臺中區農業改良場特刊第157號

2025 國際花卉育種與市場論壇

2025 International Forum on Floral Crop Breeding and Marketing

朱建鏞、洪惠娟 編

農業部
臺中區農業改良場

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農業部臺中區農業改良場 編印

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出版序

後疫情時代2020年我國花卉產值由新臺幣176億元成長至2023年185億元，其中苗圃類由44.8億元下滑至43億元，盆花產值由10.5億元緩步下滑至9.9億元。近年花卉產業發展受種種因子包括氣候變遷導致花卉產期難以掌握、生產成本墊高、國際品種引進受限、業者抉擇軟硬體更新等生產面問題；消費面則因全球通膨、花卉消費習慣改變、外銷市場侷限等，國外業者如何面對這些問題，期待借鏡國際經驗為國內花卉業者找出新契機。

值此，長期耕耘埔里盆花產業的陽昇園藝有限公司楊勝安總經理邀請美國 Altman Plant 公司觀賞植物部門林彬研究總監來臺，久聞林總監於玫瑰育種成績斐然，學識淵博且樂於分享；林總監又邀請公司內創新部門 Andrew Konichi 部長、日本高松商事株式會社高松社長、印度 Flora Garden 公司 Bhadre Sambhaji Dnyandeo 總經理共襄盛舉，得知此千載難逢合辦「國際花卉育種與市場論壇」機會，立刻答應楊總經理的邀請，並欽佩楊總經理為產業共好的付出。同時非常感謝朱建鏞教授鼎力翻譯全文成中文並編輯成冊，便於與會業者充分了解外賓想法進而討論。

「國際花卉育種與市場論壇」包含產業現況與策略和育種趨勢與挑戰兩個節次，第一節首先由農業部臺中區農業改良場陳彥樺副研究員介紹臺灣花卉產業概況，接著由美國 Altman Plant 公司創新部門 Andrew Konichi 部長，談創新部門的國際合作和現代化行銷策略及北美市場的變化，再來是日本高松商事株式會社的高松社長說明日本市場萎縮的原因及其公司的因應對策，最後由印度 Flora Garden 公司 Bhadre Sambhaji Dnyandeo 總經理介紹印度玫瑰切花產業現況及出口策略；第二節則由林彬研究總監分享觀賞植物育種研發訣竅，以及朱建鏞教授對臺灣花卉發展育種產業競爭力、困境與發展方向的剖析和期許。

他山之石可以攻錯，期待本論壇為我國花卉產業注入新思維和量能，建構業者、夥伴、消費者三贏花卉產業。

農業部臺中區農業改良場

場長 楊宏瑛 謹誌

中華民國一一四年五月

序文

林彬

筆者從事花卉研究，每年總會找周遊列國學習的機會，這些年來親眼目睹臺灣花卉科研的成就，進軍國際熱帶花卉領域，勵兵秣馬，努力步趨蘭花盛世的企圖，方興未已。臺灣得天獨厚的亞熱帶 - 熱帶的微氣候條件，確實是在此自然環境下研發抗濕熱花卉品種的寶貴條件，加上靠近亞洲聯航運輸中心帶等等優勢，足以挑戰發展中的種種瓶頸，接軌世界更上一層樓，乃是遲早之事耳！

臺灣是我夢寐縈繞的第二故鄉，當年弱冠自南洋負笈寶島，從懵懵懂懂，土裏土氣中孕育成長，對臺灣的一花一草都是感情，也是一輩子還不了的債，今天能夠參與臺灣花卉建設是我一生奮鬥的目標和無比之榮幸！此生不虛矣！

去年即和新品種開發部長 (Andrew) 安排參訪我們 (Altman Plants) 在臺灣的總代理：陽昇園藝有限公司，以商討亞洲區相關業務。當日本和印度花卉界好友 (Hidemi & Bhadre) 知道我要到臺灣時要求一起同行，他們也想瞭解臺灣花卉產業，更希望有機會和國內先進業者進行交流，以及發展合作的可能。陽昇園藝公司老闆楊勝安表示熱烈歡迎！我們即和朱建鏞教授商量召開一個座談會的可行性，儘可能包含國內盆花先進業者、育種者、改良場、大學院校等等相關單位。臺中區農業改良場楊宏瑛場長立即響應並且大力予以支持，提供埔里分場會場和安排會議各項事務等等繁瑣細節。

研討會定名為：【國際花卉育種與市場論壇】，以育種研發趨勢、生產技術、市場定位、品牌建立、外銷現況以及掌握推廣商機策略等等一系列主題進行交流；洞察臺灣花卉在國際市場的角色和花農發展的空間和方向，知己知彼，爭取先機！

本次座談會得以舉行，臺中區農業改良場，一錘定音，牽一髮而動全身，其推動臺灣花卉科研的用心加持，可圈可點；朱建鏞教授、陽昇園藝公司同仁全力配合協助，功不可沒，令人激賞，與有榮焉！

微言寸意為之序，戰戰兢兢！

編者序

臺灣自西元 1960 年代開始發展菊花切花栽培，主要外銷日本。西元 1977 年在埔里試作康乃馨成功後，埔里便成為「新興花卉」產地。接著 1981 荷蘭花卉種苗公司在臺灣辦了花卉展，促銷花卉種苗，臺灣花卉產業開始與歐、美各國接軌。然而 40 餘年來，臺灣在國際花卉市場上所扮演的角色，仍只限於將歐、美、日的品種＂加工＂成切花產品，然後外銷日本。近年來，東南亞國家大力發展切花產業。由於人力資源與自然資源豐富，栽培成本低，以至於臺灣有些栽培技術層次低的外銷作物市場，慢慢被取代。政府雖然大力支持發展花卉產業，但也只限於硬體的補助和栽培技術的輔導。對於花卉產業鏈中最上游的＂育種＂，以及國際其他市場的開拓則甚少著墨。

西元 1996 年美國聖誕紅品種在臺灣申請品種權，政府才驚覺產業之首在育種，而大量投資花卉育種。然而花了近 30 年的投入，臺灣的花卉新品種能在國外授權生產的仍寥寥無幾。可見臺灣的育種者對國際花卉市場的需求仍不了解，以至於新品種沒有外銷的潛力。也有可能育種者對如何行銷品種的國際行規不了解，或沒有人脈。

林彬大師為寮國華僑，臺灣大學園藝系畢業後，在美從事玫瑰花育種五十年。雖林大師的品種早已經舉世聞名，但多年來林大師一直關心著臺灣花卉產業的發展。或許林大師早已看出臺灣花卉產業發展的弱點，因此在今年決定來臺灣洽公之前，即邀請美國 Altman Plant 公司的新創業務的 Andrew Konicki 經理，針對國際花卉市場的變動來談公司的新創業務及其國際合作。也邀請日本高松公司的高松社長，談日本花卉市場的萎縮，以及開發年輕世代消費者等問題。以及印度的 Bhadre Sambhaji Dnyandeo 談印度玫瑰花外銷的現況。另外林大師也不吝再度將花卉育種的要

訣與大家討論，並邀請筆者將花卉品種育成與品種授權的操作方法公開討論。

近年來世界經濟不景氣，各國的花卉種苗公司為了維持營運，或擴充市場，紛紛以品種交換授權，或上下游生產線合作的方式營運。臺灣舉辦的花卉研討會多著重於栽培技術的推廣，幾乎不曾有關於花卉產業上的論壇。主要原因，是臺灣花卉產業的行銷大多為被動行銷，缺少花卉的行銷專家，或許有產業界的經理人，但也不願意分享自己的行銷方法。另外臺灣雖然有許多花卉育種者，但大多數育種者不了解國際市場對新品種的要求，以至於新品種只限於自己生產自己販售，沒辦法擴充為商業化的大量生產。

這次的國際花卉育種與市場論壇，除了由臺中區農業改良場陳彥樺副研究員介紹臺灣花卉產業概況外，難得邀請到美國、日本、印度的經理人或老闆，來談近年來各國花卉市場創新的行銷方法。相信對臺灣與會的花卉經營者會有一定的衝擊。由於來賓訪臺的時間有限，只能以半天的時間辦這次的論壇，所以本次論壇不提供現場翻譯。又為了讓參與者對國外講者的內容有更大的收穫，本人特將英文演講內容翻譯成中文，這也將是第一本中英對照的專刊。

編者 朱建鎮 謹誌

中華民國一一四年五月

2025國際花卉育種與市場論壇議程

時間：114 年 5 月 28 日 (星期三) 下午 13：30
地點：臺中區農業改良場埔里分場會議室 (南投縣魚池鄉共和村五馬巷 11-1 號)

時　間	主　　題	主 持 人
13：00-13：20	報到	農業部臺中區農業改良場 楊宏瑛場長
13：20-13：30	開幕式	
第一節　產業現況與策略 Industry Status and Strategies		
13：30-14：00	臺灣花卉產業概況 Introduction to Taiwan's Floriculture Industry/ 陳彥樺副研究員 臺中區農業改良場 Yen-Hua Chen, Associate Researcher, Taichung DARES, MOA	陳彥樺 副研究員
14：00-14：30	奧特曼創新部門的創立、純淨玫瑰花品系，以及北美觀賞玫瑰花市場 Creation of Altman Innovation, Pure Clean Rose System, and North America Ornamental Rose Market / 奧特曼創新部門主管 Andrew Konicki, Direction of Innovation – Altman Innovation, Altman Plants, USA	
14：30-15：00	日本園藝產業的趨勢與高松公司銷售策略 Trends in the Japanese Horticulture Industry & Takamatsu Company's Sales Strategy, SO EASY / 高松秀實 日本高松商事株式會社社長 Hidemi Takamatsu, General Manager and Owner, Takamatsu Co., Ltd. Japan	
15：00-15：30	印度玫瑰花切花的出口策略 Export Strategy of Indian Cut Roses /Bhadre Sambhaji Dnyandeo General Manager and Owner, Flora Garden pvt Ltd., India	
15：30-15：40	中場休息	
第二節　育種趨勢與挑戰 Breeding Trends and Challenges		
15：40-16：10	觀賞作物育種研發趨勢 Trends in Ornamental Plant Breeding Research and Development / 林彬 觀賞植物研究總監 美國奧特曼植物公司 Ping Lim, Director of Ornamental Plant Research, Altman Plants, USA	陳彥樺 副研究員
16：10-16：40	臺灣花卉育種策略與挑戰 Strategies and Challenges of Floral Breeding Development in Taiwan / 朱建鏞 研發總監　陽昇園藝有限公司 Chien-Young Chu, R & D Director, Young Sun Horticulture	
16：40-17：00	綜合討論	楊宏瑛場長 各節次講者

