

AGROCHEMICALS - AN INDUSTRY VIEW OF FUTURE NEEDS

N.G.E. Geach

Public Affairs and Product Stewardship Manager

Far East and Pacific Region

ICI Agrochemicals, Fernhurst, UK

In recent years the use of agrochemicals, often referred to as pesticides, has become an increasingly controversial topic. The purpose of this paper is to address key issues of interest to all groups with a bona fide stake in production of food, fibre and other commodities, and to emphasize the need to safeguard health and the environment as a whole. Although the conference subject is cotton production, there is a need to consider chemicals in a wider international context.

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AGROCHEMICALS - A CONTINUING NEED?

WHO/FAO authorities estimate that more than a third of world food supplies are lost each year in the field and in storage, despite the use of US\$20 billion worth of agrochemicals. Without chemicals to control pests, diseases and weeds, it is probable that insufficient food and fibre would be available to meet the needs of a global population expected to exceed 6000 million people by the turn of the century.

Although there are schools of thought favouring cessation of chemicals usage, and exaggerated stories of wholesale damage to human health, wildlife and the environment through poor standards of chemicals production and usage, it is suggested that the majority of world opinion favours a policy of comparing risk factors with benefits achievable, and seeking methods of reducing hazard potential associated with chemicals, whilst increasing benefits in the forms of yield and quality. How, then, can we set about achieving these goals?

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#### INTEGRATED PEST MANAGEMENT (IPM)

It is supposed by many observers that the Agrochemicals Industry is wholly averse to the IPM concept in the belief that the use of chemicals would decline dramatically with IPM development. This is not so.

IPM practices, such as selection of pest and disease resistant varieties, shrewd cultural management techniques embracing crop rotations, fertilizer and water control programmes, sowing time choice, plant spacing etc., are logical and laudable. So are biological control methods employing the use of natural predators to control pest populations.

But most crop situations will continue to require the prudent use of chemicals too to ensure yield and quality. Prudent in this context means selection of the right product to control a given target species allied to choice of suitable application equipment, rates and timing of application.

You already practice IPM in your local cotton industry and evidently issues such as scouting programmes and economic threshold level treatment principles are well understood.

Furthermore, local industry's willingness to collaborate with Government and other authorities has been manifested by the successful Insecticide Resistance Management Strategy for *Heliothis armigera*, now in its fifth season.

Development of more effective IPM programmes is to be encouraged by all of us including Industry, but implementation problems in developing countries should not be underestimated.

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HOW CAN INDUSTRY, GOVERNMENT, GROWERS IMPROVE  
COLLABORATION?

The need to improve international standards of registration, production, storage, marketing, handling and application of potentially hazardous agrochemicals cannot be denied. The incidence of poisoning cases in some countries and the occurrence of environmental pollution cases in others is unacceptably high. So what measures can be adopted to improve global standards?

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FAO CODE OF CONDUCT ON THE DISTRIBUTION AND USE OF  
PESTICIDES

A. INTRODUCTION

The FAO Code provides a suitable medium for closer collaboration between relevant Government Departments and Industry members both individually and collectively through GIFAP (International Association of National Associations of Pesticide Manufacturers) and National Trade Associations with a view to raising functional standards and reducing or eradicating unwanted health and environmental problems.

Although the Code is voluntary in nature, leading chemical companies regard it as mandatory in practice and are working through GIFAP and individually to comply with it's articles by committing resource to rectify substandard procedures where they exist.

The Code was adopted in 1986 by FAO member countries and is particularly important to countries with less developed regulatory systems of pesticide distribution and use.

**B. OBJECTIVES SUMMARY**

1. Guide public and private sector parties engaged in pesticide regulatory, production, marketing, distribution and use work.
2. Encourage the need for collaboration between Governments of importing and exporting countries to ensure benefits from agrochemical use are not cancelled out by adverse effects to human health, wildlife and the environment as a whole.
3. Stress the paramount need for safety in handling and use techniques to prevent undesirable poisoning occurrences amongst agrochemical users.
4. Encourage countries which have yet to establish effective regulatory procedures to do so with the aid of pertinent training programmes.

