

BOTRYTIS—THE COOL DISEASE

Roy W. Judd, Jr.

Extension Horticulturist

Botrytis, the omnipresent disease that attacks most greenhouse crops, may become more of a problem in Connecticut and other northern states in the future. If so, it can be blamed on the high costs of heating greenhouses and the change to cooler growing crops.

Botrytis grows best under cool conditions, 45-60°F. It is able to grow freely at 41°F and slowly at 32-36°F. Contrasting, growth is slowed above 70°F, strongly inhibited at 86-95°F and killed in 15 minutes at 131°F under moist conditions.

A requirement for a Botrytis infection is free moisture on the plant. This is necessary for 8 hours or more, depending on temperature and the part of the plant attacked. Free moisture on the plant may be more common this winter, especially if greenhouses are kept at cooler night temperatures; less ventilation is used and wider temperature fluctuations occur.

The amount of moisture that air will hold decreases as the temperature falls, until condensation finally occurs (the dew point). Air at 70°F will hold twice as much moisture as it will at 50°F. Therefore, half of the moisture will condense out of saturated air as the temperature falls from 70° to 50°F.

From data in table 1, one can determine for air of a certain temperature and relative humidity how low the temperature can fall before condensation will begin. For example, in a greenhouse at 70°F and 80% relative humidity, condensation will occur with a 7 degree drop to 63°F.

Table 1.

Existing Temperature	Temperatures at which condensation will occur from air at indicated relative humidities.								
	Percent Humidity								
	100	90	80	70	60	50	40	30	20
100	100	96	92	88	83	77	70	61	49
90	90	86	83	78	73	68	61	52	41
80	80	77	73	69	64	59	52	44	33
70	70	67	63	59	55	49	43	35	33
60	60	57	53	50	45	40	34		
50	50	47	44	36					
40	40	37	34						

Control

Controlling the humidity will help reduce Botrytis infections. This can be done in two ways; by the addition of heat or through the use of fans. Heat reduces the relative humidity by raising the temperature, producing air currents and causing an outward flow of humid air through open top ventilators. (Not applicable in most plastic greenhouses.)

Fans, both within the greenhouse and exhaust, will help reduce humidity. Fans in the greenhouse (HAF, see Connecticut Greenhouse Newsletter No. 56) reduce the moisture at the soil level and around the plant parts. Exhaust fans could be set on humidistats to remove the air when the humidity reaches about 80%.

Fungicides such as benomyl and daconil can be used in conjunction with heat and fans to reduce Botrytis problems.