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| **Work Package Number** | **5** | | | **Start/End Month**[[1]](#footnote-1) | | | | 01/36 | |
| **Work Package Title** | Modelling crops and pasture as a tool for a more resilient agriculture | | | | | | | | |
| **Lead Beneficiary[[2]](#footnote-2)** | ULIEGE | | | | | | | | |
| **Participating organisation Short Name\*\*** | IAV | INRA-M | UCHILE | | UOH |  |  | |  |
| **Total Person Months per Participating organisation:** | ? | ? | ? | | ? |  |  | |  |
| **Objectives:**  Several regions with high agricultural value in arid and semi-arid environments will hardly suffer the impact of climate change and globalization in the future. Faced with this situation, the authorities with support of scientists, must propose appropriate solutions that will maintain or even strengthen food security and agricultural economy of their country. For this, we propose to build, adapt and valorize crop modelling tools to support authorities in decision-making aimed at making agriculture more resilient from both a technical and economic point of view.  **For this, we propose to build, adapt and valorize crop modelling tools to support authorities in decision-making aimed at making agriculture more resilient while maintaining economic and environmental sustainability.**  **Collaboration Objectives**: Effective knowledge transfer between partners during secondments and workshops and trainings on different crop modelling tools for the participants.  *explain the main objectives of the WP (e.g. R&I, Training, Transfer of Knowledge (Through secondments, After secondments /Through reintegration)* | | | | | | | | | |
| **Description of Work and Role of Specific Beneficiaries / Partner organisations broken down and listed into numbered tasks including the following details:**  **Task 5.1 Crop and Pasture Yield and Production modelling**   * *XX of Person Months allocated to secondments* * *ULiege, IAV, INRA-M, UCHILE and UOH will compare and analyse the Crop and Pasture yield and Production forecasting systems in place in their country and will propose adaptation and updates of their own based on this knowledge and expertise exchange.* * *Artificial Intelligence techniques (Machine learning techniques) will be introduced (if not yet used) or extended in these crop and pasture yield and production forecasting systems.*   **INRA-M use ML for yield forecasting, surface estimation, nitrogen, drought.. at different scale (parcel or administrative boundaries)**   * *Crop pest and diseases impact on crop yield reduction will be assessed based on available pest and diseases information and yield data.*   **We can keep this topic but focus on the use of new technologies (Weather-Based Predictive Modeling, Remote sensing, ..) to forecast the impact of pest and diseases on crop yield.**  ***Task 5.2*** *Crop* ***yield modelling under different climate scenarios and economic contexts***   * *XX of Person Months allocated to secondments* * *Impact on crops of future climate conditions as proposed by different climate scenarios in selected semi-arid areas will be simulated using different models and shared between ULiege, IAV, INRA-M, UCHILE and UOH.* * *Based on these different analyses and according to the regions, adapted species and varieties providing the best resilience (not only the best profit) will be proposed.* * *The impact of the level of Globalization of the agriculture economy will also be simulated from a macro-economic point of view and will correspond to different economic scenarios that will be shared between partners and mixed with the different climate scenarios* * *One training and one workshop combining T5.1 and T5.2*   **Task 5.3**   * *XX Person Months of secondments* * *Information provided to decision-makers early enough (authorities, insurance companies, agricultural cooperatives, etc.) makes it possible to anticipate crises and will reduce the impact on populations, which is essential in the search for better resilience of agriculture production systems. It is therefore important to have automated tools that communicate information clearly and in time to decision makers. This Task 5.3 will be devoted to the building of WEB-GIS platforms to calculate and communicate yield and production in near real time to decision makers.* * *One training and one workshop*   *Brief description of the task in terms of relevant information concerning the specific activity/goal, the leading organisation of the task, the role(s) of the participating organisation(s),* ***the profiles of the involved staff members !!****, etc.* | | | | | | | | | |
| **Description of Deliverables:**   1. Updated crop and pasture yield and production systems for at least 2 countries 2. Report on the climate change and economy context change impacts on resilience of agriculture for at least two **countries** in semi-arid areas 3. 2 workshops 4. 2 training sessions   *- provide a brief description of the planned deliverables that is consistent with the deliverables to be listed from all WPs in Table B3a*  *- i.e. consider consolidating the above listed tasks into a reasonable number of concrete outcomes (scientific and/or management, training and dissemination deliverables)* | | | | | | | | | |

1. **Start/End Month** refers to months of the project not calendar months [↑](#footnote-ref-1)
2. **A "lead Beneficiary" must be a Beneficiary (= organisation established in a MS/AC)** and cannot be a TC Partner organisation [↑](#footnote-ref-2)