

JUNE 2022



President: Prof. Christine Foyer, BSc, PhD

***'Promoting Applied Research in
Agriculture, Horticulture and Food Science'***

Association of Applied Biologists, Warwick Enterprise Park, Wellesbourne, Warwick CV35 9EF, UK
Registered Charity No. 1195899; <http://www.aab.org.uk>

AAB Specialist Groups:

Applied Plant Pathology

Applied Tree and Forest Biology

Biological Control and Integrated Pest Management

Cropping And The Environment

Food Systems

Nematology

Pesticide Application

Plant Physiology and Crop Improvement

Soil Biology

Virology

The Specialist Groups are the lifeblood of the Society. The majority of our events are generated from their areas of interest and the activities of their members. Each group is led by a Convener and includes members selected from across academic, government and industry. If you would like to be connected with a Specialist Group Convener please contact Geraint (geraint@aab.org.uk)

OUR Mission

"To promote the study and advancement of all branches of Biology and in particular (but without prejudice to the generality of the foregoing), to foster the practice, growth and development of applied biology, with a focus on the application of biological sciences in the production of food, materials and energy, and for the maintenance and improvement of earth's environment"

AAB Executive Council Members

Officers of council have been elected to administer the efficient running of the association. They adhere to working rules with each of the council members having specific roles. Those roles are also shown by task area.



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AAB Quick Links!

AAB Council

AAB Conference
Calendar

AAB Specialist
Groups

From September 2022 AAB Early Career Professional members will have FREE Online registration to ANY AAB-organised hybrid event!

AAB ECP non-members will pay a nominal free (£5) for access and also gain free membership!

We aim to broaden our impact!!

Welcome to the new AAB Honorary Members

<https://www.aab.org.uk/membership/>

Professor Olaf Schmidt (University College Dublin)

I completed my school leaving examinations (Abitur) together with an apprenticeship in animal production at a vocational school in the former GDR (1987). I obtained a German university degree (Diplom-Agraringenieur) in agricultural sciences (crop production) from the University of Halle-Wittenberg (1992) and an M.Sc. in soil science from Aberdeen University (1993), for the latter I was supported by a British Council scholarship. For my Ph.D. (2000), I moved to Ireland where I studied earthworms and their functions in cereal-legume bicrops. These direct-drilling cropping systems with a permanent clover understorey were ahead of their time, but two of our papers published in the *Annals of Applied Biology* still attract citations today. I was appointed Lecturer by University College Dublin (UCD) in 2001, and I have been Professor and Head of Subject of Agri-environmental Sciences in the UCD School of Agriculture and Food Science since 2017.



In UCD I teach a range of courses in agricultural zoology, soil ecology and the agri-environment. I am also Director of the Biological Sciences Programme at Guangzhou Dublin International College of Life Sciences & Technology (GDIC), and a Visiting Professor at the Agricultural University in Krakow. I am passionate about widening university participation to under-represented groups, and I am a Director of Global Action Plan (GAP) Ireland, an environmental education charity.

My main research interests are in soil, in particular in the biology, ecology and biochemistry of soils in the context of agricultural soil-plant-animal systems. I especially like earthworms as a study subject, I have been fascinated by their ecology for a long time and it never ceases to amaze me how much we still do not know. I also value inter-disciplinary research, for instance I contribute my expertise on stable isotope ecology to research on meat and milk authentication. I enjoy such applied research because it uses knowledge and techniques developed for basic science purposes to solve real-world challenges such as soil protection and food labelling.

Professor Roland Perry (University of Herts)

Professor Roland Perry is based at the University of Hertfordshire, UK. He graduated with a B.Sc. (Hons) in Zoology from Newcastle University, UK, where he also obtained a Ph.D. in Zoology on physiological aspects of desiccation survival of species of the plant-parasitic nematode genus *Ditylenchus*. After a year's post doctoral research at Newcastle, he moved to Keele University, UK, where he taught Parasitology; after 3 years at Keele, he was appointed to Rothamsted Experimental Station, UK (now Rothamsted Research). His research interests centred primarily on plant-parasitic nematodes, especially focusing on nematode hatching, sensory perception, behaviour and survival physiology, and several of his past Ph.D. and post-doctoral students are currently involved in nematology research. He remained at Rothamsted until 2014, when he moved to the University of Hertfordshire.



He is a past member of the AAB Nematology Group and a past member of the council of the British Society for Parasitology. He co-edited *The Physiology and Biochemistry of Free-living and Plant-parasitic Nematodes* (1998), *Root-knot Nematodes* (2009), *Molecular and Physiological Basis of Nematode Survival* (2011), *Cyst Nematodes* (2018), *Techniques for Work with Plant and Soil Nematodes* (2021), and the first (2006) and second (2013) editions of the text book, *Plant Nematology* (all CAB International, UK). He is author or co-author of over 40 book chapters and refereed reviews and over 120 peer-reviewed research papers. He is joint Editor-in-Chief of *Nematology* and Chief Editor of the *Russian Journal of Nematology*. He is joint Editor of the book series *Nematology Monographs and Perspectives*.

In 2001, he was elected Fellow of the Society of Nematologists (USA) in recognition of his research achievements; in 2008 he was elected Fellow of the European Society of Nematologists for outstanding contribution to the science of Nematology; and in 2011 he was elected Honorary Member of the Russian Society of Nematologists. He is a Visiting Professor at Ghent University, Belgium, where he lectures on nematode biology, focusing on physiology and behaviour.

Professor Mark Stevens, Head of Science BBRO UK

Mark Stevens joined the British Beet Research Organisation (BBRO) in December 2012 having spent over 23 years as a sugar beet research scientist at Rothamsted Research – Broom's Barn. Whilst there he initially studied for his PhD and ultimately became group leader of the crop protection group and head of site in 2012. Mark is an applied biologist by training and more specifically a plant pathologist (particularly viruses), and has investigated the impact, control and epidemiology of pests and diseases especially rhizomania and virus yellows.

During his career he was a visiting scientist at INRA-Colmar and spent a 12-month sabbatical at Iowa State University. He was convenor of the AAB virology group as well as an editor for the Annals of Applied Biology.

Mark continues to manage and oversee a research portfolio that includes funding from competitive research grants as well as grants from the agrochemical sector, seed companies and agricultural trust funds. Mark works closely with the sugar beet industry via his role within the BBRO to ensure appropriate R&D to maximise the future potential of the sugar beet crop.

