Abstract
Although Romania is not an area with a extreme water stress, drought manifested from the end of July 2011 until September 2012 caused pedological drought. The winter snow from 2011-2012 was not sufficient to recover the water deficit. The south-east part of Romania was one the most affected area. First negative effect of the drought shown in corn was uneven emergence in the spring. The explanation of the phenomena is that the autumn plowing was done in though conditions resulting earth boulders which retained the water that in spring help only a part of the seeds to germinate and emerge. The other seeds germinated approximately after two weeks with the first rain. The objective of this study is to evaluate the effects of water and heat stress during different growth stages in actual corn hybrids (*Zea mays L.*). The research methodology involves observations in vegetation in six locations to determine the effects of water stress, during vegetation. The water stress influence on different corn hybrids yield was determined in a polyfactorial field experiment (Siretel, Iasi County). The studied factors were: the hybrid (3 maturity groups) and planting dates (4 periods). During flowering and silking time, drought caused different abnormalities in corn husks and ears resulting in decreasing the yield. The hybrids behavior according to planting time was not significantly different in the field experiment, because the water and heat stress did not allowed the genetic potential to be maximum exploited.

Key words: corn, actual hybrids, drought, heat stress