

RESPONSES OF SELECTED MAIZE GENOTYPES (ZEA MAYS L.) ON NITROGEN FERTILIZATION: GRAIN YIELD AND QUALITY ATTRIBUTES

Muhoja Sylvester Nyandi^{1*}, Dr. Petér Pepó²

¹Kálmán Kerpely Doctoral School, University of Debrecen, 4032 Debrecen, Böszörményi Street 138, HUNGARY

²Institute of Plant Science, University of Debrecen, 4032 Debrecen, Böszörményi Street 138, HUNGARY

*corresponding author: muhoja21@mailbox.unideb.hu

Maize is used as food, feed, and raw materials for industries. It is a more versatile multipurpose crop than wheat and rice. In many countries, particularly in SSA, Latin America, and a few countries in Asia, maize is a well-established and significant crop for human consumption and accounts for approximately 20% of food calories. It has a variety of roles as an industrial and energy crop in industrialized economies, where it is largely consumed as a livestock feed crop. Therefore, maize plays an important, diverse, and dynamic role in the global agri-food systems, and food and nutrition security. Thus, searching to improve the grain quality of maize remains important. This study aimed to assess the influence of nitrogen fertilization on maize hybrids in relation to the quality of grain. Using three nitrogen regimes (i.e 0, 90, and 150 Kg/ha) and three commercial hybrids a field trial was conducted. The result indicated a significant increase in protein content with nitrogen fertilization between hybrids. Additionally, nitrogen fertilization significantly increased yield, however, the high-yielding varieties indicated low protein content irrespective of nitrogen fertilization. To improve nutrition content and safeguard food security, this suggests, a need for maize genotypes with improved protein content and high yielding.