



## EDITORIAL ARTICLE

### AUSTRALIAN HORTICULTURAL RESEARCH CHANGE OVER THE PAST 40 YEARS

Dr Gordon Brown

Change is inevitable and any in any healthy profession change will be constantly occurring. To many individuals change is often for the worst, while for others, change is viewed as an opportunity. It is my view that as an individual you need to adopt to change. Try to predict the future so you can make sure that you are in the right place at the right time to benefit from that change. Over the last 30 years I have been employed as a horticultural researcher in agribusiness, Universities and state government. In Tasmania there were issues I did not agree with in the late 1990's and as a result for the past 10 years I have run a private horticultural research company. With industry support and RDC's such as HAL and RIRDC there has been potential to have significant research projects without a need to be employed by a traditional research agency.

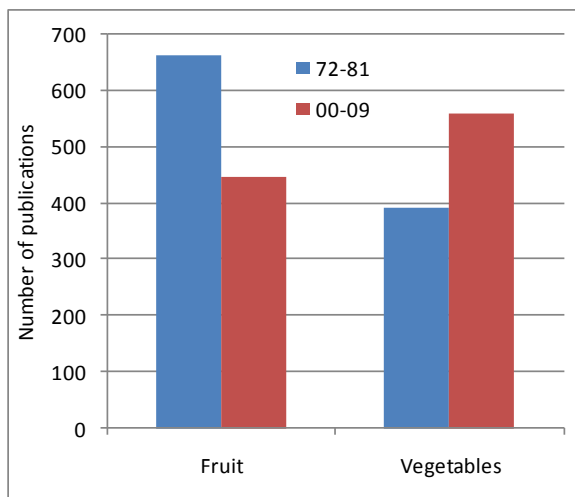


Figure 1. The number of scientific publications with specific fruit and vegetables in the title with Australian authors.

In order to study change over the past 30 to 40 years I used publications in Horticultural Abstracts as an indicator of where Australia has moved from. Unfortunately methods of cataloguing publications within horticultural abstracts have changed over this time period so this task turned out a little more difficult than expected. In order to minimise the impact of these cataloguing issues, for fruit, I searched for articles with apple or peach or grape or banana or orange or citrus in the title and for vegetables I studied articles with tomato or brassica or cabbage or lettuce or onion or potato or pea or bean in the title. I know that there has been a drift over time in the crops being studied but this is intended as a quick overview and I needed to restrict my time on this activity.

For these two crop types I studied the number of publications with a primary Australian author for the 10 years 1972 till 1981 and 2000 till 2009 (figure 1). This shows that while there has been a reduction in the number of publications concerning fruit there has been an increase in the number concerning vegetables leading to very little apparent change in the total number of publications being generated in Australia over the 40 year period. In other words there appears to be a relatively unchanged level of research activity in Australia over that time.

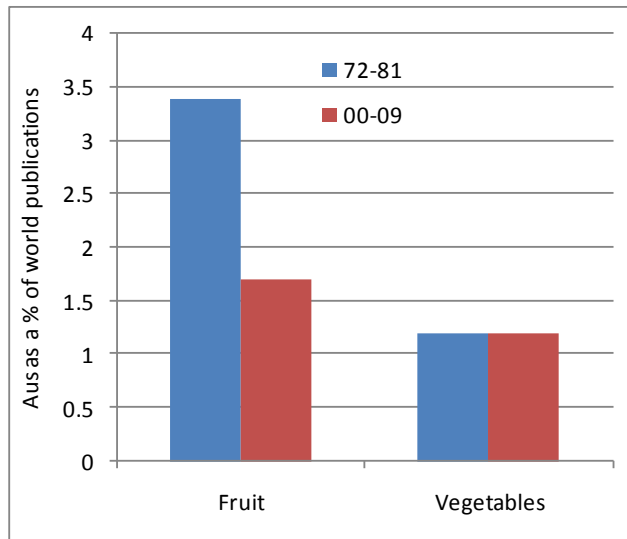


Figure 2. The number of scientific Australian horticultural publications as a percentage of global publications

But how does this compare to the rest of the world? Well figure 2 expresses these numbers for these crops as a percentage of global scientific publications over the same periods. This shows that compared to the rest of the world, for fruit, Australia is reducing its relative contribution to knowledge while it has remained stable for the vegetable industries. However, note that the fruit contribution to global knowledge is still greater than that for vegetables. These two pieces of information indicate a driving force is acting in Australia in favour of vegetable research over fruit research.

