

# FAO'S INVOLVEMENT IN THE INTERNATIONAL ACCEPTANCE OF PESTICIDES FOR STORED FOOD PRODUCTS

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**INTRODUCTION:** At the outset my thanks are due to the organisers of this Conference for inviting me to act as convenor of this session. These thanks are particularly needed because after some twenty years of previous engagement in the subject, during recent years I have only been working on the fringes of stored products entomology. However as the invitation for this particular session was linked with FAO's current activities on pesticides and as my personal involvement in these activities was largely consequent to my experience with the use of chemicals in stored products entomology, it seemed appropriate to say something on this particular theme.

In explaining its title it should be made clear that this paper is intended particularly to dwell on themes such as procedures of registration, mechanisms of setting acceptable residue limits and similar organizational and administrative aspects which are covered by the expression "international acceptance". In various other ways of course FAO is interested and "involved" in the use of pesticides for the control of insects of stored produce. As examples, pesticides are used in various of the field development projects in the stored products field for which FAO is responsible in a number of countries. They are also featured in training programmes in various countries. Their introduction, labelling and use, by registration or otherwise is covered as part of the advice and assistance provided to developing countries to strengthen official procedures and the technical services for controlling the use of pesticides; these activities are generally aimed at achieving maximum efficacy with a minimum of hazard.

**PRINCIPLE FACTORS LIMITING USE: GENERAL BACKGROUND:** Although much of the disquiet expressed about pesticides during recent years has been particularly connected with increases in use on growing crops, it would be wrong to conclude that questions arising from the treatment of stored products are less frequent or that they have only recently started to be encountered. In the 1930's for example and well before the introduction of DDT, dieldrin and the organo-phosphorous and other compounds that now attract attention, doubts were being expressed, official enquiries were being set up and research was being initiated into the use of hydrogen cyanide, ethylene oxide and other fumigants on cereals, dried fruits and other stored products.

It is not surprising that residue questions should attract even more attention with post harvest than with pre harvest

applications. With applications to growing crops substantial decreases in residues usually occur during the period between application and harvest; with many such crops (e.g. carrots or potatoes) it is not unusual for washing, sieving or similar residue removing processing to be undertaken before distribution into commerce. Furthermore any treatment of stored food such as cereals tends to be governed by pure food laws even in countries which do not control the use of chemicals in agriculture. In any event because of the large tonnages moved about the world and consumed in different countries, commodities such as cereals could potentially cause great problems if any treatments were to prove to be harmful to the consumer; short of demonstrable harm to the consumer furthermore very considerable commercial problems can arise unless there is some uniformity in the attitudes to such treatments in exporting and importing countries.

For the above reasons the FAO Working Party of Experts on Pesticide Residues, which was one of three groups of experts set up after an intergovernmental conference in Rome in 1962, was asked to give priority to the consideration of residues likely to occur in cereals in international commerce.

#### ACTIVITIES OF FAO WORKING PARTY OF EXPERTS ON PESTICIDE RESIDUES:

This working party of experts was set up in 1963. Its terms of reference quite simply are to give advice on issues relating to residues of pesticides.

Since 1965 it has met annually and jointly with the WHO Committee of Experts on Pesticide Residues, the annual meeting often being referred to loosely as FAO/WHO Joint Meetings on Residues. FAO and WHO respectively select and invite members to this meeting roughly in equal numbers and the membership changes from year to year. The task performed very broadly is to appraise the state of knowledge and to advise on the subjects at issue. Membership is made up of specialists from official and academic institutions, not from industry; the FAO and WHO invited members broadly take care of the user and chemical aspects, or of the toxicological aspects respectively.