In 2019, Mark was awarded an Honorary Professorship in Plant Virology from the University of Nottingham.



Professor Graham Matthews (Imperial College)

I completed my BSc in Applied entomology at Imperial College in 1957. I was then travelling on a cargo ship to Nigeria to see cocoa beans and other produce to be transported to the UK. Apart from assessing pest problems, my project, I was supported by the Ministry of Agriculture with equipment to measure the temperature where the cargo was carried in different parts of the ship on my return trip. The data was published in my first contribution to the Annals of Applied Biology.

This brief experience in Africa enabled me to join the Cotton Pest Research team in the Federation of Rhodesia and Nyasaland (1958-1967). Asked to show farmers how to apply insecticides, specifically DDT, to control bollworms, I was based at Gatooma for laboratory bioassays and to modify a knapsack sprayer to position the nozzles behind the operator to avoid the farmer walking towards the spray and enable the spray volume to be increased with plant height. Soon it was possible to conduct trials on farms in Nyasaland and S. Rhodesia, which showed that spraying DDT or carbaryl related to monitoring bollworm eggs on plants, yields could be at least doubled or more depending on rainfall and soils, with the best yields on irrigated cotton. Larger farms soon wanted to use a tractor sprayer, also fitted with nozzles positioned on vertical units across the spray boom. Soon came a request to investigate aerial spraying, which was used on large estates.

In 1967 I returned to Imperial College, but it was soon decided that I could be seconded to Malawi and continue research on cotton growing. As only about 20% of cotton farmers could spray with knapsack equipment, because of the problem of getting sufficient water, it was decided to do trials using a battery-powered rotary nozzle to apply an ultra-low volume of spray (<math><5/ha</math>) using an oil-based formulation. It was very successful, but the technique was adopted mostly in West Africa from 1975-1995, when the cost of the formulation resulted in a return to using a water-based formulation, but now needing only 10 litres of water per hectare.

My return to Silwood Park, really began in 1972. I was able to obtain my PhD submitting my thesis based on the cotton pest research in Africa. Apart from teaching and supervising student research, I took over the testing of sprayers for vector control for WHO, that had been initiated in 1956 with the unit becoming the International Pesticide Application Research Centre. Soon I was asked to undertake overseas visits for various organisations, including FAO, the World Bank, UNIDO and ICI. The overseas travel often involved pest management of cotton crops, notably in Pakistan, Egypt, Sudan, Uzbekistan and China, but also included Olive trees in Greece, rubber in Brazil, rice in the Philippines and coffee in Colombia. Some visits were to participate in training in Nigeria, Malaysia, India, Trinidad, Zimbabwe, Spain and Cameroon. Training in indoor residual spraying for WHO was requested in 4 countries. For ICI, I was concerned with the development of an electrostatic sprayer, which was not followed up commercially. About 60 countries were visited between 1957 and 2019, although I 'retired' in 2001.

When the insecticide dieldrin was banned for locust control, FAO requested that I participated in assessing insecticides for locust control. At that time CABI decided to research the possibility of developing a biopesticide, which was eventually approved and

in 2020 it was the key control used against desert locusts in Somalia, where pastoral farmers did not want chemical insecticides killing bees.

My main contribution to AAB was in about 1980 to initiate the setting up of the Pesticide Application group. One day discussion meetings were followed later by biennial conferences also held in the EU with the proceedings published in the Aspects of Applied Biology.

Scientific papers have been published in various journals and I was an editor for "Crop Protection" [1982 – 2009]. Since 1979, I have written various books, the first being "Pesticide Application Methods", or edited a multi-author book, the latest being "Pest Management in Cotton: A Global Perspective". Integrated pest management is now recognised with more attention to protecting pollinators, and using new techniques, such as drones to survey crops as well as applying sprays when needed, as well as greater use of genetic engineering to improve crop resistance to pests in a world in which the climate is changing.

**Plant Breeding
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**Conference Aston
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<https://www.eventbrite.co.uk/e/plant-breeding-fit-for-the-future-tickets-350518950617?>

Report from March's HortStresses Meeting from the 'Vegetable Farmer' authored by Heather Briggs

• VEGETABLE & POTATO CONFERENCE •

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FIELD AND POST HARVEST CONFERENCE

Understanding and managing biotic and abiotic stresses of horticultural crops was the focus of a two-day hybrid conference organised by the Association of Applied Biologists, held on March 29-30. As horticultural crops face challenges and stress, both in the field and post-harvest, growers need to be able to choose varieties capable of withstanding both environmental and biological stress. **Heather Briggs** reports.

Despite subjecting fruit and vegetables to stresses by chilling them and putting them into dark storage, we expect good shelf-life performance, said Prof Carol Wagstaff, Research Dean for agriculture, food and health at the University of Reading.

conference, she remarked that it is well known that consumers buy with their eyes, demand long shelf life and value for money, and because supply chains are often long, nutritional loss and flavour changes between harvesting and consumption can occur.

Speaking at the AAB

Part of the problem is the

From cucumber to coriander – celery flavour depends on location

Recent research has shown celery grown in the UK has a different taste from the same cultivar grown in Spain, Prof Carol Wagstaff of Reading University told delegates at the AAB conference. A specialist sensory panel detected the UK celery crop to have notes of 'cucumber' and 'green', whereas the Spanish-grown crop was more akin to fresh fennel and coriander, and was saltier (the panel liked the saltiness).

These flavour differences could partly be attributed to differences in soils between the two countries; extensive water abstraction has made Spanish soils far more saline than those in the UK. This could be a challenge for retailers seeking consistent taste, flavour, and quality throughout the year, because the supply chain uses different varieties of celery grown in a number of countries. "Of course, differences in climate, agronomy and soil composition will all contribute to inconsistencies."

The research project evaluated the volatile and sensory profile of eight celery genotypes grown in the UK (2018) and Spain (2019). Two genotypes were found to have similar aroma composition and sensory profile in both locations. However, with the other genotypes, the UK-grown crops had a higher proportion of sesquiterpenes and phthalides, whereas samples harvested in Spain had a higher aldehyde and ketone content, she said.

"Studying the relationship between growing environment and genotype will provide information which will help breeders and growers to consistently produce a high-quality crop with the taste and aromas preferred by the consumer."



