

### 稻作改良 Rice

稻作改良以選育豐產、良質、抗病、抗蟲害之優良水稻品種、提高稻米品質與建立有機栽培技術之研究為主要目標。品種改良方面，近年來育成台梗四號、台梗六號、台梗十號及台梗十六號等四個優良品種。台梗四號為香米，米飯清香、並具有強稈、抗稻熱病等優良特性；台梗六號具有高產、米質優良、抗白葉枯病及再生力強等特性；台梗十號適合宜蘭地區一年一作栽培；而台梗十六號則有強稈、抗稻熱病及褐飛蝨、豐產、食味佳等特性，適合有機栽培。

調查分析本區推廣水稻主要栽培品種白葉枯病與米質之關係，顯示罹患重度白葉枯病對水稻產量、食味及糙米品質有明顯不良的影響。

路燈照明附近之農田，易照造成水稻生育抽穗延遲及結實率降低現象，就目前推廣的主要水稻品種進行探討，以種植台梗2號及6號為宜。利用木屑堆肥、泥炭土等介質進行育苗，插秧後之產量與傳統土壤育苗差異並不大，顯示介質育苗值得土等介質進行育苗，插秧後之產量與傳統土壤育苗差異並不大，顯示介質育苗值得推廣。

為提昇本區稻米品質，經試驗規劃良質米適栽區面積16,440公頃，除推薦各地適當品種，教導農民改進生產技術外，並輔導建立良質米地方品牌；「蘭陽五農米」、「溫泉米」及「富麗米」。

研究建立水稻有機栽培體系，推廣水稻有機栽培面積共439公頃，輔導產銷班自創品牌、建立產銷管道，對於提高農民收益及農業生態環境改善均有正面效果。

The main research activities are both breeding superior rice cultivars with high yield, good quality, particularly pest resistant and developing cultural techniques for good quality and organic farming of rice. Four registered cultivars by the station named 'Taikeng 4', 'Taikeng 6', 'Taikeng 10', and 'Taikeng 16' were released. Besides high yield and good quality of these rice cultivars, 'Taikeng 4' is an aromatic, anti-lodging, blast-resistant rice, 'Taikeng 6' has high ratoon ability and resistance to leaf bacterial blight, 'Taikeng 10' is suitable to annual-planting crop in the Ilan area, and 'Taikeng 16' possesses the characters of strong culm,





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resistance to blast disease and brown-planthopper, high grain yield, good eating quality, and suitable of organic farming on rice culture.

The effect of bacterial leaf-blight disease on rice quality was investigated. The results showed that this disease caused lower yield, and decreased the taste and quality of brown rice.

Major rice cultivars were used to study the effects of light sensitivity on yield. Taikeng 2 and Taikeng 6 were suggested to farmers with rice fields close to the public road-illumination. Using sawdust compost, peat moss and soil as cultural medium for rice seedling nursery, showed same yield as conventional soil medium. It is worthy to extend for rice seedling nursery by using cultural medium.

The suitable producing area for high quality rice has been expanded to 16,440 hectares per year. Assisting local farmers to build up high-quality rice brands, such as 'Lanyang Wu-noun Rice', 'Hot-Spring Rice', and 'Fu-li Rice' etc.

Organic rice production and marketing teams had been organized to farm 439 hectares in 2000. They have established their own brands and marketing channels to increase their profits. This also can improve the ecological environment in general.



▲台梗4號 Taikeng 4



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◀ 台梗6號  
Taikeng 6

▶ 台梗10號  
Taikeng 10



▲ 台梗16號 Taikeng 16





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## ▲ 良質米適栽地區

The appropriate areas to grow good quality rice



## ◀ 水稻有機栽培

Organic farming of rice



# 作物改良課

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## 雜糧作物改良 Dryland Crops

雜糧作物改良以落花生、甘藷及綠肥作物等優良品種之選育與栽培技術之改進為主，並以建立適合本區之耕作制度以及省工栽培為目標。於民國86年育成落花生“花蓮一號”。栽培技術改進以配合政府水旱田利用調整政策為主旨。花蓮縣以春作落花生、二期作水稻及冬季裡作綠肥之輪作方式最適宜；宜蘭縣則以一期作水稻、夏秋作青蔥及裡作綠肥最適宜。綠肥作物中選出太陽麻及田菁分別適合春作及夏作種植，秋作則以蘿藦及油菜較佳。落花生施用有機肥料與機械作畦栽培，可提高公頃產量約18%。

此外，並致力於新興作物之開發研究，例如蒐集翼豆、綬草、穿心蓮、土肉桂等作物，進行適應性試驗。



▲花蓮1號落花生 Peanut cultivar Hualien 1





Dryland crop research emphasizes on breeding for good cultivars of peanut, sweet potato and green manure crop. In addition, the most advantageous cropping system and the improvement of cultural technique on labor-saving and on lowering production costs are also studied.