## C. CODE IMPLEMENTATION - INDUSTRY OBLIGATIONS

### CI GIFAP ROLE

Many of you know that GIFAP is the International Association of National Associations of Pesticide Manufacturers. A booklet describing GIFAP's role has been published and is available through your local trade association AVCA which is an established member group. National Trade Association membership now stands at 45 representing more than 1000 agrochemical companies accounting for approximately 90% of world business.

Broadly speaking GIFAP's principal objective is to encourage optimum production of food, fibre and other commodities through prudent use of agrochemicals with minimal hazard to health and the environment at large.

### C2 GIFAP INITIATIVES

#### GUIDE TO CODE USE

Although responsibility rests jointly with Governments and Industry, it is important that Industry members comprehend what is expected of themselves. Accordingly, GIFAP has published a guide to implementation together with a series of Check Lists on the following topics:

1. Management
2. Product Safety & Registration, Product Development & Technical Service
3. Production, Formulation & Packing
4. Marketing, Distribution & Sales
5. Advertising & Promotion

The Code should of course be studied carefully, but the Checklists provide a handy series of ready references.

### C3 GIFAP BOOKLETS

GIFAP has published and distributed through it's members a series of illustrated guidelines in booklet format entitled:-

1. Guidelines for the safe handling of pesticides during their formulation, packing, storage & transportation.
2. Guidelines for emergency measures in cases of pesticide poisoning.
3. Guidelines for Quality Control of pesticides.
4. Guidelines for the safe and effective use of pesticides.
5. Guidelines for the avoidance, limitation and disposal of pesticide waste on the farm.
6. Guidelines for the safe transport of pesticides.

The Guideline series offers practical advice in an easily understood way. If copies of any of these booklets are needed AVCA will be able to supply your requirements.

### C4 TRAINING COURSES

Another GIFAP initiative is the sponsorship of Training Courses for dealers and farmers in developing countries in the safe storage, handling and use of pesticides. A trainers manual for Agrochemical Retailers Courses has been published following pilot training programmes in

Thailand, Africa and South America. Farmer training courses for Government Extension officers and Industry representatives on the train the trainer principle have begun. These courses, one of which took place in Pakistan last year, will facilitate farmer education in product use. A training manual will be released later in the year.

#### C5 PROTECTIVE CLOTHING

In accordance with the objective of reducing potential health hazards, GIFAP sponsored work is underway to discover suitable clothing for tropical use. A comfortable, durable and inexpensive fabric sensibly designed for tropical use is sought.

#### C6 LABELLING

GIFAP has assisted FAO in the development of PICTOGRAMS to facilitate comprehension of handling, use, storage and hygiene instructions. The aim now is to encourage individual industry members to adopt the symbols for their respective products.

#### D CODE IMPLEMENTATION - INDUSTRY EXAMPLE

ICI Agrochemicals (formerly ICI Plant Protection) has, along with other leading industry members, pledged to implement the Code.

A series of initiatives within the framework of a global business stewardship programme have been launched. These are outlined below:-

#### D1 FAO CODE - AWARENESS

In 1988 ICI published and distributed to its National Selling Companies (NSC's) 3 documents designed to facilitate compliance entitled:-

AN ACTION CHECKLIST

OBLIGATIONS OF INDUSTRY

RULES ON ADVERTISING AND PROMOTION

The action checklist required each selling company to report to Group HQ at Fernhurst on its' activities compared to each Code article, enabling us to decide on a programme of measures to bring about Code compliance where necessary.

The obligations and A&P Rules documents facilitated Code interpretation.

#### D2 AGROCHEMICAL PRODUCTION

Safety to health and the environment (SHE) minimum standards have been laid down and are being implemented throughout the ICI International Agrochemicals Group.

