BioSIM' Development Rate Models

Standardized Parameters

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Version 1.0.0 (2021)

|  |  |
| --- | --- |
| Scale factor |  |
| General Parameters |  |
| Sharpe&all Parameters |  |
| Temperature | T °C or ( Tk in Kelvin ) |
| Lower | Tb °C |
| Optimum | To °C |
| Upper | Tm °C |
| Others | T |
| Temperature scale |  |
| Intermediate computation |  |

|  |  |
| --- | --- |
| Allahyari (2005) |  |
| Analytis (1977) |  |
| Angilletta (2006) |  |
| Bieri (1983) |  |
| Boatman (2017) |  |
| Briere1 (1999) |  |
| Briere2 (1999) |  |
| Damos (2008) |  |
| Damos (2011) |  |
| Deutsch (2008) |  |
| Deva&Higgis |  |
| Hansen (2011) |  |
| Hilbert&LoganIII |  |
| Hilbert&Logan (1983) |  |
| Huey&Stevenson (1979) |  |
| Janisch1 (1932) |  |
| Janisch2 (1932) |  |
| Johnson (1974) |  |
| Kontodimas (2004) |  |
| Lactin1 (1995) |  |
| Lactin2 (1995) |  |
| Lamb (1992) |  |
| Lobry&Rosso&Flandrois (1993) |  |
| Logan10 (1976) |  |
| Logan6 (1976) |  |
| LoganTb (1979) |  |
| Oneill 1972 |  |
| Poly1 |  |
| Poly2 |  |
| Poly3 |  |
| Poly4 |  |
| Ratkowsky (1983) |  |
| Regniere (1982) |  |
| Regniere (1987) |  |
| Regniere (2012) |  |
| Room (1986) |  |
| Saint-Amant (2021) |  |
| Schoolfield (1981) |  |
| SH\_arpe&DeMichele\_1977 |  |
| Shi (2011) |  |
| Shi (2016) |  |
| Stinner (1974) |  |
| Taylor (1981) |  |
| Wagner (1988) |  |
| Wang&Engel (1998) |  |
| Wang&Lan&Ding (1982) |  |
| Yan&Hunt (1999) |  |
| Yin (1995) |  |

Reference

Sporleder M, Tonnang HEZ, Carhuapoma P, Gonzales JC, Juarez H, Kroschel J. 2013. Insect Life Cycle Modeling (ILCYM) software a new tool for Regional and Global Insect Pest Risk Assessments under Current and Future Climate Change Scenarios. In: Peña JE, ed. Potential invasive pests of agricultural crops. Wallingford: CABI https://doi.org/10.1079/9781845938291.0412

Rebaudo, F., Struelens, Q., Dangles, O. (2018). Modelling temperature−dependent development rate and phenology in arthropods: the DEVRATE package for R. Methods in Ecology & Evolution, 9(4), 1144−1150. <https://doi.org/10.1111/2041>−210X.12935