Prof Carol Wagstaff.

Rocket science reveals crop location effects in rocket leaves

Cultivation environment generates distinctive taste and flavour attributes of rocket salad irrespective of variety, reported Dr Luke Bell, lecturer in temperate horticulture, at the AAB conference.

One illustration of this has been from a trial comparing six lines of salad rocket grown in Rome, Italy and Dorset, England. The first and second cuts were assessed for their levels of glucosinolates, sulphur compounds (isothiocyanates), volatile organic compounds, and sugar concentrations. These were assessed on days one and five from processing.

The rocket leaves grown in Dorset were identified as having a higher sugar content than those grown in Italy, he said, noting that this is important for the sector because most of the salad rocket sold in the UK is grown in Italy, and retailers and consumers always want consistent flavours.

Luke explained that glucosinolates and sulphur compounds provide a hot, peppery taste, while sugar levels can mask the



Rocket trial.

pungency of these flavours. However, in general, many UK consumers prefer a milder tasting leaf. Luke said: "The UK-grown trial showed total sugars to be 3.5 times higher than the Italian one, which had levels of sulphur compounds and glucosinolates that were five times higher."

The second cut in the UK crop showed higher sugar levels compared with the first one, whereas in the Italian crop, sulphur compound levels increased. These higher sugar levels were likely to have been induced by the stress and higher respiration rate the UK growing conditions imposed on the crop.

He revealed that sensory analysis of the leaves identified a distinct taste separation between the two environments. Descriptions of the flavours of UK-grown crop included 'soapy' and 'sweet' whereas the Italian produced leaves were described as 'peppery', 'herby', 'aromatic', 'bitter' and 'green'.

"One of the interesting outcomes we found was that we observed an association between glucosinolate and isothiocyanate concentrations and postharvest quality. The Italian-grown crop had better shelf-life which was underpinned by differences in gene expression when compared with the UK-grown plants. The UK grown rocket was generally of a lower quality, and two lines performed particularly poorly during shelf life."

"However, working out how to grow a sweeter rocket salad leaf could be a way to attract more consumers without losing the health benefits associated with the crop." Further research will study the genes associated with sensory quality to better understand plant responses to the cultivation environment.

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very nature of the fresh produce sector, as fruit and vegetables are vulnerable to cellular damage and breakdown, making them high risk. Carol said: "If we think about a baby leaf salad, the leaves are harvested at just six weeks old, but it can take another

ten days to get through the supply chain and to the end of the 'best before' date on pack, which is a long time for such a young product.

"There can be loss of nutrients and flavour as the product moves through the supply chain; for example, if

you measure flavonoids in broccoli at the point of harvest and then again after storage at 1 deg.C, they can drop by 60 percent.

Glucosinolates can also go down by 70 percent, but this is not always a consistent fall from the point of harvest."

Such changes may help to answer why many fruits and vegetables consumed directly after harvesting taste better. In addition, she noted, as organic supply chains tend to be shorter, this may account for reports of improved taste. But while storage remains

Refining understanding of pot size effects on potato trials

Developing a practical method of growing potatoes in pots is crucial for effective potato research methods, said Reading University PhD student Dom Hill, speaking at the AAB conference. Concerns had been raised that pot size could influence phenotypes and development. This is because if the pots are too small, the potato plants may be adversely affected by stresses such as drought, limiting growth rates and compounding other results.

The pot research has been aimed at building understanding of the presence and effects of pot binding on salad variety Charlotte and maincrop Maris Piper, and has helped him tease out some of the differences.

Pot sizes tested were 2.5l, 5l, 10l, 20l and 40l, and each were planted with three replicates of the two cultivars for each treatment. All the pots were well-watered every three days until 75 days after planting, after which they were divided into two groups; half continued being well-watered, while the others were subject to water restrictions. Those that were restricted were irrigated with 50 percent of the estimated average daily evapotranspiration of the unrestricted group.

Comparing the two groups, Dom found fresh tuber yield to be affected by pot size and treatment, but no significant interactions between the two. There were smaller differences in yield between the treatments in smaller pots, except



Pot trials Charlotte and Maris Piper.

for 2.5 litre Charlotte, but that was because of a dead plant, he reported. "Smaller pots may produce smaller differences between treatments," he revealed. "But this evidence suggests that pot binding may not be as important as water restriction on yield."

Interestingly, although there were no pot-binding effects on yield, he found the canopy structure of the determinate variety Charlotte to be shorter and stockier. Maris Piper was unaffected by pot size in terms of plant height. "I don't know why but I'm hypothesising it's something to do with its indeterminacy, and perhaps better ability to maintain growth despite restricted root growth. There may be a water restriction threshold, which may be determined by the root system, and whether the variety is determinate or indeterminate."

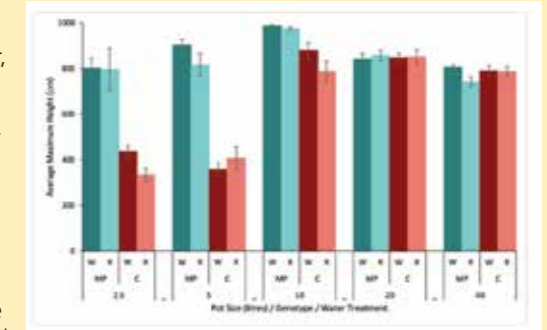
Soil choice can also affect water availability, and he has found peat-based compost with vermiculite to be consistent, and he notes that while sandy-based soils can be good for studying drought – they are difficult for keeping 'well-watered' controls well-watered as they tend to drain too fast. Any compaction can also affect root growth and water uptake, he added.

"While our trials showed that pot size was not affecting yield results, it affected other results such as height and greenness, so care may still need to be taken when using pots smaller than 10 litres in size. Pot shape can also make a difference; those that are tall and narrow are better at maintaining soil moisture. This could also be because probably because of a smaller surface area for water to evaporate from the pot. "Our results suggest that the more biomass produced, the greater the water need, and Maris Piper needed more water than Charlotte. We are now looking at this in more detail using soil moisture probes."