So where is the belief that Australia is reducing its inputs into research coming from? Well the answer may not be in the total number of publications but in the infrastructure and associated employment situation behind that infrastructure. To study this I looked at the employer of the Australian publications identified above. Due to database issues I had to do this by opening each abstract and noting the employer. To control time I only performed this on the first 100 articles for the fruit selection. In practice these articles were published in 1980 to 1981 or 2008 to 2009.

Figure 3 shows that there has been a big change in the agencies that are delivering horticultural research over the past 30 years. In the late 1970's and early 80's the state government agencies were the principal research organisations with an output nearly triple that of the Universities. Since then, however, the state government agencies have seen a large reduction in resources, reflected in reduced publications. A similar reduction in output in horticulture has been seen in the federal government agencies, dominantly the CSIRO. Over the same period the Universities have expanded their resources and have more than doubled their horticultural output and are now the largest single source of new scientific information. There has also been a small increase in the number of publications from private companies. Hence for the big three employers in the early 1980's, there has been a movement in resources from the CSIRO and state agencies to the Universities.

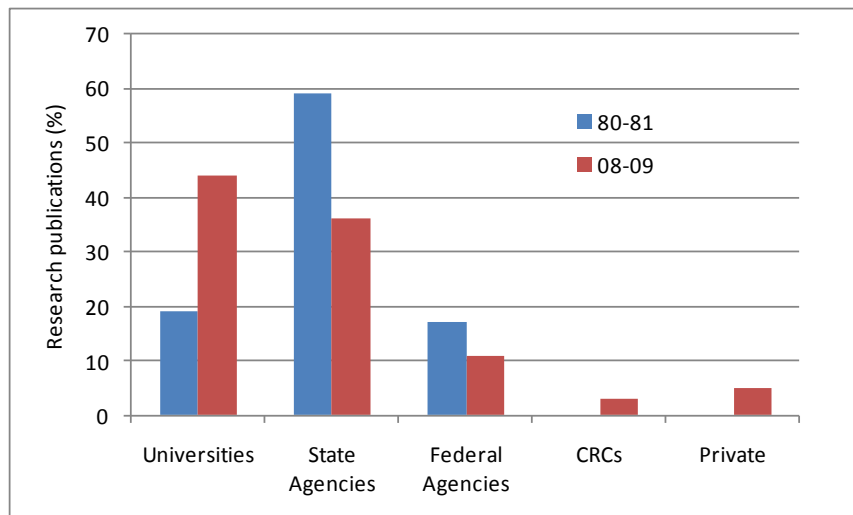


Figure 3. Horticultural research publications in Australia by employer.

So why has this happened? I suspect there are two major drivers for this change. 1) There is plenty of cheap food on the supermarket shelves so why should state governments allocate funds to agriculture when there is public pressure for expanded police, schools and health services. 2) The introduction of RDC's in the late 1980's which has favoured the funding of short term (3 year or less) research projects which are highly suited to the university environment. This last point may explain the apparent increase in vegetable research which, being an annual crop, is also very suited to University requirements. Combining these two drivers for change it must be remembered that due to the majority of core funding for Universities originating from the federal government there has been a willingness for state governments to merge their agriculture agencies with local Universities for mutual advantage.

From a researchers perspective it has meant that employment opportunities with permanent positions in well resourced state government agencies are no longer an option. For those already employed in state government departments, unless food becomes a major issue again, as it was in the 40's and 50's, there will be continued cutbacks and restructuring which will create personal and professional stress. Government agencies will continue to move their staff to universities. For extension staff, which is not a traditional area of activity in Australian Universities, there will be added stress as Universities learn about extension requirements and assessment or extension staff learn to have a research and student load. For new graduates it means that the probable career structure, if they desire to stay in agricultural research, will be a series of short term contracts for individual projects at a University which may, at some point in time, if you are lucky, result in a tenured position. This is not a good situation for anyone wanting to purchase a home and start a family. As a result most graduates will find permanent employment out of research and the pool of experienced researchers within Australia will decline. Of interest here is that there has been a shift from the Universities training researchers to be employed by government to Universities training researchers to be employed by the University.

