and Brett Mulqueeney, 1999. In Season Control of Mealy Plum Aphid in Prunes, Prune Research Reports, pp. 102-104

- Six gallons of oil per acre applied using an air blast backpack sprayer provided 60 percent control. The addition of a spreader decreased control slightly, while the addition of 24 ounces per 100 gallons of water of a silicon wetting agent slightly increased control.

Olson, Bill, Carolyn Pickel and Nadeem Shawareb, 1998. Evaluation of Low Toxicity Materials for Control of Mealy Plum Aphid. Prune Research Reports, pp153-156.

- Six gallons of Gavicide oil applied in season by air blast backpack sprayer along with five gallons of K-90 spreader or with 16 ounces per 100 gallons of water of the wetting agent Breakthrough provided 80 percent control. Six gallons of oil per acre alone resulted in 33 percent control.
- Direct Deposits of Gavicide oil in season at six-gallons per acre provided 17 percent control. Gavicide oil combined with the 16 ounces of Breakthrough provided 65 percent control, while Gavicide oil plus five gallons of K-90 spreader provided 100 percent control but caused phytotoxicity.

Olson, Bill, Carolyn Pickel and Nadeem Shawareb, 1997. Efficacy of Oil and other "Soft" material sprays applied at different rates for in-season control of Mealy Plum Aphid in Prune Orchards. Prune research Reports, pp. 114-117.

- Omni oil at a rate of two gallons per acre applied in season to every other row using an air blast sprayer resulted in 14 percent control, but when applied to every row 30 percent control was achieved. Four gallons per acre applied to every other row provided 39 percent control, but when applied to every row only 32 percent control was achieved. Six gallons per acre applied to every other row resulted in 100 percent control, while the same rate applied to every row achieved 83 percent control.
- Gavicide oil applied in season by air blast sprayer at two gallons per 100 gallons of water per acre provided 13 percent control, while four gallons of Gavicide oil per 200 gallons of water per acre, achieved 23 percent control.

Olson, Bill, Carolyn Pickel, Bill Kruger, and Richard Buckner, 1996. Alternatives to Dormant Treatment and Aphid monitoring in Prune Orchards. Prune Research Reports, pp. 82-89.

- Two gallons of Omni oil per acre applied at bloom using an air blast sprayer provided 100 percent control of mealy plum aphid. Two gallons of Omni oil at bloom plus two gallons of Omni oil applied seven days later (petal fall), provided 89 percent control. Four gallons of Omni oil applied only at petal fall achieved 72 percent control.
- Gavicide oil applied at a rate of two percent using a handgun at 10 percent bloom provided 28 percent control. Four percent oil achieved 42 percent control.
- Growing season application of 1.5 gallons per acre of Safe-T-Side oil by air blast sprayer provided three percent control, while Gavicide oil at three gallons per acre

provided 25 percent control. Four gallons of Gavicide oil per acre achieved 39 percent control.

- At five percent bloom two gallons per acre of Omni oil applied by air blast sprayer provided 38 percent control, when applied at five percent bloom and at full bloom, 91 percent control was achieved. Four gallons per acre of Omni oil applied at five percent bloom achieved 62 percent control, while the same application at post bloom provided 38 percent control.

Pickel, Carolyn, Bill Olson, Bill Kruger and Richard Buchner, 1995. Efficacy of Delayed Dormant Oil Treatments and Sampling Thresholds for Mealy Plum Aphids. Prune Research Reports, pp. 47-51.

- At two percent bloom two or four gallons of Safe-T-Side oil applied by airblast sprayer resulted in 100 percent control of mealy plum and 67 percent control of leaf curl plum aphids.
- Four or eight gallons of Safe-T-Side oil per acre applied in season provided 40 and 80 percent control, respectively, of mealy plum and leaf curl plum aphids.

Buchner, Richard. 1995. Leaf Curl Plum Aphid Control, Unpublished.

- Four percent Omni oil in 120 gallons of water applied by hand gun sprayer on May 15, 1995. This treatment provided 31 percent control of leaf curl plum aphids.

Olson, Bill and Carolyn Pickel, 1994. Dormant Control of Mealy Plum Aphids. Prune Research Reports, pp. 49-51.

- Six gallons of Supra 94 oil per 400 gallons of water per acre applied on 1/31/94 or 3/1/94 by handgun resulting in five percent and two percent control, respectively, of mealy plum and leaf curl plum aphids. Four Gallons of Supra 94 Oil per 100 gallons of water per acre applied on 1/31/94 or 3/1/94 achieved 38 and 40 percent control, respectively.
- Applications of two, four or six gallons of Omni oil applied in 400 gallons of water per acre on 2/3/94 or 3/4/94 achieved no control of mealy plum aphid.

Summary

Dormant Treatment:

Dormant Applications of oil at rates of four to six gallons per acre provide very little aphid control. Concentrate Applications provide better control than dilute applications. The best percentage of control reported was 40 percent.

Delayed Dormant Treatments:

Delayed Dormant (Green Tip through Bloom) treatments provided 70 to 80 percent control of mealy plum and leaf curl plum aphids. Treatments using four gallons per acre provided better control than treatments using only two gallons per acre. Higher rates of oil may provide even better control. Overall, green tip treatment programs generally seem to be more effective than full-bloom to petal fall treatment programs. Slow ground speed providing full coverage is needed, but concentrate (100 gpa) gave better results than dilute (400 gpa).

Growing Season Treatments:

Oils do not kill aphids immediately. During the growing season evaluation of aphid control from oil applications should be done no sooner than one week after application. Moderate rates of spreaders (16-24 ounces) preferably silicone based, along with the oil application aid in control. Full coverage is needed for adequate control. Two hundred gallons of water per acre provide better control than one hundred gallons and higher rate of oil also provide better control of mealy and leaf curl plum aphids (see graph).

Recommendations:

Dormant:

Not Recommended due to Little Benefit

Delayed Dormant:

Timing – Green Tip to Popcorn (or 2 times (Green Tip and Petal Fall))

Rate – 4 or more Gallons Per Acre

Speed – 1.5 Miles Per Hour

Volume – 100 Gallons Per Acre

Expected Results – 60% to 70% control

Growing Season:

Rate – 6 to 8 Gallons Per Acre
 Adjuvants – 16 to 24 ounces of Silicon Based Spreader per 100 GPA
 Volume – 200 Gallons Per Acre
 Timing – Before Levels are High. ex. Less than 10% of trees have aphids
 Expected Results – 60% to 70% control