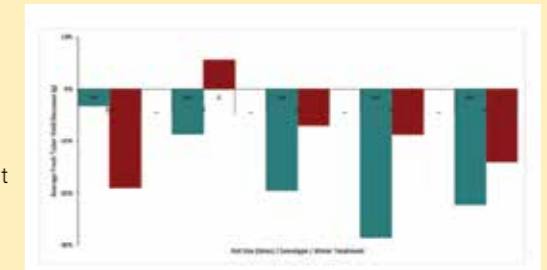
Dom has taken time to explore the effects of pot size as part of a larger research project on the morpho-physiological features of potato which are likely contribute to drought susceptibility. This has included exploring the phenotypes which may be associated with drought tolerance in potato; such as canopy size and architecture for light capture and root density which can increase water uptake.

"These phenotypes have been associated with drought tolerance in the past in individual studies, but on the whole they have been ignored." His PhD study will continue to look for specific phenotypic traits which affect drought tolerance, which may then be incorporated into potato breeding programmes and also used in the future in precision-agri systems.

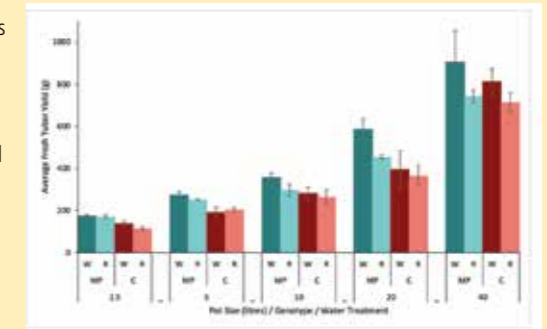
To find out more about his research go to <https://www.youtube.com/c/DominicHill>



Average maximum tuber height.



Average tuber yield decrease.



Average tuber yield.

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Delegates attending the conference.

The Horticultural Quality and Food Loss Network (HortQFLNet) is working towards reducing food waste in production and supply chains, as one of the ways of achieving United Nations Sustainable Development Goal target 12.3. It is jointly led by Cranfield University (Prof. Leon A. Terry) and the University of Reading (Prof. Carol Wagstaff).
 The aims are:
 To enable more effective prediction and better control of harvesting windows
 Exploiting crop genetics for better uniformity and physical traits
 Reduce the risks of spoilage by understanding and managing the relevant biological processes
 Improve understanding of the fundamental biology that influences shelf life and food storage
 The network is inclusive of the entire supply chain, from breeders to retailer and consumer, but the main focus is post-harvest.

crucial to the sector, perhaps shorter supply chains might be beneficial.
 "Understanding what happens between ripening and rotting in post-harvest research, and being able to slow down the process, is a critical component to reducing food waste and ensuring fresh produce is available to everyone."



PhD student Dominic Hill of Reading University.

Research is ongoing to detect some of the causes of variation, such as genotype and seasonality, she said. "We have been studying salad rocket through a commercial-type supply chain trial, looking for changes in levels of glucosinolates and

isothiocyanates post-harvest. Conditioning the crop against stress before and/or after harvest may allow it to cope better when it enters the supply chain, but more work needs to be done." ♦



Pot trials for potatoes.

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Warm growing conditions and asparagus tip breakdown

Research presented by Dr Emma Collings of Cranfield University at the AAB conference showed warm weather conditions can affect asparagus crops in two ways: accelerating crop growth to create peak spear production, but making the crop more susceptible to tip breakdown. Darkening tips, water-soaked bracts, and a smell of rotting are characteristic of tip breakdown and can result in significant post-harvest losses and impacts on the grower's profit margin.

Emma said: "Using the variety Aspalim, we assessed the incidence of tip breakdown at two temperatures (8/16 deg.C and 14/28 deg.C) and then stored the crop for 21 days. "We found that tip breakdown only occurred when spears were grown under warm temperature conditions when it coincided with low sugar content.

"This suggests that rapid growth may contribute to a depletion of nutrients which could then result in structurally weakened cells. Previous studies that have suggested the disorder could be linked to rapid cell elongation and sugar metabolism during warm weather."

ASSOCIATION OF APPLIED BIOLOGISTS

FORWARD CONFERENCE PROGRAMME 2022

Date	Title Location Organisers Website	Specialist Group and Affiliates	Abstracts/ Aspects/ Annals/ Other
6-8 September	Shaping the Future for Pollinators - Innovations in Farmed Landscapes Venue: Copthorne hotel, Slough and Kew Gardens ROB CARLTON, BARBARA SMITH, MIKE GARRATT, SIMON POTTS https://cvent.me/4x5bKe	CATE British Ecological Society, Royal Entomological Society	Abstracts, Special issue in Journal of Pollination Ecology
27-29 September	International Advances in Pesticide Application Venue: NORTH RHINE, WESTPHALIA TOM ROBINSON and HARALD KRAMER https://cvent.me/4xBKA4	Pesticide Application	Aspects
5-7 October	Advances in Virology Venue: Ljubljana, Slovenia CHARLOTTE NELLIST, TRISNA TUNGADI https://cvent.me/N9PX1v	Virology	Abstracts
1-3 November	AAB Biennial Presidents Forward Look Venue: Rothamsted Research CHRISTINE FOYER https://cvent.me/X3OImo	All	Abstracts
16-17 November	Advances in Biocontrol and IPM: Putting IPM into Practice Venue: Olde Barn Hotel, Grantham, UK KEITH WALTERS https://cvent.me/rDMINV	IPM	Abstracts
8 December	Advances in Nematology Venue: Linnean Society, London STEVE EDGINGTON Website and budget to come	Nematology	Abstracts
13-14 December	AAB-BSPP event. 'Coping with Change within Agrosystem health and resilience Venue: University of Leeds AMANDA BENNETT, FAYE RITCHIE, JON WEST, ROSEMARY COLLIER, ERIC BOA (BSPP). Website to come	APP-IPM with BSPP	Abstracts

Shaping the Future for Pollinators - Innovations in Farmed Landscapes

Copthorne Hotel, Slough-Windsor
and Kew Gardens

6th-8th September 2022

[Visit Event Website](#)

We are delighted to launch the program and open registration for this event organised by the AAB in collaboration with the **Royal Entomological Society** and the **British Ecological Society**.