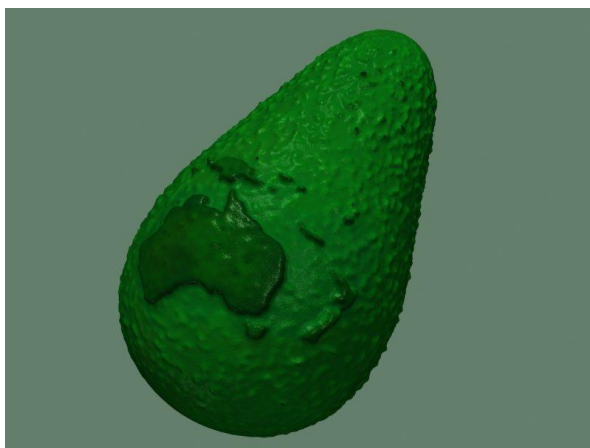
So what is the future? This is the crystal ball gazing part. If there is a food shortage then we will see new investment by government in agriculture. If not, then government will continue to review the RDC's and impose changes. Ultimately even the federal government will want to reduce funding to food in favour of vote winning activities. From the RDC's perspective lots of small projects are expensive to operate so we will see an increasing move to larger projects or programs that incorporate lots of smaller projects which the RDC does not have to individually

administer. This will result in current researchers relying on small projects finding it more difficult to continue working in this fashion. The organisations with the large projects will thrive and those who don't have part of that action will need to find a way into the larger projects or locate niche funds. Another interesting thought is that as the agricultural industries learn that the information or service they need is at the University rather than the government department there will be an increase in industries wanting to interact with the Universities. This will force Universities to look at this interaction more seriously, develop new strategies to cope and to be more responsive to industry needs. Some traditional university academics will view this as reducing the status or quality of University activity.

## **IHC 2014 BRISBANE 17 – 24 AUGUST 2014**

*On behalf of the IHC2014 Organising Committee, we are delighted to invite you to the 29th International Horticultural Congress in Brisbane, Australia. The congress is hosted by the Australian Society of Horticultural Science, the New Zealand Institute of Agricultural and Horticultural Science, and the Secretariat of the Pacific Community, under the auspices of the International Society for Horticultural Science.*

**See the attached brochure**



## AUSVEG RESEARCHER OF THE YEAR

Len Tesoriero has been named Researcher of Year at the recent AUSVEG awards. Len has been based at the Elizabeth Macarthur Agricultural Institute (EMAI) for more than 20 years with experience in the agricultural industry and is recognised as a national expert in diagnostic plant pathology and horticultural crop health management.

Source – Steve Whan web site

## PHD REPORT

### YADUNATH BAJGAI, UNIVERSITY OF NEW ENGLAND



Yadunath Bajgai is working on the “Effect of alternative cropping management on soil organic carbon” for his PhD research which began in July 2009. He is a recipient of Australian Government’s prestigious and internationally competitive Endeavour Postgraduate Award for his PhD study. Yadu graduated in 1998 with BSc (Hons) in Agriculture from the University of Wales, Bangor in the UK and completed a MSc from Chiang Mai University, Thailand in 2006. His MSc thesis was entitled “Assessment of soil fertility status in the agricultural land of Guma block in West-central Bhutan”.

Yadu has well over a decade of professional experience in the various departments in the Bhutanese Ministry of Agriculture and Forest (MOAF). He has served in various positions concentrating on rural agricultural development and extension and working as Deputy Chief Agriculture Officer since January 2009 in the Pemagatshel district administration, eastern Bhutan.



In his research project, he is simulating the organic practices in a corn (summer)-cabbage (winter) rotation alongside plots using conventional vegetable growing methods at two UNE farms in the Armidale area. The trial is investigating the effects of key organic practices - tillage and corn residues incorporation - on soil carbon dynamics. He has already made headway through his field trial with a summer corn crop harvested and the residues incorporated in May 2010. A cabbage crop was planted shortly after and is now growing well. His investigation is expected to improve understanding of some the short term effects of tillage and incorporating corn residue in terms of changes in soil physical properties, soil organic carbon capture and corn-cabbage yields in the New England conditions. His supervisors are Dr Paul Kristiansen, University of New England; and Dr Nilantha Hulugalle, NSW Department of I & I/Australian Cotton Research Institute, Narrabri; and Dr Melinda McHenry, Central Queensland University.

## RIRDC FUNDING APPLICATIONS OPEN.



**Australian Government**  
**Rural Industries Research and  
Development Corporation**

Applications for RIRDC scholarships and funding for research proposals in 2011-12 will be open from 1 August 2010.