2025 國際花卉育種與市場論壇來賓合照

臺灣花卉產業概況

陳彥樺

農業部臺中區農業改良場副研究員

臺灣的農業環境

臺灣島嶼被海洋環繞，多山地形創造了從海平面到 3,000 公尺以上的多樣微氣候環境，支持各種花卉種類生長。橫跨北回歸線的地理位置結合熱帶及亞熱帶氣候，使臺灣同時適合栽培熱帶蘭花、亞熱帶菊花和溫帶百合等多種花卉。高降雨量和季風氣候為花卉提供充足水源，但也促使農民發展現代化防風、排水和遮蔭設施，形成了設施農業的技術優勢。臺灣平均每平方公里 650 人的高人口密度，耕地面積狹小，這些人文自然條件與臺灣發達的農業研究體系相結合，使其成為發展多樣化高品質花卉產業。

栽培模式介紹

臺灣花卉產業的栽培模式多元且技術先進，隨市場需求不斷進化。盆花苗圃生產主要在臺中、彰化和北部的溫室或塑膠棚下進行栽培，以長壽花、聖誕紅、蕨類等觀賞植物為主，符合現代城市消費者需求。扦插繁殖技術主要供應菊花、康乃馨及其他木本植物的規模化生產，組織培養應用於蘭花，需要無菌操作室等專業設施，確保品種純度和批量穩定性，是最完整的花卉產業鏈。田間生產以菊花（約 600 公頃）和康乃馨、金魚草等切花為主，分布在中南部平原，採用防風網、遮陰網和畦溝栽培等技術。苗圃生產占最大面積，涵蓋臺灣松、南洋杉等景觀樹木和一年生觀賞植物，兼顧國內綠化和出口需求。水耕栽培用於玫瑰等高價值切花，透過岩棉等介

質和精準養液灌溉系統提高品質和產量。近年快速發展的設施栽培，整合物聯網和自動化控制，是產業未來發展方向。這些多元栽培模式共同建立了臺灣花卉產業的樣貌與發展潛力。

生產面分析

臺灣花卉產業生產結構在過去十餘年經歷了明顯轉型。總種植面積從 2014 年的 13,304 公頃增長至 2020 年的高峰 14,520 公頃，近年略有下降至 2023 年的 13,964 公頃，反映產業從擴大規模轉向提高單位面積產值和品質。產業結構變化顯著，2006 至 2016 年間，苗圃生產增加 20%（從 7,695 增至 9,220 公頃），蘭花增加 76%（從 574 增至 1,011 公頃），盆花增加 24%（從 824 增至 1,019 公頃），而切花減少 20%（從 4,265 減至 3,358 公頃）。2016 至 2023 年間，苗圃生產保持穩定，盆花繼續增長近 24%（達 1,138 公頃），切花進一步減少 16%（降至 2,826 公頃），蘭花略有下降 5%（至 707 公頃）。在切花類別中，劍蘭減少最多（-46%），其次是玫瑰（-21.2%）和火鶴花（-20%），僅百合呈現增長（+17.5%），反映消費者喜好從短期切花轉向多年生或長期觀賞盆栽植物。蘭花是臺灣最具競爭力的花卉產業，2023 年產值約 1.77 億美元，主要為蝴蝶蘭和文心蘭。技術發展從 1970 至 1990 年代的基礎設施建設，到 1990 至 2010 年代的自主育種和品種保護，再到近年的智慧化生產管理，形成了完整的技術體系。

進出口貿易分析

臺灣花卉貿易呈現明顯順差，顯示其國際競爭優勢。2024 年總出口值達 6.12 億美元，遠高於進口值 8,760 萬美元，產生約 5.24 億美元順差。出口品類結構中，蘭花占 52%，切花占 23%，盆栽植物占 15%，苗木占 10%。主要出口市場集中在美國（31%，約 1.92 億美元）和日本（29%，約 1.78 億美元），其次是越南（10%，約 5,780 萬美元）和荷蘭（6%，約 3,870 萬美元）。蝴蝶蘭是臺灣第一大出

口花卉，成株主要銷往美國（55%），種苗主要銷往越南（31%）和日本（29%），切花則以日本為主要市場（85%）。文心蘭出口高度依賴日本市場，切花占 93% 的出口額銷往日本，種苗則主要銷往美國（45%）和馬來西亞（20%）。進口方面，荷蘭是最大來源（53%，約 4,628 萬美元），主要進口百合球根；智利次之（13%，約 1,144 萬美元），主要提供蘭花栽培用水苔；日本（9%，約 775 萬美元）則主要提供種子和觀賞植物品種。

結語

臺灣花卉產業經過數十年發展，已從勞動密集型逐步轉型為技術導向型產業。產業結構明顯變化，切花生產持續減少，已從 2006 年的 4,265 公頃下降至 2023 年的 2,826 公頃（減幅 33.7%），同期盆栽和苗圃生產則增長或保持穩定。生產方式從早期的大宗生產轉向高附加值品種和差異化產品，電子商務逐步發展，有機栽培和循環農業等永續模式也日益受到重視。然而，產業面臨氣候變化帶來的極端天氣風險、越南等國家的低成本競爭、農村人口老齡化和勞動力短缺、品種權保護不足等多重挑戰。未來發展方向包括：加強設施栽培應用；擴大本土品種研發，完善品種權保護；開拓東南亞等新興市場，減少對美日市場過度依賴；以及加強專業教育，提升產業競爭力。

Introduction to Taiwan's Floriculture Industry

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Introduction to Taiwan's Environment

Taiwan, an island surrounded by oceans, features mountainous terrain that creates diverse microclimates ranging from sea level to above 3,000 meters, supporting the growth of various flower varieties. Its geographical position across the Tropic of Cancer, combined with tropical and subtropical climates, allows Taiwan to cultivate various flowers including tropical orchids, subtropical chrysanthemums, and temperate lilies. High rainfall and monsoon climate provide abundant water for flowers, while also driving farmers to develop modern windbreak, drainage, and shading facilities, establishing technological advantages in facility agriculture. With Taiwan's high population density averaging 650 people per square kilometer and limited arable land, these natural and human conditions combined with Taiwan's advanced agricultural research system have enabled it to develop a diverse, high-quality floriculture industry.

Cultivation Mode

Taiwan's floriculture industry features diverse and technologically advanced cultivation modes that continuously evolve with market demands. Pot flower nursery production primarily takes place in Taichung, Changhua, and northern regions under greenhouses or plastic sheds, mainly cultivating ornamental plants such as kalanchoe,

poinsettia, and ferns to meet modern urban consumer needs. Cutting propagation technology mainly supports large-scale production of chrysanthemums, carnations, and other woody plants, while tissue culture is applied to orchids, requiring professional facilities like aseptic operation rooms to ensure variety purity and batch stability, forming the most complete flower industry chain. Field production focuses on chrysanthemums (approximately 600 hectares) and cut flowers like carnations and snapdragons, distributed across central and southern plains, employing techniques such as windbreak nets, shade nets, and ridge cultivation. Nursery production occupies the largest area, covering landscape trees like Taiwan pine and Norfolk Island pine, as well as annual ornamental plants, serving both domestic landscaping and export needs. Hydroponic cultivation is used for high-value cut flowers like roses, improving quality and yield through substrates like rockwool and precise nutrient solution systems. Facility cultivation, rapidly developing in recent years, integrates IoT and automation control technologies, representing the industry's future direction. These diverse cultivation modes collectively establish Taiwan's floriculture industry's profile and development potential.

Production Analysis

Taiwan's floriculture industry structure has undergone significant transformation over the past decade. Total cultivation area grew from 13,304 hectares in 2014 to a peak of 14,520 hectares in 2020, slightly declining to 13,964 hectares in 2023, reflecting the industry's shift from scale expansion to improving per-unit area value and quality. Structural changes are notable: from 2006 to 2016, nursery production increased 20% (from 7,695 to 9,220 hectares), orchids by 76% (from 574 to 1,011 hectares), potted flowers by 24% (from 824 to 1,019 hectares), while

cut flowers decreased 20% (from 4,265 to 3,358 hectares). From 2016 to 2023, nursery production remained stable, potted flowers continued growing nearly 24% (reaching 1,138 hectares), cut flowers further decreased 16% (to 2,826 hectares), and orchids slightly declined 5% (to 707 hectares). Within cut flowers, gladiolus declined most (-46%), followed by roses (-21.2%) and anthurium (-20%), with only lilies showing growth (+17.5%), reflecting consumer preference shifts from short-term cut flowers to perennial or long-term ornamental potted plants. Orchids are Taiwan's most competitive floriculture sector, with 2023 output value around USD 177 million, mainly from Phalaenopsis and Oncidium. Technical development progressed from basic infrastructure construction in the 1970s-1990s, to independent breeding and variety protection in the 1990s-2010s, to recent smart production management, forming a complete technical system.

Import-Export Trade Analysis

Taiwan's flower trade shows a clear surplus, demonstrating its international competitive advantage. Total export value reached USD 612 million in 2024, far exceeding the import value of USD 87.6 million, generating approximately USD 524 million in surplus. Export structure comprises orchids (52%), cut flowers (23%), potted plants (15%), and nursery stock (10%). Major export markets concentrate in the United States (31%, approximately USD 192 million) and Japan (29%, about USD 178 million), followed by Vietnam (10%, about USD 57.8 million) and the Netherlands (6%, about USD 38.7 million). Phalaenopsis is Taiwan's largest export flower, with mature plants mainly exported to the United States (55%), seedlings to Vietnam (31%) and Japan (29%), and cut flowers predominantly to Japan (85%). Oncidium exports heavily depend on the Japanese market, with cut

flowers accounting for 93% of exports to Japan, while seedlings mainly go to the United States (45%) and Malaysia (20%). For imports, the Netherlands is the largest source (53%, approximately USD 46.28 million), mainly supplying lily bulbs; Chile follows (13%, about USD 11.44 million), primarily providing sphagnum moss for orchid cultivation; Japan (9%, about USD 7.75 million) mainly supplies seeds and ornamental plant varieties.

Conclusion

After decades of development, Taiwan's floriculture industry has gradually transformed from labor-intensive to technology-oriented. Industrial structure has changed notably, with cut flower production continuously declining from 4,265 hectares in 2006 to 2,826 hectares in 2023 (33.7% reduction), while potted plants and nursery production have grown or remained stable during the same period. Production methods have shifted from mass production to high-value varieties and differentiated products, with e-commerce gradually developing and sustainable models like organic cultivation and circular agriculture gaining importance. However, the industry faces multiple challenges including extreme weather risks from climate change, low-cost competition from countries like Vietnam, rural population aging and labor shortages, and insufficient variety rights protection. Future development directions include strengthening facility cultivation application; expanding local variety R&D and improving variety rights protection; developing new markets in Southeast Asia to reduce overdependence on US and Japanese markets; and strengthening professional education to enhance industrial competitiveness.

