

# 亞蔬—世界蔬菜中心

【函】

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密等及解密條件：  
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主旨：本中心自即日起至本(114)年 4 月 28 日止，接受各大學相關科系大三以上(含暑假後為大三生)之在學學生暑期實習申請，實習時間自本年 7 月 1 日至 8 月 29 日止，地點為本中心臺南善化總部相關研究單位，詳如說明，請查照。

說明：

- 一、請於 114 年 4 月 28 日前至亞蔬網站或 QR code 線上填妥表單後下載文件，簽名後將掃描檔寄回 training@worldveg.org。
- 二、申請者須經由學校教授推薦，請指導教授於申請表中簽名。
- 三、本中心不提供實習津貼，也不收取實習費用，餐宿、交通、保險自理。擬申請於本中心餐宿部住宿者，請於申請表中註明；以家住東部、北部和中部者為優先，額滿為止。住宿費用每月新臺幣參仟伍佰柒拾伍元，並加收冷氣機電費。

正本：國立臺灣大學、國立宜蘭大學、國立中興大學、國立嘉義大學、國立屏東科技大學、臺北醫學大學、天主教靜宜大學、天主教輔仁大學、東海大學、國立清華大學、國立成功大學、國立陽明交通大學、國立中央大學、國立高雄大學、國立臺灣師範大學

副本：

亞蔬—世界蔬菜中心



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# 2025年亞蔬-世界蔬菜中心暑期實習

## 亞蔬背景介紹：

亞蔬—世界蔬菜中心原名「亞洲蔬菜研究發展中心」，為我國、美國、日本、韓國、泰國、越南及菲律賓等7國政府於1971年5月與「亞洲開發銀行」(ADB)共同設立的國際農業研發機構，也是全球唯一專注於蔬菜作物研發的國際組織，旨在促進高營養價值蔬菜之生產與消費，以減輕開發中國家之貧窮與營養不良問題。

亞蔬—世界蔬菜中心致力研發提高營養蔬菜的生產、品質、消費及利潤，以克服營養不良及貧窮問題、增進人類健康，同時推廣作物多樣性及促進均衡飲食，改善健康，並透過推廣優良農業規範、有效提高採收後價值、改善行銷機制，幫助小農、無土地勞工及社區創造增加就業及收入的機會。

## 活動宗旨：

學員透過參與暑期實習主題的研究能與國際農業專家、專業人員及與跨文化的學員進行交流與討論，獲得寶貴的知識技能並同時拓展國際視野，從不同面向思考蔬菜產業面臨氣候變遷之解決方案及經驗，在亞蔬的實習領域，學員不僅有機會接觸到專業研究與技術學習也能參與實驗室研究或田間試驗，並在實習的最後階段以英文撰寫與發表報告，培養往後參與研討會的專業能力。我們歡迎符合相關資格且對農業領域有熱情的學員報名，無論未來是否繼續在農業領域深造，都將是一個極具價值的學習機會！

## 報名資格：

國內大學相關科系大三以上(含暑假後為大三生)之在學學生。

## 參與計畫時間：

需全程參與，原則上為2025年7月1日至8月29日上班日(週一至週五) 8:00-17:00，每日出勤8小時，各研究室會略有不同並得視實際狀況酌予調整出勤時間，實習期間應遵守本中心出勤規定，不得遲到、早退及曠勤。如需請假，請務必事先與指導專家及團隊溝通使得離開中心。如果已經知道實習期間哪幾天要請假，請在報名文件中註明。每月請假不得逾(含)7日。

# 2025年亞蔬-世界蔬菜中心暑期實習

**實習任務:** 於實習結束前完成英文口頭與書面研究報告。

**應備文件:**

- 英文及中文版在學證明
- 學生證 (正反面)
- 英文及中文版歷年成績單 (含最近一學期在校成績)
- 完整線上報名表  
(線上填妥表單後下載列印文件，申請者與推薦人簽名後務必將掃描檔寄回 [training@worldveg.org](mailto:training@worldveg.org))

