Prediction of Agricultural Water Consumption in 2 Regions of China Based on Fractional-Order Cumulative Discrete GreyModel

ABSTRACT

In this paper, a new forecasting method of agricultural water demand, fractional-order cumulative discrete grey model, is proposed. Firstly, the best fitting of historical data is used to construct the optimization model. MATLAB programming is applied to solve the optimization model and obtain the optimal order. Secondly, the fractional-order cumulative discrete grey model in this paper is compared with GM (1, 1) model to verify the performance of the model. Finally, Handan region of Hebei Province and Jingzhou region of Hubei Province were selected as the study areas to predict their agricultural water consumptions. .e results show that the fractional-order cumulative discrete grey model has better prediction performance than the GM (1, 1) model. It can be used as an effective method for forecasting agricultural water consumption.