奧特曼公司創新部門的創立、純淨玫瑰花品系，以及北美觀賞玫瑰市場

Andrew Konicki

美國奧特曼植物公司奧特曼創新部門主管

Altman Innovation（AI）的創立

創立 Altman Innovation（AI），目的是引領我們的育種成果進軍全球市場。AI 與重要的合作夥伴合作，針對具有挑戰性的作物建立供應鏈。我們不僅創造自己的品種，也持續尋找獨特產品，與合作夥伴聯手，在北美地區拓展 Altman Specialty Plant 的業務。AI 擅長解決複雜的供應鏈問題，例如我們在美人蕉（Canna Lily）組織培養上有新的合作夥伴。我們有一支專業團隊，專注於加速產品進入市場的速度。我們已與全球各地建立合作，包括臺灣、日本、英國、法國、希臘、荷蘭、南非、澳洲和中國。AI 採用現代化行銷策略，透過社群媒體推廣、網路訂購配送植栽，以及參與類似「Ask Me Anything（AMA）」的活動來行銷產品。

Pure Clean Rose Services（PCRS）

PCRS 是我們在北美新創立的服務型企業，專注於建立最潔淨的玫瑰花供應系統。這項服務是根據北美零售業的未來發展趨勢而創立；美國有 30% 的人口生活在一旦玫瑰產品中發現病毒或細菌，就可能禁止供應的地區。因此，種植者正迅速轉向 True Bloom 品牌，因為它具備世界級的育種技術與潔淨的供應來源。PCRS 未來也將進軍歐洲，例如與組織培養量產的合作夥伴 "WalterBlom 公司 " 聯手，打造新的玫瑰生產系統，以取代目前仍以芽接於田間扦插苗砧木的繁殖方式。

True Bloom 玫瑰育種計畫

Ping Lim 先生已領導 True Bloom 玫瑰花育種計畫超過十年，致力於創造全新的優良玫瑰花品種，以及我們註冊商標的「Hybrid Tea Shrub Roses（雜種茶香灌木型玫瑰花）」。我們的育種重點是根據德州農工大學的消費者研究結果制定，專注於以下特性：1. 抗病力強、2. 香氣濃郁、3. 耐熱性、4. 抗旱性、5. 高花瓣數、6. 大型且持續開花。美國的玫瑰花消費市場正在演變，消費者對玫瑰花的認識逐步加深。新的資料收集方式讓我們在育種方向上更加準確，例如分析熱門搜尋詞、觀察社群媒體和論壇，以及利用視線追蹤技術研究消費者在實體零售店購物行為，這些都提供了寶貴的行銷洞察。

北美盆栽植物市場

過去幾十年，北美的盆栽植物市場逐漸成形，讓消費者能更輕鬆購買植物。儘管近年來網購大幅興起，但對植物銷售的影響相對有限。大多數植物仍通過大型量販店銷售，占比超過 70%。這些大型連鎖商包括 Lowes、Home Depot、Costco、Walmart、Sams Club 和 HEB 等，都設有專屬的園藝中心銷售植物與用品。這樣的演變也改變了植物的銷售模式。已經不再是客戶根據園藝專家的協助挑選自己需要的植物，而是依靠植物的外觀、標籤與品牌吸引消費者。我們必須提供具備良好表現與耐受力的品種，讓消費者能成功種植並建立品牌信任感。消費者若在自家庭院中成功栽種 True Bloom 玫瑰花，會想再買第二株，也可能會透過社群媒體推薦給朋友。這就是品牌能持續發展的關鍵。市面上有眾多園藝品牌，但最能預測品牌成功的關鍵在於：植物本身是否真的讓購買者滿意。

盆栽植物的第二大消費群體是當地的景觀設計業者。他們與一般消費者一樣，也主要透過大型連鎖商購買植物。通常，若一次購買 10 株以上特定品牌植物，這些業者可享有 10-20% 的折扣。這類企業可透過與連鎖商的合作精準行銷。例如在我們 2025 年與 Lowes

全國性推出 True Bloom Roses 時，Altman Plants 與種植夥伴就能受益於 Lowes 對專業業者的精準行銷推廣，介紹新產品的優勢與穩定供貨能力。

向線上零售轉移？

過去五年，北美的植物網路銷售迅速成長，從幾乎不存在變成人人都投入，也導致廣告支出暴增。但幾年後，這種銷售模式迅速枯竭，目前僅剩少數公司仍在運營。目前北美每年約售出 5500 萬株玫瑰，其中大型量販店佔 2500 萬株、景觀業者約 1500 萬株、園藝中心和小型連鎖店共 1200 萬株，而線上銷售則不到 1%。線上市場最成功的領域是銷售獨特或難以尋得的品種，滿足特定買家的需求。

隨著整體市場重心轉向大型連鎖商，品種若無法表現良好就會被淘汰。而線上市場則可銷售當地無法買到的品項。現在甚至有些大型零售商補貼植物價格，讓線上與門市售價一致，例如消費者可以選擇在店內購買或線上訂購 True Bloom 玫瑰花並配送到家，但有 99% 的消費者仍選擇在店內購買，因為他們想親自挑選個人特殊的植株。購買植物是一種實體體驗，線上難以取代。不過我們仍與所有主要電商平台合作，確保 True Bloom 在每個銷售玫瑰花的地方都有曝光與行銷，包括 Amazon.com、Homedepot.com、Lowes.com、heirloomrosesonline、Walmart.com 等。

True Bloom在全球市場的騷動

我們喜歡分享一個來自澳洲的故事。當地一家名為 Corporate Roses 的公司獲得政府補助，前往世界各地研究玫瑰花的生產方式，尋找玫瑰花產業的未來。他們目前仍採用如歐洲一樣的方式；即在大面積田地中種植經芽接的裸根玫瑰花苗。但他們意識到，未來將缺乏人力與資源來維持這種生產模式，也了解這些傳統方式會帶來病毒與細菌感染的風險。在參訪世界各大玫瑰育種公司後，Corporate Roses 選擇與 Altman Innovation 合作，將 True Bloom 引進

澳洲，作為未來玫瑰產業的核心。我們很榮幸能在育種與生產技術上領航，協助他們轉型。

我們的玫瑰花在世界各地的氣候條件下表現優異；無論炎熱潮濕或是寒冷氣候都適應良好。在美國與加拿大北部甚至歐洲北部都具備極佳的耐寒性。希臘的 Marathon Greenhouse 已開始試種 True Bloom，尋找未來能耐高溫與乾旱的新一代玫瑰品種。我們將持續拓展全球策略合作，為每個市場帶來最佳的基因品種。

True Bloom 的未來

我們將持續育種、測試並挑選最符合消費者需求的雜種茶香灌木型玫瑰花。我們也正開發其他市場與消費族群喜愛的新品種，例如迷你地被玫瑰 True Charm，以及花瓣較少、適合大型景觀設計的新類型（型號為 Campfire 和 Blue Sky）。我們對未來在不同市場與氣候條件下拓展合作感到無比期待。

Creation of Altman Innovation, Pure Clean Rose System, and North America Ornamental Rose Market

Andrew Konicki

Direction of Innovation-Altman Innovation, Altman Plants, USA

The Creation of AI (Altman Innovation)

We created Altman Innovation to lead the way in bringing our breeding to the global market. AI works with key partners to setup supply chains in challenging crops with those partners. We don't only create our own plants but are always looking for unique products to partner on for North America for the Altman Specialty Plant business. AI thrives in solving difficult supply chains like a new partnership we have for some Canna Lily tissue culture.

Our dedicated team allows us to focus on the speed of product to markets. We have developed partnerships all over the world including, Taiwan, Japan, UK, France, Greece, Netherlands, South Africa, Australia and China.

AI is working with modern marketing strategies with promotion on social media, shipping plants from online orders, and participation in things like AMAs.

Pure Clean Rose Services

PCRS is a new service business we created in North America to focus on creating the cleanest rose supply in North America. This was created looking at the future shape of the retail industry in North America where 30% of the population in the United States live in areas that rose suppliers can be banned if any sign of virus or bacteria

are found in their supply. Growers are quickly shifting to True Bloom because of the world class breeding paired with clean supply of supply.

PCRS will launch in Europe as well partnered with Walterblom tissue culture and liner production. It will be a new production system for Roses in Europe which are used to budding on root stock from field cuttings.

True Bloom Rose Breeding

Ping Lim has been leading the creation of the True Bloom Rose breeding program for over a decade. He is creating a new type of amazing roses and our trade marked Hybrid Tea Shrub Roses. The traits that are the focus of our breeding are led by consumer studies done by Texas A&M University:

- Disease Resistance
- Fragrance
- Heat Tolerant
- Drought Tolerant
- High Petal Counts
- Large Easy Continuous Blooming

The American Consumer Rose Market has been evolving as consumers learn more about roses. New ways of collecting data help drive our direction in breeding. From studying most common searches, reading online social media/forums, and doing studies like eye tracking consumers shopping at retail give us great insight for marketing.

North America Potted Plant Business

The North America potted plant market has been developing over the last decades to where plants can be purchased. The recent surge in buying everything on line has had a little impact on plant sales. The majority of plants are sold through our Box Stores/Mass Merchant type stores. While regionally some independent garden centers markets are strong, broadly

speaking the majority of plants well over 70% are sold at these large chains. Lowes, Home Depot, Costco, Walmart, Sams Club, HEB, to name some of the largest. These large chains have dedicated garden centers to sell plants and supplies for consumers. This evolution has changed how plants sell themselves. It's no longer the advice of a garden expert helping someone pick out plants for their situations. Plants are sold based on how they look, the tags, and brands they are in. How we can build and promote large scale plant brands is by having the varieties and genetics that make consumers successful. We have to build trust on performance and resilience. When a consumer plants a True Bloom rose, and is successful in their garden or landscape, they buy another. That same consumer can post online through social medias and tell their friends. That is brand trust that sustains the brand into the future. There are a lot of brands and brand promises available in garden centers but the #1 predictor of success of the brands is if the plants perform for the purchaser.

The second largest part of the potted ornamental plant business is from local landscapers. Similarly to individual consumers their purchases are centered around the large chains of retail. Usually large landscapers receive special discounts like 10% or 20% off when they buy 10 or more of a specific brand per purchase. There are special ways to market to these local landscapers through the retail chains as they are registered companies with that store chain. For example, when we launched True Bloom Roses nationally with Lowes in 2025, Altman Plants and our grower partners benefit from Lowes pushing out targeted marketing to these professionals about the new product, it's benefits to them, and it's universally availability they can trust the be in stock.

Shift to Online Retail?

In North America there was rapid expansion of niche online plant businesses over the last 5 years. From almost nothing to everyone

jumping into the business quickly also led to a flood of money being spent on advertising. After just a few years that formula for selling plants has dried up with only a few companies remaining. As an example the current North America Rose Market is about 55 million rose bushes sold a year. Box Stores lead the way selling about 25 mil, followed by large landscapers using about 15 mil, then garden centers and smaller chains with 12 mil. The last part of this is the new online market, less than 1% of plants are currently being sold via online purchases. Where online has excelled is selling unique/hard to find plants someone is determined to seek out. As the industry as a whole morphed to the mass merchants being the center of plant sales, varieties must perform or they are no longer carried. This is where online plant sales thrived carrying the things not available locally. An interesting example of this remaining niche into the future is the mass merchant retailers are subsidizing plants that are carried in their stores to be the same price if it's bought online. A consumer could buy a True Bloom Rose delivered to their door for the same price they can buy them in stores. Yet 99% of the sales remain in stores; consumers still prefer to see, touch, and pick out their specific plants in person. Buying plants is an experience that is not replicated digitally. In that way, plants have a tremendous value to retailers. It's a very specific, sought after product that bring consumers to stores.

