

5th INTERNATIONAL CONFERENCE ON PESTS IN AGRICULTURE

Brian Hicks reports on a major crop protection conference held in France at the end of 1999

Some 400 delegates attended the *5th International Conference on Pests in Agriculture*, held from 7–9 December 1999 by ANPP (Association Nationale de Protection des Plantes) in Montpellier. About a quarter of the delegates were from outside France and a very good simultaneous translation service was provided throughout the conference during the 75 presentations. There were also 35 posters and a trade exhibition. Proceedings are available from ANPP (Tel: +33 1 43 44 89 64 Fax: +33 1 43 44 29 19 E-mail: anpp@anpp.asso.fr Website: www.anpp.asso.fr). The conference venue was ENSA (Ecole Nationale Supérieure Agronomique), Montpellier, which forms part of Agropolis International, a grouping of agricultural centres in Montpellier. Some 5000 staff are employed by Agropolis, of whom about 2000 are scientists. At ENSA itself, there are some 900 staff, including 350 scientists. Agropolis is very much orientated towards research into Mediterranean and tropical crops (<http://www.agropolis.fr/>).

Genetically modified crops

Professor Helmut van Emden of Reading University (UK) chaired the first plenary session on genetically modified crops. There is considerable uncertainty in France regarding the future of GM crops and this was evident at the conference, with many government scientists unaware of all the details and implications of them. The French supermarkets, like most of their UK counterparts, have been shying away from GM crops and withdrawing them from food products. Growers have also not been very receptive to GM crops and the area of *Bt* maize cultivated in France has fallen from 1500 hectares in 1998 to 80 ha in 1999.

According to the presentation of M Giband (CIRAD, Montpellier), there are some 72 GM “events” which have been approved globally, some of which are the same event but from a different company. Of these, 71% relate to herbicide tolerance, 22% to insect resistance and 7% include both of these traits, “pyramided” in the variety concerned.

BT maize experiences in France

Pierre Yves Kergoat (Monsanto France) reviewed some of the benefits of MON810, the company’s *Bt* maize, effective against both cornborer, *Ostrinia nubilalis*, and sesamia, *Sesamia nonagrioides*, the latter found only in the South of France. In micro-plot trials, MON810 was 97% effective, but, in practice, in field crop situations, he said this reaches 100%. There are typically two larvae of cornborer per plant, but in exceptional conditions this can reach 3–4. Yield

can be improved by up to 13%, with less *Fusarium* also occurring. More beneficials are also found with *Bt* maize. The only product currently available for cornborer control in France is *Trichogramma*, which has only limited effectiveness, according to Monsieur Kergoat, and does not control sesamia.

Relating Bt crop management to risk

Sue Macintosh, product safety manager for AgrEvo in the Mid-West of the USA, commented that *Bt* maize management must be related to risk, as has already occurred in US programmes for pyrethroid resistance management in cotton and the boll-weevil eradication campaign. The current policy is a high-dose refuge strategy. In the longer-term, a “dual-gene” approach might be adopted, with both Monsanto and AgrEvo testing out these possibilities at present.

In the Southern states, there can be up to five generations of corn-borer in a season, compared with only one in the North. In medium-risk situations, 20% of crop areas are devoted to refuges, increased to 40% if an insecticide spray is also used, but this must not be *Bt*. With two different *Bt* proteins, both expressed at a high level, the refuge area could be reduced to 5%.

Mixed feelings about GM crop benefits

Professor van Emden is more sceptical about the benefits of GM crops, although he sees overall advantages when compared with approaches based on insecticides. He sees potential drawbacks in terms of yield, especially when the targeted pest is absent, and damage to biological control. He said there could be a “drain on total photosynthesis”, diverting plant resources, and was relieved to see that industry had recently admitted this in the case of a second *Bt* gene.

Damage to biological control was also an important issue, such as in relation to ladybirds. He also expects plant allelochemicals to have effects, with both positive and negative interactions with GM crops. Plants can have effects on the induction of insecticide-detoxifying enzymes in insects, as exemplified by the production of 2-tridecanone in tomatoes.

Professor van Emden is “unconvinced about the refuge strategy” currently being adopted and commented that farms in the US and Australia were very much “experimental animals”. He also pointed out that organic growers will have to run the risk of their crops being contaminated if the new technology is to go ahead in Europe.

ANPP

Background and history

The French National Crop Protection Association, ANPP (Association Nationale de Protection des Plantes), 6, Boulevard de la Bastille, 75012 Paris, organises crop protection conferences on a 3-year cycle, covering plant diseases, weeds and pests respectively. Its UK counterpart, the British Crop Protection Council (BCPC), in contrast, has a two-year cycle covering "weeds" and "pests & diseases".

ANPP was formed in April 1984 from the merger of three separate organisations involved in crop protection:

- COLUMA (Conférence sur la Lutte contre les Mauvaises Herbes)
- SFPP (Société Française de Phytatrie et Phytopharmacie)
- AFIP (Association Interprofessionnelle pour la Formation et Perfectionnement en Phytatrie et Phytopharmacie)

The first COLUMA weed conference was held in 1961, the first international plant disease conference in 1985 and the first international pest conference in 1987. ANPP operates through a secretariat in Paris headed by its director, Philippe Printz, with two assistants. It works through twelve separate commissions, which are mainly drawn from its memberships. One of these supervises the monthly crop protection journal *Phytoma*. The current president of ANPP is Jacques My, secretary-general of the French crop protection industry trade association, UIPP (Union des Industries de la Protection des Plantes), also based in Paris. His 3-year term of office comes to a close during this year.

