



Tropentag, September 17-19, 2013, Stuttgart-Hohenheim  
“Agricultural development within the rural-urban continuum”

## Potential Adoption and Impact of Embrapa 5.1 GM Common Bean for Small and Middle Size Farms in Brazil

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### Abstract

Brazil is the largest common bean (*Phaseolus vulgaris* L.) producer and consumer worldwide. Main commercial grain type is “carioca” bean, the country’s main dry bean class. Over 90 % of producers grow beans on less than 5 hectares. The Bean Golden Mosaic Virus (BGMV) is regarded as a major disease in common bean production in Brazil as well as in other growing countries. The control of the vector white fly (*Bemisia* spp.) demands a large amount of insecticides. In September 15, 2011, an official Brazilian authority institution approved the commercial release of the first trait of genetically modified common beans. This trait represents a milestone in genetically modified organisms (GMO), since this is the first GM trait developed by public research in Brazil, supported exclusively by public fundings, and whose focus is on a crop that is grown mainly by small and medium size farms in Brazil. The ‘Embrapa 5.1’ GM trait incorporates a genetic resistance against the BGMV. In order to obtain the GM varieties, the Embrapa 5.1 trait must be incorporated into breeding lines. Now, the unsuitable areas highly infested by the white fly may become suitable again for growing dry beans. The first seeds of GM bean varieties are expected to be available to farmers in Brazil by 2015. Thus, we consulted experts to assess the potential changes in the dry common bean chain after the commercial release of GM bean varieties to seed and grain producers in Brazil. The consultation was done via electronic questionnaire with agronomic consultants, seed producers and bean processors during 1<sup>st</sup> semester 2012. In general, it is expected that (a) bean production will happen again on those BGMV infected areas; (b) production costs will be reduced (less pesticide use); (c) grain quality may improve due to less potential pesticide residues; (d) production may become more constant over the year, reducing price fluctuations; and (e) consumers will have access to cheaper food over the whole year.

**Keywords:** Disease resistance, *ex-ante* evaluation, green biotechnology