**2025年亞蔬開放暑期實習的單位:**

- Biotechnology/Omics Breeding (生物技術/分子育種)
- Biotechnology/Molecular Breeding (生物技術/分子資訊)
- Vegetable Breeding-Tomato (蔬菜育種/番茄)
- Food and Nutrition (食品營養)
- Agronomy/Agroecology (農藝/農業生態學)
- Entomology (昆蟲學)
- IPM (整合性病理蟲害綜合管理)
- Plant Pathology (植物病理學)
- Biological Control of Plant Pests and Diseases (植物病蟲害的生物防治)

**2025年亞蔬實習主題:** 詳續頁

**報名連結與QR Code:**

• 方式一

<https://forms.gle/B7KY5GEitfzJVGzZ8>

• 方式二



RSVP QR code

World Vegetable Center – Proposed Research Topics for the 2025 Summer Internship Program  
2025年亞蔬實習主題

| No. | Research Area                    | Proposed Research Topic                                                                                                                   | Research Introduction and Objective                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Specific Tasks for Interns                                                                                                                                                                                                                                                                                                                                                                                                                                               | Required Skills                                                                                                                                                                                                                                                                                    |
|-----|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Biotechnology/Omics Breeding     | Bitter gourd genomics study                                                                                                               | Using high density SNPs to investigate the genetic groups of WorldVeg bitter gourd breeding materials and further to develop heterosis groups.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Develop SNPs and identify genetic groups                                                                                                                                                                                                                                                                                                                                                                                                                                 | Basic R programming                                                                                                                                                                                                                                                                                |
|     |                                  | Mapping of pepper phytophthora disease resistance                                                                                         | Using high density SNPs to map pepper disease resistance and using RNAseq to fine mapping                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | GWAS and RNAseq data processing                                                                                                                                                                                                                                                                                                                                                                                                                                          | Basic R programming                                                                                                                                                                                                                                                                                |
|     |                                  | Detection of Mutation Patterns in Target Genes of Gene-Edited Tomatoes and Analysis of Gene Expression Levels in Different Mutation Types | Using molecular techniques to detect CRISPR-Cas9 mutants                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | PCR and sequences alignment                                                                                                                                                                                                                                                                                                                                                                                                                                              | Basic molecular biology background                                                                                                                                                                                                                                                                 |
| 2   | Biotechnology/Molecular Breeding | Chinese cabbage phenotyping study                                                                                                         | Development of evaluation techniques for stress tolerance in Chinese cabbage through Indoor phenotyping                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Evaluate stress response of Chinese cabbage through indoor phenotyping                                                                                                                                                                                                                                                                                                                                                                                                   | Basic R programming                                                                                                                                                                                                                                                                                |
