The Plant Transformation Facility at Iowa State University offers research partnerships for the genetic transformation of plants. The target crops are maize (corn), soybeans, and rice. Brachypodium distachyon serves as a model organism for grasses, cereals, and biofuel crops. The facility also offers consulting and other transformation-related services.

Maize Transformation
The facility uses either the Agrobacterium or biolistic delivery systems for transformation of corn immature zygotic embryos. Transformed products available are maize callus, plantlets, or seed.

Soybean Transformation
The facility uses an Iowa State University proprietary method (US patent 7,473,822) for Agrobacterium-mediated transformation using soybean half-seed explant from mature seed. Transformed seed is the product.

Rice Transformation
Agrobacterium-mediated transformation is the method used to transform rice callus cultures derived from mature embryos. Transformed rice plantlets will be delivered to the customers.

Brachypodium distachyon Transformation
Brachypodium distachyon (common name purple false brome) is a model organism for functional genomics research in temperate grasses, cereals, and dedicated biofuel crops such as switchgrass. The target tissue for Agrobacterium-mediated transformation is callus cultures derived from immature embryos. Transformed plantlets are the available product.

Transformation-Related Services
The Plant Transformation Facility also provides instrumentation, technical assistance, consultation, and training. Facility personnel instruct a graduate course (GDCB 542D) on plant transformation and transgenic plant analysis every spring semester.

Transformation Methods
The methods for genetic transformation are Agrobacterium-mediated and biolistic systems. Agrobacterium tumefaciens is a common soil bacteria that has a natural ability of delivering DNA into plant cells. The biolistic BioRad PDS1000/He device bombards the targeted tissue with gold particles coated with the genetic material to be introduced.