

## 中荷 AGD-CSC 项目招生课题目录

### Proposal List for 1+3 AGD-CSC Students Call in 2024

#### **No.1 Legume-based crop diversification across China: tailoring cropping systems to provide multiple ecosystem services**

##### **The aims of the project are:**

- 1) To investigate the impact of legume-based crop diversification on biodiversity and related ecosystem services, and the production of healthy food for human nutrition;
- 2) To analyse how the choice of cropping system and the management meet multiple production objectives. The project will provide a clear view on the current status of legume-based crop diversification across China and will clarify whether legume-based crop diversification is actually capable of supporting biodiversity and multiple ecosystem services. The results will provide guidance for policy makers on incentives and policies that can favour uses of legume-based crop diversification that take into account current climatic conditions and future needs.

##### **The tasks within this project will be to:**

- Build up a dataset on crop diversification in China, based on published papers on crop diversification.
- Interview farmers in four different regions in China to investigate the types and productivity of different crop diversification strategies.
- Map the crop diversification distribution and related climatic factors and soil conditions in different regions of China.
- Present the work at (inter)national meetings and publish scientific articles in international journals.

##### **Requirements**

- MSc degree in agronomy, plant nutrition, farming systems.
- Hands-on experience in farm surveys, secondary data collection.
- Experience in statistical analysis (R), preferable including meta-analysis and/or machine learning.
- Affinity with working in a multidisciplinary group in an international context.
- Language skills: Fluency in English writing and speaking required; for details see

<https://www.wur.nl/en/education-programmes/phd-programme/practical-information/entry-requirements.htm>

## **No.2 Integrated nutrient management systems towards green agricultural production in China**

### **The aims of the project are:**

The main objectives are to increase the understanding of heterogeneity in crop nutrients demand vs. animal manure returned to field, through upscaling farm-level nutrients flow characteristics of manure management chain to regional scale, and to explore integrated strategies (i.e., manure management, balanced fertilization) to better localize manure-sourced nutrients.

### **The tasks within this project will be to:**

- (1) Modeling the nutrients flow characteristics of manure management chain at regional level, based on data collection from literature sourced data, national survey data and existing models (MITERRA, NUFER, GLEAM etc.);
- (2) explore regional manure management solutions based on spatially specific agronomic targets, i.e., crop demands, nutrient use efficiency;
- (3) explore the strategies of spatial reallocation or recoupling crop and livestock production to matching the nutrient demand of growing food production;
- (4) compare the nutrient management strategies between China and European countries, and developing the future management strategies.

### **Requirements**

- MSc degree in agronomy, plant nutrition, soil science or environmental science.
  - Experience in statistical analysis (R software), GAMS software, and agricultural and environmental modelling.
  - Knowledge about nutrient (nitrogen, phosphorus and potassium) use and losses from soil, fertilizer and organic waste, especially mitigation measures.
  - Affinity with working in a multidisciplinary group in an international context.
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- Language skills: Fluency in English writing and speaking required; for details see <https://www.wur.nl/en/education-programmes/phd-programme/practical-information/entry-requirements.htm>