

**Project: The potential of ISFM in cocoa**

**1.** **Describe the organizational context** [(info)](#organizationalcontext" \o "information)

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| **Name** | Hougni Déo-Gratias |
| **Date** | 2018-09-10 |
| **Chair group** | Plant Production Systems |
| **Graduate school** | Production Ecology & Resource Conservation |
| **Supervisor/ (co-)promotors** | Prof Ken GILLER |
| **Start date of project** | 2018-06-01 |
| **File name of this DMP** | deodmp |

**2. Give a short description of your research project** [(info)](#shortdescriptionofresearch" \o "information)

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| **Title** | The potential of ISFM in cocoa |
| **Abstract** | There is an avenue to increase cocoa yields in West Africa through integrated soil fertility management (ISFM). However a considerable knowledge gap must be closed to prevent implementation of ineffective fertilization practices. This project intends to explore the potential of several options of soil fertility management in cocoa farming. The project strives first to deepen our understanding of cocoa farming system, focusing on the availability of organic resources and the effect of current fertilization practices on yields. This will help to set the boundaries of technical options at hand for different categories of cocoa farmers. Regarding the application of mineral fertilizers, the likelihood of its effectiveness will be framed by identifying the key soil characteristics which determine its responsiveness. Within the range of the *a priori* opportunities, cocoa husk recycling is attractive because of its high content of potassium (K). The patterns of K release from cocoa husk will be identified, and selected management options will be tested to avoid excessive K leaching without increasing the risk of black pod disease dissemination. The project will also assess the role of organic matter (OM) in nutrient cycling, so as to understand whether addition of organic material is required or superfluous, given the large amount of litter annually produced in mature plantations (5 tons DM.ha-1 on average). Especially, the effect of mineral-N addition on the whole decomposition process and the subsequent nutrient release will be quantified, in order to prevent risks of either immobilization or leaching. |

**3.** **Define data management roles**

[(info)](#Datamanagementroles" \o "Information)

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| **Roles** |  |
| Who is **collecting** the data? | Depending on the nature, primary data will be collected by either surveyors, IITA staff members, MSc student involved in CococaSoils project, or directly by the PhD student. Secondary data will be retrieved from diverse sources including CocoaSoils, Cocoa Research Institute of Nigeria (CRIN), etc. |
| Who is **analysing** the data? | Analysis will be carried out by the PhD student, with the assistance of Dr Joost van Heerwaarden. Dr Tom Schut will further help in modelling exercises. |
| **Other** (Is there a person in the research group with a specific responsibility for data management? Do other persons contribute, for example by writing code?) | External expertise will be sought based on specific needs as the evolve. Practical orientation will come from Dr Moses Ogunlade (CRIN) and Dr Richard Asare (IITA) because of their good knowledge of cocoa research in the study area. |
| What is the role of your **supervisor?** | The overall supervision is provided by Prof Giller, as expert in farming system analysis and in soil-plant-nutrient interactions. Dr Schut will assist in soil resource mapping and decomposition modelling. He will also be in charge of daily supervision, together with Lotte Woittiez who has an expertise in nutrient management in perennial crops. The team meets up on a monthly basis. |

**4. Give an overview of expected** **types of research data** [(info)](#Typeofresearchdata" \o "Information), **software choices** [(info)](#Softwarechoices), and **data size & growth** [(info)](#Datasizeandgrowth)

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| **Data stage** | **Specification of type of research data** | **Software choice** | **Data size/ growth** |
| Raw data | Farm management data will be collected through surveys, interviews and focus-group discussion.  Trials will be set up and field data will be collected in form of spread sheets. | ODK  Microsoft Excel | Less than 1 Tera |
| Processed data | Digitalized maps will be retrieved from local sources in Nigeria | ArcGIS | Less than 1 Tera |
| Models/code | A decomposition model will be adapted/formulated to suit cocoa environment in West Africa, and account for nutrient release. | R | Less than 1 Tera |

**5.** **Short-term storage solutions\*** [(info)](#Shortermstorage)Describe where the data will be stored physically and how the back-up is organised.

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| **Data stage** | **Storage location** | **Backup procedures**  (storage medium and location/ how often?) |
| Raw data | Laptop | Network drives |
| Processed data | Laptop | Network drives |
| Models/code | Laptop | Network drives |

**6.** **Structuring your data and information** [(info)](#Directoryandfilenaming" \o "Information and examples)Give a visual representation of the system for directory- and file names you intend to use. See these [examples](#ExamplesDirectory) for inspiration.

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| *The data will probably be located in folders structured as follows:*  **Papers**   PDFs   Paper 1   Paper 2   Paper 3   Paper 4  **Data**   Farming system analysis  o Initial survey  o Follow-up survey  o Qualitative analysis  o On-farm measurements and extrapolation  o GIS and ground survey   Satellite-trial S1  o Season 1\_raw  o Season 2\_raw  o Consolidated Yields\_ NUE\_ balances  o Soils characteristics\_ responsiveness  o Effects of confounding factors   Combined S2 and L1 trials  o S2\_raw  o L1\_raw  o K leaching monitoring  o Pathogen measurements   Combined S3 and L2 trials  o S3\_raw  o L2\_raw  o OM fractions in decomposition  o NH4-NO3  o Al species in OM fractions  **Model**   Model structure and scripts   Model input  o Litter quality  o Environmental constants and climate-derived parameters   Model output  o Training  o Tests  **Administration**   Meeting agendas and notes   Financial   Planning   PhD proposal |

Does your workflow provide for version control? If not, describe how you intend to keep versions apart.

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| **Yes, it does. The files will be named after the date of creation and description of the content.** |

**7.** **Documentation and metadata\*** [(info)](#DocumentationandMetadata" \o "Information)

Describe how you are going to document your data collection process, what the resulting data files comprise and how they will be processed further. Think about documenting the:

*1. content (what does your dataset contain?)*

*2. context (who, what, why, where and how will the data be collected and analysed?)*

*3. process (are there specific processes and does it make sense to organise your notes according to these processes?)*

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| *Each dataset will be supplemented with a file (readme.txt or Information sheet) to understand the content. If relevant procedure of data collection will be provided as well.* |

**8.** **Sharing, ownership and privacy\*** [(info)](#SharingandOwnership" \o "Information)

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| **Sharing, ownership and privacy** | **(With) who(m), what and how?** |
| Data **sharing** - Do you expect that others may be interested in re-using your data?Do you have plans to share your data with these parties?  - How are you going to make sure your datafiles will be accessible once you leave the department? Who will take care of your data? | Related procedures at PPS will be observed. |
| Data **ownership**  - Any funders requirements to share your data, or to impose an embargo?  - Are there agreements on how the data will be used and shared within your group or with other parties involved in this research? (outside your group or outside Wageningen University & Research) | The owners of the datasets will be contacted with regards to any questions about their datasets.  Data produced within the framework of this project belong to CocoaSoils project. |
| **Privacy** - Are there privacy or security issues, and if there are, how are you dealing with them? | All privacy sensitive information will be removed from the data prior to storage/sharing/publication. |

**9.** **Long-term storage\*** [(info)](#Longtermstorage" \o "Information)  
Which part of your research data has value for long-term storage? Do you intend to preserve these data for the long term?

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| **Yes or no ?** | **Argumentation** |
| Yes | For further analysis, and possible applications. |

Which data archive do you intend to use?

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| I intend to archive all the non-sensitive data in form of ZIP files and submit to a data journal. |