

Genetic Diversity and the Future of Agriculture

/ðə bʒ:θ əv 'ægrɪkʌltʃə/ _____ thousands of years ago changed how humans obtained food. Instead of collecting plants from forests, people began growing crops and selecting plants with useful characteristics. Some farmers also collected /'ləʊkəl waɪld krɒps/ _____, which are plants that grow naturally in a particular area without being planted by humans. Today, scientists study these plants to discover useful genes that may help crops survive extreme weather. Through /'nætʃrəl ,ægrɪ'kʌltʃərəl rɪ'sɜ:tʃ/ _____, scientists investigate how plants grow in nature and how farmers can improve them without necessarily changing their genes in a laboratory. Meanwhile, /dʒə'netɪk rɪ'sɜ:tʃəz/ _____ examine the /daɪ'vɜ:s dʒə'netɪk 'meɪkʌp/ _____ of crops, meaning the different versions of genes found among plants of the same species. This variety is important because it may help crops resist diseases and adapt to environmental changes. For example, researchers are developing crops with a /rɪ'dʒu:st 'grəʊɪŋ 'si:zən/ _____, so farmers can harvest them sooner and grow more crops within a year. They also examine the /'raɪpnəs 'prɪəriəd/ _____, or the length of time a fruit takes to become fully ripe and ready to eat. Even /'kɒmənli ju:zd greɪps/ _____, such as those grown for wine and fresh fruit, can provide valuable information about differences between plant varieties. However, scientists must consider the /,ri:zənə' bɪləti əv 'mɒdɪfaɪd greɪn/ _____, asking whether changing the genes of wheat, rice, or other grains is necessary, beneficial, and worth the possible risks. Sometimes, an /,ʌnɪk'spektɪd ,mɒdɪfɪ'keɪʃən/ _____ occurs when a genetic change produces a result that scientists did not intend or predict. Therefore, protecting genetic diversity while carefully developing new crop varieties is essential for ensuring a reliable food supply in the future.