The event includes these sessions:

Session 1 : **Landscape-scale management of pollination dynamic**

Session 2: **Pollinator habitat management/provision**

Session 3: **Managing crop pollination**

Session 4: **Pollinator Nutrition**

Session 5: **Assessing pollinator risks**

Session 6: **Innovation strategies in pollination biology**

Session 7: **Monitoring and Modelling Pollination**

[DOWNLOAD MEETING SCHEDULE \(PDF\)](#)

Registration is now open for both in-person and online delegates.

[REGISTER HERE](#)

AAB/BES/RES members receive a registration discount.

All AAB non-members will have the opportunity to join the AAB for free until the end of 2022.

AAB-BES-RES Early Career Professional Members are invited to join the meeting as an online delegate for **FREE**.

AAB Early Career Professional Non-Members are invited to join as an online delegate for the **nominal fee of £5**.

Biennial AAB Presidential Look Forward: Nature-based and engineered biology solutions to climate mitigation

Rothamsted Research
1st-3rd November 2022

[Visit Event Website: https://cvent.me/X3Olmo](https://cvent.me/X3Olmo)

This event is primarily organised by the current AAB President Professor Christine Foyer. The focus for the 2022 event aims to explore how applied biology can mitigate the upcoming challenges of food insecurity and climate change. This event includes an evening poster session on Day 1 and an optional conference dinner on Day 2.

This event will also host the inaugural presentation of **AAB Presidential Medals**.

Confirmed speakers:

Dirk Inze (VIB-Ghent) **Tina Barsby** (NIAB) **Vivienne Anthony** (Syngenta Foundation)
Steve Long (University of Illinois) **Peter Shewry** (Rothamsted), Sarah Raffan (Rothamsted), **Moritz Reckling** (ZALF, Germany) **Rob Hancock** (James Hutton Institute), **Steve Spencer** (JABBS Foundation), **Gary Bending** (University of Warwick)

Meeting Sessions:

- Improving the efficiency of photosynthesis for improved yield.
- Future crops: Legumes, perennial varieties of major cereals and more
- Silviculture innovation to improve climate goals
- Development and Application of bespoke microbiomes to enhance climate resilience.
- Plant breeding to meet Societal need
- Impact of climate change on agricultural nutritional security.
- Early Career Professional Career Development Workshop

The majority of speakers at this meeting will be selected from submitted abstracts, providing an excellent opportunity for early career scientists to promote their research and activities.

Abstracts can be submitted in one of the 6 categories outlined above. The organisers will select speakers for each plenary session from these abstracts. Everyone not selected for an oral presentation will have the opportunity to present a poster (portrait orientation, A0 size). Alternatively delegates can also specifically apply to present a poster. Please only submit your abstract to one category.

Abstract submission deadline to be considered for an oral presentation is **September 1st 2022**.

Submit Abstract Here:

<https://www.aab.org.uk/conferences/submit-an-abstract-for-aab-presidential-meeting/>

Conference Updates

ASSOCIATION OF APPLIED BIOLOGISTS

President: Professor Christine Foyer



Shaping the Future for Pollinators Innovations in Farmed Landscapes

PROVISIONAL PROGRAMME



A three-day conference at the
Cophthorne Hotel, Slough-Windsor
6-8 September 2022

Association of Applied Biologists, Warwick Enterprise Park, Wellesbourne, Warwick CV35 9EF, UK
Registered Charity No. 1195899; <http://www.aab.org.uk>
Tel: +44 (0)2476 999485; Email: john@aab.org.uk



President: Prof. Christine Foyer, BSc, PhD

International Advances in Pesticide Application



A three day conference
at the Chamber of Agriculture, North Rhine
Westphalia, Germany
on 27-29 September 2022

Photographs by kind permission Tom Robinson Sprays Ltd, Cambridge, UK

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Shaping the Future for Pollinators Innovations in Farmed Landscapes

6th - 8th September 2022

Hybrid event hosted at:
Cophthorne Hotel, Slough-and Kew
Gardens, UK

[VISIT EVENT WEBSITE](#)

[REGISTER HERE](#)

[DOWNLOAD PROGRAMME PDF](#)

International Advances in Pesticide Application

27th-29th September 2022

Hybrid event hosted at
Chamber of Agriculture, North Rhine
Westphalia, Germany

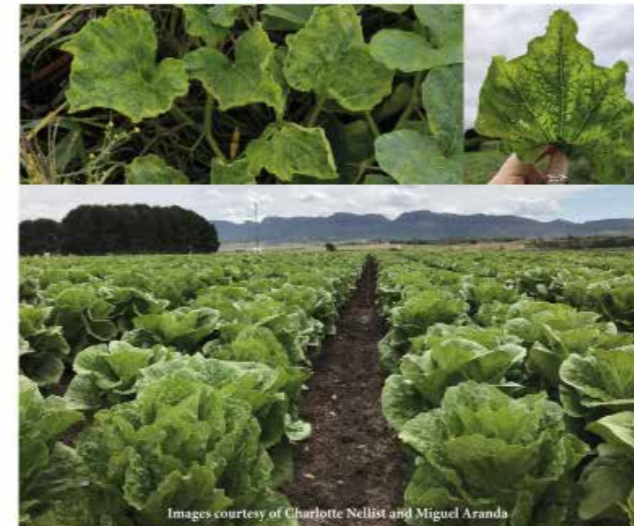
[REGISTER HERE](#)

[DOWNLOAD PROGRAMME \(PDF\)](#)

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ASSOCIATION OF APPLIED BIOLOGISTS
President: Professor Christine Foyer

International Advances in Plant Virology 2022

Hybrid event hosted in
Ljubljana, Slovenia.
5th-7th October 2022



Images courtesy of Charlotte Nellist and Miguel Aranda

CALL for ABSTRACTS

Association of Applied Biologists, Warwick Enterprise Park, Wellesbourne, Warwick CV35 9EF, UK
Registered Charity No. 1195899; <http://www.aab.org.uk>
Tel: +44 (0)2476 999485 Email: john@aab.org.uk

International Advances in Plant Virology

5th-7th October 2022

Hybrid event hosted in
Ljubljana, Slovenia

[VISIT EVENT WEBSITE](#)

**ABSTRACT SUBMISSION DEADLINE:
15th JULY 2022**

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ASSOCIATION OF APPLIED BIOLOGISTS
BIOCONTROL AND IPM GROUP
President: Prof. Christine Foyer

Bringing Biocontrol and IPM to Market

Hybrid event hosted online and live at the
Olde Barn Hotel, Marston, UK
16-17 November 2022



Image from Keith Walters

Call For Abstracts

Please submit your abstract at the AAB website

<https://www.aab.org.uk/abstract>

Abstract Submission deadline: August 31st

Bringing Biocontrol and IPM to Market

16-17 November 2022

Hybrid event hosted in the Olde Barn
Hotel, Marston, UK

[VISIT EVENT WEBSITE](#)

**ABSTRACT SUBMISSION DEADLINE:
AUGUST 31st 2022**

International Conference on Arabidopsis Research

Between June 20-24 2022 AAB organised the 'International Conference for Arabidopsis Research (ICAR2022)', which brought 400+ scientists to the ICC in Belfast.

