

IPPS

Sharing Plant Production Knowledge Globally

the Propagator



International Plant Propagators Society (IPPS) Australia

International Plant Propagators' Society www.ipps.org.au
Australian Region - Newsletter Spring 2013 - No: 39

IPPS on Social Media

Facebook now has over 850 million global users, and in August 2013 nine million Australians (40% of the population) used it daily and 12 million were monthly active users. Of the daily users 7.3 million used it with their mobile devices. Use of mobile devices to find out about just about anything is growing annually at over 40%. HTA news in 2012 predicted that by 2020 over 85% of people will be accessing social media on mobile devices.

At the time of the conference this year over 600 people were regularly looking at our Facebook site. This year Norwood had the most "likes" for best trade stand. The site is regularly updated with activities from around the world as well as photos from conferences and field days.

About 80% of our followers come from Australia, 37% are women and 63% men. 70% of the women are under 40 with the majority in the 25-34 age group, whereas 70% of



men were under their mid 50's with two distinct age groups: 25 to 34 and 45-64. This indicated a larger proportion of older men than the average population. Taking this into account there was a good gender balance of younger followers. Photos were the most popular content published.

There are nearly 500 million global Twitter accounts and over there are over 800 million unique YouTube users each month. IPPS members have posted some great YouTube videos on site visits (often shared on our Facebook site), and there are a huge range of helpful videos on just

about every aspect of horticulture.

LinkedIn has over 165 million users worldwide and the IPPS global site has over 1000 registered members. If you want to know how to ... Then this is a place to try and get your answer.

Social media will become vital for organisations like IPPS, but the face to face contact and the knowledge gained

by attendance at field days and conferences will remain irreplaceable. A simple self test:

- Do you have a Facebook account?
- Do you have a Twitter account?
- Do you have a linkedIn account?
- Do you have a smartphone?
- Have you scanned a QR code?

Have you never used social media, but think it's a good idea, or perhaps feel you will never use it?

So how well do you think that Social Media fits with the IPPS logo "Sharing Plant Production Knowledge Globally"?

Bruce Higgs

THIS EDITION
IPPS on Social Media
Fungus or Mould? + Fungicides

2013 Conference Question Box
Reports
♦ **President's Comment**

♦ **Executive Officer's Comment**
Challenge
Newsletter Editors Comment

President's Comment



As usual the year moves on. We get older and sometimes wiser. The nurserymen amongst us will again hope for a good spring and be happy if it is and philosophical if it isn't. We

are so weather dependent and if it rains each weekend the industry suffers. Sydney had a great start with plenty of warm dry weekends and Melbourne, which seems to run on a seven day cycle, is having mostly fine weekends.

The broader part of the industry is like so many other and reliant on a strong and vibrant economy. Our membership comes from all parts of horticulture and when money is tight we all feel it. The Academic segment needs a strong government with enough taxes to be running a surplus budget. Those supplying the rural sector need a positive outlook for the future so that farmers are willing to invest in their farms. The landscaping sector needs large scale developments which rely on the big end of town feeling positive and an active real estate sector so that people are spending money on their gardens.

This spring is looking good. The election is over after at least a year of campaigning. We have a new government with a solid majority which gives rise to business confidence. Most parts of Australia have good water reserves and very few are on any serious level of restrictions. This gives the gardening public confidence to spend money on plants knowing that they will be able to water them.

In June, I attended the Victorian Government's Super Trade Mission to South East Asia. This was an eye

opening experience to the state of food production. There is already a huge demand for our produce and this is only going to increase. Malaysia is now a first world country with people earning enough money to move from survival mode to spending. Indonesia is still a large, generally poor country but with 240 million people it is facing serious food shortages over the next fifty years.

Both countries are looking closely to Australia to produce food for their residents. We have the land, we have the water and we are one of the most efficient food producers in the world. We are also the closest large food exporter to Indonesia. I believe this will see a large improvement in the position of Australian agriculture. This will in turn feed back to our sector. It will generate a demand for more and better producing plants. There is likely to be a push for more tropical and sub tropical fruit and vegetables. These will have to be propagated which is where we all benefit.