A peanut variety named Hualien 1 was released in 1997. To comply with the policy of cropping adjustment of dryland crop and paddy fields, a rotation system of high profit and good productivity has been suggested. The system suitable for Hualien area is spring peanut followed by second crop of rice and finished with winter green manure. As for the Ilan area, first crop of rice followed by second crop of green bunching onion, then, winter green manure. For green manure crops, sunhemp and sesbania are suitable for spring and summer respectively, radish and rape are good for fall crops. The application of organic manure and ridge-making by machine can increase the yield by 18% in peanut production.

The collection of newly promising crops including winged bean, *Spiranthes sinensis* (Pers.) Ames, *Andrographis paniculata* Noes, and *Cinnamomum osmophloeum* Kaneh were also performed.

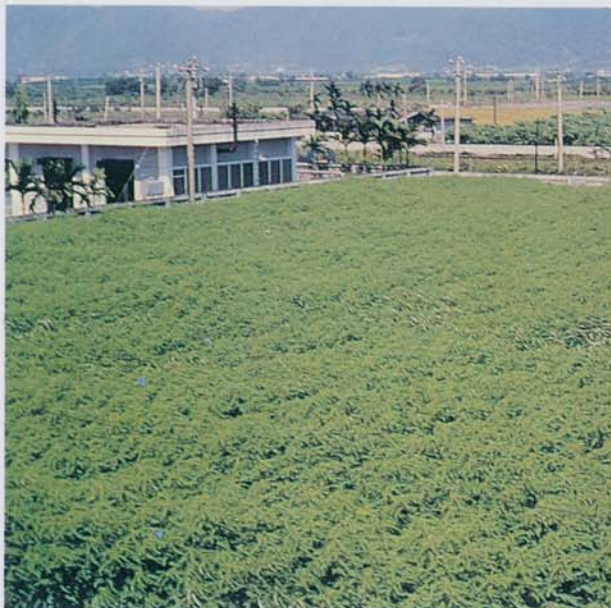




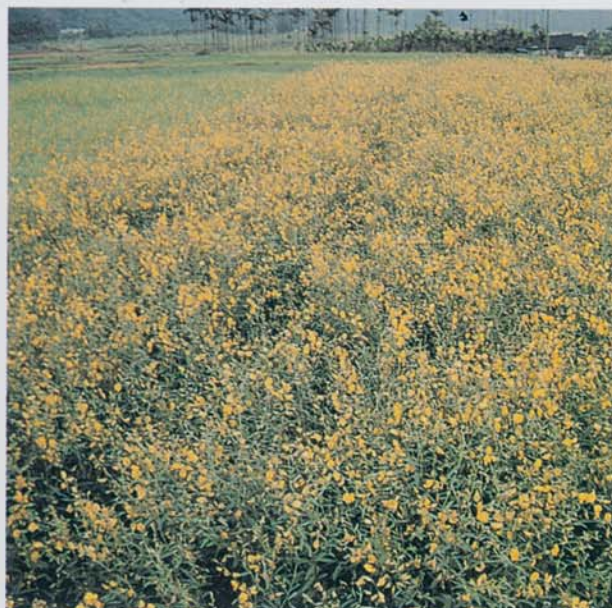
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## 夏季綠肥作物 Summer manure crop

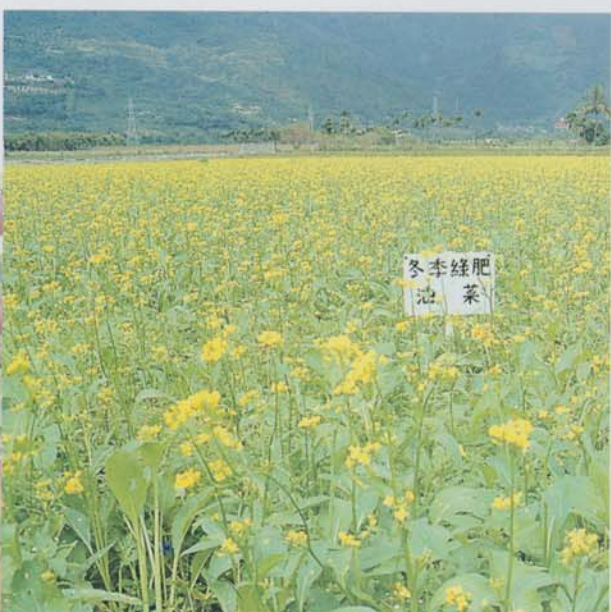


▲田菁 Sesbania



▲太陽麻 Sunhemp

## 冬季綠肥作物 Winter manure crop



▲油菜 Rape



▲蘿蔔 Radish





## 園藝作物改良 Horticultural Crops

園藝作物改良以瓜類、蔥類、原生蔬菜、山藥、文旦柚、李、梅、百合、國蘭、觀葉植物及玫瑰等品種選育與栽培技術改進為工作目標。民國87年育成之冬瓜新品種「花蓮一號」為一小型抗病毒病且豐產之品種。開發原生蔬菜如山蘇蕨菜之種苗繁殖及栽培生產體系及長形山藥塑膠管栽培法推廣，增加蔬菜之多樣化。在輪作研究方面，以豆科作物與瓜果類蔬菜輪作之模式可提高作物生產力。