Organisation of this global event raises the profile of the AAB amongst a different group of scientists, many of whom took the opportunity to join the society. Hopefully these new members will become involved with future AAB events.

To lower barriers to attending this event AAB offered travel grants to early career professionals. Grant awardees have prepared a short report from this event ->

Tomasz Włodarczyk

Department of Environmental Science, University of Arizona
twlodarczyk@email.arizona.edu

Apart from the daily plenary sessions and concurrent sessions I chose to participate in two workshops. The first one was about **Navigating the Nagoya Protocol**, where I got familiar with biopiracy problem in science, and access & benefits sharing rights in regards to the worldwide open science movements. The meeting highlighted the importance of the "access in exchange" that promote the actions to share knowledge in products and innovations of genetic research/data. I also got familiar with the policy terms for the range of digital information associated with genetic resources. I learned what I can do as a part of the scientific community to help to resolve open science issues and to get more involved. Finally, we discussed whether the Arabidopsis research falls within the scope of the conversion on Biological diversity or Nagoya protocol.

The second workshop I attended was on **Arabidopsis Informatics**. It covered the most novel bioinformatics tools such as TAIR, BAR, MINI-EX, or AraGWAS. The workshop focused on helping to navigate through the software and giving an update on the latest improvements and databases. One of the concurrent sessions "**Phase Separation in Plants**" I found particularly interesting. I learned about the abiotic stress signalling, metabolites recruitment under stress conditions, regulation of proteins, ATPase activity and protein folding process.

I had a chance to integrate with the international science community and listen to the lectures presented by the science institutions from USA, UK, Germany, Ireland, China, Israel, Netherlands, Spain, Saudi Arabia, Singapore, Australia, France, Sweden, Canada, India, Poland, Japan, Denmark, Switzerland, South Korea, Czech republic and Austria.

Participating in the sessions (to get an update on the other lab's work) and exchanging thoughts during poster sessions were a great experience that strongly contributed to my career development and helped me to integrate with the science community. I also got inspired by the BIG Ideas concurrent session where the presenters had five minutes to present the rationale and justification behind their research. Some of those ideas would be in the interest of our lab members. Further, we would like to present our research on the BIG Ideas session at the next ICAR conference.

Kamila Murawska-Włodarczyk

Department of Environmental Science, University of Arizona
kamilamurawska@email.arizona.edu

There were many sessions that were incredibly useful and informative. One of the concurrent presentations was particularly interesting "**The clock is ticking: FLOWERING LOCUS T as a general photo-thermal timekeeper for life history transitions**". This presentation discussed how life history transitions happen in plants. It explained the changes in the vegetative state, flowering and floral transitions in florescence duration under different temperatures. The research showed the mRNA fold change in time under stress conditions as well as photo-thermal experience. It shows that Locus T plays a role in the timing of the transitions during the whole life cycle of a plant. I also greatly benefited from attending workshops.

Overall, there were 6 plenary sessions (5 presentations each), 21 concurrent sessions (about 6 presentations each), 3 keynote presentations, and 8 workshops (4 at the time). It was great to listen to the Keynotes presented by the prominent researchers from plant biology (e.g., Prof. Caroline Dean, Prof. Liam Dolan or Prof. Keiko Torii). Throughout the event there was an opportunity to get updated with the latest scientific accomplishments from various high ranked scientific institutions.

I particularly liked the option to present my work, exchange thoughts and make new contacts during the poster sessions. The discussions with other participants contributed to my research and made me feel like a member of the plant science community. This experience is the boost towards the progress of my research. Next year, I anticipate taking part in the BIG Ideas concurrent session that I got inspired by. My overall experience was great.



32nd International Conference on
Arabidopsis Research
ICAR2022: Belfast



GCRI Trust: 'Improving Sustainability in Tomorrows Protected Horticulture'

2022 Desk Study Competition – £2000 1st Prize!
And new this year, a Video Recording Competition - £2000 1st Prize also!!

The GCRI Trust is delighted to invite entrants to their new Competition. For 2022, the theme is 'Improving Sustainability in Tomorrows Protected Horticulture' and submissions are sought on topics that will help the UK protected crops sector lower their greenhouse gas emissions.

Prizes

1st Prize = £2000 in both the Desk Study and Video Recording categories.
2nd Prizes = 2 prizes of £1000 in the Desk Study category, and 2 prizes of £1000 in the Video Recording categories.

There will be up to 8 runner-up Prizes of £500 across both categories.

Entrants are allowed to have one entry in both categories, but the subject covered must be different.

Deadline: The closing date for entries is the 31st July 2022

Who are the GCRI trust and what do we do?

The GCRI Trust was established in 1989 and is a registered charity governed by trustees. It was funded by financial contributions from growers and the Horticultural Research Association.

The GCRI Trust promotes scientific research and education bearing on the environmentally sustainable cultivation of horticultural crops growing in glasshouses, polytunnels and other structures. The scope extends to crops such as mushrooms, pharmaceuticals and the intensive production of bulbs, flowers and shrubs grown in the open.

Desk Study and Video Competition – The brief

Similarly to the 2021, the competition is for a well-written desk studies or literature reviews that analyses new technologies, new science or novel practices, that can help inform growers, advisors or scientists in their future horticultural business or research considerations and decisions. New to 2022 will be the opportunity to enter a video presentation, with the same brief, as an alternative to the written desk study.

The protected crops sector and associated commerce (suppliers) are striving towards net zero emissions, water use improvements and reductions in waste.