With such a positive outlook it is time to start rebuilding our membership. We need to be asking people to join. We especially need growers and propagators from a wide range of fields. We need those passionate plants people who love growing, collecting, propagating or simply working with plants. Please talk to your fellow horticulturists and encourage them to join. We all know they will benefit.

IPPS does well in running its annual conferences, has an excellent journal, an informative set of websites and the annual proceedings which can now be accessed on the internet. There is so much information available to members but we need to do more. We need to run regular seminars and field days, especially in the country. These are really easy to do and take little organising. If anyone would like to run one we can give you all the

support and help you need. All you require is a couple of local nurseries to open their doors, a BBQ and a couple of ice bins. A nominal charge of \$20 usually covers all the costs to provide a BBQ lunch and morning tea. If you are able to do this please drop me an email or contact Pam or David Cliffe.

I hope you all have a great spring and get plenty of production in and sales out. Remember it is only 3 months to Christmas.

Clive Larkman

Executive Officer's Report

IPPS Office

The IPPS Office slows down at this time of the year so not much to report on from the administration side of things, apart from the running of the Office is going smoothly.



Subscriptions

Maintaining membership is still a challenge as membership continues to decline. The Australian Region of IPPS currently has 199 members. There were 3 new members who joined at the Melbourne conference.

Combined Proceedings

International Board have advised they are on target and all Members will receive their combined proceedings Vol. 61 shortly.

2014 Conference - WELLINGTON, NEW ZEALAND - "Lights, Camera, Action" - Thursday 8th May to Sunday 11th May 2014



Every year IPPS Australia hold a conference, an essential event for anyone in the plant propagation industry. Following on from the very

successful joint conferences held in Christchurch (2004) and Hobart (2009), the New Zealand region extends a warm welcome to members from the IPPS Australia region to once again meet up for a joint conference in Wellington, New Zealand.

Information on Pre-Conference tour is available on the website www.ipps.org.au

Registration and program details will be available shortly on the website www.ipps.org.au

Make a note of this date in your diary.

Pam Berryman

2013 Conference Question Box

Which propagation media is best suited for lavenders?

It depends upon how you do it - preformers from Garden City Plastics or straight perlite in summer! Lavender do not like being wet. In Sydney some have used coal ash.

To Kevin Handreck; You talked about adding clays to media in the future, what type of clay is best added to soil-less media; montmorillonite or kaolin based?

In France kaolin based clays with iron have been added to media.

John MacDonald; When can we look forward to having access to iplant across Australia, and who will have access; everyone or affiliated NGIA members?

Trials need to be undertaken in Victoria and Queensland and it should be 12 months before it is operational.

Anthony Kachenko: Is the draft Australian standard "tree stock for landscape use" close to draft stage from Standards Australia?

The draft is now ready for public content, comments are online and close in November, see: http://trademags.com.au/aa/wp-content/uploads/DR_AS_23031-Release-for-public-comment.pdf

Karen Brock: I believe there is a US Government incentive for growers to change over to LED lighting. Do you know of anything similar in Australia?

No, not yet.

Does light colour affect propagation?

Most definitely, 50% blue leads to more bushy plants.

Graeme Smith: Could you comment on the use of infrared cameras for irrigation control?

They are used in California in vineyards.

With high iron content in bore water we have blockages in drippers, what can we do?

Intercontinental Water in Melbourne have a polishing system costing about \$600 every three months. Often this is due to precipitated Iron hydroxide and a simple treatment with dilute nitric acid injection may assist.

When I was doing the nursery tours I was amazed at the amount of cuttings rather than seed propagated plants.

We do not want genetic diversity, but everything to be the same: flowering the same time.

How do we get our plants into Europe to become a commodity plant?

I have been trying to get an answer to that for 25 years. Ninety nine percent will no work, so picking the next thing is very difficult. Many plants from the US and Europe do not work here as they are bred for one season and by factory production.

SOUTH AFRICA 2014 YOUNG PROPAGATORS APPLY NOW

For the opportunity of a lifetime, it is now time to apply for the **South African Exchange Program**.

This IPPS project aims to give young propagators at the start of their career the opportunity to gain experience of the industry elsewhere and to build a better understanding of each country.