The meetings discuss general issues and they review data concerning specified pesticides. Although the secretaries on behalf of the respective agencies are free to ask the specialists to advise on any pesticide residue matter, during recent years the pesticides dealt with have been those nominated by representatives of member governments at meetings of the Committee on Pesticide Residues of the Codex Alimentarius Commission. The number of items that can be dealt with each year is limited to about eight pesticides for full original evaluations and to up to ten for re-evaluation of some kind. In selecting items, including pesticides for attention it has been accepted that doubts expressed by members about the toxicological aspects of a residue or the occurrence of trading or similar problems arising from differences between acceptable residue levels in commodities in different countries shall be the main criteria, and these are the criteria on which the

Codex Committee makes its priority recommendations.

The reports of the meetings, which are supported by monograph summaries of the data considered are distributed to all country members of FAO and WHO and otherwise distributed for advisory and similar purposes. Where appropriate they include recommendations for maximum acceptable limits for residues in foods in commerce. These may be firm recommendations (or tolerances) fully backed by firmly established "Acceptable Daily Intake" figures, by recommended analytical methods, etc.; or they may be "temporary" and qualified in some way. The reasons for such qualifications are given and attention is particularly drawn to deficiencies in data on which further work is needed and which if forthcoming might usefully lead to a re-evaluation to be followed by fresh recommendations. This listing naturally provides a stimulus for further research.

**OTHER FOLLOW-UP ACTIVITIES:** Although the reports and accompanying monographs are widely used as reference documents and for advisory purposes, their main functional importance is to provide a basis for discussions under the Codex Alimentarius Commission. In accordance with the general aims and objectives of the Codex these are aimed at securing the agreement by governments of common standards of purity and quality of foods in international commerce. The Codex Committee on Pesticide Residues handles this aspect and in various ways the FAO/WHO Joint Meeting acts as a scientific advisory body on its behalf.

In the current paper it is not intended to dwell in detail on the activities of the Codex Committee, although I may make the personal comment that the process of achieving full agreement between governments tends to be rather slower than some of us had hoped. For the purposes of this meeting however it is relevant to note that during the past nine years the FAO/WHO Joint Meeting has considered residue questions relating to the important pesticides used on stored food products and made recommendations concerning most of them. These pesticides have included malathion, dichlorvos, and methyl bromide, phosphine and various other fumigants. In certain of these instances the recommendations have not been clear-cut and in a form desired by the Codex Committee. This was the case with some of the fumigants for which the specialists did not feel that they could set firm tolerance levels, although they recorded "guideline levels" for residues that should not be exceeded provided that specified procedures of sampling and analysis were to be followed. With regard to the future, it should be recorded that with advice from the Working Party of Experts on Pest Resistance to Pesticides and assistance from the Commonwealth Scientific and Industrial Research Organization of Australia and the Pest Infestation Control Laboratory of the United Kingdom, FAO has supported the recently completed global survey of the occurrence of resistance amongst pests of stored products. We are also encouraging and participating in the follow-up arrangements being made to identify and encourage the introduction of effective

alternative compounds where they are needed. With this objective in mind when selecting compounds for consideration by the FAO/WHO Joint Meeting, we propose to give priority to pesticides that in preliminary field trials are showing real promise as replacements for compounds of which the continued use is threatened by insect resistance problems.

**CONCLUDING COMMENTS:** This paper has concentrated on residue aspects because experience has shown that resolution of such aspects is of outstanding importance to the wide post-harvest use of pesticides on commodities such as cereals in which there is wide international trading. Before closing however, it is relevant to mention that in various other ways FAO is attempting to raise technical standards of application and to assure that marketed produce meets internationally acceptable standards. As examples we are responsible for the supervision of development projects, training courses and residue analytical laboratories in various developing countries. Under the guidance of the Working Party on Official Control of Pesticides we also provide advice to governments on methods of registration and other means of control of pesticides. A sub-section of this Working Party has drawn up a series of standard specifications for widely used pesticides, which also provide assistance to many governments in the course of their official control activities.

Hopefully and in conjunction with other organizations interested in the subject, such as the Council of Europe that has already issued a valuable publication, we should like to see these various moves develop into a code of acceptable criteria for registration of pesticides that can be adopted on a world wide basis.