The theme of this desk study competition is 'Improving Sustainability in Tomorrows Protected Horticulture', and we invite incisive, well-informed submissions that explore current and future technologies, methodologies and blue skies thinking that can help take the protected cropping industry forward in the global ambition to reduce greenhouse gas emissions.

Entries will be judged according to their originality, incisiveness, quality of presentation, and relevance of content.

Deadline for entries is midnight (BST) on 31st July 2022.

Entries received after this date will not be considered.

Why is the GCRI Trust launching this competition?

The GCRI Trust traditionally provides early career scientists and technical specialists with travel grants – helping the international exchange of novel ideas and technologies. With the ongoing Covid-19 pandemic, we are wanting to continue reaching out globally, but without the travel!

The GCRI Trust also recognises that desk studies (literature reviews) and video presentations are an invaluable first step to future science, technology and innovation projects and aid growers considering future business investments.

Guidelines for writing your Desk Study

Title: Desk Study or Video Presentation (e.g. Capturing Carbon – A New Technology for Pepper Production)
Name of GCRI Trust Competition Entrant: (eg. Dr F Bloggs, DFB Consulting Ltd)

Headline bullet points: These bullet points (between 1-5 as guidance) should be written to flag up key highlights that will encourage a reader to continue exploring the report. The bullet points should succinctly answer the question: “As a result of this desk study, what could the UK Protected Crops and Outdoor

Ornamentals sector look out for?”

Examples:

- The recycling of waste substrate into fuel or other beneficial products. Noting the energy required to do so.
- The practicalities of recycling fertigation water. Noting also the water required for filter backwashing and energy for sterilising.
- Temperature and humidity, old problems with new solutions. Are we getting this right?
- High energy costs. How is this changing our protected cropping ideas and investment plans.

Background: Text highlighting the broad issues to be addressed in the desk study (max 800 words).

- Desk Study (max 4200 words, excluding references): Text that expands on:
- Advances or novel applications relevant to the title of the desk study
- The opportunities and threats posed.
- The Headline bullet points and explains in more detail what/why/how/when the ‘advance’ could be put into practice by growers/consultants/researchers. This is the main text body of the review which may include: relevant financial information, action points, and sources of related information – anything that the Entrant thinks an industry member would find useful to put that ‘Highlight’ into practice. The addition of helpful graphs, diagrams, infographics or photographs to illustrate particular points is encouraged
- Ideas for further related research or investigation.

Video Presentation (max 10 minutes): The addition of helpful graphs, diagrams, infographics or photographs to illustrate particular points is allowed and might be helpful.

The video link should not be shared with anyone or made public on any forum while the competition is underway. Once it is over, sharing is allowed.

The video must NOT be over ten minutes long. All videos suspected of plagiarism shall be disqualified.

The video must have been specifically made for this Competition. You are not allowed to use copyrighted video and/or audio. Entries using copyrighted audio or video shall not be considered.

Personal Statement: This section should describe how the work has impacted on you and why it is (or will be) of particular interest to the UK horticultural industry (50-150 words). For the video presentation this can be on camera.

Contact details: Please include your contact details including Name, residential address, email address, telephone number and occupation.

Eligibility Criteria

The competition is open to all UK residents aged 18 years old and above, who at the time of submission must be resident (spend 183 or more days in the UK in the tax year) in the UK.

Only one entry, in each category, per person is allowed.

The report, written in English (Arial 12 point font with single-line spacing), should be submitted as a Word document to the GCRI Trust (david.fox@gcristrust.co.uk), by midnight (GMT) on **31st July 2022**.

The video presentation should be uploaded to: <https://www.dropbox.com/request/7CVLzp8B4z0pxPX8VM35> by midnight (GMT) on **31st July 2022**. **Please confirm your video upload to** david.fox@gcristrust.co.uk

Any personal data that may be submitted in an entry will be processed by the GCRI trust in accordance with any applicable data protection legislation.

By entering the Competition, entrants agree to hold the GCRI Trust harmless for liability, damages or claims for injury or loss to any person or property, relating to, directly or indirectly, participation in this Competition, or claims based on publicity rights, third party intellectual property rights, defamation or invasion of privacy.

Entrants agree that their entry is their own work, written solely for the purpose of the Competition, and warrant that their entry does not breach any applicable laws or regulations or infringe any third-party intellectual property or privacy rights, and is not in any way libellous, defamatory, obscene, indecent, harassing or threatening. Submissions may be screened for plagiarism.

Assessment Criteria

The GCRI Trust will hold a judging day, which will draw up a shortlist of entries. Entries will be judged according to their originality, incisiveness, quality of content, presentation and relevance of subject. A judging panel consisting of representatives of the GCRI Trust will select the winners and runners-up. The names of the judging panel will be made available on request. The judges’ decisions shall be final. No correspondence regarding the results will be entered into.

Winning entrants will be informed on or before **31st August 2022** by email or telephone or in writing (using the details provided at entry). If the prizes are declined or unclaimed by a winner, or if a winner cannot be contacted from the details supplied within 15 business days of notification, a replacement winner may be chosen at the GCRI Trusts discretion and will be notified by the GCRI Trust. The original entry that was chosen will then be forfeited. The GCRI Trust will not be liable for any failure, delay or inability to contact a winner.

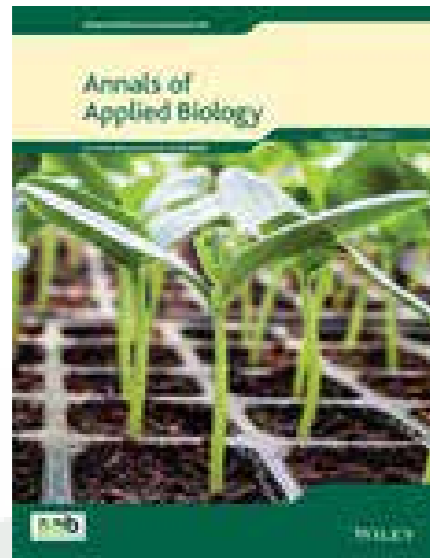
The names of the winning entrants will be published on the GCRI Trust website and social media channels, along with the winning essays.

The GCRI Trust reserves the right to carry over the prize monies to a later competition if the quality of applications does not meet the required standard in this instance.

David Fox
Trust Administrator

AAB Journals: New Issues Now AVAILABLE

Click on the links below to view the latest issues of our scientific journals. Remember that you will need an annual subscription to view our *Annals of Applied Biology* content so please contact Bernadette (bernadette@aab.org.uk) in the AAB Office if you are interested!