花卉方面，已引進多種切花百合品種試種成功，並研究促成栽培技術以調節花期；百合外層鱗片經變溫處理可促使鱗片基部長小鱗莖以供做大量繁殖材料；另外還致力於本土化百合雜交新品種之選育。口紅花栽培在50%遮光網下，植株生長情形佳，並可減低寒害之發生。

應用組織培養發展園藝作物種苗繁殖量產技術，如金線蓮、斑葉垂榕及台灣山蘇等已經試驗成功，推廣轄區內農友採行，並持續進行觀賞鳳梨、斑葉性觀葉植物等組織培養之研究。

在生物技術研究發展上，則致力於百合、番茄等作物之抗病蟲害基因轉殖研究。

園藝產品採收後處理和加工研究，著重在金針乾製品加工技術、金針鮮蕾及黃藤心採後處理等研究，以延長產品之樹架壽命。

成立園藝作物有機農業技術服務小組，指導農民從事蔬菜、文旦柚及葡萄柚等作物之有機栽培技術，並輔導農會超市設置有機農產品專櫃展售。



▲台灣百合 x 東方型雜交百合 “Star Gazer”  
*Lilium formosanum* x Oriental hybrid “Star Gazer”



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Research on horticultural crops includes breeding for good varieties and improving cultural techniques for cucurbitaceous vegetables, green onion, native vegetables, yam, wentan pomelo, plum, Japanese apricot, lily, cymbidium, foliage plant and rose. A wax gourd cultivar 'Hualien 1' has been released in 1998, which was characterized by smaller fruit, virus resistance, and high yield. The plastic pipe cultivation method for long-shaped yam production has been developed and introduced to farmers. In crop rotation research, It was found that the system of leguminous followed by cucurbitaceae can increase the productivity of both crops.

In flower crops, it has been successful to introduce different varieties of lily for cut flowers. By putting the outside scale of lily bulb under a controlled temperature, it can induce small bulbs for mass propagation. Besides, the hybrid breeding of native lilies is also progressing. The lipstick plant grew well and showed no chill injury under the black netting giving a 50% shading rate.

The propagation technique by tissue culture on Anoectochilus, Ficus benjamina, and nest fern etc. has also been successfully developed and recommended to farmers.

Biotechnology research is progressing on disease and pest resistance gene transformation for lily and tomato.

Post-harvesting and food processing techniques are developed, which were used to prolong the shelf life of edible day-lily, and yellow rotang palm.

A technical service group for organic farming has been organized to give advanced cultural techniques to local growers. The guidance for organic farming of vegetables, wentan pomelos, and grapefruits has been provided and special sale sections for organic agricultural products in the farmers' association supermarkets have been set-up.



▲ 蔭棚下栽培口紅花

Lipstick flowers cultured under shading





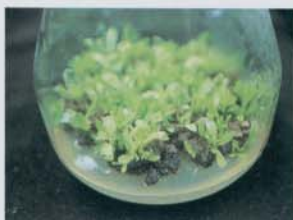
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### 觀賞植物組織培養 Ornamental plant tissue culture



▲金線蓮  
*Anoechilus sp.*



▲台灣山蘇花  
*Asplenium nidus L.*



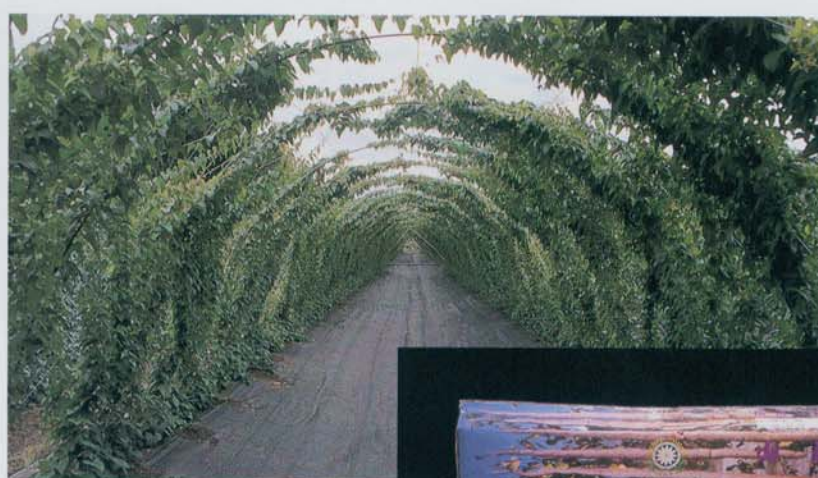
▲百合 *Lilium sp*



▲斑葉垂榕  
*Ficus benjamina*



▲小型冬瓜品種「花蓮一號」  
Wax gourd cultivar Hualien 1



▲長形山藥之塑膠管栽培  
Pipe culture for long-shaped yam



▲本土蔬菜—山蘇  
Native vegetable nest fern



▼原生鐵炮百合復育於花蓮東海岸坡地開花之情形  
Blooming of native lily (*Lilium longiflorum* Thunb.) in eastern coast of Hualien



▲本場指導後，提高文旦柚產量及品質。  
With the guidance of Technique Service Group, the yield and quality of wentan pomelo have been improved.

