植物醫學暨安全農業碩士學位學程

教育目標

秉持培育卓越植物醫師之願景，網羅已具備生物農學相關專業學識之學生，厚實所有植物醫師對植物診療時所應具有之涵養，並培育學生具作物安全生產與管理、精準診斷與處方、農作物整合性健康管理、植物防疫檢疫能力規劃及推動植物醫師相關法規之專業知能。期望能在兼顧環境及食用安全的前提下，達到促進農作生產，並培養學生成為全方位植物醫護人員及作物安全生產人才為主要教育目標。

課程規劃

本學程師資來自植物病理學系、昆蟲學系、土壤環境科學系、園藝學系及農藝學系等，藉由跨領域之科系、學科整合，促成植物醫學科技整合性之研究與應用，並求滿足農民及農企業即時診斷與處方之需求，規劃植物病蟲害臨床診斷、害物藥劑學-藥理與應用、害物防治處方、植物生理障礙診斷與管理、專題討論與植醫實習為必修課程。選修課程涵蓋「植物醫學」與「安全農業」兩學門，課程包含植病、昆蟲、作物、土壤及安全農業領域，可提供修業學生專業與應用科學之紮實、實務訓練。學生可獲作物栽培管理技術、植物健康管理知識、植醫診斷能力、農藥藥理與專業處方應用能力、農業相關制度與法規、植物檢防疫相關知識及技術及科學研究、團隊合作與表達能力之核心能力。

主要研究領域

◆作物營養與栽培管理：配合作物育種、生物科技、園產品處理技術及栽培管理等課程，針對作物進行診斷鑑定，研究其生長與發育、作物生產與生理、作物營養需求。

◆作物病、蟲、草害及營養障礙診斷與健康管理：針對重要作物病蟲害作臨床診斷，研究作物生理、環境生理、營養診斷及生理障礙，並作安全生產與整合性健康管理。

防檢疫相關技術與實務：研究植物防檢疫重要有害生物診斷鑑定技術之研發、作物重大病害及蟲害之共同防治技術之研發、微生物製劑與植物源防疫資材之研發、生物防治與非農藥防治資材之研發、重要病蟲害之流行與預警模式探討。

農藥藥理與專業處方應用：重視環境生態保護，研究農藥原理與應用、農藥處方箋、農藥管理及風險分析、農業用藥品管理法規與制度之研究、環境風險評估殘留檢驗方法。

安全農業與生態永續：依據生理學、病理學、土壤環境管理、生物技術之知識與研究成果，整合生物防治、微生物防治、化學防治、有機栽培及管理、無毒病蟲害防治技術、安全農藥施用、經濟有效肥培管理技術等為綜合病蟲害防治計畫，以協助政府辦理防檢疫病蟲害監測與風險評估、有機農業發展、農產品安全檢測、生態環境保護等工作。

教研成果

由於全球氣候變遷、糧食安全問題受到高度關切，強化植物醫學與農業生產安全之專業知能為必要之作為，且行政院農業委員會動植物防疫檢疫局亦正草擬「植物醫師法」，仿照獸醫師法推動國家植物醫師證照制度。因應此專業人才之需求，本學程於104學年度正式成立，將提供多樣化學習環境、完備的植物醫學及安全農業技術之專業知識與實作，以培育台灣植物醫學暨安全農業研究與服務之種子人員。

未來將配合「教育部補助大學校院建立課程分流計畫」及本校農產品農藥殘留檢測中心，設立「植物臨床診斷醫療中心」，針對植物疫病蟲害、植物栽培及土壤管理，提供專業解答與建議，並藉由所建立之快速鑑定技術，診斷與偵測所發生之疫病蟲草害，開立處方箋，協助農民剷除或抑制作物病蟲草害的發生，並定期召開「植物醫學培訓專班」及「植物醫學人才培育-農藥藥理與應用」課程，以培育更多人員投入植物醫學相關工作。

▲植物醫學人才培育—農藥藥理與應用培訓專班
The class members participating in the training course of “the mechanisms and prescription of pesticides”.

Mission

This is a graduate-level program intended for students holding a bachelor's degree in agricultural or biological sciences. The Master's Program for Plant Medicine and Good Agricultural Practice (PMGAP) is designed to train students to diagnose plant disorders and diseases caused by abiotic and biotic factors, develop integrated strategies to manage the mentioned problems, properly prescribe and apply pesticides for pest management, and perform good agricultural practice for producing high-quality crops.

Curriculum

Courses offered in the PMGAP are instructed by faculty in the Department of Plant Pathology, Entomology, Soil Science, Horticulture, and Agronomy. Core courses include Plant Disease and Pest Clinics, Agricultural Pesticides-Pharmacology and Application, Agricultural Pesticide Prescriptions, Diagnosis and Management of Plant Physiology Disorders, Seminars, and Internship in Plant Medicine. The required courses include both plant medicine and good agriculture practice disciplines.

Core Research Topics

- Nutritional and cultural practice : Basic plant physiology, nutrient requirements during different growth stages, crop breeding, and the processing of agricultural products.
- Plant disease diagnosis and health management: Diagnosis of crucial plant pathogens, insect pests, and nutrient deficiency and their effects on plant health.
- Principles and practice of plant quarantine and disease management : The development of rapid diagnostic tools for crucial plant pests, the screening of biocontrol agents for plant health improvement or reducing disease severity, and the establishment of pest monitoring systems and risk assessment models for economically crucial pests.
- Mode of action and prescription of pesticides: Understand the biochemical mode of action of pesticides and develop analytical techniques for detecting pesticide residues in the environment or in agricultural products.
- Substantial agriculture : Implement integrated pest management for agriculture production and food safety.

Achievements

A continued increase in the global population along with climate change could steadily deteriorate agricultural productivity and cause a global food shortage. The demand for integrated pest management for plant health will continue to rise. The safe and effective use of pesticides recommended by well-trained professionals is critical for integrated pest management in modern agriculture. The PMGAP at NCHU was founded in 2014. Through complete training, students gain extensive skills and knowledge to prepare for their profession in agriculture. The program may enhance global competition in all areas of agricultural production. Students who successfully complete their training could enhance global competition in all areas of agricultural production in general, and considerably elevate the quality of pest management in particular. Establishing plant clinical professionals, passing laws for the requirement of certification, and plant physician licenses along with the establishment of a professional prescription system will be necessary for advancing agricultural production in the future.

▲斗六八百年茄苳老樹回春
Rejuvenate of an eight-hundred year old tree

▲作物病蟲害、水份管理及授粉不良情形
Symptoms induced by pests, malpractice, and disorder

▲至本校北溝農場校外實習
Campus internship

▲與學生、農民講解作物問題
Discussion with students and growers

▲至台灣拜耳公司參訪
Visit to Bayer Corporation

▲與農民合影
Field vist