While the online shift has been slowed, we have partnerships with all the major online sales avenues to make sure True Bloom is offered and promoted everywhere roses are sold. Amazon.com, Homedepot.com, Lowes.com, heirloomrosesonline, Walmart.com, on and on.

Global True Bloom Market Excitement!

We like to share a story of a company in Australia called

Corporate Roses. They were funded by the Australia government to travel the world to study how roses are being produced to find what is next in roses. They currently are like Europe and many other places, budded bare roots are produced in large fields. The future market they see won't have the labor and resources to continue this method. They also see the complications with virus and bacteria from these methods of production. After visiting every major rose breeder around the world and studying how roses are being produced, Corporate Roses approach Altman Innovation to bring True Bloom to Australia to be the future of roses. We are honored to be leading the ways in breeding and production techniques to help transform their industry.

Our roses are testing extremely well in climates all over the world hot and humid they still do very well. They are also hardy on their own roots for cold in Northern parts of the United States and Canada. Also Northern Europe. Marathon Greenhouse in Greece is starting their first trials on True Bloom looking for future climate proof roses that can survive hot conditions and drought conditions once established. We are excited to continue to expand our partnerships strategically into the future to globally continue to bring the best genetics to each market.

What's Next in True Bloom

We will continue to breed, test, and select the best hybrid tea shrub rose style roses based on what the consumers are seeking. We are starting to create new types of roses for other markets and different consumer interest like a new Miniature ground cover like our True Charm, and some new varieties that have less petals but are great for big landscape installations like code name Campfire and Blue Sky. We are excited to build upon our partnerships for each individual market and climate.

日本園藝產業的趨勢與高松公司銷售策略

高松秀實

日本高松商事株式會社社長

日本園藝產業的趨勢

自 2000 年以後日本園藝產業的市場規模開始萎縮。過去認為「只要種就能賣」的生活方式的花卉栽培業者，其所處的環境發生了巨大的變化，其中一大原因是消費者老齡化，以及開發年輕消費市場的問題。根據農林水產省的調查結果：2019 年每戶家庭在花卉上的花費與 2000 年相比，減少了 27%；尤其是 20 多歲與 30 多歲的家庭，減少了 67%。為什麼年輕人不再買花？調查指出：主要原因為不了解品種、害怕種植失敗、維護麻煩、以及空間不足，價格並不是主要問題。

開發年輕人消費市場的問題

在美國，獨立園藝中心 (Independent Garden Center, IGC) 在解決這些問題與不滿上扮演了一個角色。他們創造了一個系統，讓園藝新手能到他們的店，並教他們很基本而正確的享用植物。然而獨立園藝中心往往以園藝愛好者為目標，對新手來說門檻過高。

表一、日本購買過植物的人分布

年齡層	男性	女性
20 多歲	9.9%	13.2%
30 多歲	11.9%	14.1%
40 多歲	13.2%	18.3%
50 多歲	16.5%	25.9%
60 多歲	30.4%	44.6%
所有年齡	16.7%	23.4%

2019 年農林水產省調查對象 2 萬人

表二、日本人不購買植物的原因

原因	20 多歲比例	60 多歲比例
不知道品種	18%	14%
害怕失敗	17%	18%
不知道怎麼照顧	15%	9%
維護麻煩	13%	12%
空間不足	11%	5%
不知道怎麼處理植物廢棄物	10%	7%
價格昂貴	10%	20%

2019 年農林水產省調查對象 2 萬人

日本的園藝中心也將大型的連鎖商店視為競爭對手。即使向生產者購買相同品種的植物，其進貨價格仍高於大型的連鎖店。因此銷售價格也不得不提高，這使得他們難以具備競爭力。為了獲利，他們傾向於選擇外觀好看，而非易於照顧的品種，但這些品種對於園藝新手而言，常常很難管理。而日本的栽培者為了獲得更高的市場價格，持續生產與出貨「外觀好看」的品種，這個趨勢自古以來幾乎未曾改變。

SO EASY 的概念

另外，許多家庭面臨花園小、玄關空間狹小、日照不足等問題，也有許多人住在狹小的公寓中。直到現在園藝業（花卉產業）主要市場仍針對環境良好的家庭，因此對於那些不良環境的市場，幾乎毫無開拓，這是一片藍海。

對於初學者來說，能夠放心購買容易在日本生活環境中享受的品種，才是關鍵。我們高松公司很早就著眼於現代消費者的需求，並開發出一系列人人皆知，不容易死，易於照顧，可在狹小空間中欣賞的植物。我們將這些植物命名為「SO EASY」系列。我們希望人們能在任何環境中欣賞美麗的花朵，過上豐富的生活。如果更多人能輕鬆享受植物的樂趣，並感到快樂，市場就會擴大，我們也能因此受益。

如何挑選SO EASY品種

外觀穩定持久：植株強健代表著生產效率，因為生產的時間短。但我們尋找的是種下後能維持剛剛好植株大小的品種，不過於矮小或茂盛。

花期長且持續開花：有些品種的單朵花很漂亮，但為了方便長期觀賞，我們選擇能不斷開花，且具連續花期的品種。

花凋謝後也漂亮：花瓣凋謝後若殘留，明顯外觀將無法維持。我們尋找如「自我清潔」型品種（花瓣可隨風自然掉落）或「下一朵花接替」型品種。

耐熱性強：由於全球暖化，日本夏季越來越炎熱，城市中的柏油也加劇熱輻射。我們評估在最嚴苛條件下仍能持續開花的強健品種。

極佳的抗病性：不管花有多漂亮，如果植株不具抗病力，則一點意義都沒有，植株也不能欣賞很久。我們會在不用農藥的環境下重複測試植物的抗病性，並評估比起本地的植株其抗病性有多好。

試驗花園

為了尋找符合「SO EASY」概念的植物，過去 10 年中，我們從世界各地的供應商與育種者訂購 500 至 600 種植物進行試驗。我們也應千葉縣柏市市政府之邀請，自 4 年前起在柏市的一處市立公園內持續設置試驗花園。為了讓在地居民，特別是小孩子們，可以近距離欣賞新奇又美麗的花朵，花園設置在公園中心，隨時可見。柏市目前正計畫將試驗中選出的植物，種植在市內 660 座公園與公立學校庭園中。

高松園藝學校

如前所述，許多日本的獨立園藝中心與栽培者，長期受自古以來固定觀念所困，導致園藝產業衰退。為了重塑整個產業的觀念，有必要為他們提供學習場域。然而日本園藝產業規模小，幾乎沒有園藝顧問。政府農業合作社僅指導栽培方法，卻不涉及行銷。因此高松公司自 2008 年起，開始舉辦日本獨立園藝中心與栽培者的學習會。我們每年邀請來自世界各地的成功的獨立園藝中心經營者、栽培者、與園藝顧問擔任講師，共同探索未來日本園藝的新思維。該學習會現已成為日本園藝界最大規模的學習活動。

社會貢獻活動

作為對能生活在如此良好社會環境中的感恩表現，我們積極參與社區服務。我們認為身處良好社會的人，應履行這樣的義務，並藉由公關推廣，讓更多的人參與。具體來說，自 2005 年起我們成為「日本兒童救助會」的贊助企業。所有產品銷售的一部份都會捐給該組織，以此支持世界各地處於困境中的孩子們。日本園藝產業因為自我中心，缺乏對消費者的體貼，而走向衰退。我們的活動也給予產業反省與改善的契機。目前也有些獨立園藝中心，在舉辦兒童節活動時，使用「兒童救助會」的合作模式。

Trends in the Japanese Horticulture Industry & Takamatsu Company's Sales Strategy, SO EASY

Hidemi Takamatsu

General Manager and Owner, Takamatsu Co., Ltd. Japan

Trends in the Japanese Horticulture Industry

- The market size of the horticulture industry in Japan began to decline after 2000, and the environment surrounding commercial flower growers, who had previously lived a "whatever you make sells" lifestyle, changed dramatically. One of the major factors is the aging of consumers and the problem of developing a market for young consumers.
- According to the results of a survey by the Ministry of Agriculture, Forestry and Fisheries, the amount of money spent on flowers by a single household in 2019 decreased by 27% compared to 2000, and in particular, households in their 20s and 30s decreased by 67%.
- Why have young people stopped buying flowers? According to the survey results, the main reasons were not knowing the varieties, being afraid of failure, troublesome maintenance, and lack of space. (Price is not much of an issue.)

Table 1. People who bought plants in the past year

Ages	Male	Female
20s	9.9%	13.2%
30s	11.9%	14.1%
40s	13.2%	18.3%
50s	16.5%	25.9%
60s	30.4%	44.6%
All ages	16.7%	23.4%

Ministry of Agriculture, Forestry and Fisheries survey, 2019, target 20,000 people.

Table 2. Reasons for not buying plants

20s		60s	
Don’t know the varieties	18%	Expensive	20%
Afraid of failure	17%	Afraid of failure	18%
Don’t know how to care	15%	Don't know the varieties	14%
Troublesome maintenance	13%	Troublesome maintenance	12%
Lack of space	11%	Don't know how to care	9%
Can't dispose	10%	Can't dispose	7%
Expensive	10%	Lack of space	5%

Ministry of Agriculture, Forestry and Fisheries survey, 2019 target 20,000 people.

Problems

- In the United States, Independent Garden Centers (IGC) would play a role in solving such problems and dissatisfaction. They have created a system that allows gardening beginners to visit their stores and teach the basics of how to enjoy plants without making mistakes.

- However, IGCs target gardening manias, and are a high hurdle for new gardening beginners.
- Japanese IGCs also view Big Box stores as rivals. Even if they purchase the same variety of plants from growers, their purchase price is higher than that of Big Box stores, and the selling price is inevitably higher. This is not a competitive situation, so in order to make a profit, they prefer varieties that "look good" rather than varieties that "perform well". And such varieties are often difficult for gardening beginners to handle.
- Japanese growers also practice growing and shipping varieties that "look good" in order to get a higher price on the market, and this trend has not changed since ancient times.

The Concept of SO EASY

- In addition, many houses in Japan have problems such as small gardens, small space around the entrance, and poor sunlight. Many people also live in small apartments.
- Since the gardening industry has targeted with good environments until now, the market for such difficult environments is almost untouched and a blue ocean.
- The varieties that gardening beginners can easily purchase without fear, the varieties that can be easily enjoyed in Japanese living environments. We at Takamatsu company have been focusing on modern consumer needs from early on, and in order to solve these problems, we are developing plants that are known by everyone, do not die, are easy to care for, and can be enjoyed in a small space. We have named this group of plants "SO EASY".
- We want people to enjoy beautiful flowers in any environment and live a rich life. If many people can easily enjoy plants and feel

happy, this will lead to an expansion of the market, and we can also benefit.