RIRDC Research Priorities for 2011-12 can be found at  
<http://www.rirdc.gov.au/researchers/research-priorities-2011-12.cfm>

RIRDC Programs are:

New Plant Products; New Animal Products; Essential Oils and Plant Extracts; Rare Natural Animal Fibres; Wildflowers and Native Plants; Tea Tree Oil; Bioenergy, Bioproducts and Energy; Olive; Chicken Meat; Honeybee; Rice; Horses; Fodder Crops; Pasture Seeds; Organics; Global Challenges; Dynamic Rural Communities; Collaborative Partnership for Farming, Fishing Health and Safety.

## STANDARD FOR ORGANIC AND BIODYNAMICS

The Federal Government is ensuring consolidation in the organics industry by supporting Standards Australia with the ongoing maintenance of the Australian standard for organic and biodynamic products. The Australian Standard is a voluntary standard and will provide an important reference for courts to draw upon in determining if there has been a breach of the Trade Practices Act 1974 in relation to organic or biodynamic labelling claims. Standards Australia released the industry standard on 9 October 2009: *AS 6000 - 2009 Organic and biodynamic products* and *MP 100 Procedures for certification of organic and biodynamic products*.

Source – Tony Bourke web site

## FRUIT FLY IN SOUTH AUSTRALIA

Primary Industries and Resources SA (PIRSA) Biosecurity says its quarantine measures to contain Mediterranean fruit fly outbreaks in four metropolitan areas will remain in place until December. Earlier this year four fruit fly outbreaks were declared after fruit flies and fruit fly larvae were detected at local properties. One and a half kilometre quarantine areas were declared around each detection site.

Source – PIRSA web site

## DISPLAY OF INVASIVE WEEDS AT MELBOURNE ZOO.

Horsetails, alligator weed, knotweed and water hyacinth have been locked up as exhibits in a new display at the Melbourne Zoo. The display highlights some of the highly invasive weeds that cost the Australian economy an estimated \$4 billion a year. The display is an opportunity for visitors to discover which weed species are an enormous threat. While some of the species are very attractive and have been planted in gardens in the past, the majority of prohibited weeds that are reported come from Melbourne's metropolitan areas.

This display will show what these serious weeds look like and encourage the 1.6 million visitors who visit the zoo each year to report any sightings.

Source – Vic DPI web site

## PESTICIDE REGISTRATION REFORM

Reforms to cut red tape and increase efficiency in the regulation of agricultural and veterinary chemicals have passed both houses of Parliament.

The bill will allow the industry regulator, the Australian Pesticides and Veterinary Medicines Authority (APVMA), to better focus on protecting human health and the environment.

It enacts reforms to:

- Simplify the process for applicants making minor non-technical variations to chemical approvals or registrations (such as changing pack size), instead of going through a full technical assessment process;
- Cut red tape to allow companies to make minor changes to chemical labels, such as changing a logo, without having to go through a full assessment process. This will ease a drain on APVMA resources and allow the experts to focus on risk assessments relating to the safe and effective use of chemicals;

- Allow the APVMA to better streamline and assess permit applications, without compromising the integrity of the commercial parties involved;
- Help to protect Australia's clean, green trade reputation by ensuring the APVMA can act promptly to update label instructions to meet the requirements of trading partners; and
- Remove a cumbersome requirement for applicants to notify the APVMA in writing every time an approved person is authorised to deal with them.

Source – Tony Bourke web site

## **TASMANIAN APPLES TO CHINA**

Improved quarantine conditions will allow the commencement of Tasmanian apple exports to China following the signing of a new agreement between the two countries today. The new agreement lifts China's previous requirement to carry out surveys for European canker and fire blight – two diseases of quarantine concern to China, that are not present in Tasmania or the rest of Australia.

Source – Tony Bourke web site

## **FAIR WORK ACT EFFECT ON PROCESSORS.**

Australia's citrus producers have welcomed Japan's announcement of complete market access for Australian grapefruit. Until now Australia has only been able to export grapefruit that is sourced from fruit fly pest free areas to Japan. The result is important for producers of the sweeter red-fleshed grapefruit varieties from Australia's north who have placed considerable investment in developing a product for the Japanese market.

