

LATE-BLIGHT UPDATE

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Fungicides that are currently registered through the normal process are protectants. They do not penetrate plant tissue and have no efficacy on the pathogen once it has penetrated plant tissue. Their major impact is to prevent germination of sporangia and to prevent penetration of plant tissue. In order to be effective, protectants need to cover all surfaces of the plant that might be penetrated by the pathogen (all stem tissue, foliage, flowers, berries, and tubers). Thus all of these plant parts must be completely covered by fungicide in order to be maximally effective. Generally speaking, greater coverage is achieved via high gallonage when using a hydraulic sprayer. Air assist and electrostatic sprayers achieve excellent coverage.

We evaluated several different types of sprayers at Cornell, and their performances are identified in Table 2. We were surprised to learn that applications with a flat fan nozzle at 21 gallons/acre were quite effective. Use of flood jet nozzles was less effective.

Table 2. Efficacy of diverse spraying systems on late blight suppression.

Sprayer/nozzles	gpa	psi	AUDPC <sup>1</sup> 1995	AUDPC <sup>1</sup> 1996
* electrostatic <i>ESS</i>	5.0		1460 a	1490 a
flat fan XR1103	21.5	37	410 cd	110 e
flood jet	13.5	20	630 bc	510 cd
Hardi Twin (air assist)	13.5	55	440 bcd	
hollow cone D4-23	13.5	55	650 b	360 d
hollow cone D6-23	21.5	80	350 d	750 b
hollow cone D4-25	30.0	80	470 bcd	470 d

<sup>1</sup>AUDPC = Area Under the Disease Progress Curve, a statistic which identifies disease severity. High numbers indicate severe disease. Values for AUDPC cannot be compared between years.

1/24/97: Dr. Fry, "The ESS was the most effective for both '95 + '96." (said at I. de Vries Forum)