How to Select SO EASY Varieties

- **Sustainable Plant Appearance**
  - ➢ It can be said that vigorous plants are efficient because they can be produced in a short period of time, but we look for varieties that can maintain just the right volume when actually planted. The evaluation criterion is the ability to maintain a "just right" plant appearance, neither dwarf nor vigorous.
- **Flowers Bloom Well and for A Long Period of Time**
  - ➢ Although there are varieties that bloom beautifully with a single flower: in order to enjoy them for a long time without any hassle, we select varieties that bloom one after another and have a high rate of continuous flowering, and look for varieties that remain "beautiful".
- **Beautiful After Flowering**
  - ➢ If the dead petals become noticeable after the flowers bloom, it will be impossible to maintain a beautiful state. We look for "easy" varieties that do not require much effort, such as varieties that can be self-clean so that the petals fall off with the wind naturally, and varieties where the next flower grows on top of the old flower.
- **Heat Resistant**
  - ➢ As global warming progresses, the summer heat in Japan is becoming more and more intense. In addition, the glare from the asphalt is strong. We will evaluate robust varieties that continue to bloom even under such harsh conditions.
- **Excellent Disease Resistance**
  - ➢ No matter how beautiful a flower is, it is meaningless if it is weak

to diseases and cannot be enjoyed for a long time. By conducting trials in an environment where chemical sprays are not used, we will repeatedly test and evaluate how much better the disease resistance is than that of native varieties.

Trial Garden

- In order to find plants that fit the SO EASY concept, we have been ordering 500-600 different kinds of plants from suppliers and breeders around the world for the past 10 years and conducting trials.
- At the request of Kashiwa City, our local city government, we have been continuing the trial garden in a municipal park in Kashiwa City for the past 4 years.
- In order to allow local residents, especially children, to enjoy new and beautiful flowers up close, the trial garden is set up in the center of the park and is always in sight of visitors.
- A plan is underway to plant plants selected in the trial garden in 660 parks in Kashiwa City and in the gardens of public schools in the city.

Takamatsu School

- As mentioned above, many Japanese IGCs and growers have had unchanging stereotypes since ancient times, which has led to the decline of the Japanese horticulture industry. In order to reset the perception of the entire industry, a place for the Japanese IGCs and the Japanese growers to study was needed.
- However, the scale of the Japanese horticulture industry is very small, and there are no horticulture consultants. Government-run agricultural cooperatives provide guidance on production methods, but not on marketing.

- Therefore, Takamatsu company started holding study sessions for the Japanese IGCs and the Japanese growers in 2008.
- Every year, we invite successful IGCs, growers, and horticulture consultants from around the world to be lecturers and learn new ways of thinking to develop the future of Japan's horticulture industry. It has now become the largest study session for the industry in Japan.

Social Contribution Activities

- As a sign of gratitude to the society that allows us to live in such a favorable environment, we actively participate in community service activities. We believe that participating in such activities is the duty of those who live in a favorable society, and we are also working hard on PR activities so that many people can participate.
- Specifically, we have been working as a supporting company for Save the Children Japan since 2005. A portion of the sales of all our products are donated to the organization, and through this, we support children in difficult situations around the world.
- Japan's gardening industry has declined due to its selfishness and lack of consideration for consumers. Our activities have given the industry in Japan an opportunity to reconsider their attitude towards consumers.
- In addition, some IGCs are also using the Save the Children program for events such as "Children's Day" now.

印度玫瑰花切花的出口策略

Bhadre Sambhaji Dnyandeo

印度 Flora Garden Pvt. Ltd. 總經理兼擁有者

前言

印度有豐富的自然資源和多樣化的農業氣候條件，因此全年在某些地區可生產許多溫帶花卉或熱帶花卉。通訊設施的改進促使全國各地增加了花卉的供應。花卉商業生產與行銷的活動，同時提供了成千上萬人優質的就業機會。事實上婦女的就業就有 85% 的婦女在自己的村莊找到工作。人類的文明沿著河岸發展，而我們的村莊座落於 Pawana 河岸，因此我們的玫瑰花農民合作社取名為「Pawana 文化農民生產合作有限公司」。目前我們有 71 位農民成員，玫瑰花的銷售量每年增加 15%，種植面積也不斷擴大。身為小農，我們深信「沒有合作就沒有希望」。

玫瑰花切花的生產

估計印度每年可生產 5 億枝玫瑰花。隨著自然資源的開發，如適當而多樣性的氣候，促使周年能有更多的花卉作物生產持續成長。勞動力成本低廉有助於降低生產成本，讓消費者以合理的價格買到高品質花卉，也提高了我們在出口市場的競爭力。包含玫瑰花在內的印度花卉市場，2023 年產值已有 2930 億盧比，預估在 2024-2032 年間將以 11.4% 的年均成長率 (CAGR) 成長。印度是玫瑰花主要生產國，占有全球重要比重，然而相對出口的比重很小。Karnataka 和 Maharashtra 州是主要產地。目前玫瑰花栽培面積有 3.9 萬公頃，而且農二代已在接手自家農場。有些以出口導向的單位則

聚集在西部的浦那 (Maharashtra)、南部的班加羅爾 (Karnataka) 與海德拉巴 (Andhra Pradesh)、北部的德里，並與荷蘭的技術合作。

我們每天生產 10 萬枝玫瑰花，所有品種皆來自歐洲著名的玫瑰花育種公司 (De Ruiter, Kordes, Tantau, Meilland and Rose Forever)。溫室商業花栽培模式始於 1990 年代。

採收後處理與運輸

為了確保鮮度，花朵會在採收後儘快包裝並運送到批發市場。玫瑰花先經預冷、分級、包裝後裝箱，並以空運方式運送。大多數花朵會在採收隔天完成裝箱，所有花朵在採收後立刻浸泡可麗鮮 (Crystal Clear®) 溶液中，接著進行嚴格分級、清潔，並以 10 朵一束包裝，平均每小時可完成 12.5 束。初級工人日薪為 500 盧比。政府也提供冷藏運輸車支援。許多出口導向的單位建有預冷室與冷藏庫，使花卉品質更佳，瓶插壽命更長。政府的花卉發展計畫中也包括在重要生產區建置可供合作使用的冷鏈設施，並鼓勵成立農民合作社與協會。

品牌保護品種

我們生產出口的玫瑰花須符合下列條件：莖長至少 50 公分，產量每平方英尺 120-140 枝，花蕾直徑 4-5 公分，花朵壽命 12-15 天。最受歡迎的品種包括：紅色：Top Secret，黃色：Soliar，粉色：Revival，橘色：Naranga，白色：Avalanche，以及雙色：Jumilia。其他商業品種還包括 First Red、Grand Gala、Konfitti、Raval、Tineke Sacha、Prophyta、Pareo、Noblesse、Virsilia、Vivaldi、Big Apple、Sweet Moment、Samurai、Bordeau、Aqua (無刺)、Nobles、Circus、Gold Strike 等。

我們支付受保護品種的權利金，分兩期繳交。權利金以 0.85 歐元為基準，數量越多費用越低。六個月大的芽接苗 (Pro 3 砧木)，

每株收費 20 盧比。種植後四個月開始收花。每年我們會試種 45-50 個品種，試種期限兩年。印度玫瑰花產業中國際著名的參與者包括　有：Shreurs、Moerheim、De Ruiter、Kordes、Rosen Tantau、Meilland 以及 Rose Forever。玫瑰花是全印度最主要供應花束與插花的切花，其他主要切花有：唐菖蒲、晚香玉、康乃馨、蘭花，最近還有百合花、非洲菊、菊花以及宿根滿天星等。

出口份額

雖然印度的玫瑰花產量高，但在全球玫瑰花切花出口的占比仍相對較低。近年來，印度的玫瑰花出口量有增加，但出口價格卻下滑。花卉出口貿易主要是玫瑰花，其他還有蘭花、唐菖蒲等。主要市場為歐洲 (荷蘭、德國、英國) 與日本。玫瑰花價格隨季節變動，年平均批發價格為每枝 0.45-0.58 美元。每年 11 月至 3 月 (包含母親節畢業季) 價格最佳，批發價可達每枝 0.65-1.00 美元。我們合作社的主要出口市場為荷蘭、澳洲、紐西蘭。

研究支持

多在農業研究委員會和科學與工業研究委員會的支持下，各州農業大學的園藝 / 花卉部門，以及全印度涵蓋 20 個中心的協調花卉改良計畫組織中，花卉研究正在進行。受到注目的作物包括：玫瑰花、唐菖蒲、菊花、蘭花、茉莉花、晚香玉、翠菊以及萬壽菊等。最近力推的研究有：作物改良、農業技術標準化，包括改進繁殖方法、植物保護以及採收後處理。生產技術，特別是栽培上的需求以及重要病蟲害的控制方法也被開發。

出口策略

在國內市場已趨成熟之際，我們聚焦於拓展尚未開發的出口市場，如東亞的臺灣、新加坡、以及日本。隨著冷鏈與物流基礎設施

的改善，栽培與管理成本上升，品質標準成了成長的壓力。加上國內與國際市場的需求增加，必需採用先進的栽培技術與溫室技術。我們事業的核心競爭力建立在有技術的勞動力與獨特的氣候條件--「天時、地利、人和」。這也造就了有利的相對低廉的生產成本(人力與未加熱溫室)。政府大力扶持每年引進新品種以提升品質與競爭力。同時，我們提供客製化包裝與彈性的簡易訂購流程，以及核心服務的重要部分。

結論

生活的美學的吸引力正契合一般消費與全球送花給朋友的潮流。出口市場對我們來說如同廣闊無垠的天空等待探索。這需要花卉科學領域各方的共同努力，唯有持續關注國際市場的需求，加強溝通並不斷提供優質品種，我們的產業才能不斷向前邁進，走向卓越。

Export Strategy of Indian Cut Roses

Bhadre Sambhaji Dnyandeo

General Manager and Owner, Flora Garden Pvt Ltd, India

Introduction

India is availability of natural resources like diverse agro-climatic conditions permit production of a wide range of temperate and tropical flowers, almost all through the year in some part of the country or other. Improved communication facilities have increased their availability in every part of the country. The commercial activity of production and marketing of floriculture products is also a source of gainful and quality employment to scores of people. Truly woman empowerment as 85% women are getting jobs in their own villages human civilization developed along riverbanks. Our villagers are situated on the banks of the Pawana River. Therefore, our rose producer farmer cooperative society was named Pawana Sanskriti farmer producer co Ltd. Today we have 71 farmers in the comparative consumption of roses increase by 15%. Every year and areas under cultivation of roses are increasing. As small farmers we believe there is no salvation without cooperation.

Cut Roses Production Capacity

The production of roses in India is estimated to be around 500 million rose stems annually. It will continue to excel as development of more availability of natural resources that favorable and diverse climatic conditions permit production and availability of a large variety

of flower crops round the year. Cheaper labor leads to reduced costs, increasing access of the consumer to good quality flowers at affordable prices besides increasing our competitiveness in the export markets.

