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A NEW DISTANCE MEASURE BETWEEN FERMATEAN NEUTROSOPHIC SETS AND ITS APPLICATION IN CROP FARMING

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Abstract: The complexity of real-world scenarios often leads to uncertainty, prompting the introduction of neutrosophic theory as a tool for problem-solving. This paper aims to introduce a new distance measure on Fermatean neutrosophic sets and validate it through the axiomatic properties of distance measure. Additionally, it examines several characteristics of the distance measure and conducts a comparative analysis with existing distance measures on Fermatean neutrosophic sets. Finally, to demonstrate its practical relevance, we apply the proposed distance measure to address the problems associated with decision-making in crop farming within a Fermatean neutrosophic framework.

Keywords and Phrases: Fermatean fuzzy set, Neutrosophic set, Fermatean neutrosophic set.

2020 Mathematics Subject Classification: 03E72, 03E75, 26E50.

1. Introduction

In 1965, Zadeh [16] introduced the concept of the fuzzy set to address ambiguity and unpredictability in real-life circumstances. In 1986, Atanassov [2] developed