

### Evaluation of fungicides for control of downy mildew on hop, Clayton 2018.

The experiment was conducted at the Central Crops Research Station in Clayton, NC. Plots were single raised beds on 5-ft centers covered with black landscape fabric mulch; 14-ft long with 5-ft fallow borders on each end. The previous year the field was planted with tomato. Hop was transplanted on 29 Jun (2-ft in-row spacing, 7 plants/plot). Irrigation and fertilization (4-0-8, N-P-K) were applied via drip tape. Treatments were randomized into four complete blocks. Fungicide treatments were applied using a CO<sub>2</sub>-pressurized backpack sprayer equipped with hollow cone nozzle (TXVS-26). Applications were made on 27 Jul, 9 and 23 Aug, 6 and 21 Sep, 4 and 18 Oct and 1 Nov. Disease severity was assessed on 18 and 25 Oct and 1 and 9 Nov as percent leaf area with necrosis per plot. Data were analyzed in the software ARM (Gylling Data Management, Brookings, SD) using analysis of variance (AOV) and Fisher’s Protected LSD test to separate means.

Downy mildew was first detected on 11 Oct at approximately 2% disease severity in the field and progressed throughout the remainder of the trial. Zampro and Aliette provided the best control of downy mildew. All other products managed *P. humuli* well when compared to the non-treated control. No phytotoxicity was observed.

Treatment and rate of product per acre	Application no. <sup>y</sup>	Disease severity <sup>z</sup> (%)		
		25 Oct	1 Nov	9 Nov
Zampro 4.33 SC 14.0 fl oz	1-8			
Induce 100 SL 0.25 % v/v	1-8	2.3 c <sup>x</sup>	6.3 d	10.3 e
Aliette WG 5 lb	1-8	3.5 c	7.8 cd	11.8 de
Elumin 4 SC 8 fl oz	1-8	5.0 b	8.5 bc	12.8 cd
Previcur Flex 4 SC 19.2 fl oz	1-8	5.5 b	10.3 b	14.0 bc
Orondis Opti 0.83 SC 2.0 fl oz	1-8	5.3 b	9.8 bc	14.3 bc
Omega 500 F 24 fl oz	1-8	5.5 b	10.5 b	15.0 b
Nontreated control	N/A	15.8 b	22.0 a	28.8 a

<sup>z</sup> Disease rating scale based on percent necrotic foliage caused by *P. humuli*.

<sup>y</sup> Application dates: 1=27 Jul, 2=9 Aug, 3=23 Aug, 4=6 Sep, 5=21 Sep, 6=4 Oct, 7=18 Oct and 8=1 Nov.

<sup>x</sup> Treatments followed by the same letter(s) within a column are not statistically different ( $P=0.05$ , Fisher’s Protected LSD).