|     |                                  | Evaluating the Suitability of Tomato Hybrids for Urban Farming                                                                            | The research aims to identify the best-performing hybrids for urban farming systems, contributing to improved food security and sustainable production.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Literature Review and Experimental Setup, Phenotypic Screening and Data Collection, Data Analysis and Reporting                                                                                                                                                                                                                                                                                                                                                          | Plant Biology Knowledge, Data Collection and Management, Research Skills, Strong interest in plant breeding, climate resilience, and sustainable agriculture.                                                                                                                                      |
| 3   | Vegetable Breeding-Tomato        | Identifying, Characterizing, and Testing the Resistance of Genetic Sources and a Segregation Population for Flood Tolerance in Tomatoes   | This study aims to identify flood-tolerant tomato genotypes by evaluating key physiological and genetic traits, under waterlogged conditions. The findings will contribute to breeding climate-resilient tomato varieties, enhancing food security in regions affected by extreme weather conditions.                                                                                                                                                                                                                                                                                                                                                                                                                              | Literature Review and Experimental Setup, Phenotypic Screening and Data Collection, Data Analysis and Reporting                                                                                                                                                                                                                                                                                                                                                          | Basic knowledge of plant physiology, genetics, and abiotic stress responses. Ability to follow research protocols and maintain detailed records. Strong interest in plant breeding, climate resilience, and sustainable agriculture.                                                               |
| 4   | Food and Nutrition               | Scoping the potential role of aquatic vegetables in addressing sustainable development goals                                              | Research Introduction:<br>Aquatic vegetables represent a largely underutilized resource with potential benefits for food security, nutrition, and environmental sustainability. This research aims to explore the diverse roles these plants can play in achieving various Sustainable Development Goals (SDGs), focusing on their nutritional value, ecological impact, and socio-economic implications.<br>Research Objective:<br>To comprehensively assess the potential contributions of diverse aquatic vegetables to achieving specific SDGs, including but not limited to, Zero Hunger (SDG 2), Good Health and Well-being (SDG 3), Clean Water and Sanitation (SDG 6), and Life Below Water (SDG 14).                      | Conduct literature reviews on the nutritional composition and ecological roles of selected aquatic vegetables.<br>Compile data on the geographical distribution and cultivation practices of these plants.<br>Analyze case studies of successful aquatic vegetable utilization in different regions.<br>Assist in developing a framework for evaluating the SDG contributions of aquatic vegetables.<br>Prepare reports and presentations summarizing research findings. | Strong literature review and research skills.<br>Data analysis and synthesis abilities.<br>Knowledge of sustainable development principles and SDGs.<br>Familiarity with environmental science or botany.<br>Excellent written and verbal communication skills.                                    |
|     |                                  | Indigenous and underutilized plants as plant-based protein sources                                                                        | Research Introduction:<br>The growing demand for plant-based protein necessitates exploring diverse and sustainable sources beyond conventional crops. Indigenous and underutilized plants offer a rich reservoir of potential protein sources, often with superior nutritional profiles and resilience to climate change. This research investigates the potential of these plants to contribute to food security and dietary diversification.<br>Research Objective:<br>To identify and characterize indigenous and underutilized plants with high protein content and evaluate their potential as sustainable plant-based protein sources, with a focus on nutritional value, cultivation potential, and cultural significance. | Identify and compile a list of relevant indigenous and underutilized plants.<br>Gather information on the nutritional composition and protein content of selected plants.<br>Research traditional knowledge and cultivation practices related to these plants.<br>Assist in analyzing the potential for scaling up production and processing.<br>Assist in the creation of data tables and figures.<br>Assist in the documentation of findings.                          | Knowledge of botany, ethnobotany, or food science.<br>Experience in literature review and data collection.<br>Understanding of nutritional analysis and protein evaluation.<br>Interest in indigenous knowledge and sustainable agriculture.<br>Excellent written and verbal communication skills. |