The Indian floriculture market, which includes roses, reached a value of INR 293 billion in 2023 and is expected to grow at a CAGR of 11.4% from 2024 to 2032. India is a major producer of cut roses, contributing a significant portion of the global production. While India has large production capacity, its export share of cut roses remains relatively small compared to its production. Key states like Karnatakaand Maharashtra are major producers of 2 cut roses. In India around 39 thousand hector land is under cultivation for roses and second Generation is taking charge of the family-owned roses Farms. Several export-oriented units are being in clusters around Pune (Maharashtra) in the West, Bangalore (Karnataka) and Hyderabad (Andhra Pradesh) in the South, and Delhi in the North, are coming up in technical collaboration with expertise mainly from Holland. We produce around 100 thousand roses per day. All varieties are imported from well-known Rose Breeders of EU (DeRuiter, Kordes, Tantau, Meilland and Rose Forever). Roses in a fully commercial manner cultivated in greenhouses in the 1990s.

Post Harvest & Transportation

The packaging and transportation of flowers from the production center to the wholesale markets as soon as possible to keep it fresh. Roses are pre-cool to graded, wrapped and packed cartons and transported by air. Mostly, flowers are boxed by the next day after harvest. All flowers are soaked in Crystal Clear® immediately after being harvested, and then strictly graded, cleaned and packaged in bundles of 10 flowers. The average hourly labor is 12.5 bundles. The

daily wage for beginners is 500 rupees. The government has assisted with refrigerated carriage vans. Lots of export-oriented units have built up excellent facilities of pre-cooling chambers, cold storage thus of very good quality and have longer vase life. The government programs for floriculture development include creating common facilities of cool chain in large production areas to be shared on a cooperative basis. Formation of growers' cooperatives/associations are being encouraged.

Brand Protected Varieties

The varieties must qualify the following criteria for us to grow and export: The stem length must be at least 50 cm, the yield should be (120-140 branches/square foot), the flower size should be 4-5 cm, and the flower lifespan should be 12-15 days. Most popular varieties that we grow are Red: Top secret, Yellow: Solar, Pink: Revival, Orange: Naranga, White: Avalanche, Bicolor: Jumilia. The other varieties such as: First Red, Grand Gala, Konfitti, Ravel, Tineke, Sacha, Prophyta, Pareo, Noblesse. Versilia, Vivaldi, Big Apple, Sweet Moment, Samurai, Bordeaux; Revival, Aqua (thornless), Nobles, Circus andGold Strike etc.These varieties are also being grown commercially.

We paid fee for protected cultivars, the royalty charges for new varieties which can be paid in two instalments; the patent fee is based on a base price of 0.85 euros, and the larger the quantity, the lower the patent fee; 6-month-old bud-grafted seedlings (with Pro3 rootstock) are charged 20 rupees each, flowers can be started to harvest 4 months after planting. We test 45-50 new varieties every year for a period of two years. International well-known players in the Indian roses industry include Shreurs, Moerheim, DeRuiter, Kordes, Rosen Tantau, Meilland & Rose Forever. Rose is the principal cut flower grown all over the country for bouquets, arrangements others major flowers

are gladiolus, tuberose, carnation, orchids and more recently liliums, gerbera, chrysanthemum, gypsophila etc.

Export Share

Despite its high production, India's share in global cut rose exports is relatively low. While India has seen an increase in cut rose exports, export prices have declined in recent years. The major share of the export trade is for roses, in addition to orchids, gladiolus etc. The major markets are Europe (Holland, Germany and U.K.) and Japan. Prices fluctuate with the seasons, with an average annual wholesale price of $0.45 to $0.58. Prices are best from November to March, including Mother's Day and graduation ceremonies, when the wholesale price can reach $0.65 to $1.00 per stem. We sell mainly to the Netherlands, Australia, & New Zealand.

Research Backing

Research work on floriculture is being carried out at several research institutions under the Indian Council of Agricultural Research and Council of Scientific and Industrial Research, in the horticulture/ floriculture departments of State Agricultural Universities and under the All India Coordinated Floriculture Improvement Project with a network of about twenty (20) centers. The crops which have received larger attention include rose, gladiolus, chrysanthemum, orchid, jasmine, tuberose, aster, marigold etc. The thrust till recently had been on crop improvement, standardization of agro-techniques including improved propagation methods, plant protection and post-harvest management. Production technology, particularly the agronomic requirements and control methods for important diseases and insect pests have also been developed.

Export Strategy

The domestic market is already well-established. We focus on expanding export markets to untapped regions and explore new countries for export opportunities, we are working on East Asia market such as Taiwan, Singapore and Japan. As the improvement of cold chain and logistics infrastructure, elevated costs of cultivation and maintenance, quality standards are the force of growth. In addition to increasing demand for roses in domestic and international markets, the adoption of advanced cultivation techniques and greenhouse technologies are needed. As our business backbone are built from skilled workforce and unique climate---The right time, place and people, it generated the advantage of relatively cheaper cost of production (labor, unheated greenhouses), government strong support and yearly provide newer varieties available to advance quality with competitive price, beside offer customer's pack, flexible that to ease ordering process furthermore crucial part of our core service

Conclusions

The aesthetic appeal of life that is in line with the general belief consumption and the fashion of sending flowers to friends globally, it makes export-market as a sky to us to explore. It will require a concerted effort on all parts of floricultural science. Paying attention to varied international needs, sensible communication and continuing to offer the best varieties for the demanding market would lead our industry to excel.

觀賞植物育種研發趨勢

林彬

美國奧特曼植物公司觀賞植物研究總監

前言

由於工業革命的急速發展，合成化學精益求精（變本加厲），資本主義無極限的濫觴，自然資源高度消耗，高碳足跡的溫室效應，乾旱現象的持續擴大，空氣、水源嚴重污染和枯竭，各國為了脫貧，不惜破壞環境的代價何其巨大、沉重！再加上人口暴增，居住面積也越來越局限，以致環保意識的高漲，寂靜的春天（Silent Spring）一書的影響下，先進諸國莫不執行越來越嚴峻的農藥政策。隨著氣候人口土質變遷的加劇，現有的'老品種'勢必逐漸式微，改善人居環境的觀賞植物首當其衝備受重視；培育具有抗旱、耐熱、耐寒等抗逆性的觀賞植物逼在眉梢，勢在必行。

先進諸國公私相關單位為確保無污染、環境友善又'綠化'的健康社會，'立法制約'和'評選頒獎'雙管齊下；企圖規範（減少或降低）化學農藥、肥料和水資源使用極限；刺激研發這些具有抗病蟲害和適應環境氣候變遷的'新物種'；科技界、育種界在此巨大商機之發酵下，竭盡全力前仆後繼地投入開發這可能是搖錢樹（Money Tree）新興領域，如火如荼、欲罷不能！

所謂危機就是轉機！如此複雜環境變遷的衝擊下也為我們提供了發展機運！實則，現今的育種研發趨勢，包括所有物種的研究，必然以不再依賴有害的化學農藥，皆以'生態'為研究核心；而觀賞作物，除了抗逆境，以出奇制勝的'植物美學'為其研發前景，即投入培育充滿"元氣"的植物物種，仍令人怦然心動。

育種攻略

生態環保＋低維護＋緊湊矮生＋勤花＋芳香＋多樣性＋花期長＋反季節＋適應性＋耐陰＋少刺＋自根能力＋不孕性＋以及生長勢之大拼圖，缺一有憾！

- **自然選拔環境**：在'環保'大趨勢下，讓植物呈現本身品味，其花、果、枝葉部位都如活雕塑般吸睛的亮點是育種家超脫'抗性'外的努力；因此，在不加設施、完全無藥劑處理的自然田間環境下，進行比較測試以符合'適者生存'的選拔標準。
- **多樣化**：各國的喜愛燕瘦環肥各有所鍾，也常受潮流和季節所導，年年都在變，特別是顏色差很大，消費者對觀賞植物的需求日益多樣化，例：True Bloom Roses 系列，以滿足市場需求。不僅要具勤花矮生、花期長、低維護、不孕性、抗逆、風土適應性、耐陰、少刺等等觀賞元素的同時還要凸顯獨特香氣、小花大花，色變化，室內、外都有觀效以及反季節開花的品種，容易吸引'消費者'青睞。（例：矮巧、耐陰、反季節特性、花期長的 Atomic Bloom'原子百子蓮'，令消費者秒殺驚艷）。
- **生產鏈**：決定產值的品級、易於擴繁，運輸盆壽，植株生長勢，易自根之苗，栽培時間短，催花速，例：具備兩三朵花苞的朱槿會很快銷售出去，等等這一系列栽培要素則是推動'生產者'的盈利動力；育種者不斷推出具有新穎之餘，也要掌握生產作業的有利因素，才是雙贏之訣。例如：頗受歡迎的專利品種 True Integrity 因不易在 AZ 田間生產，生產者無利可圖而被退出市場。因此選拔有自根苗能力的種苗，或能利用組織培養快速繁殖的種苗，還可開啓外銷方便之門。
- **基因庫**：豐富基因庫的建立和不斷充實組合才有'苟日新，日日新'的機遇。充沛的基因庫，乃開拓新品種必要條件！全球化的種苗產業，各國之間的技術交流與合作非常頻繁，各國的育種趨勢互相影響越來越密切；積極參與國際組織獲得更多有利發展的資訊

政策，持續取得基因源以充實基因庫。

- **重組遺傳**：回交可以重組量的性狀遺傳（quantitative effect）也是育種重要手段，如早花、短節間、芳香、抗病、抗寒、生長勢，易於發根等遺傳重組的基因群，更有利開發適應特定生長環境的條件，讓自己的品種與眾不同定位，標新立異，或可勝券在握！
- **數據規律**：育種不光是繁雜的基因拼圖，萬中挑一的選拔作業，更是曠日費時；研發一個花卉（玫瑰、朱槿）至少需要 5 年的穩定的田間試測時間，再加上 2-3 年增殖到可上市的數量，時間的加速（Fast Track），決定成本之可持續；運用數據規律來規劃流程，可以讓整個育種選拔率提高，試驗過程縮短之效率，至少比'碰運氣和盲從猜測'而減低投資風險。當然，通過基因編輯技術，可精確地改變和重組植物基因，大大的加速育種過程，並創造出具有前所未有的新特性品種，例： Suntory 的藍玫瑰 applause，包括利用分子標記輔助（marker）育種，可以快速篩選出具有目標性狀，特別是受長時間環境影響的植物個體（抗病，抗寒）；然而，畢竟觀賞植物的總體價值和糧食、藥用作物的經濟規模不能堪比，未可負擔巨大投資成本。觀賞植物育種目前的趨勢仍然還是以傳統的一對一的授粉方式，靠運氣取得成果的比率相當高，有賴選拔父母本取得特定基因的經驗和熟悉電腦數據統計的應用，季節評估數據之精確收集和分析，避免重複錯誤而提高達標的或然率。

促銷策略

現今市面上的觀賞植物，五花八門，應有盡有，令人眼花繚亂，消費者陷入大海撈針的選擇疲勞。如何讓消費者放心下單，不僅要奇貨可居，還得靠有口皆碑的'品牌信心'，包括品牌系列的建立，不光是精美的包裝設計，品質穩定，無病毒 (Clean Plant) 則深入品牌靈魂！例：True Bloom 真美玫瑰系列之引人注目之設計，有助於識別和推廣；瞭解市場動向的同時，知彼知己則可領導風騷，顧客

