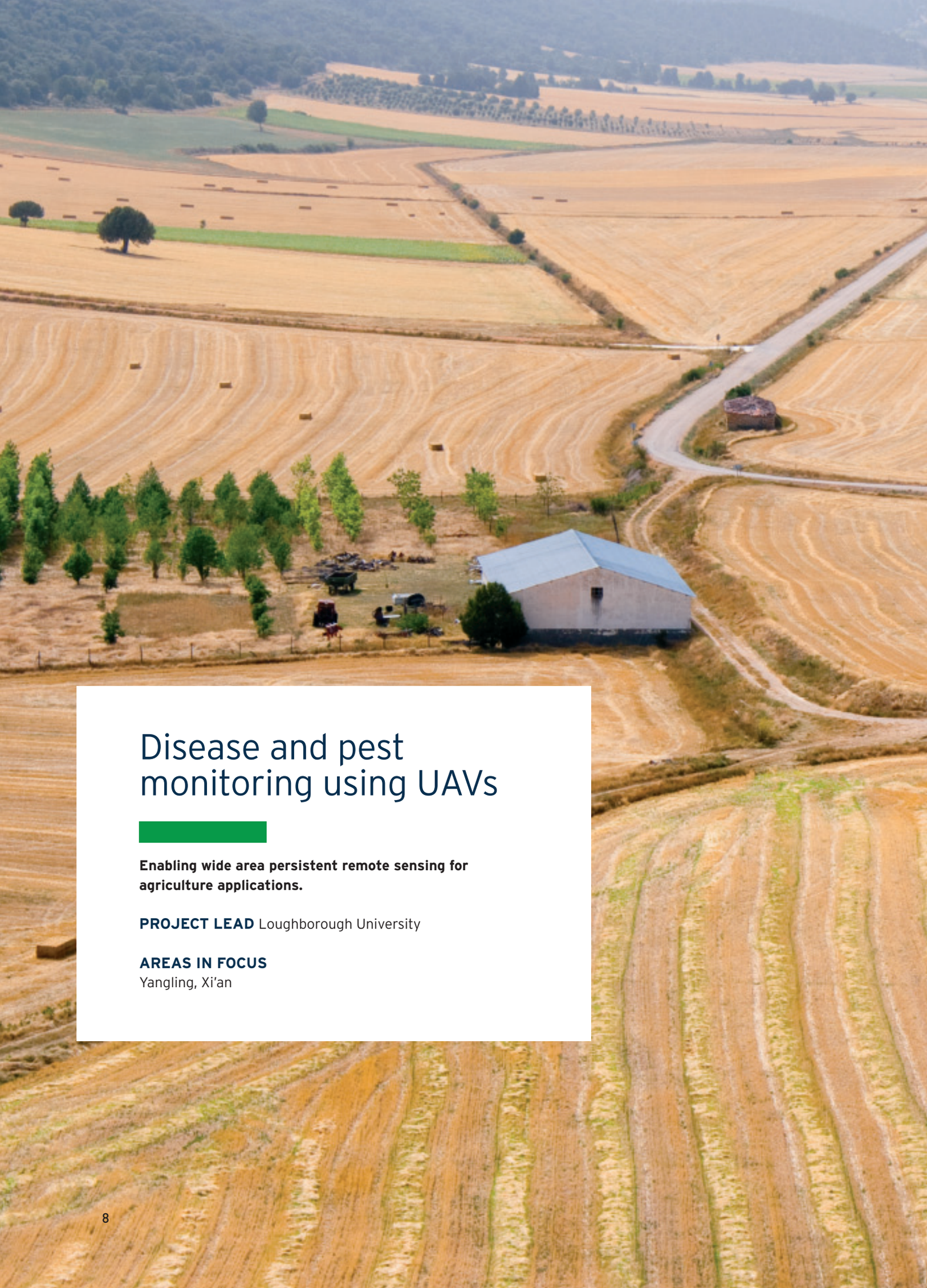

Disease and pest monitoring using UAVs

Enabling wide area persistent remote sensing for agriculture applications.

PROJECT LEAD Loughborough University

AREAS IN FOCUS
Yangling, Xi'an

"This project combines the latest developments in remote sensing technologies and artificial intelligence together for pest and disease detection and monitoring, which could significantly increase China's crop yields while reducing environmental footprint."

Project Leader, Professor Wen-Hua Chen, Loughborough University

PROJECT SUMMARY

Recent advances in remote sensing capability, such as the availability of high resolution satellite imagery and affordable drone technology, opens the door for a wide range of agriculture applications. However, many technical and knowledge barriers exist in realising the potential that these technologies could bring to end users.

This project aims to reduce these barriers and realise the potential of remote sensing capabilities in agriculture particularly in the context of precision farming.

SOLUTION

This project will develop remote sensing platform technologies that have been optimised for crop monitoring in China and designed around the needs of Chinese farmers. This will be done in two ways: Firstly by enhancing the avionics of the unmanned aerial vehicles (UAV's) so that the user has more precise control and knowledge of the positioning of the platforms will enable better monitoring of agricultural productivity. Secondly by developing a coordinated system, by which different types of existing sensing platforms (i.e. satellites, unmanned aircraft, or airships) can be controlled, a greater coverage of the landscape can be surveyed.

By combining these systems together effectively bridges the gap in the temporal and spatial resolution that one platform alone cannot accomplish. It is expected that this optimised management will reduce the operational cost while increasing the performance and efficacy of these platforms to measure crop health and growth over the entire growing cycle. It is also expected that this will provide a data and control system that can be used by a non-specialist farmer to provide farm management data that is useful, timely and easy to understand.

PROJECT IMPACT

This project builds on China's rapidly growing UAV market in order to optimise them for use in agricultural applications. By making the technology easy to use, we are able to bridge the spatial and temporal scales needed and to be coordinated across different sensing systems, it is hoped that a farm management tool can be created that any Chinese farmer can employ.

UK PARTNERS

- Project Leader, Dr Wen-Hua Chen, Loughborough University
- University of Manchester
- Cranfield University
- NIAB EMR

CHINA PARTNERS

- Beihang University (BUAA, PI)
- Beijing Aerospace Automatic Control Institute (BAACI)

IMPACT FACTS

- **The demand for food is expected to continue to rise as global population grows and a rising middle class demands more meat and dairy products in rapidly developing countries like China.**