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# Legumes for a Sustainable World

**ILS2** | Second International Legume Society Conference

**11<sup>th</sup> - 14<sup>th</sup> OCT 2016**  
TRÓIA RESORT | PORTUGAL



2016-17. Performances variability has been analysed in relation with (a)biotic limiting factors and farmers practices.

**14:40-14:50 · Oral – S16**

**Quantification of nitrogen fluxes and explanatory plant traits during a two-year legume-cereal rotation**

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In the context of agroecological transition, the reintroduction of legume crops should play a key role in cropping system sustainability by allowing a reduction of nitrogen (N) inputs. But few references are available concerning the agronomical and ecological services provided by a wide range of legume crops, particularly within crops succession scale. Thus, the main objective of our study is to quantify the N fluxes during and after the legume crops taking into account 10 legume crops (peas, lupin, faba bean, soybean...). Our experiment consists in i) quantifying symbiotic N fixation depending on the amount of soil inorganic N, the mineralisation of N present in legume crop residues after soil incorporation and N losses outside of the soil-plant system (leaching, emission of nitrous oxide), ii) identifying plant biological traits associated to N fluxes. Thus, different N fluxes were quantified during a two-year field experiment, i.e. the first year (2014) legume crops were implanted and followed by wheat the second year (14-15) after incorporation of legume residues. This experiment will be repeated in 2016-2017. The first results concerning legume pre-crop effects will be presented during the congress, considering the effect of preceding legume crops on wheat seed yield and N content. This effect will be related to legume aerial and below ground residues that were characterized by their biomass, C/N content and potential mineralization.