國立臺灣大學109學年度農業經濟學系博士班入學考

考試時間為15:10~17:10。試題請隨答案本繳回。

英文　第(一)卷

2020/5/1

本試卷分為第(一)卷與第(二)卷，卷(一)共 1 題，總分 50 分。
請將答案分別填寫於相對應試卷之答案本內。

1. (英翻中) Smart Farming represents the application of modern Information and Communication Technologies (ICT) into agriculture, leading to what can be called a Third Green Revolution. Following the plant breeding and genetics revolutions, this Third Green Revolution is taking over the agricultural world based upon the combined application of ICT solutions such as precision equipment, the Internet of Things (IoT), sensors and actuators, geo-positioning systems, Big Data, Unmanned Aerial Vehicles (UAVs, drones), robotics, etc. Smart Farming has a real potential to deliver a more productive and sustainable agricultural production, based on a more precise and resource-efficient approach. However, while in the USA possibly up to 80% of farmers use some kind of SFT, in Europe it is no more than 24%. From the farmer's point of view, Smart Farming should provide the farmer with added value in the form of better decision making or more efficient exploitation operations and management. In this sense, smart farming is strongly related, to three interconnected technology fields addressed by Smart AKIS Network:

(1)Management Information Systems: Planned systems for collecting, processing, storing, and disseminating data in the form needed to carry out a farm's operations and functions.

(2)Precision Agriculture: Management of spatial and temporal variability to

improve economic returns following the use of inputs and reduce environmental impact. It includes Decision Support Systems (DSS) for whole farm management with the goal of optimizing returns on inputs while preserving resources, enabled by the widespread use of GPS, GNSS, aerial images by drones and the latest generation of hyperspectral images provided by Sentinel satellites, allowing the creation of maps of the spatial variability of as many variables as can be measured (e.g. crop yield, terrain features/topography, organic matter content, moisture levels, nitrogen levels, etc).

(3)Agricultural automation and robotics: The process of applying robotics, automatic control and artificial intelligence techniques at all levels of agricultural production, including farmbots and farmdrones.

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英文　第(二)卷

2020/5/1

本試卷分為第(一)卷與第(二)卷，卷(二)共 2 題，總分 50 分。
請將答案分別填寫於相對應試卷之答案本內。

1. (中翻英) 要瞭解未經充份探索而滿藏驚訝的複雜現實，我們最需要的不是標準化的工具，而是窮本溯源的探險精神。我們最好的開端，不是一頭栽進所謂理論回顧，而是發揮我們每日生活於此一社會所帶來的對社會現象的常識性瞭解，不斷的自我質疑，逐步精煉我們的想像力與邏輯推論，最後達到一個有點令人驚訝，但又不超出日常生活情理的解釋。這過程就像說故事般。好的研究，就是一個好的故事。

2. (英翻中) How is the world going to feed nearly 10 billion people while also advancing economic development and meeting the challenge of climate change? This has become one of the paramount questions of our time. Reducing food loss and waste is part of the answer. Tackling the issue of food loss and waste can generate a "triple win." Reductions can save money for farmers, companies, and households. Wasting less food means we can feed more people. And reductions can alleviate pressure on climate, as well as on water and land. Fortunately, a modern movement around food loss and waste reduction is emerging. In 2015, nations of the world adopted the Sustainable Development Goals (SDGs)—including "Target 12.3," which calls for halving the rate of food loss and waste by 2030. The issue is now on the minds of

public and private sector leaders. Ambitions have been raised. Steps are being taken. What we need now, though, is a shared vision of what needs to happen to get the world on track to halving food loss and waste. We need a Global Action Agenda.