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## British Crop Protection Council Conference, Pest & Diseases 2002

I represented the IR-4 Project at the British Crop Protection Council Conference, Pests & Diseases 2002, at the Hilton Brighton Metropole Hotel, in Brighton, England, the site of the conference since 1968. An important change in the conference was announced that will take effect in 2003. No longer will the subject of the conference alternate between weeds and pests/diseases from year to year. The 2003 conference will have three main themes: crop protection, crop production and the food chain, and environment and regulation. In order to accommodate a larger attendance, the "Brighton Conference" will no longer be held in Brighton. The 2003 conference (to be called the BCPC International Congress) will be held in Glasgow, Scotland. The sites of subsequent conferences were not announced, but another delegate told me that the plan is to move the conference around the world, returning every fourth year to the United Kingdom.

On Monday, 18 November, a symposium preceded the BCPC conference entitled "The Global Challenge: Sustainable Food Production". Jon Woolven, an economist from IGD (United Kingdom), discussed the predictions from Patrick Dixon's book *Futurewise*. Dixon wrote that the future will be increasingly Fast, Universal, Tribal, Urban, Radical, and Ethical. The increase in tribal loyalties is a counter-movement to globalization. Radical movements gain popularity as public confidence falls in mainstream political figures and parties. Ethical questions can delay the implementation of economic or scientific solutions to problems.

Willemien Bax represented BEUC, the Bureau of European Consumers' Unions with representatives from 24 countries. BEUC seeks to "maximize the consumer benefits of the Single European Market; at the same time seeking to minimize potential damage to the consumer, focusing increasingly on matters of quality and on social and ethical issues." Consumers are entitled to eight core rights: safety, information, choice, representation, redress, education, satisfaction of basic needs, and a clean environment. BEUC would like to see harmonization of food monitoring and data collection in Europe, harmonization of allowed substances and MRL's, and the publication of testing results from imported products. The use of crop protection chemicals should be part of an integrated crop protection system within the strategy of the sustainable use of pesticides.

John Chapple of New Millennium Group Holdings discussed agriculture in China. There are 220 million farms in China (compared to 2 million in the U.S.), with an average size of less than one-half hectare (about one acre). (The average farm size in the U.S. is more than 160 hectares.) About 10% of China's total land area is in farmland, compared to 20% of the U.S. China has 25% of the world's population, but only 7% of the world's cultivatable land. A survey in the year 2000 suggested that 30% of the products labeled as imported pesticides were fakes (generally ineffective or less effective substances). Food safety issues have only recently become

important in China. China is more active in biotechnological development than any country other than the U.S., and more than 1.5 million hectares of land are planted in transgenic crops. The concept of organic farming is not well understood by most Chinese farmers.

Christopher Knight of Campden and Chorleywood Food Research Association (UK) discussed food safety and quality assurance. He listed various biological, chemical, and physical food safety hazards, and then discussed the routes of contamination. Possible sources of contamination were discussed, including organic manure, irrigation water, animal contact, human handling, pests in storage, and pathogens on equipment used to move the food. The various "quality assurance" systems of food raw materials designed to minimize contamination problems were presented.

Dennis Avery, the Director of the Center for Global Food Issues, Hudson Institute (USA), talked about how to meet the challenge of sustainable global food sufficiency. He mentioned a Johns Hopkins University paper that states that high-yield, science-based agriculture should be abandoned in favor of low input farming and societal-wide vegetarianism. Avery rebutted this position, pointing out that millions of additional acres of wild lands would need to be cultivated to produce today's food supply if intensive methods of farming were halted. He suggested that any attempt to enforce vegetarianism by discontinuing livestock production would be likely to result in increased hunting of wildlife. He stated that conservation tillage methods have reduced soil erosion to the lowest rates in the history of agriculture. Avery dismissed the claim by a Swiss organic research institute that organic farming is practical, because their own field trials showed that organic crops had an average 20% lower yield than conventionally-grown crops. He refuted other arguments in favor of organic or low intensity farming, and closed by inviting the BCPC to sign the High Yield Declaration, which states in part that high-yield practices "are critically needed in agriculture and forestry not only to achieve the goal for improving the human condition for all peoples but also the simultaneous preservation of the natural environment". Avery's talk brought up a number of interesting points, but his manner of presentation was offensive to some of the audience members in that he showed a lack of respect for those whose views he was opposing.