不一定知道這是'奇貨'，育種者有責任引導潮流，'老王賣瓜'！沒錯！大膽的贊美自己所賣是就是寶！透過了解市場趨勢和了解競爭，將增強引領市場趨勢的信心。

- **註冊商標**：洞悉顧客的屬性，可有效推廣而迅速取得市場佔有率；品種保護，專利註冊商標等每一項都是'護身符'，掌握各項法規流程，以保障產權持續獲利。品牌（Branding）乃'市場推廣'的尚方寶劍，宜妥善維護；育種的可持續性全賴其推廣結果的經濟效益！
- **品牌優勢**：在沒有園藝專業服務的量販店顯得特別重要，其價格比沒有品牌的'黑盆'（black pot）輕易的高出 2 至 3 成。以美國來說，一個品種可以在市面流行十年以上，才算成功的"有利可圖"的品種！大力投入國際競賽和園藝大會展示平台，結合代理商和研究機關、園藝媒體，甚至網紅，爭取認可和曝光率，競賽中獲取得獎項，對該品種迅速進入市場無往不利。

結論

觀賞植物育種是一項促進民生樂利健康，生態環保的遺傳工程，也是維護美化人居環境貢獻極大的事業，在全球低維護生態的大趨勢下，需求殷切，前途看好；有效應用科學方法，數據歸納和藝術素養，來培育一個充滿真氣的植種，求新求變，控制成本和品種快速成功上市一衣帶水；臺灣位於亞洲地理中心，觀賞植物研究潛力巨大，同樣擁有蘭花奇蹟的魔力，足以躍居世界時尚之行列。花花世界，當是萬紫千紅、暗香浮動，洋溢著陽光燦爛的彩色，見者有份！

Trends in Ornamental Plant Breeding Research and Development

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Preface

Due to the rapid development of the Industrial Revolution, the continuous enhancement of synthetic chemistry, the emergence of unlimited capitalism, the high consumption of natural resources, the greenhouse effect of high carbon footprint, the unending expansion of drought, the serious pollution and depletion of air and water sources, the price that countries have to pay for destroying the environment in order to get rid of poverty is huge and heavy!

Coupled with the population explosion and increasingly limited living space, the rise in environmental awareness, the developed countries, influenced by the book "Silent Spring", have all implemented increasingly stringent pesticide policies.

With the intensification of climate, population and soil changes, the existing "old varieties" are bound to gradually decline, and ornamental plants that improve the living environment are the first hit to receive attention; cultivating ornamental plants with drought resistance, heat resistance, cold resistance and other stress resistance is obviously urgent and imperative.

In order to ensure a pollution-free, environmentally friendly and "green" healthier society, relevant public and private institutions in progressive countries have adopted a two-pronged approach of

"legislative constraints" and "selection and awards"; attempting to regulate (reduce or lower) the use limits of chemical pesticides, fertilizers and water resources, which is stimulating the research and development of these "new plants" that are adapted to the transformation which would promote the incentive of business opportunity, the scientific research and breeding communities are longing to invest in this emerging field, which maybe explored as Money Tree!

"Crisis is an opportunity"! Since the impact of such complex environmental changes provided these prospects.

In fact, the current research trends, including all species, must no longer rely on harmful chemical pesticides, but focus on "ecology" as the essential research core; and ornamental crops, in addition to stress resistance, "plant aesthetics" is full of prospects, the advance research on this vitality energy is thrilling.

Breeding Strategy

Keywords: Eco friendly + low maintenance + compact +recurrent flowering + fragrance + diversity + long flowering period + off-season +adaptability + shade tolerance + fewer thorns + self-rooting ability + infertility +vigorous. It is a big puzzle to be filled and missing any one of them will show concern!

- **Natural Selection Environment**: The efforts of ornamental breeders go beyond the trend of " Eco friendly", let the plants show their own nation perception, as their flowers, fruits, branches and leaves are eye-catching like living art (sculptures); therefore, in a natural field trials environment without any facilities and no chemical treatment are carried out to meet the nation selection "Survival of the fittest" criteria.

- **Diversification**: Different countries have different preferences, which are often influenced by trends and seasons and change year by year, especially color difference. Consumer demand for ornamental plants is becoming increasingly diversified (e.g. True Bloom Roses series) to define market demand. Not limited to ornamental elements such as frequent flowering, long flowering period, low maintenance, infertility, resistance to adversity, adaptability to local climate, shade tolerance, few thorns, etc., but also highlight unique fragrance, small and large flowers, color changes, and varieties that can be viewed both indoors and outdoors, as well as off- season flowering, which are easy to attract the favor of "consumers". (e.g. Atomic Bloom, which is short flowering stalk, shade-tolerant, off-season and has a long flowering period, is so stunning consumers in no time).
- **Production Chain**: The grade that determines the output value, ease of propagation, shelf life of transportation, select seedlings that are easy to root, shorter cultivation time, rapid flower bud initiation (e.g. hibiscus with two or three flower buds would make quick impulse sales etc. These series of factors are the driving force behind the profitability of the "producers-farmers"; breeders must not only continuously launch novel products but also grasp the favorable factors for a good growing outcome, which is the key to a win-win situation. (e.g. The popular variety True Integrity rose was forced to retire because it was difficult to produce in Arizona fields and was not profitable for growers. Therefore, selecting seedlings with the ability to quick root cutting as tissue culture seedlings that can be rapidly multiplied for accessible export as well.
- **Gene Bank**: Establishing a rich gene bank and constantly enriching the portfolio to enhance the opportunity to renew breeding bloodlines. An abundant gene pool is a necessary condition

for developing new varieties! In the globalized plant industry, international technical exchanges and cooperation are increasingly influenced by each other. Be actively participated to obtain more information including gene sources, policies, innovation and movements.

- **Recombinant Genetics**: The backcrossing and recombinant genetics quantitative trace effect is an essential means of breeding, such as early flowering and short internodes, fragrance, disease resistance, cold resistance, growth vigor, easy rooting, etc. The more diverse the genetic recombinant gene group, the more conducive It is to specific goals, so that your own varieties can be positioned uniquely, be innovative, and win!
- **Data Manipulation**: Breeding is not only a complicated genetic puzzle, but also a time-consuming effort, one-in-thousand selection operation. The development of a new plant (rose, hibiscus) requires at least 5 years of stable field testing, plus 2-3 years to expand it to a large enough quantity to be marketable.

The acceleration of time (Fast Track) determines the sustainability of costs. Using data rules to improve the overall breeding and test process, to reduce investment risks as taking chances of blind guesswork. Of course, gene editing technology can be used to precisely change and reorganize plant genes, greatly accelerating the breeding process and creating varieties with unprecedented new characteristics (e.g. Suntory's blue rose "Applause").

The use of molecular markers to assist in breeding, which can quickly screen out plant individuals with target traits, especially those that are affected by long-term environmental factors (disease resistance, cold resistance). However, the overall value of ornamental plants economic scale cannot afford the huge investment costs as

food and medicinal crops, thus the current trend in ornamental plant breeding is still dependent on the traditional one-to-one pollination method, with a rate of success relying highly on luck. Since it relies on experience in selecting parents to obtain specific genes and familiarity with the application of computer data statistics, accurate collection and analysis of seasonal assessment data, avoiding repeated errors and increasing the probability to the objectives.

Promotion Tactic

There are so many available ornamental plants on the market today that it causes confusion, and consumers are fatigued by trying to find a needle in a haystack. To make consumers feel at ease to place orders requires not only availability, but well-known "brand confidence", including the establishment of a brand series, exquisite packaging design, stable quality, also virus-free (Clean Plant) is deeply rooted in the brand's soul! For example, the eye-catching design of the True Bloom rose series helps to identify and promote itself. Customers may not know that this is a real gem, and breeders have the obligation to lead the trend. Be bold in praising what you sell; it's a treasure! By understanding the characteristics of customers, promotion would be developed effectively that will achieve market gain quickly.

By understanding market trends and knowing competition would enhance confidence to lead the market movements.

- **Registered Trademarks**: variety protection, patents, registered trademarks, etc. are all "amulets". Master the various laws and regulations to ensure that the intelligent rights continue to make profits. Branding is the magic sword of "marketing" and should be properly maintained; the sustainability of breeding depends entirely on the economic benefits of its promotion results!

- **Brand Advantage**: Particularly important in mass-market (Box Stores) that do not provide professional gardening advise services, where prices can easily be 20% to 30% higher than those of unbranded black pots. In the United States, a variety can only be considered a successful and "profitable" variety if it can be popular in the market for more than decade!
- **Global Expose**: Partake international competitions and Horticultural conference display platforms, trust agents and research institutions, horticultural media, and even youtubers to strive for recognition and exposure, and to win awards for the variety to quickly be promoted into the market.

Conclusion

Ornamental plant breeding is a genetic project that upgrades people's well-being, health, and ecology. It is also a cause that makes great contributions to maintaining and beautifying our civilization's living environment. Low-maintenance ecology is a great demand and a promising future. Effective application of scientific methods, data induction, and artistic qualities, seeking innovation and change, controlling costs that could successfully bring varieties to the market quickly to breed a plant with plenty of Chi (internal energy life force). The colorful world is full of colorful flowers, and subtle fragrances from the sunshine. Everyone who sees it can enjoy it!

Located closely to the geographical center of Asia, the potential of Taiwan's ornamental plants research likewise has the magic of its orchids miracle that could leap to the world in fashion!

