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Majid Bani-Yaghoub* (mbani@math.tamu.edu). *Approximation techniques for traveling waves of a single species delay diffusive model with age-structure and nonlocality.* Preliminary report.

This study makes an effort to construct the traveling wave solutions of a single species Reaction-Diffusion model through a number of approximation techniques. In addition to a monotone iterative technique, the capabilities of an asymptotic expansion, an extended differential transform and a boundary layer technique are explored. While the latter techniques are limited to small values of the delay term or diffusion coefficients, the former has the difficulty of finding a plausible pair of upper and lower solutions. Employing specific birth functions and parameter values, the accuracy of the approximated wave solutions are numerically examined. In conclusion, the usefulness of each technique is highly depends on the form of the birth function and the parameter values of the model. (Received September 19, 2011)