

OPTIMAL TEMPERATURES (°F) AND ENVIRONMENTAL CONDITIONS FOR BIOLOGICAL CONTROL AGENTS

Please note: the data included here are drawn from a range of published sources, including laboratory-based studies. Most biological control agents will function at temperatures somewhat below and/or above their optima, but not at the same level of performance.

Pest Group	Biological control agent	Optimal Temperature Range (°F)	Additional notes (RH=Relative Humidity)
APHIDS	<i>Aphidius colemani</i>	64–77	Active at 60–85 °F RH: 60–80%
	<i>Aphidius ervi</i>	64–77	Active at 60–85 °F RH: 60–80%
	<i>Aphelinus abdominalis</i>	70–77	RH: 60–80% (Tolerates a range of humidities)
	<i>Chrysoperla rufilabris</i>	68–77	Active at 60–86 °F Optimal RH: at least 75% (Performance impaired below 55% RH)
	<i>Aphidoletes aphidimyza</i>	68–79	RH at least 70% (Pupae are sensitive to low humidity)
THRIPS	<i>Orius insidiosus</i>	75–82 [approx.]	RH: 60% [approx.]. Note: there is an interaction between temperature, daylength & reproductive diapause (see section on <i>Orius insidiosus</i> in the Thrips Control page under the Product Selection tab)
	<i>Neoseiulus cucumeris</i>	68–77	RH 65–75% (Immature stages are increasingly sensitive to low humidity at 86 °F and above)
	<i>Iphiseius degenerans</i> (= <i>Amblyseius degenerans</i>)	77+	More tolerant of low humidity than are most predatory mites
WHITEFLIES	<i>Encarsia formosa</i>	68–82	Activity is reduced at low light intensity & temperatures below 64 °F
	<i>Eretmocerus eremicus</i>	77–86	Tolerates high temperatures (just above 86 °F) slightly better than does <i>E. formosa</i>
	<i>Delphastus catalinae</i>	77–82	Optimal RH: approx.75–85% (Survival of immatures reduced at RH below 50%)
	<i>Amblyseius swirskii</i>	77–89	At least 60–70% RH
FUNGUS GNATS	<i>Stratiolaelaps scimitus</i> (= <i>Hypoaspis miles</i>)	68–82 [approx.]	Activity in the soil is reduced at soil temperatures below 59 °F
	<i>Dalotia coriaria</i>	68–77	Survival of immatures is reduced at 90 °F and above
	<i>Steinernema carpocapsae</i>	59–75 [Soil temp./approx.]	Soil temperatures should not exceed 88 °F for at least 24 hr after application
	<i>Steinernema feltiae</i>	57–72 [Soil temp./approx.]	Remains infective at soil temperature of 50 °F. More tolerant of cooler soils than is <i>S. carpocapsae</i>
MOTH LARVAE	<i>Podisus maculiventris</i>	77–86	
	<i>Trichogramma</i> spp.	77–86	60–80% RH
LEAF-MINERS	<i>Diglyphus isaea</i>	77–91	Fastest development at 86 °F and slightly above. Tolerates a wide range of humidity.