Nigel Roome of Erasmus University (Netherlands) discussed the major organizational and managerial issues that the European food industry will need to address during the next twenty years. Eduard Bruckner of Nestle, (Switzerland) presented an industrial model for food supply security (i.e., how the Nestle, company ensures the security of its own supply). Sir Brian Heap of the University of Cambridge (UK) discussed the complexity of sustainable food production and consumption, and the difficulties in predicting the success of different strategies. The symposium ended with a brief question-and-answer session. Major issues were not

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resolved here, but the symposium served as a platform for opposing views on issues of food production to be presented to an audience of crop protection scientists.

At the BCPC conference itself, an interesting insecticide session was entitled "New Compounds and Uses for Pest Management". Several new insecticides were discussed, some of which are already known to IR-4.

J. P. Edwards of Central Science Laboratory (UK) discussed insect neuropeptide fusion proteins, a combination of two proteins produced in lepidopterous larvae that caused feeding to stop when the fused proteins were administered to tomato moth larvae. This potential insect control compound is still in the early testing stage.

S. Saito of Sumitomo discussed pyridalyl (S-1812), which is effective against lepidopterans and thrips on cotton and vegetables at rates between 83 and 300 grams active ingredient per hectare with low toxicity to beneficial insects and mites.

R. Nauen of Bayer CropScience discussed BSN 2060 (proposed common name: spiromesifen), which belongs to the new chemical class of spirocyclic phenyl-substituted tetrone acids. It is especially active against whiteflies and spider mites. Use rates range from 100 to 150 grams a.i./ha in cotton, vegetables, and ornamentals. It is active on immature stages and female adults. It shows excellent residual activity, good plant compatibility, and a favorable environmental profile. Market introduction is expected to occur 2004-2006. A related compound, spirodiclofen (Envidor), was discussed by L. DeMaeyer, also of Bayer CropScience. Spirodiclofen is effective against mites, psyllid nymphs, and scale crawlers at concentration rates of less than 0.02% a.i. Spirodiclofen shows no adverse effects on natural predators of pear psylla and has good residual activity.

Y. Ohkawara of Sumitomo and M. Schwarz of Bayer CropScience presented papers on clothianidin, a broad-spectrum neonicotinoid insecticide with high activity against homoptera, and also control of thrips, some beetles, and some lepidopterans. Specific pests controlled by this compound include corn rootworms, wireworms, seed corn maggot, flea beetle, chinch bug, white grub, Southern green stink bug, grape colaspis, and black cutworm. Clothianidin has exhibited systemic activity, with translocation between leaves and from roots to leaves. The Poncho formulation is highly suitable for seed treatment. The active ingredient forms a halo around the roots, and is then taken up by the roots. Registration is expected in 2003.

New fungicides were presented at another session. Descriptions follow:

HEC 5725 (fluoxastrobin) is a leaf-systemic broad-spectrum fungicide, patented by Bayer, from the chemical class of dihydro-dioxazines currently being developed for use mainly in cereal crops. The compound provides both a rapid initial effect and prolonged activity due to its protective and leaf systemic properties. Applied as a foliar spray in cereals, HEC 5725 provides excellent control of *Septoria* leaf spot, *Septoria* leaf and glume blotch, rust, *Helminthosporium* diseases in wheat and barley, and powdery mildew. Furthermore, seed- and soil-borne diseases like snow mould and common bunt are also efficiently controlled, when HEC 5725 is used as a seed treatment. Mixtures of HEC 5725 with selected fungicides often result in an increased biological activity against these diseases. HEC 5725 has a favorable regulatory profile.

Ethaboxam is a new aminothiazole carboxamide fungicide, developed by LG Life Sciences Ltd., to control diseases caused by Oomycetes. Target diseases are grape downy mildew and potato late blight. In addition, ethaboxam can be applied to various Oomycetes diseases on other crops including cucumber, hop, lettuce, onion, pea, pepper, sesame, and tomato. Ethaboxam has intrinsically outstanding preventive, curative, translaminar, and systemic activity. It is highly inhibitory to the mycelial growth and sporulation of *Phytophthora* and other pathogens. There has been no report of resistance to ethaboxam; the fungicide is highly inhibitory to the growth of isolates that are resistant to phenylamide and strobilurin fungicides.

