

The British Crop Protection Council (BCPC) 2000 meeting at Brighton, England - Pest and Disease.

This year's meeting not only provided a debut of several new insecticides and fungicides, but also a variety of symposia on pesticide hazard assessments, GMOs, factors controlling crop protection programs, consumer attitudes to food safety, and risk and benefits of organophosphate insecticides.

The program opened with a brief presentation by the new president of the BCPC and former president of the UK Farmers Union, Sir David Naish. The president emphasized the past promotions to expand agriculture in the western world and the current atmosphere focusing on sustainability. He noted that it is difficult to see the government providing protection to farmers in the U.K., especially since the environment is such a huge political issue, and that commodity prices will likely continue to erode in the western world. He closed by saying that we must be prepared to tell our customers the truth and allow them to make an educated choice.

The opening lecture (Fredrick Bawden Lecture) was presented by Dr. David Evans, the new head of research and technology at Syngenta. By the year 2025, the world population is estimated to be at 8 billion people. We will need all of our technology to feed those people. Some of these new technologies already being used include:

- Functional genomics, from genome to function, using micro assay technology to test a compound on 40,000 unique genes. This would be useful not only for developing higher yields but also for developing crop resistance.
- High throughput in vivo screening, screening "small" plants grown in Elisa plates or leaf disk automated sample dispensing.
- Many of the companies are doing in-house synthesis and using nature as a source of new chemistry. Combinatorial libraries allow for "split and mix" combinations. This information can then be used to develop virtual screening, and computer picked compounds.

Several new chemistries were presented at the meeting, some of which are highlighted below:

New Insecticides

- Thiacloprid, Bayer's second-generation neonicotinoid, that controls chewing, sucking insects, with specific pests of interest Aphis gossyli, and potato beetle.

- ANS 118 (Chromafenozide): a novel insecticide by Nippon - Kayaka and Sankyo, for control of lepidopteran insects.
- DBI 3204 (Bistriflural), Benzoylphenyl urea insecticide, IGR, chitin synthesis inhibitor: controls lepidopteran insects (Beet armyworm and Diamondback moth), beetles, and whiteflies - all good activity.
- Bacillus fimum, good activity in tomatoes grown in nematode infested soils: evaluated a "total green" approach that included solarization/B.F. only; compared to methyl bromide yields were slightly lower.
- BAJ 2740 (Spirodiclofen tetronic acid): novel broad-spectrum acaricide by Bayer; controls all mite stages, long lasting activity and good plant compatibility.
- IKI-220 from ISK (Ishihara Sangyo Kaisha): controls aphids; rapid and strong anti-feeding activity; long residual.

New Fungicides

- Picoxystrobin from Syngenta: broad-spectrum disease control, curative abilities, redistribution within the plant through the xylem and vapor activity; generally more active than azoxystrobin.
- BAS 500F (Pyraclostrobin) from BASF: has excellent crop safety, except concord grapes; locally systemic with excellent translaminar activity; curative against grape downy mildew; controls diseases caused by all four classes of fungi.
- SYP-L190 introduced by Shenyang Research Institute of Chemical Industry in the People's Republic of China: active against plant diseases caused by Oomycetes; is a fluorine -containing analog of dimethomorph (Acrobat) that has better curative and anti-sporulant activity than dimethomorph; is approximately twice as active on cucumber downy mildew than dimethomorph.
- Simeconazole F-155 was introduced by Sankyo: a triazole fungicide that will be used as a seed-treatment; is the first triazole to be shown to be able to control rice sheath blight, caused by Thenatephorus cucumeris; has broad spectrum activity and is especially active against Basidiomycetes; is systemic in the plant and will be available as a controlled release formulation that gives activity on powdery mildew of cereals; initially, it will be developed as a seed-treatment for cereals and then other crops.

Symposium: Human Exposure to Pesticide Residues, Natural Toxins and GMOs Real and Perceived Risks. This symposium provided a historical review of pesticide development and regulations and some of the considerations made in their

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use and approval. Speakers covered some of the early disasters that resulted from mislabeling of seed stocks and initial regulations put in place to protect consumers, pesticide users and the environment. Some of the early regulation policies were actually made by The World Health Organization (WHO). There were also discussions of risks and benefits associated with pesticide use. A variety of new technologies are now available to assess pesticide risk and to better determine the real risk. One paper reported the benefits of pesticides in reducing the level of mycotoxins present in produce. In some reports, as much as 25% of the world's food supply may be affected by mycotoxins. Presentations on GMO crops noted a shift in the approach of hazard assessment from the chemical to the whole food and the various considerations that need to be made when making these assessments. Finally there was a presentation regarding public reaction to GMOs and some of the factors (such as Mad Cow Disease) that have caused consumers to react to this technology.

Symposium: Who Controls Crop Protection Programs? There were a variety of papers outlining the different regulatory aspects in Europe. These include the European retailers (EUREP) and their responsibilities in meeting certain standards on products supplied globally. One speaker noted that there has been a marked change from problem solving (pest control) to consumer driven (quality choice). The consumers have now become suspect of modern farming. Consumer interest is the result of higher incomes leaving a greater amount of disposable income for making choices. The EU Directive 91/414 was amended in March of 2000 and will result in the loss of over 500 products out of the existing 800. These unsupported uses will be revoked by 2003, and many of these uses will involve minor crops.

A symposium on organophosphate insecticides provided a history of these insecticides and some of the benefits they provide. Global use of OP is the highest among all insecticides at 36% and the number one OP used is chlorpyrifos. Although they have a specific mechanism of action, the toxicity of OP's varies among the various compounds present in this class of compounds. The UK does not have a strong public funding base to find alternatives to OP insecticides. The crops most affected will likely be lettuce, carrots, and leeks, not only because of the size of the crop but also because of the pests present on these crops.

Symposium: Pesticides Available on Minor Crops. In many of the EU countries the growers rely on "off-label" uses. Although, there is a MRL (tolerance) established, the grower uses the pesticide at his or her own risk. There are also political issues that may result in many uses being lost as a result of the EU Directive 91/414. One program that may help is The Minor Use Recognition "Voluntary Mutual Recognition" (VMR). This program requests data from one EU country be used to support the use in another. The utility of this program depends on each country's involvement and the development of trust and understanding. Some roadblocks may hinder adoption; for example, in the UK the growers provide funding for the development of minor use data, thus, they are hesitant to provide this information to other countries that would compete for their market. However, if this program is not successful, they will have to continue developing the data in each country, which requires extensive resources. Dave Thompson provided an overview of the history of IR-4 and our current objectives and strategies.

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