Standards cover active ingredient manufacture, quality assurance, formulation, filling and packing activities including and following items:

ORGANISATION AND MANAGEMENT  
ENGINEERING DESIGN AND MAINTENANCE  
OCCUPATIONAL HEALTH AND HYGIENE  
ENVIRONMENTAL CONTROLS  
PRODUCTION  
FIRE PREVENTION  
CONTROL AND EMERGENCY MEASURES

#### D3 STORAGE AND TRANSPORTATION

Minimum standards are being introduced following an audit of ICI owned and rented warehouses.

A special booklet entitled "Safe Storage of Crop Protection Chemicals" has been circulated to our national companies for guidance.

A dealers store audit procedure has been introduced in Malaysia, and other countries are encouraged to follow this example.

Hauliers are required to use a simple TREMCARD system when carrying ICI Malaysia agrochemicals, and the use of TREMCARDS elsewhere is recommended.

#### D4 MARKETING AND DISTRIBUTION

Initiatives include work on the following topics.

- a. User training courses on product handling and application in key markets.
- b. Dealer training courses on handling and storage of potentially toxic chemicals. For example, in Malaysia, dealers are required to attend a half day course for which they receive a Certificate of Attendance. Tuition is given by technical, marketing and medical personnel.
- c. Review of product formulations.  
Where appropriate we have included alerting and vomit inducing safening agents in our formulations.
- d. Review of product labels.  
Each pack size and each product in each country is being examined to improve standards. A guide to writing and reviewing labels has been distributed to our companies and special attention is being paid to print size, precautionary and first aid statements, accuracy of biological recommendations, and overall label design.

e. Review of packs and seals.

Eradication of seal tampering and product imitation and adulteration are primary objectives in markets where these problems are widespread. Better quality devices and holograms are being introduced.

f. Review of advertising material.

The inclusion of simple safety messages such as "Always read the label before use" and "Pesticides can be harmful if misused" is now recommended in each market. Strict compliance with FAO advertising Guidelines is advocated.

g. Issue of product monographs.

A series of informative publications emphasising safety to health and the environment factors has been published and distributed widely.

h. Use of illustrated safety posters featuring Do's and Don'ts.

i. Video and Radio Safety Messages.

The use of radio has long been a favoured medium for reaching farmers albeit for reasons other than conveyance of safety messages. We are now stressing safe handling, storage and use. The use of videos is fast growing, and ICI has produced a series of health and environmentally related promotions for its' leading products and about its' activities.

j. Medical Consultancy Services provision.

We have appointed consultants to undertake educational training work, monitor health of factory and field workers, and provide information on poisoning prevention and treatment to Poisons Centres, hospitals and Estate Staff in each significant market.

k. Distribution of product antidote supplies and treatment instructions to hospitals and estate staff handling poisoning cases.

D5 FIELD USE

a. Protective clothing studies - in Malaysia (ICI/HARRISONS) and Thailand (GIFAP/BAYER/SHELL/ICI)

b. Spraying equipment suitability studies - UK (Cooper Pegler/ICI).

c. Independent market survey work to establish customer awareness levels respecting safety and product use methods - Malaysia and Indonesia.

d. Launching of CARBO-FLO liquid effluent treatment plant - UK (ICI/ALLMANS)

## D6 COLLABORATION WITH OTHER ORGANISATIONS

The improvement of standards within and throughout the global crop protection industry calls for a responsible, collaborative exchange of information and ideas between organisations with a genuine interest in the well being of all concerned. ICI is seeking to develop productive relationships or establish useful dialogue with a number of establishments including:-

- a. GIFAP
  - b. NATIONAL TRADE ASSOCIATIONS
  - c. RENPAP (UNIDO/UNDP) REGIONAL NETWORK FOR CONTROL OF PESTICIDES IN ASIA AND PACIFIC
  - d. NGO's - PUBLIC SECTOR ORGANISATIONS
  - e. UN/ESCAP/ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND PACIFIC
  - f. ODNRI - OVERSEAS DEVELOPMENT NATURAL RESOURCES INSTITUTE
  - g. IPARC - INTERNATIONAL PESTICIDE APPLICATION RESEARCH CENTRE
  - h. FAO ROME/AP REGION
  - i. ADB - ASIA DEVELOPMENT BANK - MANILA
  - j. CRANFIELD INSTITUTE OF TECHNOLOGY
  - k. WORLDBANK WASHINGTON
  - l. NATIONAL POISONS CENTRES
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E. CODE IMPLEMENTATION - GOVERNMENT ROLE

Government ability to monitor effectively implementation of the Code will vary from country to country according to available resources and the degree of importance attached to it.

