



UC Weed Workgroup Meeting

Wednesday, November 12, 2008 ■ MUUI and Smith Rooms, UC Davis

9 AM	<i>Coffee and refreshments</i>
9:30-9:50	Update on the IPM Weed Guidelines section of the UC IPM—Tunyalee Martin and Barbara Ohlendorf
9:50-10:10	Propagule (seed, aquatic turions and yellow nutsedge tubers) control with acetic acid—possibilities for field use—Clyde Elmore
10:10-10:30	Organic Weed Control Options in Orchards—Tom Lanini Automatic weed control system for row crops using GPS guidance—David Slaughter
10:30-10:45	<i>Break</i>
10:45-11:30	WeedRIC and proposal for on-line learning and information dissemination—Joe DiTomaso
11:40-12:00	Business session—Joe DiTomaso <ul style="list-style-type: none">• Discussion of weed positions (CE, AES, IPM area advisor, and Farm Advisors)• New extension publications• future agenda and priorities• elections
12:00-1:00 PM	<i>Lunch</i>
1:00-2:15	Commodity B/O session 1: Vegetable crops or Non-crop/rangeland
2:15-2:30	<i>Break</i>
2:30-3:45	Commodity B/O session 2: Agronomic crops or Turf and Ornamentals
3:45-4:45	Commodity B/O session 3: Trees & vines or Aquatic
6:00	Dinner at Joe's house

Agronomy crops section report (submitted by xxxxxxxx)

Non-crop/rangeland section report (submitted by xxxxxxxx)

Trees and vines section report (submitted by Richard Smith)

Tom Lanini

1. Round up (RU) resistant jungle rice in almonds (3lbs of round up did not kill it)
 - Matrix & Paraquat – worked well
 - Chateau not effective
 - Poast worked well
 - Tom has seen RU jungle rice and barnyard grass in cotton

- 0.75 is recommended rate, 4x rate without control is considered resistant
 - Tom has tested lambsquarter and has found that age, re-growth of the weed, uneven germination affect efficacy of RU. It probably has differential tolerance rather than resistance
 - Malva is an example of differential tolerance (always has been difficult to control once it is large enough)
 - Many suggested however, that there is a shift in the susceptibility of lambsquarter to RU.
2. Organic weed control in plans
 - Lumite (synthetic mulch)
 - Organic mulch
 - Acetic acid. This trial is just getting started
 3. Grapes organic trial
 - Acetic acid looked ok. A slit application 2 weeks apart looked good especially at 20% V/V
 - Mustard meal—organic pre-emergent 2,000–6,000 lbs/treated acre. From Don Till in Idaho (there is a paper in Weed Tech)

Steve Wright

1. Dow Agro Science product—penoxulam
2. Horse weed & Flax leaf fleabane – post trial
 - a. The best material was Rely, it gave 100% control. The best control by the other treatments was 60%, Shark.

Doug Munier

1. Kicksor post-emergence test. Looks good on fleabane, marestail, filuee, malva. It did not work. It is mixed with Round up.
2. Trials on RU resistant Italian Ryegrass.
 - a. He is working on Prowl H2O preemergence and it looks effective.
 - b. Matrix & Chateau are also effective preemergence.
 - c. Roundup & Matrix tank mix looks very good. Matrix has good post emergence control of Italian Ryegrass.
 - d. He thinks that f along the edge of the flat fan may give a partial rate which may aggravate RU resistant grass.

Tulio Macedo

1. Organic Pistachio Trial
 - a. Fabric
 - b. 4" organic mulch
 - c. Wood chips

There is a question about the cost of the materials. Looking at the N relations, water infiltration. They are considering using almond hulls as it is readily available.

Clyde Elmore

Almond hulls worked well as weed control mulch. Crows will move it around looking for almond meats. If the mulch is up against the trunk it could cause problems with rodents and disease.

Richard Smith

1. Did a penoxulam trial similar to Steve Wright. The protocol sent by Dow AgroSciences was not effective in examining the direct effect of penoxulam as each treatment had Goal Tender as a tank mix. As a result, he rated the crop safety trial where the penoxulam was used along at three rates. It was most effective at the 4 oz rate.
2. Working on a vineyard floor management trial with barely cover crop being planted in the vine row. They are killing the cover crop when it is 0, 6, 12, 18 and 24 inches tall and examining the effect of cover crop on erosion, soil water, crop growth, microbial biomass and water infiltration. This is a follow-up to an earlier study (just published in Cal Ag).

Turf and ornamental section report (submitted by Cheryl Wilen)

Cheryl Wilen was the only active UC person attending. She is doing IR4 work on PRE and early POE control of oxalis, bittercress, and spurge for container nurseries. Also doing work on gaps and weed invasion in turf. Clyde Elmore may be able to get some of his old data to her regarding gaps and crabgrass invasion in tall fescue.