Source – Tony Bourke web site

## NEW EXTENSION HORTICULTURIST

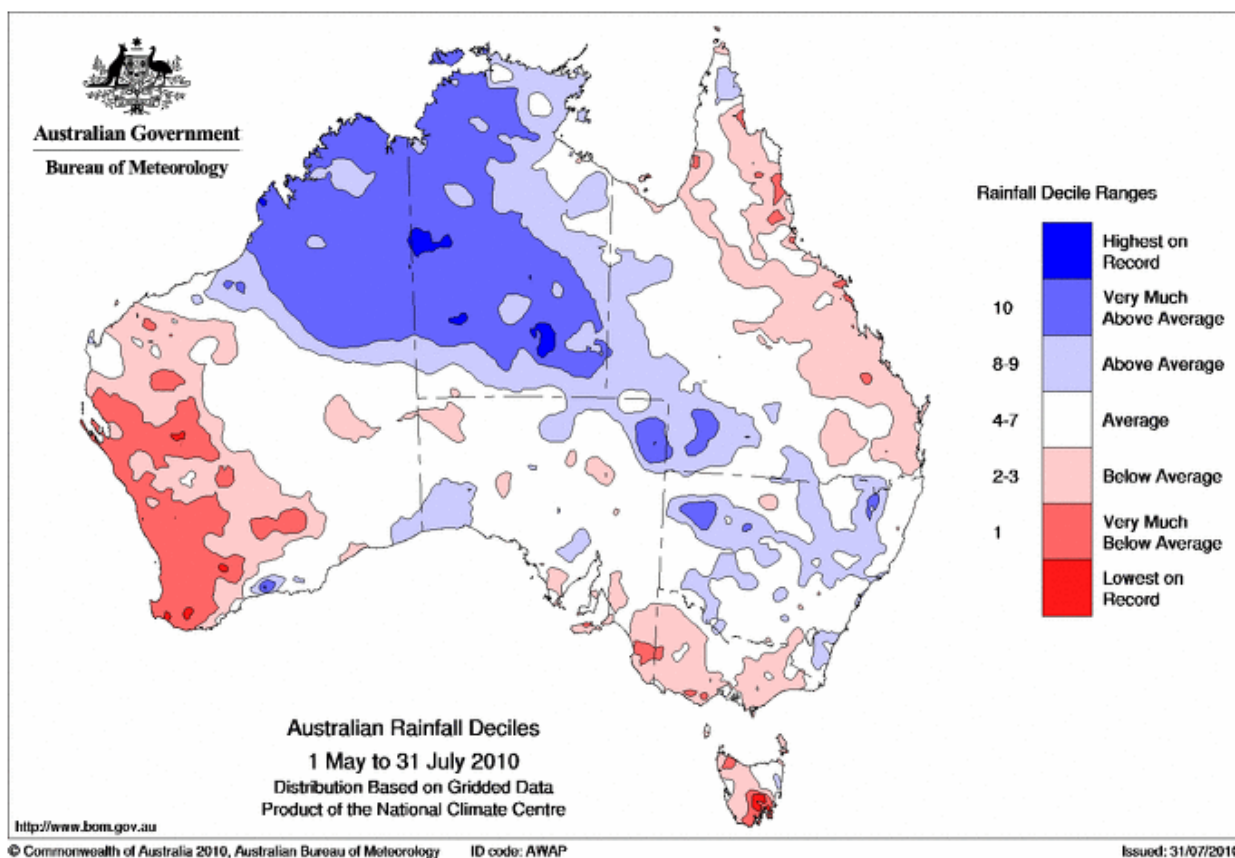
Industry & Investment NSW has appointed local horticulturalist, Kevin Dodds as the new Extension Horticulturist to service producers across Tumut and surrounding districts of NSW. Kevin is well known to horticultural producers in the Tumut and Tumbarumba shires having held a number of technical and advisory roles in the local horticulture and forestry industries over the past 20 years.

Congratulations Kevin

Source – Steve Whan web site

## WINTER RAINFALL

Areas in the north of Australia had the highest rainfall on record while areas of WA and Tasmania had the lowest on record.



## **ORGANIC MATTER MANAGEMENT AND ORGANIC COMPOST USE IN HORTICULTURE. 4-7 APRIL 2011, UNIVERSITY OF ADELAIDE.**

Soil organic matter is vitally important for sustaining long-term soil fertility and productivity, and indeed, for ensuring the viability of future food production. Hence, apart from defining ways and effects of managing soil organic matter, it is also necessary to find ways of integrating its proper care and management into existing farming enterprises, and of maximising agronomic, economic, and environmental benefits from optimum soil organic matter levels. All of this is nowhere more pertinent than in intensive horticultural field cropping. The success of other horticultural sectors, such as amenity horticulture and the nursery industry, is equally dependent on proper management of organic matter, i.e. the production and use of high quality and fit-for-purpose growing media, soil blends, mulches, etc.

