

Imidazolinone (IMI) -Tolerant Cotton Plants

Working group: EEA Roque Sáenz Peña Cotton Improvement Program and Genetics Institute Group on Induced Mutations in Cultivated Plants (IGEAF, as per the Spanish acronym). Principal Investigators: Mauricio Tcach, Alberto Prina and Alejandra Landau.

Statement of problem:

Emergence of weeds in cotton crops. The continuous use of glyphosate in cotton crops produced significant proliferation of glyphosate-resistant weeds. Since the registration of the first glyphosate-resistant variety, no developments have been carried out in the area of tolerance to other herbicides.



Technology Readiness Level:

Advanced stabilized families are available, which carry an allele of (AHAS) gene that grants tolerance. In November 2019, we will submit information to file for registration in the INASE national registry of varieties.

During 2020, we plan to multiply the multi-adversity resistant cotton line that delivers BG resistant to caterpillars, RR resistant to glyphosate and Imidazolinones resistant lines.

These seeds will be marketable in 2022.

Technology proposal:

Selection was based on populations obtained by way of induced mutations in a genetic line of imidazolinone-tolerant cotton. We identified an IMI-tolerant mutation in cotton, affecting a base in gene AHAS; this mutation has not been applied in cotton crops yet.

EEA-INTA Sáenz Peña is working towards the incorporation of this mutant gene in different genetic funds, in which IMI-tolerance could be supported by other important features for commercial varieties development.

Likewise, work is being conducted on a line that gathers three features, BG resistant to caterpillars, RR resistant to glyphosate and Imidazolinones resistant lines. This line represents an unprecedented material, since it is the first cotton variety with two herbicide principles.

Development requirements (testing, scale-up production, investment, etc.):

Larger scale agronomic studies are required and the applicable registration of the new varieties.