In early 2014 the young propagator chosen will spend approximately 3 weeks in South Africa, hosted by local Nurserymen, where they will work and visit other nurseries and places of interest in South Africa, including tourist venues, plus attend the IPPS International Conference.

The program as usual is sponsored by Australia and South Africa IPPS. After the trip the chosen propagator will be expected to attend the joint New Zealand and Australian IPPS Wellington Conference in May 2014 to talk about their experience.

Now that you are thinking about this or you know someone who may be suitable, check the following to make sure of eligibility:-

- You must be over the age of 18 and just starting your career of propagating and growing plants.
- You must be able to travel to South Africa in early March 2014 and attend our May Conference.
- Your employer must support this application and your time off work.
- You must be prepared to make notes and take photographs of your great experience and report back to the Australian IPPS Conference.

If all of the above suits you and you would like to be hosted in South Africa (at no cost to you, except spending money) and gain from the experience of South Africa. Then send in the application form which is available on the IPPS website www.ipps.org.au by the **end of November 2013**.

Fungus, or Mould?

Recently at a NGINA tubestock growers group meeting Michael Danelon told us that a common problem growers have is that they treat fungal problems with the same class of fungicide without understanding the potential for the fungi to develop resistance without rotation. That is why in recent years the FRAC code (Fungal Resistance Action Committee) has been included on the labels of fungicides, so we can develop an appropriate rotation of chemicals. Discussions with a few other growers confirmed that this is not well understood by growers.

A search of available APVMA and CropLife Australia information revealed that although available information is good in explaining fungicide classes you need to look further to the labels to uncover what they are approved for in terms of fungi and plant species. The problem is that there are hundreds of labels to look at, so you probably make your decision on the recommendation of your supplier.

It is sometimes confusing when reading some grower recommendations that products registered and recommended for plants overseas have not been registered in Australia or are registered for something different such as for turf. In such circumstances application for a permit can be made with the APVMA if a good case could be made for the use of a fungicide for an off-label application.

From a practical viewpoint growers try not to have warm damp

environments or flood soils or media as that are perfect for fungal growth or associated problems.

A Chrysanthemum grower recently explained to me how he lost several hundred cuttings recently, and initially thought it was a fungal issue. Then he discovered that the cuttings had been hollowed out by small larvae (probably fungus gnats that spread root rotting organisms). The NGIA published a Nursery Technical Paper (5) in June 2013 on the "Management of Fungus Gnats in Nursery Production". Of interest was the use of biological control agents including *Bacillus thuringiensis ssp israelensis* (Bti) with a case history using Bactivate® to control fungus gnats and root rotting fungus-like organisms.

Hygiene is a must, but from a practical viewpoint, if you discover a problem then the first thing you need to do is find out the root cause and treat that appropriately. You could of course use a diagnostic kit supplied by NGIQ to identify the type of fungus. Books like "What Garden Pest or Disease is that?" by Judy McMaugh are also useful. Do not guess what the disease is. If uncertain obtain an accurate identification and the recommended registered control measures from a professional practitioner.

Plant Health Diagnostic Services are available at several locations across the country.

Pathogens

Grey Moulds are mostly due to *Botrytis spp.* growing in cool humid conditions. They grow on living and dead material, and the grey furry growth on the surface has masses of spores spread by the wind. *Botrytis cinera* usually grows on dead or decaying vegetable matter on the soil and usually infects a plant through a wound or dead tissue. Surface active fungicides are usually the most effective.

Downey mildews comprise a number of different fungi that cause similar symptoms on different plants. Generally patches or spots appear on the upper leaf surface and on the underside of the affected leaf area a furry or downy growth of stalks with spores on the ends is produced under humid conditions. When dry they gradually stop growing and may die. As the diseases form inside the leaf before emerging systemic fungicides can give better results.

There are hundreds of different fungi that cause the disease we call **rusts**. Many growers on the east coast have had to deal with myrtle rust over recent years. Rusts generally cause a yellow patch on the upper surface of the leaf, and on the lower part of the leaf under each spot a powdery pustule forms. The fungus growing within the leaf produces stalks and spores on the end which bursts the leaf to release the spores in the wind.

Rusts are difficult to control due to the rapid spread of spores. Each rust thankfully seems to have a limited range of plants that it will infect, and some rusts need a host species as part of their life cycle.

