From domestication to modern agriculture: wheat as a case study.

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Abstract: Three species provide currently 60% of human energy intake: wheat, rice and maize. From its domestication wheat has been the basic staple food of the major civilizations of Europe, West Asia and North Africa. Today wheat is grown in more than 215 million hectares and provides around 20% of global calories for human consumption. Many changes have occurred from the low productive plants cultivated in prehistoric times to the modern varieties grown nowadays, characterized by their high productivity and quality standards. Adaptation processes occurred during wheat migration from the Fertile Crescent to the Iberian Peninsula that was reached about 7,000 years BP. With the Greek settlers and after with the Romans, wheat production reached unprecedented levels in Spain due to the agricultural improvement introduced by the Romans at the beginning of the 2nd century. Under the Arab rule, between the 8th and 15th centuries, farming techniques and new wheat types led to a considerable expansion of agriculture in the Iberian Peninsula. A brief history of wheat migration from Europe into America will be presented. The effects of the Green Revolution in the late 1960s constituted the world conversion to modern agriculture characterized by extreme homogeneity in cultural practices and cultivar structures. Wild relatives and landraces were replaced and many of them lost during this process.