A COMPREHENSIVE FORMAT FOR SPECIFYING AND REPORTING CONTROLLED ENVIRONMENT REGIMES

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A flexible format for specifying controlled environment regimes is presented, which allows definition of a wide variety of standard and complex regime types. The format is time-series based and arranged in a database table style to assist management of the regime variables. Regime definition fields in the table include: i) regime name, ii) regime step, iii) step start delay, iv) step target level, v) number of step cycles, vi) cycle period, vii) ramp function to achieve target level, and vii) ramp duration. The table also includes information required for statistically-based reporting of regime conditions. These fields are: i) sampling interval, ii) record duration, and iii) expected precision (as the standard error of the record mean).

The format is designed to allow:

Explicit definition of constant and cyclic regimes
Definition of regimes as continuous (e.g. $T = f(t)$) and piecewise functions (e.g. simulation of meteorological data)
Ramps of differing types (e.g. step, linear, sinusoidal, exponential decay)
Level definition in terms of other parameters (e.g. $T = f$(VPD)
Specification of level with required precision and measurement regime
Consistent and coherent specification and performance reporting
Storage and retrieval with standard relational database applications
Automated computer processing for process operation and subsequent analysis