In relatively undeveloped countries it is hoped that local authorities will develop and implement pesticide registration and control schemes where these do not already exist.

Also that licensing schemes to facilitate acceptable production and shortage standards are introduced where necessary with a view to safeguarding health and the environment.

The establishment of Poisons Information and Control Centres at appropriate locations to provide first aid and medical treatment guidance is an important need with which Industry should collaborate fully.

Careful screening of product labels texts and advertising techniques should be encouraged through close collaboration with Industry.

Suitable laboratory equipment and facilities for testing crops sprayed with pesticides to monitor observance of maximum residue levels (MRL's) should be provided.

The training of users in safe handling of pesticide by qualified extension staff is a vital requirement of the future.

In developed countries like Australia all these issues may be taken for granted, but it should be remembered that adequate procedures and facilities are absent from many developing countries.

F. CODE IMPLEMENTATION - PUBLIC SECTOR GROUPS

Some non government organisations (NGO's) seem to have adopted the principle of outright war with pesticide companies on the assumption that industry and it's critics have no common ground. I do not subscribe to this view and favour the establishment of dialogue with the objective of debating issues of mutual concern. For example, ICI Agrochemicals UK has established a series of meetings with Friends of the Earth UK to resolve misunderstandings and discuss health and environmental problems and possible solutions to them.

Public Sector Groups have a bona fide role to play in monitoring Code implementation. It is important that their observations are recorded and reported in an accurate manner if we are all to benefit from the funds provided to enable NGO work to be undertaken.

The feeding of factually inaccurate and sensational data to the Press has exacerbated pesticide problems in some countries, and Industry is now prepared to adopt a more positive stance to protect it's interests and those of it's customers by challenging misleading articles and information about it's products and activities put about by public sector groups.

G. CODE IMPLEMENTATION - FARMERS & GROWERS

Government and Industry in many countries may well be guilty of failing to provide adequate guide lines on safe and effective use of agrochemicals. In countries with low levels of literacy and limited agricultural extension resources it is vital that collaborative training programmes to raise levels of hazard potential awareness, and standards of storage, handling and use be implemented as a matter of urgency.

In developed countries like Australia and the UK there is still a need to comply with Codes of Practice to safeguard the environment and the health of all whilst achieving efficacious results. The successful pyrethroids resistance programme in the Australian cotton belt is a practical example of this.

Industry is at last making a sustained and genuine attempt to ensure that it's products are neither misused or abused. But we will continue to rely on our customers to observe sensible field practices to ensure efficient and safe use of agrochemicals whether they are applied from the air or ground.

It is up to industry and government to provide guidelines, and up to the farmer to play his part by observing them.

In the UK new legislation provides for users of pesticides to comply with conditions of approval relating to use. These will be stated clearly on the label and will cover matters such as protective clothing, maximum application rates, minimum harvest intervals, protection of bees, movement restrictions in treated areas and use only on designated crops.

Spray contractors using approved agrochemicals will by January 1989 be compelled to obtain a recognised certificate of competence.

Aerial applications are already restricted to products for which specific Government approval has been given for that purpose, and detailed code of practice rules apply to aerial operators.

The need for collaboration between farmers, governments and industry is there for all to see. If we are to avoid the introduction of unnecessary restrictions on agrochemical availability, we shall have to implement the FAO Code of Conduct on the Distribution of Use of Pesticides together. All groups involved need each other.

Let's work together for high yields and quality, but not at the expense of health and environmental standards.

N G E Geach

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