Asymptotic properties of solutions of Volterra difference equations

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We consider the Volterra difference equation of the form

$$\Delta^m x(n) = b(n) + \sum_{i=1}^{n} K(n,i) f\left(i, x(i)\right), \quad n \geq 1,$$

and its special cases. We present sufficient conditions for the existence of asymptotically polynomial solution of the studied equations. We present also sufficient conditions under which all solutions are asymptotically polynomial. Some periodicity and stability results are also given.