A Numerical Algorithm for Approximation and Analysis of Burgers'-Fisher Equation

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In this talk article, the authors proposed a numerical algorithm for approximation and analysis of Burgers'-Fisher equation $\frac{\partial u}{\partial t} - \frac{\partial^2 u}{\partial x^2} + au\frac{\partial u}{\partial x} + bu(1-u) = 0$. Existence and uniqueness of weak solution, a priori error estimates of semi-discrete solution in $L^\infty(0, T; L^2(\Omega))$ norm are proved. Nonlinearity of the problem is handled by lagging it to previous known level. The scheme is found to be convergent. Finally, numerical experiments are performed on some examples to demonstrate the effectiveness of the scheme. The proposed scheme found to be fast, easy and accurate.