The assessment of the combinatory ability between weedy rice and herbicide resistant rice cultivars allow to determine the recombination between both genomes and analyze which traits are key for hybrids persistence in agroecosystems. For this purpose manual crosses were performed between weedy rice (three morphotypes: like-sativa, intermediate and like-rufipogon) and two imidazolinone herbicide resistant varieties in greenhouse conditions. The resulting hybrids were characterized morphologically and molecularly. A total of 337 hybrids were obtained in which plant height, tillering and flowering time were measured every 15 days and compared with 130 parental lines. As a result, hybrids had a higher growth and tillering than parental lines, indicating high heterosis and hybrid vigor. In addition, the flowering time was reached earlier in hybrids at 95-100 days after seeding (DAS) than in rice cultivars and weedy forms that occurred at 105-110 DAS and 115 DAS respectively. PCR using allele specific primers allow the amplification of a PCR product in hybrids carrying a mutation in the ALS enzyme confirming their hybrid nature. Eleven morphological variables (plant height, numbers of panicles, panicle length, number of seeds, awn color, lemma and palea color, grain color, apiculus color, flag leaf length, grain thickness and grain length) will be evaluated during three generations at maturity in order to determinate the combinatory ability through statistical analysis. As future work, the fitness of weedy-herbicide resistant hybrids will be compared with parental lines under competitive and greenhouse conditions.

Keywords: red rice, combinatory ability, herbicide resistant rice