A description of **Fleck, Speckle, Sooty Moulds, Leaf Spot, Stem Rot, Blights, Smuts** and other diseases should be referred to separately.

Damping-off generally refers to the death of seeds or seedlings attacked by soil-inhabiting fungi or bacteria. Cuttings may also be susceptible to such diseases. The rot generally occurs at the base of the stem only or may spread from the roots to the lower stem. Pathogens which cause damping-off are from *Pythium*, *Rhizoctonia* and *Phytophthora*, and can be spread in the irrigation water. High plant density, overwatering and heavy shade favour the spread of the disease and should be avoided.

**HAVE YOU ASKED
SOMEONE TO JOIN
THE SOCIETY YET?**

Phytophthora is a fungal-like organism and is classified under a different kingdom (Chromalveolata). Phytophthora are very similar to true fungi yet they are more closely related to plants. Each species tends to affect a narrow range of host plants. Fungal cell walls are made primarily of chitin, whereas Phytophthora cell walls are constructed mostly of cellulose. Ploidy levels are different, and biochemical pathways also differ. The similarity to plants makes it harder for pesticide manufacturers to find suitable materials that do not cause great harm to the host plant.

Pythium are also fungal-like organisms belonging to the Chromalveolata; Oomycetes class the same as their close relative Phytophthora and are also commonly known as water moulds. While root rot can be caused by several different species of Pythium, the most commonly encountered species *P. irregulare* has been isolated from almost every type of greenhouse crop grown. Pythium can be found in commercially available soilless potting mixes. It is easily introduced into soilless mixes with dirty tools, or pots, and by dumping media on unclean potting benches or potting shed floors.

Almost all plants are susceptible to Pythium root rot. Root tips, important in taking up nutrients and water are attacked first. Of course pythium also can rot the base of cuttings.

Rhizoctonia causes the outer areas of the stems to rot leaving the inner areas thus enabling the plant to continue standing. They have fine brownish fungal threads produced when a leaf touches the soil. From analysis of DNA sequences, *Rhizoctonia solani* and synonyms have been placed within the Ceratobasidiaceae family.

More about Fungicides

Fungicides can be divided into three types: **systemics**, **penetrants**, and

contacts. They can also be classified by the chemical composition or mode of action (refer to the accompanying table on pages 6 & 7).

A complication is that most of the "systemics" could be better referred to as penetrants, as they either remain localised inside plant tissue or move upward in the xylem which may diminish effectiveness by dilution. There are many newer fungicides that are very selective and can be used with an IPM program where necessary.

The largest number of fungicides that have the same mode of action are the group 3 **DMI** or demethylation inhibitors. Most of these are chemically classified as triazoles. When applied to a plant, they penetrate tissue and move upward from the point of tissue contact.

Some DMI's also are capable of lateral diffusion from the upper to lower surface and vice versa. A DMI fungicide that contacts leaf tissues is highly unlikely to translocate to roots. However, chemical that runs down between leaf sheaths, may be transported into axillary buds and possibly stems.

Azoxystrobin (group 11) is chemically classified as a **strobilurin** fungicide that has been derived from a mushroom fungus. It is a penetrant that moves across leaves from upper to lower leaf surfaces, as well as moving upward in the xylem. They provide disease control by interfering with respiration and production of ATP a key energy compound.

Flutolanil (7), propanoic acid (28), and mefenoxam (likely to be single site specific) are also "**acropetal penetrants**" that come from diverse chemistries and modes of action. Mefenoxam is an isomer or mirror image molecule of metalaxyl (no longer available) and has about twice the activity.

Most fungicides are actually fungistatic and not fungicidal. They only prevent growth or development of

fungi without killing them. Many contact fungicides will kill fungal spores as they germinate, but even most contacts tend to be fungistatic.

Another group are site absorption or localised tissue penetrants, they do not move significantly from the site of uptake. Examples are iprodione and vinclozolin based which are chemically related (dicarboximides) with the same mode of action.

"Trifloxystrobin penetrates leaves and moves from upper to lower leaf surfaces and vice versa, but most molecules become fixed within the waxy portion of the cuticle and does not move upward in the xylem." They generally have a long residual effectiveness. The mode of action is the same as strobilurins.