Accordingly, the International Symposium on Organic Matter Management & Compost Use in Horticulture will present, discuss and explore options of using compost and other organic soil amendments for managing & improving horticultural soils and production systems, including amenity horticulture, nurseries, and protected cropping.

## **AUSHS CONFERENCE AND THE AUSTRALASIAN POSTHARVEST CONFERENCE COMBINE IN 2011**

**Victoria, September 2011**

Organisation has begun on the next AuSHS conference which next year will be combined with the Australasian Postharvest Conference to make a truly great meeting. At this stage it is hoped to conduct this meeting in the week starting 18 September 2011 somewhere near Melbourne. More on the themes location etc in the next edition of the newsletter.

## **ABARE – 2010 REGIONAL OUTLOOK CONFERENCES**

- |             |                               |
|-------------|-------------------------------|
| 18 August   | Swan Hill, Victoria           |
| 8 September | Port Lincoln, South Australia |
| 13 October  | Katherine, Northern Territory |

More information at <http://www.abare.gov.au/regional/>

## **FRESHCUT 2011. 17 – 21 JULY 2011, TORINO, ITALY.**

Welcome to the Freshcut2011 Conference - On behalf of the International Society for Horticultural Science (ISHS), the Università degli Studi di Torino is pleased to invite scientists, professionals and business representatives with an interest in fresh-cut produce to attend the Freshcut2011 Conference.

Fresh-cut fruit and vegetables represent an important and rapidly expanding food segment of interest for growers, processors, retailers and consumers. In recent years, despite the consumer demand for fruit and vegetables decreased in Europe, the fresh-cut industry reported a constant growth in terms of quantity and turnover. Today, the fresh-cut industry is expanding faster than any other segment of the fruit and vegetable market and the fresh-cut segment supplies both the food service industry and retail outlets, expanding to new markets around the world. In Europe, Italy is one of the key players and its level of offer and quality is getting widely recognized.

Fresh-cut products are more perishable than whole produce: although remaining in a fresh state, they are physically altered during processing operations and are living tissues characterized by an accelerated metabolism. The ultimate potential postharvest quality and shelf-life of fresh produce is determined before harvest. Proper handling, the use of effective sanitizers, optimal storage temperature and packaging reduce the rapid degradation of fresh-cut produce. Efficient cultivation and postharvest processing management and their synergy can contribute to 'making the difference' in a system that aims at being competitive. New knowledge about genetic material, genomics, biotechnology, production, handling, storage, shipping, processing, sanitation, automation, tracking systems including new advanced technologies, retailers, consumer demand, regulations, economics is welcome. Scientists, Stakeholders, Corporate and Business companies are invited to attend. A technical tour will be scheduled during the conference week and Pre- and Post-Conference tours will be available.

I am happy to invite you to Torino, the first capital of Italy, the city of the Winter Olympic Games 2006, that in 2011 will celebrate the 150th Anniversary of the national unification. I look forward to seeing you in Torino to attend the meeting.

Silvana Nicola

The Convener

**Web site: <http://www.freshcut2011.org/>**

## UPCOMING ISHS MEETINGS

- August 22-27, 2010, Lisbon (Portugal): XXVIII International Horticultural Congress - IHC2010
- August 30 - September 3, 2010, Pescia (PT) - Tuscany (Italy): II International Symposium on the Genus Liliium.
- September 5-9, 2010, Sofia (Bulgaria): International Symposium on Plum Pox Virus.
- September 12-17, 2010, Faenza (Italy): VII International Symposium on Kiwifruit. I
- September 20-21, 2010, Wien (Austria): V International Phylloxera Symposium.
- **NEW** October 11-14, 2010, Bleiswijk (Netherlands): International Conference on Organic Greenhouse Horticulture.
- October 17-22, 2010, Agadir (Morocco): VII International Congress on Cactus Pear and Cochineal.
- November 11-12, 2010, Launceston, Tasmania (Australia): International Symposium on Pyrethrum, The Natural Insecticide: Scientific and Industrial Developments in the Renewal of a Traditional Industry. I
- November 21-25, 2010, Campinas (Brazil): I International Symposium on Genetic Research of Bamboos and Palms and III International Symposium on Ornamental Palms.
- November 22-26, 2010, Kingston (Jamaica): I International Symposium on Tropical Horticulture - TropHort2010.
- November 23-26, 2010, General Roca (Rio Negro) (Argentina): XI International Pear Symposium.
- December 5-9, 2010, Dakar (Senegal): International Symposium on Urban and Peri-Urban Horticulture in the Century of Cities: Lessons, Challenges, Opportunities.

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