The membership of ANPP, currently over 650, is on an individual basis, but organisations can join as associate or benefactor members. ANPP is headed by a management board of 27 members elected for three years by the general assembly. The board is divided equally between three electoral colleges:

- Plant Protection Service, INRA
- Agricultural organisations and other professional bodies
- Industry, trade and private research centres

Quarantine pests in Europe

Efforts to combat quarantine pests have formed the foundations on which the public plant protection services have been established. A session was devoted to this theme at Montpellier and the chairman commented that more recognition should be given to those in this field, whose work is "rather obscure" but increasing, and whose "fate is to fail". In France, the subject had its origins with an edict in 1660 on *Puccinia graminis*. Another landmark was a vine mildew regulation in 1870. One of the areas of concern here is the lack of funding for taxonomists, although new funds are apparently to be provided.

One recent European introduction has been *Cacyreus marshalli* Butler, a lepidopteran pest of pelargoniums, which arrived in France three years ago, having first hit the Balearic Islands in 1989 and mainland Spain in 1993. It has

Website developments

ANPP launched its own website in January 1999 (<http://www.anpp.asso.fr>) which is currently attracting over 500 visitors per month. It has recently added a valuable new feature, a database with a search engine (in both English and French) to enable interested parties to find research papers presented at ANPP conferences since 1994. The titles and summaries can be searched and viewed. Research papers can then be ordered for 25 French Francs per paper, on average eight pages long. These are currently despatched by airmail, but should be available electronically in the longer term. For those who already have copies of past conference proceedings since 1994, the search engine is a invaluable way of locating papers of interest by page number.

New Name and Revised Structure

ANPP is planning to increase the size of the third electoral college representing trade and industry. With biotechnology coming increasingly to the forefront of developments in crop protection, ANPP is aiming to attract new members from the seed and food sectors. A name change for the association is also planned to take effect very shortly, to AFPP (Association Française de Protection des Plantes), to better reflect the association's role in plant protection in France and the French-speaking world.



Jacques My, President of ANPP (left) and Philippe Printz, Director of ANPP (right).

also recently been detected in Morocco and Portugal and there has been an eradication programme in the UK. It is not a pest in South Africa, its source, where there is little biological interest in it.

Co-ordinating international approaches

As a result of the Uruguay Round to facilitate world trade in 1994, an international sanitary and phytosanitary agreement was made, with rules and procedures for plant, animal and human health. A previous international quarantine agreement was signed in 1951 by 107 contracting countries.

International committees with 6–8 experts consider the risks and EPPO (European and Mediterranean Plant Protection Organisation) has developed detailed procedures for Pest Risk Analysis (PRA). Inspections can be demanded before harvest by importing countries. Risk analyses are done by national laboratories, but these are increasingly

being co-ordinated on a European basis. There is a European warning network and warning list, with the main goal being prevention.

Recent European quarantine pests

Philippe Reynaud of the French services gave two examples of recent quarantine pest problems. The coleopteran pest of maize, *Diabrotica virgifera*, was first detected in Belgrade in 1992 and has since spread and can no longer be effectively controlled in Europe. It has been establishing a foothold and expanding its area of infestation by 40–50 km per annum. An eradication programme was mounted after the first EU detection in Italy. The pest is very damaging to maize roots and is a major problem in the USA, whence it originates. Another pest alert was put in motion in 1996 for a larger coleopteran pest, *Anoplophora glabripennis*, which was found on bonsai and other ornamental trees in New York and Chicago. It originates from China, but the only bibliographies about it are in Chinese.

The UK experience

Richard Baker from the UK Central Science Laboratories (Sand Hutton, near York) is part of a group of three full-time staff, supported by a nation-wide inspectorate, which reports to the Ministry of Agriculture. He said that legislation in the UK dates back to 1877 when there were concerns about the Colorado beetle, *Leptinotarsa decemlineata*, which still remains an important target for vigilance. The UK uses a summary scheme when a rapid response is required, for example following an inspection. It uses the EPPO approach, which takes several months, in others such as the first imports of potatoes from New Zealand. The UK deals with about 50 cases annually.

Review of French efforts

The Italians have done an inventory of quarantine pest problems over the period 1945–95, and M Martinez of INRA Montpellier presented his findings from a comparable French study over the period 1950–1999. He listed some 80 new quarantine insect pests from non-European sources, mainly North America and Asia/Far East. Some 58% were Hemiptera (mainly aphids), with Coleoptera (18%), Lepidoptera (13%) and Diptera (6%) the other important families.

The main pests have been on trees and shrubs (46.8%) and ornamentals (22.8%), with agricultural crops providing much less concern. In Italy, there have been about 25% more introductions. In France the main targets for quarantine investigations have been vegetables and cut flowers, followed by ornamentals and fruit. Thrip problems have shot up in recent years, as have *Lyromyza* in aquarium plants.

New products session

Presentations were made on pymetrozine, indoxacarb, acetamiprid, thiamethoxam and spinosad, as well as new formulations of alphamethrin and lambda-cyhalothrin, some of which had been revealed at previous conferences. Pymetrozine approval in France as a 25% WP formulation as *Plenum* has recently been granted for use in protected crops, potatoes and hops. It has proved more effective than the current standards (such as buprofezin) for control of whitefly and aphids. The Nisso insecticide, acetamiprid, first approved in Japan in 1995, is being developed in Europe by Rhône-Poulenc Agro (now Aventis CropScience) as a 20% soluble powder formulation.

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Please send manuscripts to Hamish Kidd, Pesticide Outlook, The Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge CB4 0WF. FAX +44 (0)1223 420247; email KIDDH@RSC.ORG.