Contact fungicides provide activity outside of plants and protect only those tissues they contact. So application method is critical e.g. sprays contact both leaf surfaces. As contacts tend to have more rapid curative activity than penetrants and therefore are preferred and are often used in a tank mix combination with a penetrant (refer to appropriate fungicide labels for compatibility).

Contact fungicides are extremely important in disease management programs because they generally are free of resistance problems. They however may only provide a relatively short period of protection due to wash-off, UV light degradation etc.

The number of contact fungicides available is dwindling and currently includes: chlorothalonil, ethazol, maneb, mancozeb, thiram, and fluidoxonil.

Resistance Risk

Many of the penetrants disrupt one pathway, often controlled by one gene which increases the chance of a resistant fungus developing.

- continued on page 8

Fungicide Activity Group Table

Data for activity has been sourced from approved labels, and is general in nature and should be confirmed before any attempt to use this information. Refer to the note below. Purpose Code B = Bulbs, tubers, corms, C = Cereals, F= Fruit, M = Media, O = Ornamentals, S seed, T- Turf, V = Vegetable

FRAC code	Group	Chemical Group	Active	Examples	Purpose	Foliar										Soil								
						Rust	Black spot	Powdery mildew	Grey mould /Botrytis Blight	Downy Mildew	Brown Rot	Blossom blight	Black Rot	Alternaria brown leaf spot/ blight	Septoria	Fusarium	Pythium	Phytophthora	Rhizoctonia	Thielaviopsis (Chalaris)				
1		Benzimidazoles	carbendaim	various	FV																			
			thiabenazole	various e.g. Tecto [®]	BFT				X															
		Thiophanates	thiophanate-methyl	various e.g. Banrot [®]	M													X	X	X	X			
2	B	Dicarboximides	iprodione	various e.g. Rovral [®]	FOT																			
			procymidone	various e.g. Sumisclex [®]	BFV				X		X													
3 DMI	C	Imidazole	imazalil	various e.g. Fungaflor [®]	BF											X					X			
			prochloraz	various e.g. Octave [®]	FOV																			
			Piperazine	triforine	various e.g. Saproil [®]	FO	X	X	X															
				Triforine [®]		FO																		
			Pyrimidine	fenarimol	Rubigan [®]	FO			X	X														
				Triazole	bitertanol	Baycor [®]	OV	X	X	X														
			C	cyproconazole	Alto [®]	BV	X											X						
					difenoconazole	various e.g. Score [®] , Dividend [®] Bogard [®]	CFV			X	X										X			
					epoxiconazole	various e.g. Opus [®]	C	X		X														
					fenbuconazole	Indar [®]	CF	X						X										
					fluquinconazole	various e.g. Jockey [®]	C	X		X									X					
					flusilazole	various e.g. Nustar [®]	F			X	X													
					flutriafol	various e.g. Armour [®] Verge [®]	C	X		X														
					hexaconazole	various Viva [®]	F			X	X													
					myclobutanil	various e.g. Systhane [®]	F			X	X													
					penconazole	Topas [®]	FV			X	X													
					propiconazole	various e.g. Tilt [®]	C, FO	X			X													
					prothioconazole	Redigo [®]																		
		tebuconazole	various e.g. Raxil [®] , Folicur [®]	C, F V	X	X	X																	
		tetraconazole	Domark [®]	C, F				X																
		triadimefon	various e.g. Bayleton [®]	C	X			X																
		triadimenol	various e.g. Bayfidan [®] , Baytan [®]	C, FV				X																
		triticonazole	various e.g. Premis [®]	C																				
4	D	Acylalanine	benalaxyl (+ mancozeb)	Galben [®] M																				
			furalaxyl	Fongarid [®]	OM														X	X				
			metalaxyl-m	various e.g. Apron XL [®] , Ridomil Gold [®] Dividend [®] Subdue [®]	FV, T							X								X	X			
		Oxazolidinone	oxadixyl (+ propineb)	Rebound [®]	F																			
5		Spiroketalamine	spiroxamine	Prosper [®]	F			X																
7	G	Oxathiin carboxamides	carboxin	various e.g. Vitavax [®]	C																			
			oxycarboxin	Plantvax [®]	OV	X																		
			flutolanil	Monstar [®] Moncut [®]	B, T																		X	
			Pyridine carboxamides	boscalid	Filan [®]	FV				X	X					X								
			Pyrazole carboxamide	Penthiopyrad	Fontelis [®]	FV			X	X	X													
				Sedaxane	Vibrance [®]	C																		
		Penflufen	EverGol [®] Prime	C																		X		