JAU 6476 (prothioconazole) is a novel broad-spectrum fungicide. It belongs to the new chemical class of triazolothiones discovered and developed by Bayer. JAU 6476 is a systemic fungicide showing excellent efficacy against a broad range of diseases in different crops. In wheat and barley, this new dimension DMI fungicide provides outstanding control of eyespot, *Fusarium* ear blight, leaf blotch diseases, rust, and powdery mildew. JAU 6476 can be applied as a straight product and is also an ideal mixing partner for other compounds. Applied as a seed treatment, JAU 6476 shows very good activity against important seed- and soil-borne diseases. JAU 6476 combines excellent activity, crop safety, and a favorable toxicological and environmental profile with an overall excellent technical performance to guarantee high quality yields.

Other sessions focused on neonicotinoid insecticide status and future prospects, integrated crop management in field vegetables, pest and disease management in organic farming, and the potential role of transgenic crops in sustainable and durable pest and disease management.

I. Denholm of Rothamsted Research (UK) reported that imidacloprid resistance in whiteflies and aphids has been

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found to affect all other neonicotinoids tested. In Colorado potato beetles, however, a 150-fold resistance to imidacloprid was found to result in only a 3-fold resistance to thiamethoxam. Resistance management strategies were discussed, including the cotton-melon system in Arizona in which cotton is a neonicotinoid-free crop that is grown between the spring and fall crops of melons which are treated with imidacloprid.

B. Jonsson of the Swedish Board of Agriculture discussed the Integrated Production program organized by Swedish growers. This project now includes about 60% of field vegetable production, and follows many of the same principles as IPM practiced in the U.S. The Swedish government has an official policy of developing sustainable agriculture with a goal of 20% organic farming by 2005. Pesticides must be re-registered every 5 years. Sweden, along with Finland and Denmark, has the lowest number of registered active pesticide ingredients in the European Union (between 100 and 150).

D. Atkinson of the Scottish Agricultural College, Edinburgh, spoke on the topic "Organic agriculture and crops: Is co-existence possible?". He explained that organic agriculture accepts the range of organisms that have evolved through natural selection or that have been bred by near-natural methods. Plant breeders should, in this view, maintain the integrity of the organisms that are used. Scientists that support genetic modifications offer the counter-argument that gene exchanges across species boundaries already exist, and that the fundamental parts of an organism can be treated as building blocks for use in any desired arrangement within or among species. Advocates of organic agriculture are concerned that, because agriculture is open to the natural environment, organic farms will be increasingly impacted by the effects of the use of GM crops on conventional farms.

In his talk on transgenic crops, J. Wesseler of Wageningen University (Netherlands) discussed the effect of mandatory

labeling of GMO vs. non-GMO crops. Many non-GMO foods are already labeled, for example "organic" (which now by definition in the U.S. excludes GMO's) or "non-BST milk". The costs of that labeling are already being borne by the consumers of those products. Consumers who do not wish to pay the extra costs of organic foods can choose to buy conventionally grown foods at lower cost. Mandated labeling of other food products with information on their GMO content would increase the cost of those foods, but would probably influence only a minority of consumers to buy different products. Thus, the majority of consumers will have to pay more for food that they choose to eat regardless of their GMO content.

The Exhibition is an important aspect of this conference. There was a surprising level of representation of Asian companies among the 86 booths. An editorial in Farm Chemicals International noted that thirty of the booths were occupied by companies from China, and another two from India. A number of GLP testing labs were represented, among them Agro-Trial Center Gerhaus (Austria), RCC Ltd. (Switzerland and Germany, with an affiliate in Baltimore), Life Scientific (Ireland), Batelle AgriFood (UK, Switzerland, and Columbus, Ohio), Oxford Plant Sciences Ltd. (UK), and Wageningen UR (Netherlands). Piet Spoorenberg and Willem Stol of Wageningen UR felt that IR-4 would serve as a good model for a similar organization in the European Union, which is already in the discussion stages.

This annual conference provides an excellent opportunity for IR-4 representatives to learn what is happening in global pest management. In the event that it is held in North America some years, the BCPC Conference would be an excellent venue from which to get the word out about IR-4 to the international delegates who attend.

Article by Ken Samoil