Title	A wild strain of *Plodia interpunctella* (Hübner) (Lepidoptera: Pyralidae) from farm-stored maize in South Carolina: Development under different temperature, moisture, and dietary conditions
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Abstract

The purpose of this study was to determine the duration of immature development and survivorship of *Plodia interpunctella* (Hübner) on maize over a range of temperatures and grain moisture contents encountered in maize stored on farms in the southeastern states (USA). Laboratory cultures were established with moths collected from farm-stored maize in South Carolina and maintained on cracked maize at 30 °C and 60% r.h. The incubation period and percentage hatch of eggs was determined at 18 combinations of temperature and r.h. Hatch was <1% at 15 and 40 °C. In the range 20–35 °C, percentage hatch declined as temperature increased, and the mean incubation period ranged from 3.1 to 8.5 d. Neither percentage hatch nor incubation period were affected by r.h. between 43% and 76%. The relationship between mean developmental period (oviposition to adult eclosion) and temperature was well described by a quadratic polynomial that predicted a decline from 67.6 to 30.1 d as temperature increased from 20 to 31.1 °C, followed by an increase to 38.5 d as temperature increased further to 35 °C. The results suggest a lower temperature threshold for development near 15 °C and an upper limit slightly greater than 35 °C. Moisture content had a significant effect on developmental period at all the temperatures studied, but the pattern of variation with moisture depended upon the temperature.