臺灣花卉育種發展策略與挑戰

朱建鏞

陽昇園藝公司研發總監

西元1960-1980年臺灣開始有切花卉產業，生產菊花、唐菖蒲、玫瑰花等。栽培品種皆由政府機關引種、試作、然後推廣給農民栽種。種苗則由農民自行繁殖或輔導專業農民生產。西元1977年在埔里試作香石竹成功後，宿根滿天星、非洲菊、百合等陸續引入。臺灣花卉新品種開始與國際接軌。由於需支付高額的種苗費用因此臺灣開始發展組織培養繁殖技術。西元1988年植物種苗法公告，然一直未執行品種權保護，花卉生產者也沒有品種權觀念。聖誕紅盆花產業興起(1990-)後，侵害美國種苗公司利益，政府才於1997年開始執行品種權保護(PBR)。同時政府驚覺到育種的重要性，才開始投入花卉品種開發。

臺灣發展育種產業的資源(競爭力分析)有：一、天時：二十世紀末經濟不景氣國外大種苗公司裁員，新花卉產能不足。臺灣新花卉進入世界市場的良機。二、地利：臺灣冬季氣候冷涼、乾爽，適合採種。(冬季開花作物：中性日照植物、或短日日照植物的採種)。三、人和：優質的人力資源政府積極投資農業科技開發與推廣教育，農民知識水準高，作業人員勤勞、靈巧、新技術學習能力強。

臺灣花卉育種發展至今已經二十九年(1996-2025)卻成果不彰，主要的原因有：一、執行計畫後無成果：執行人離職、經費不足、育種計畫缺少長期計畫支持。二、品種無競爭力、決策者不了解花卉品種權行銷，以至於申請品種權後無授權生產。三、品種無競爭力、量產種苗發生問題，或不懂市場行銷，以至於被授權者未生產或未上市。

針對花卉品種沒有競爭力，茲以商業九宮格 (BMC) 說明，並提出對策。品種的價值定位 (育種目標) 的問題可分為：作物種類的競爭力與新品種特性的競爭力。適合臺灣發展育種的花卉種類之條件有：容易栽培且種不死的花卉 (世界流行趨勢)，熱帶或亞熱帶花卉 (適地適種育種成本低)，景天酸光合作用型的植物 (耐高溫乾旱逆境容易貯運)，臺灣有重要花卉作物的近緣特有物種的花卉 (特殊育種資源)，以及百年以內才開發的新作物 (雜交育種，易趕上國際水準)。至於具有市場競爭力的新品種需則須滿足消費者的需求，創造有價值的新特性，或解決現有品種的缺點，讓產業鏈上每階段的經營者都滿意 (能賺錢)。例如：消費者的需求有：容易栽培 (種不死)、有個性的美且有活力、觀賞壽命長。銷售業者的需求有：容易維護管理、儲架壽命長、殘貨少。物流業者的需求有：重量體積小、容易包裝運輸、物流損耗少。生產者的需求有：觀賞價值符合消費者的需求、容易繁殖栽培、單位栽培面積產量高、栽培期短等。

另外育種者要有提高育種效率的方法。例如育種前大量蒐集作物資訊與資源，檢視作物品種流行趨勢，訂定明確育種目標，利用花粉培養檢測親本稔實性與授粉時機 (適當溫度)，善用逆境授粉提升育種效率。並運用育種科技解決育種障礙，例如利用種間雜交導入新特性，利用植株染色體多倍體化技術以恢復稔實能力，利用未成熟胚拯救技術以獲得雜種後代，以及其他方法例如朱槿子房修補。

花卉品種的市場行銷包括販售種苗與品種授權生產兩種，國際現況以後者為主流。植物品種權的目標客戶為：1. 能夠看出新品種潛力的人，2. 能將新品種行銷到市場的人，3. 花卉產業界的佼佼者。育種者與目標客戶相互之間需對標的花卉的經營理念相似，也能共享產業資訊。筆者與陽昇園藝公司是從品種授權、產學合作，到開發種苗產業的夥伴，這與中興大學和日本華金剛株式會社合作模式相仿。

花卉育種者開拓國際市場需須先了解各國植物檢疫規範，了解國際植物品種權授權模式。積極參加國際花卉展覽，積極與國外公司合作開發市場，也可以委託國外品種專業代理人。期待臺灣有更成功的育種者，更期待臺灣能成為熱帶亞熱帶花卉的種苗中心。

Strategies and Challenges of Floral Breeding Development in Taiwan

Chien-Young Chu

R&D Director, Young Sun Horticulture

Evolution of Taiwan's Floral Industry

Taiwan's cut flower industry emerged between 1960-1980, with early cultivation of chrysanthemums, gladiolus, and roses. The government initially introduced and tested cultivars before promoting them to farmers. Seedlings were propagated by growers or by the nurseries which were coached by researchers in universities. In 1977, successful trials of carnations in Puli led to the introduction of perennial flowers such as statice, gerbera, and lily, integrating Taiwan into the global floral market.

The high cost of imported seedlings drove Taiwan to develop tissue culture propagation. By 1988, the Law of Nursery was declared, but formal implementation of Plant Breeders' Rights (PBR) only began in 1997. At the same time, the governors suddenly realized the importance of the commercialization of floral breeding. Then government support for breeding R&D subsequently increased.

Competitive Advantages

Taiwan's floral breeding industry benefits from:

1. **Climate & Timing**: Global economic shifts in the late 20th century reduced competition, creating opportunities for Taiwan's new cultivars entry into the international market.

2. **Geographic Suitability**: Cool, dry winters support seed production, particularly for short-day and winter-flowering crops.
3. **Human Capital & Policy Support**: Skilled labor, strong agricultural R&D investment, and high adoption of new technologies.

Key Challenges

Despite nearly three decades of breeding efforts (1996-2025), progress remains limited due to:

1. **Insufficient Long-Term Investment**: Short-term projects lack sustained funding and strategic planning, leading to incomplete outcomes.
2. **Weak Market Competitiveness**: Limited understanding of floral marketing results in ineffective commercialization of protected cultivars.
3. **Propagation & Commercialization Barriers**: Some cultivars fail in large-scale propagation or lack market appeal, leading to failure in production.

Enhancing Breeding Competitiveness

To strengthen competitiveness, the **Business Model Canvas (BMC)** framework highlights key strategies:

- **Breeding Focus**: Competitive varieties must be resilient, easy to cultivate, and aligned with global trends (e.g., low-maintenance, tropical/subtropical adaptability, CAM photosynthesis plants for drought resistance, and to have endemic species).
- **Market-Driven Approach**: Varieties must meet consumer demand for aesthetic appeal, extended shelf life, and ease of care, while also aligning with the needs of retailers (marketability, low inventory loss), logistics providers (compact, durable, low transport loss), and growers (high yield, short cultivation cycle).

Improving Breeding Efficiency

1. **Data-Driven Breeding**: Comprehensive crop analysis, market trend assessment, and clear breeding objectives.
2. **Optimized Pollination Strategies**: Use pollen culture to assess fertility and control pollination timing.
3. **Advanced Breeding Techniques**: Introduce new traits via interspecific hybridization, restore fertility through polyploidization, and employ embryo rescue for hybrid viability.

Commercialization & Global Expansion

Floral breeding is increasingly driven by **variety licensing over direct seedling sales**. Key success factors include:

1. Identifying early adopters who recognize market potential.
2. Partnering with experts in global variety commercialization.
3. Engaging with leading industry stakeholders.

For examples: **Young Sun Horticulture** followed a contract of industry-academia collaboration model like **National Chung Hsing University and Japan's Hanakongou Co. Ltd..**

For international expansion, breeders must:

- Understand global plant quarantine regulations.
- Know international PBR frameworks.
- Actively participate in global floral exhibitions.
- Establish partnerships with foreign nurseries or specialized PBR agents.

Conclusion

With strategic investment, Taiwan has the potential to become a leading hub for tropical and subtropical flower breeding. The key to success lies in fostering dedicated breeders, strengthening partnerships with international companies, and aggressively expanding into global markets.

綜合討論

1. 臺灣花卉產業介紹 (講者：陳彥樺副研究員)

Q1：是什麼原因導致臺灣花卉產業的衰退？

A1：原因包括勞力短缺及人口老化，以及周邊其他國家的競爭，另外還有臺灣人的消費習慣，花卉在臺灣算是奢侈品，消費者對於花卉的消費意願較低。

2. 奧特曼新部門的創立、純淨玫瑰花品系，以及北美觀賞玫瑰花市場 (講者：Andrew Konicki)

Q1：除了玫瑰以外，您的公司是否有尋找亞洲地區其他有潛力的花卉？

A1：玫瑰是最大的市場，除此之外還有包括百合及很多的多肉植物等，在北美本公司就有 1000 多項的多肉植物品種，所以且仍再尋找更多的種原，並與育種者合作增加耐熱或耐病性。

Q2：花卉產業是否有行銷策略及如何促進品種育種及創新？

A2：透過成各個合作夥伴得到回饋，以了解當地市場的需求，找到適合當地市場的品種，例如某品種在一個地方是最熱銷的，但另一個市場根本不喜歡這個品種。

3. 日本園藝產業的趨勢與高松公司銷售策略 (講者：Hidemi Takamatsu)

Q1：目前育種方向大多是針對生產者易於栽培的韌性等，是否有計畫開發對消費者友善的栽培品種？像是盆花康乃馨，消費者買回去後可能因光照不足不開花，而開發低光需求的品種則可解決此問題？

A1：以康乃馨來說，盆花買回去不開花不一定是光照條件問題，因為盆缽限制了根系的生長，也會導致不開花，如果換上新盆植株重新生長後，就可以繼續開花，而公司也持續開發觀賞期較長的品種，這些工作我們一直在做，每年也會持續測試來自世界各地的盆花品種。

Q2：現在消費者大多居住在如公寓這種空間小或光照條件不足的環境，是不是能思考開發更多消費者好種植的友善盆花品種？

A2：公司每年大概篩選 600-700 個不同種類的植物，也希望可找到更多針對園藝栽培新手好種植的植物。

4.印度玫瑰切花的出口策略 (講者：Bhadre Sambhaji Dnyandeo)

Q1：印度政府如何幫助農民購買設施？

A1：補助方式為政府會先撥款 65~70% 的補助費至銀行，再由農民向銀行申請農業貸款，農民再去購買設施設備等。

Q2：在冷鏈設備及管理措施印度政府如何協助農民？相關設備是否擴及蔬果？

A2：冷鏈設備政府也有提供補助，並輔導農民從產地到市場相關措施，冷鏈管理也有運用到蔬果。

5. 觀賞作物育種研發趨勢 (講者：林彬)

Q1：如何選育自根性良好的玫瑰？

A1：其實可以用扦插泡水的方式，若插水後快速發根的品系代表他自根性強。

Q2：多種花卉已開始利用不稔性育種要如何恢復種原繁殖力？

A2：可以藉由二倍體或者四倍體使繁殖力恢復。

6. 臺灣花卉育種策略及挑戰 (講者：朱建鏞研發總監)

Q1：請問您後續還有想要發展哪些花卉？

A1：未來希望是能以臺灣特有植物進行育種，這樣才能發展出具臺灣特色的新品種，並有利保護種原。我也期待找到粉玫瑰色的羽毛花，透過羽毛花與聖誕紅雜交產生新的觀賞性狀。

綜合以上講者演說及綜合討論，可以了解到在花卉育種方面，要考量市場的需求性以及對於消費者來說較易於栽培的特性，透過品牌的建立，達到三贏的效果 (生產者、消費者、企業)。此外，加強社會回饋的方式，達到永續發展也是現在的重點方向，而企業也可以舉辦教育中心 (如 Takamatsu school)，教導生產者及消費者相關園藝知識及技能。

另研發出來的品種則可透過大型通路銷售，把有特色的品種擴大行銷，讓特色品種更易於被消費者接受。對於每個目標國家或市場，進入市場前都應調查清楚消費者喜好方向，並以此為目標進行育種。而政府部門可藉由補助設施的提供與輔導介入，強化基礎設施，以逐步改善栽培環境及協助產業升級。

育種方面不外乎要考量到抗逆境、耐候性、豐花、多樣性等，而現在的花卉育種也很注重觀賞期的延長，如切花瓶插壽命最好能超過 20 天，盆花觀賞期則要由 1 個月增加至 3 個月，而臺灣花卉育種最好從原生種出發 (如特有種或瀕危植物)，發展臺灣的強項花卉，才有機會打入國際市場。

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