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Poster Communication Abstract – 1.08

BIO-BELIEF: COMMON BEAN AND CLIMATE CHANGE

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Phaseolus vulgaris, seed quality, water stress, healthy diet

Common bean (*Phaseolus vulgaris* L.) is a staple food in many regions in the world. Bean seeds are a major source of dietary fibers, essential amino acid-rich proteins, some vitamins and often display a high content in essential minerals such as iron, zinc and calcium. However, these minerals are scarcely bioavailable, mainly due to the presence of phytic acid (PA) and phenolic compounds. Besides, about 60% of common beans produced worldwide are grown in regions subjected to water stress, thus after diseases, drought is the second most important factor that contributes to yield reduction.

BIO-BELIEF (BIOfortification of common Bean to promote heaLthy dIEt and

Food security) is a multidisciplinary project, financed in the frame of the ERA-NET FOSC call, born from the establishment of a trans-continental consortium between European, African and Brasilian partners, aims to select new biofortified and drought resilient bean lines, in order to promote a healthy diet in a general frame of food security. The project will release genetic materials with high nutritional values and develop nutritional improved and drought resilient beans suitable to be grown in Europe, Africa and Latin America (last two are regions where bean is a major staple food).

BIO-BELIEF will capitalize previous works carried out by some partners that have selected biofortified lines with reduced level of PA, increased iron content and improved drought resilience. About 20 lines will be tested for seed quality in response to drought treatment in two continents. Meanwhile, the biofortification traits will be introgressed in the drought resilient genetic backgrounds. The innovative technology of Genome Editing (GE) will also be applied to explore candidate genes involved in drought resilience. The biofortified lines will be exploited by preparing bean-based recipes, which will be characterized for their nutritional profile and micronutrient bioavailability. The selected lines will be used for testing by the consumers to validate new biofortified diets for European, African and South American populations.

Here we will present the preliminary results of BIO-BELIEF project.