Potential publications needed: Weed control in greenhouses; Liverwort control

Upcoming issues: Loss of MSMA registration will leave turf industry without anything to control dallisgrass in tall fescue

Vegetable crops section report (submitted by Tom Lanini)

Herbicide registration for “very” minor crops was discussed briefly, and it was decided that a list of these crops and the herbicides registered for each should be posted on the Weed RIC website. The crops suggested included:

oregano	sage	basil	tarragon	jicama
cilantro	dill	radish	mint	turnip
mustard greens	chives	lemongrass	fennel	rosemary
stevia				

Several trends were noted in the vegetable industry, including the reduction in tillage, and increased use of transplants.

Tom Lanini

Dodder control in tomatoes: ALS type herbicides were evaluated in greenhouse and field studies to assess the potential of this class of herbicides to control dodder post-attachment. None of the herbicides tested provided complete dodder control, but sulfosulfuron (Maverick) reduced dodder growth by over 80%. Imazamox (Raptor) was about 60% effective in controlling dodder, but tomato

injury was severe. Pendimethalin (Prowl H2O) applied to the soil ahead of dodder emerge was also effective in controlling dodder.

Organic herbicides: Several organically approved herbicides are currently being tested in tomatoes and lettuce. These include vinegar @ 20% concentration, GreenMatch O (d-limonene), GreenMatch EX (lemongrass oil), Weed Zap (clove and cinnamon oils), Matran EC (clove oil), C-Cide (citric and acetic acids), and Racer (Ammonium nananoate; not organically approved). All the herbicides tested were able to control weeds, assuming the spray volume and concentration were high enough. A spray volume of 35 gallons per acre (gpa) was found to be too low for most herbicides; 70 gpa was found to be much better. Higher spray volumes may even work better, but treatment cost may be too high. Air temperature was also found to influence efficacy, with better weed control obtained when applications were made on warm to hot days (70°F or higher). Organic surfactants were also utilized with the organic herbicides, with NuFilm P, NuFilm 17 and Natural Wet being the most effective in our trials. Repeat treatments made two weeks after the initial application resulted in much better control than single applications. The most cost effective treatment was the vinegar, which costs about \$1.00 per gallon, and applied at 75 gallons per acre would cost about \$50.00 (30% vinegar–2 parts vinegar + 1 part water to make 20% spray solution). Work is continuing to look at efficacy in relation to weed size.

Organic herbicide sources:

C-Cide	LS Distributing ▪ 63 Hastings Drive, Ft. Salonga, NY 11768 (631) 262-0851 ▪ lsbiodistributing@mac.com ▪ www.biologicalsolutions.org
Vinegar	Fleischmann’s Vinegar ▪ 200 South Main St., Nixa, MO 65714 (417) 725-3596
GreenMatch O GreenMatch EX	Marrone Organic Innovations ▪ 215 Madson, Suites B/C, Davis, CA 95618 (530) 750-2800 ▪ www.marroneorganicinnovations.com
Matran EC	EcoSmart ▪ 318 Seaboard Lane, Suite 202, Franklin, TN 37067 www.ecosmart.com
Weed Zap	JH Biotech, Inc. ▪ 4951 Olivas Park Dr, Ventura, CA 93003 (800) 428-3493 ▪ www.jhbiotech.com
Racer	Falcon Lab LLC ▪ info@falconlabllc.com ▪ www.falconlabllc.com

Gene Miyao

Prowl (H2O) evaluation as layby on transplanted canning tomatoes on sandy loam soil with furrow irrigation. Field test compared Treflan, Dual Magnum, Dual with Treflan, Prowl w/ Dual and included a nontreated control. Did not see any crop phytotoxicity, although concern was stem injury at soil line. Weed control was good across all materials. Weed spectrum included malva, purslane, pigweed, and black nightshade. Yields were similar across all treatments (although CV was very high at 19% which a mechanical harvest of 50’ long plots).

Oleg Daugovish

Yellow nutsedge control with Midas, steam and physical barriers at Camarillo, CA. 100% control of fall cohort was achieved with Midas (Iodomethane fumigation), and all barriers (paper-plastic-paper, dura-skrim/pond liner single layer, Tyvek home wrap and weed barrier matt), while there was some

germination in steam treated plots and at 3-50 plants /75ft² plots in untreated controls. Materials such as weed barrier and dura-skrim have to be used with caution as the planting holes are small and do not stretch, thus, are difficult to transplant into, resulting in poor establishment, and restricting plant crown expansion (for crops such as strawberry).

Also, Steve Fennimore and I have submitted addition to IR-4 program for Dual Magnum (S-metolachlor) as pre plant and in season furrow herbicide for annual strawberry. This was added to Florida perennial strawberry project already in IR -4 program and can become the primary nutsedge control tool in strawberry that is either non-fumigated or fumigated with reduced rate of alternative fumigants.