Annals of Applied Biology
Vol. 180 Iss. 3
MAY 2022



Plant Biotechnology Journal
Vol. 20 Iss. 21
JULY 2022



The Association of Applied Biologists is a member of the Plant Science Group of the Royal Society of Biology. The AAB Executive Officer is the current Chairperson of the group.

This group publishes an excellent monthly Plant Science Newsletter that anyone can sign up for here.:

Members of the RSB are eligible for a 50% DISCOUNT on AAB membership.

PLEASE CONTACT Alberto Vitale to take advantage of this membership offer.



British Crop Production Council (BCPC) Newslink: [CLICK HERE](#)



AAB Membership Rates 2022

Membership Type	£
Full	62.00
Retired	31.00
ECP (Early Career Professionals) and Student Membership	20.00
Members are also entitled to receive the following publications at reduced rates.	
<u><i>Annals of Applied Biology</i></u>	
Printed (hard copy)	91.37
Online (UK & Europe*)	77.82
Online (rest of world)	64.85
Printed + Online (UK & Europe*)	132.91
Printed + Online (rest of world)	126.59
* VAT incl. for UK & European members	

For any membership enquiries please feel free to contact Alberto in the AAB Office by email at: alberto@aab.org.uk

Why Should I Join the AAB?

Members of the association are entitled to many exclusive discounts and a whole range of dedicated content

What do I receive with an AAB Membership?

- A forum for applied biologists worldwide: network with the best in your specialism
- Very discounted registration fees for our regular scientific [conferences](#) and workshops across the AAB's research interests
- Significantly reduced subscriptions to [AAB publications](#)
- [Eligible to apply for 'Federation of European Societies of Plant Biologists' short term mobility grants \(up to €3000\)](#)
- [Eligible to apply for AAB ECP Travel grants](#)
- [Eligible to apply for the 'AAB Carer Fund', £500 accessibility grants.](#)
- [Download an application form here](#)
- 30% discount on publications in our *Aspects of Applied Biology* series
- Discounted membership to the [Royal Society of Biology](#). AAB members receive a 50% discount on RSB membership! [Download details here.](#)
- [Opportunities to interact with the Global Plant Council](#)

Additional benefits for Student Members

- ALL new student members who set up a direct debit payment will receive a FREE *Aspects* book of their choice, from our [Aspects of Applied Biology Marketplace](#) (if in stock), worth up to £40.00!
- We encourage all of our specialist groups to adopt at least 1 student member - if you are interested in becoming part of a group, please contact the relevant convenor
- We would also like our Student Members to be involved with our conference organisation so if this is something of interest please contact the AAB Office

Aspects of Applied Biology Marketplace

Aspects of Applied Biology is a series of conference proceedings produced by the Association from some of our organised events. Each issue of *Aspects* is produced in advance of the relevant conference. *Aspects* articles DO NOT go through a full peer-review process but are thoroughly proofed and edited accordingly to ensure scientific validity. *Aspects* are available after the conference and are a valuable resource for those working or studying in the relevant field or even for those purely interested in the content.

Postage costs may work out cheaper for multiple purchases.

For our full list of *Aspects of Applied Biology* [click here](#)

If you wish to purchase a book which does not appear on the list or require information on multiple purchases, please contact Bernadette (bernadette@aab.org.uk) for a price.



Association of Applied Biologists Early Career Professional Travel Grant Application Form

Grants are available to all students or early career professionals (ECP, defined as being within 10 years of leaving full time education) to attend AAB events to provide a poster or oral presentation. Recipients do not need to be a member of the Association. Allowances are restricted to standard class flights, rail or bus fares (using a rail card if available). All grants are discretionary.

Applications must be made at least 2 months before the meeting, to the AAB Executive Officer (EO) Geraint Parry at geraint@aab.org.uk. The application will be assessed by the EO and AAB Council

Payments will be made on submission of receipts after the event but on rare occasions up-front payments are possible if deemed essential by the AAB EO and Council.

[More Information Here](#)

Association of Applied Biologists Carer Fund Application Form

The AAB wants to provide opportunities for anyone to attend their events, irrespective of their personal circumstances. We understand that this might require financial assistance that is unavailable through conventional travel grants.

The AAB has started the 'AAB Carer fund' that is open for applications from AAB members, who require additional help to attend either live and virtual AAB events. Each application will be judged on their individual merit but might be used for childcare, support care of elderly or disabled adult relatives or for personal use to facilitate accessibility needs (travel, audio-visual, personal help).

We have £500 available for each application associated with each event. Please return this form to the AAB Executive Officer (EO) Geraint Parry at geraint@aab.org.uk. The application will be assessed by the EO and the AAB Council.

Please submit the application at least 2 months before the selected event, but early submission will be beneficial. Payments will be made on submission of receipts after the event but on rare occasions up-front payments are possible if deemed essential by the AAB EO and Council.

[More Information Here](#)

The AAB are delighted to have become a member of the Federation of European Societies of Plant Biology (FESPB)

FESPB aims to advance research, education, and the exchange of information amongst plant biologists within Europe and beyond. <https://fespb.org/>



As part of a FESPB affiliated Societies, AAB members are eligible to apply for these grants:

- **FESPB Awards to young European plant scientists.**

Two FESPB Awards for two young scientists selected by the FESPB Awards Committee from nominations put forward by each of the constituent Societies. Award are for €2000 and attendance to the FESPB congress.

- **Grants for short-term mobility for young researchers**
FESPB would offer short term mobility grants (up to €3000) for young researchers working with a group leader who is an AAB member.

- **Grants to attend FESPB Congress**
Support registration and accommodation at the FESPB congress. They will be open for AAB members or group members of AAB members.

Please contact Gemint Parry (gemint@aab.org.uk) about these opportunities

Descriptions of Plant Viruses (DPV)

Over 400 individual descriptions of plant viruses or virus groups. Nos 1-354 were originally published in paper form by the *Association of Applied Biologists* (AAB) between 1970 and 1989, while additional descriptions have been added to a CD-ROM (also published by the AAB) since 1998. These can now be accessed from the indexes in the DPV menu or from the Taxonomy pages. New descriptions are being commissioned and will be added as they become available.