World Vegetable Center - Proposed Research Topics for the 2025 Summer Internship Program  
2025年亞蔬實習主題

| No. | Research Area                                  | Proposed Research Topic                                                                                                                                     | Research Introduction and Objective                                                                                                                                                                                                                                                                                                                                                              | Specific Tasks for Interns                                                                   | Required Skills                                                                                                |
|-----|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| 5   | Agronomy/Agroecology                           | Assessing the impact of reduced tillage and biodegradable mulch on okra productivity and nutrient composition                                               | This research trial aims to assess the effects of reducing tillage and applying new biodegradable mulch on growth, yield and nutrient composition of okra vegetable.                                                                                                                                                                                                                             | Data analysis, results interpretation and presentation                                       | Basic knowledge of experimental design and data analysis                                                       |
|     |                                                | Evaluating the effect of biochar and organic and mineral fertilizers on crop growth through a pot experiment and imagine analysis from a phenotyping sensor | This pot experiment aims to assess the effects of combining biochar with fertilizers on okra growth and soil properties                                                                                                                                                                                                                                                                          | Data collection, analysis, presentation                                                      | Basic knowledge of experimental design and data analysis                                                       |
|     |                                                | Evaluate the effects of the selected lines of pepper on the biology and reproduction of broad mites                                                         | This research seeks to evaluate how selected lines of pepper affect the development and reproduction of broad mites                                                                                                                                                                                                                                                                              | Literature review, experimental setup, data collection, data analysis and report writing     | Basic knowledge of insect biology and experimental design                                                      |
| 6   | Entomology                                     | Assess the biology and performance of one native parasitoid of <i>Phthorimeae absoluta</i>                                                                  | This research seeks to explore the lifecycle of a native parasitoid of the invasive pest <i>Phthorimeae absoluta</i> and its effectiveness in the management of the pest                                                                                                                                                                                                                         | Literature review, experimental setup, data collection, data analysis and report writing     | Basic knowledge of insect biology and experimental design                                                      |
|     |                                                | Assess the potential of <i>Solanum viarum</i> as a trap crop for Tuta absoluta                                                                              | <i>Solanum viarum</i> plant has been shown to work as a trap crop for <i>Helicoverpa armigera</i> attacking tomato. This study seeks to explore if the same plant could work as a trap crop for <i>Phthorimeae absoluta</i> and how it affects the biology of the pest                                                                                                                           | Literature review, experimental setup, data collection, data analysis and report writing     | Basic knowledge of insect biology and experimental design                                                      |
| 7   | IPM                                            | Evaluating the potential of an identified biocontrol compound in management of a selected group of insect pests                                             | This study will evaluate the performance of a biocontrol compound in the management of Thrips, Whiteflies, <i>Marcuca vitrata</i> , and <i>Phthorimeae absoluta</i> based on different formulations. The study will also assess potential phytotoxicity effects of the compound based on the different formulations.                                                                             | Literature review, experimental setup, data collection, data analysis and report writing     | Basic knowledge of insect biology and experimental design                                                      |
|     |                                                | Bitter Gourd Disease Evaluation Under a One Health Approach                                                                                                 | This study focuses on monitoring and assessing major bitter gourd diseases, integrating plant, environmental, and human health perspectives. It aims to identify key pathogens affecting bitter gourd production and potential biocontrol solutions.                                                                                                                                             | Conduct disease field surveys and identify pathogens using morphological and molecular tools | Basic plant pathology and microbiology techniques. Willingness to learn molecular biology techniques (RT-PCR). |
| 8   | Plant Pathology                                | Validation of Gene Expression in Resistant Pepper Lines Against Southern Blight                                                                             | Previous studies have identified a few key genes associated with resistance to southern blight ( <i>Sclerotium rolfsii</i> ) in pepper. However, their role in plant defense needs further validation. This study aims to confirm the expression of these defense-related genes in resistant pepper lines using RT-PCR, helping to identify key pathways involved in southern blight resistance. | Conduct greenhouse bioassays and Perform RT-PCR                                              | Basic plant pathology and microbiology techniques                                                              |
|     |                                                | Validation of Gene Expression Induced by Biocontrol Agents for the production of Volatiles and Metabolites Against Thrips and Whitefly in Tomato and Onion  | Specific volatiles and metabolic pathways have been identified, but further validation is needed to confirm the expression of key genes in plants colonized by entomopathogenic endophytic fungi. This study aims to validate the expression of defense genes related to volatiles and metabolites, and their associated pathways, in colonized plants using RT-PCR.                             | Conduct Lab bioassays and Perform RT-PCR                                                     | microbiology, entomology, and Willingness to learn molecular biology techniques (RT-PCR).                      |
| 9   | Biological control of plant pests and diseases | Biocontrol Efficacy of Trichoderma DMS Against Bacterial Wilt and Anthracnose in Pepper, Tomato, and Bitter Gourd Through Seed Inoculation                  | This study evaluates the biocontrol potential of <i>Trichoderma</i> DM5 against <i>Ralstonia solanacearum</i> , the bacterial wilt pathogen, in pepper, tomato, and bitter gourd, as well as its effectiveness in reducing disease incidence and severity of anthracnose, caused by <i>Colletotrichum spp.</i> , a major disease in pepper and bitter gourd.                                     | Conduct Lab bioassays and Perform PCR                                                        | Basic plant pathology and microbiology techniques                                                              |