Richard Smith

2008 Precision Cultivation Studies

Summary: These trials evaluated the efficacy of finger and torsion weeders for removing weeds from the seedline of transplanted or large seeded crops. These cultivation implements take advantage of the size difference of transplant and young weed seedlings. These studies indicated that finger and torsion weeders can reduce the number of weeds in the seedline and the amount of time for subsequent hand weeding operations. This was most dramatically seen in two trials where the weeds were at the cotyledon to first true leaf stage. Once weeds get larger (eg 2-3 true leaf stage), they become more difficult for these cultivation implements to remove without damaging the crop. These studies indicate that these cultivators can be effective if timing and soil conditions are ideal for their operation. <http://groups.ucanr.org/weedric/files/59180.doc>

2008 Dry Bulb Onion Weed Control Studies

Summary: Lambsquarter was the dominant weed in Trial No. 1. Nortron as a preemergence material did not effectively control this weed. Also, preemergence applications of Nortron more than 16 oz/A reduced onion yield. Preemergence applications of low rates of Goal Tender were safe at 0.5 to 1.0 oz/A, however better weed control was obtained at the 1.0 to 2.0 oz/A rates. In Trial No. 2 we evaluated rates and timing of Outlook for nutsedge control. Applications of Outlook at either the 1st or 2nd true leaf stage in combination with the acid fertilizer 7-7-0-7, as a nutsedge burn down material, effectively controlled nutsedge for two months and allowed the onions time to outgrow the nutsedge. <http://groups.ucanr.org/weedric/files/59179.doc>

2008 Spinach Weed Control Trials

Summary: These trials were conducted to evaluate herbicides for weed control in spinach. Kerb was tested in trial no. 1, but was found to be too injurious to spinach and was not included in further trials. The lowest rate of Dual Magnum, 0.3 pint/A, was included to tests its efficacy and safety; this was done because significant phytotoxicity of Dual Magnum has been observed at the 0.5 pint rate. Three rates of Lorox were tested. The rate that we feel has promise for spinach is the 0.4 lb/A rate; the 0.8 lb/A rate was included to see if there was a 2x safety factor. This set of trials underscored the need for careful evaluation of the soil type and associated rate of herbicide for spinach production. Table 1 summarizes the overall yields from five trials. Dual Magnum at 0.5 pint/A and Lorox at 0.4 lb/A on average only had 75 and 70% of the yield of the untreated, respectively. In contrast, RoNeet at 1.25 pints and Dual Magnum at 0.3 pint/A had 81 and 91% of the yield of the untreated,

respectively. This data indicates that all of the herbicides have the potential to reduce the yield of spinach. Lorox is a new potential herbicide for use on spinach. At the 0.4 lb/A rate it was safe on the spinach at some sites with higher organic matter and more clay, but not safe on sandier, low organic matter sites. More research needs to be conducted with this material to better understand the limits of its utility for use on spinach. <http://groups.ucanr.org/weedric/files/59181.doc>

2008 Weed Control Studies on Lettuce

Summary: One of the 2008 studies focused on the use of Prowl H2O as a delayed application. Prowl H2O inhibits root growth of plants. It has been demonstrated to be safe for use on transplanted lettuce. Transplanted lettuce has roots that extend below the zone of soil that is treated with Prowl H2O (i.e. top 0.25-0.5 inch of soil). However, Prowl H2O is not safe for use on direct seeded lettuce because the seed is planted into the treated zone of the soil. This evaluation was designed to test whether Prowl H2O could be applied 4-5 days following the first germination water to allow time for the roots of the lettuce to extend into the soil beyond the treated zone. The bottom line is that Prowl H2O is not safe on direct seeded lettuce even as a delayed application.

The other study evaluated the safety of Kerb and Prefar applied to a light soil at various rates; this study was conducted to better understand the safety of these materials on light soils. The rates of Kerb and Prefar need to be selected based on the texture of the soil. This study documented symptoms of overdoses of these materials and impacts on yield from rates that are too high. <http://groups.ucanr.org/weedric/files/59183.doc>

2008 Carrot Weed Control Trial

Objective: To evaluate the safety and weed control of Caparol on carrots in anticipation of registration in 2009.

Summary: Caparol will provide an important new weed control tool for use on carrots. Preemergence applications of Caparol were safer than post emergence applications at the 4 pint rate/A. Post emergence applications of Caparol were less effective than preemergence applications. Preemergence applications of 4 pints/A of Caparol provided weed control comparable to a pre plus postemergence application of Lorox at 1.5 lb/A. <http://groups.ucanr.org/weedric/files/59182.doc>