This table is a guide only and does not endorse particular products, groups of products or cultural methods in terms of their performance. Always follow the product label for specific use instructions. While all effort has been taken with the information supplied in this document no responsibility, actual or implied, is taken for the day to day accuracy of product or active constituent specific information. Readers should check with the Australian regulator's (APVMA) product database for contemporary information on products and actives. The database can be sourced through www.apvma.gov.au. The information given in this document is provided in good faith and without any liability for loss or damage suffered as a result of its application and use. Advice given in this strategy is current as at 14 June 2012. Based upon a document by CropLife Australia a Limited Locked Bag 916, Canberra ACT 2601 Phone: 02 6230 6399 Email: info@croplifeaustralia.org.au Fax: 02 6230 6355 Website: www.croplifeaustralia.org.au

The group 1 benzimidazole fungicides introduced in the 1970's gave improved control of Botrytis blight, unfortunately fungi soon developed resistance. In the 1980's group 2 dicarboximides were introduced, but resistance soon developed. These fungicides continue to be used as part of a rotation program.

In the 1990's group 12 contact fungicides e.g. Medallion became available for a variety of ornamental diseases. A. R. Case in a paper "Professional Fungicides for Botrytis Control" claims that iprodione, fenhexamid, chlorothanil and fludioxinil give the best control on rotation.

After identifying the fungal cause what are you going to do about it? Of course the old saying of prevention is better than the cure is very applicable in this case.

So what can we do, and what is the mode of action of different fungicides so we can choose a management strategy. The table may assist in your choice but you will need to refer to the directions on the label for approved materials to determine if they are applicable for your situation. I hope that this article has given you a few extra tools to consider.

Andrew Manners "Management of Fungus Gnats in Nursery Production" NGIA Nursery Papers June 2013

FRAC Code List 2013: Fungicides sorted by mode of action

P.H. Dernoeden "Fungicides: Plant Uptake and Mode of Action" Golf & Sports Turf Australia

Croplife Australia Fungicide Resistance Management Review Group "Fungicide Activity Group Table"

Challenge

As I am want to do when our editor rings me to remind me of deadlines for this column, we chat together about what challenge I can put up for the next edition.

This time Bruce and I chatted about various possibilities when Bruce mentioned that he would like to write an article about the various



John MacDonald recently received his 2012 Anita Boucher award for best paper at the Toowoomba conference. This award is supported by Hort Journal.

new striking/propagating plugs that are now on the market.

Do you use these or have you used them? Did they work better than what you used to use or not? Do your cuttings strike better/faster? Are they cost effective?

So here is my challenge, get in touch with Bruce and let him know, he is only an email away.

bruce.higgs@bigpond.com

Michael Gleeson

Newsletter Editors Comment

We appear to have had a good start to Spring this year now that the election is over.

Don't forget to encourage a young person you know to apply to be a 6 pack member, or apply for the Rod Tallis award.

If you are not already a member join up to the region's facebook site - search for "**International Plant Propagators Society (IPPS) Australia**" and start contributing by "liking" it.

Don't forget that this newsletter and some past copies are available on the IPPS website at www.ipps.org.au and pass your extra copy of the newsletter around at work.

Bruce Higgs - editor
"the Propagator"

(02) 4736 5004
bruce.higgs@bigpond.com

DIARY DATES

Japan Region	October 19 - 20	Ogaki City, Gifu Prefecture
Southern Region	November 2 - 6	Athens, Georgia
2014 Southern Africa International Conference		
Pre-conference Tour	February 27 - March 05	Gautrain
Conference	March 5 - 7	Kloofzicht
Post Tour	March 8 - 12	Cape Town
Australian Region	May 8-11	Wellington, North Island
(combined with New Zealand Region)		