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PRESENT STATUS AND CONTEMPLATED DEVELOPMENTS OF PESTICIDES IN ARAB REPUBLIC OF EGYPT 1/

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1/ The views and opinions expressed in this paper are those of the author and do not necessarily reflect the views of the Secretariat of UNIDO.

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CONTENTS

I. Present status of pesticide production in A.R.E.

The Arab Republic of Egypt is considered one of the biggest consumers of pesticides in the world. Imports of pesticides amount to 20 000 tons yearly, to cover its needs for pest control. The total cost of pesticides amounts to about 15 million Egyptian pounds.

Nevertheless, there is also local production of DDT, 2,4-D and Zn phosphide chemicals.

The DDT plant was installed in 1957 with the aid of UNICEF to serve the malaria eradication programme. To minimize the foreign currency required to purchase those vast amounts of agricultural chemicals, the following aspects were studied:

1. Production of active ingredients either depending upon our own efforts in basic research or by buying the know-how for already known and patented chemicals.

2. Formulation of pesticides using imported active ingredients with local fillers and adjuvants.

3. Repacking of already imported bulk pesticides in small packs required to cover one feddan application to prevent mis-dosage or adulteration.

Local active ingredient production

As a matter of fact, the production of active ingredients in developing countries faces many problems:

1. They cannot afford to pay for the high cost of basic research needed to discover a new chemical. This cost has increased during the last few years to approximately 10 million dollars; moreover, it takes about 77 months to discover a new chemical.

2. Pesticides production is usually a subsidiary in large heavy chemical industries, due to its requirements of tremendous and variable chemicals which are not easily available in developing countries.

3. It is difficult to advise the use of a certain pesticide for a long period, for fear of a build-up of pest resistance, or discovery of new pesticides showing either better insect control, or lower human toxicity. For the above-mentioned reasons, no-one can emphasize initiation of projects which will prove after a short time economically unsuccessful.

4. The new aspect to reduce the use of toxic chemicals to solve the problem of environmental pollution and the hazards of their cumulative effects leads to thorough thinking before erection of a new plant complying with the most recent techniques in safety to workers, prevention and control of environmental pollution by pesticides.

For all the above-mentioned reasons it is difficult to decide on producing active ingredients with competitive international prices.

This decision could not be accepted as final, unless the opposite could be proved.

II - Trends in use, application and formulation of pesticides in A.R.E.

The pesticides in A.R.E. are either imported or locally formulated. Three Ministries are specially interested in the importation and use of pesticides: the Ministry of Industry, the Ministry of Health and the Ministry of Agriculture. The Ministry of Agriculture is the most concerned. It has its own research stations, where pesticides formulations (and particularly the new ones) are experimented upon to ascertain their usefulness.

Every pesticide recommended for pest control should be approved by a high committee on pesticides.

The complete programme for agricultural pest control is planned and executed under state supervision, by use of planes, motor sprayers or knapsack-sprayers.

The Ministry of Industry is also interested in pesticides, as the production and formulation plant belongs to the General Organisation of Chemical Industries - an affiliate of the Ministry of Industry.

The DDT plant which was installed in 1957 with the aid of UNICEF to serve the malaria eradication programme in Egypt, as mentioned before, was considered as a base for the pesticides formulation plant.

In 1960 the activities of the plant were extended by doubling the capacities for formulation of dusts and wettable powders such as DDT, BHC, Malathion and Sevin, in different concentrations.

A new section for emulsion concentrates was added, and now there is a possibility of formulating simple and mixed pesticides, emulsion concentrates, such as:

1 - DDT Lindane.
2 - DDT/ Lindane/ Methyl Parathion.
3 - Diemethoate.
4 - Endrin Methyl Parathion.
5 - Malathion.
6 - Endrin.
7 - Torbidan.
8 - Phosvel.
9 - Dursban.
10.- Kelthane.
11 - Kelthane S.
12 - Karathane.

In 1969 two new sections for grinding sulphur, wettable sulphur and cotton dust were added to the capacities for dusting powders already in operation. In the meantime we are studying the possibility of production of micronised sulphur.

In 1965 a granulation unit for coating or impregnating granular pesticides was installed and the plant has already produced Sevin, DDT and Lindane granules.

A new approach to mixed fertilizers and herbicides in a granular form showed an appreciable success in field work and small quantities were ordered for bigger experimental field tests.

At last there is a polyethylene sacks packing unit to repack imported bulk pesticides in small packs needed for one feddan application to prevent mid-dosage and adulteration.

III Problems

(1) Local formulation of patented pesticides

It is well known that the majority of predominant pesticides used now are patented under trade names and it is not allowed to formulate locally unless licensed by the mother company.

In most cases these mother companies do not approve formulation of their products locally, for fear of inefficient formulation facilities.

(2) Safe formulation and handling equipment for toxic materials.

Hundreds of workers are involved in transport, mixing and preparing pesticide formulations for use in appropriate form either as powder, emulsifiable concentrate, or granule.

Almost all pesticides have some toxic properties. They penetrate into the body by ingestion, through the skin, or by inhalation.

The more advanced technology in machine design and layout of formulation plants should take into consideration safety and hygienic principles in providing the newly installed formulation plants with the proper ventilation systems to avoid poisoning through the skin or by inhalation of dusts and vapours.

(3) Safe disposal of waste chemicals.

Improper disposal of pesticides is injurious to humans, domestic animals, cultivated plants, fish or other wild life. In our plant we face up to these problems by draining the water wash of DDT after neutralization in a pit to the River Nile and in all cases when the water drained is not up to specification, for the emulsion concentrate formulation the waste products, the spills and leaks are gathered into a sump to be buried afterwards.

Waste paper and polyethylene bags are incinerated in a simple furnace.

IV Recommendations

It is most essential that UNIDO encourage local pesticides formulation especially for those countries with facilities for fillers, solvents and packaging containers needed. This can be reached by:

A - Controlling and assisting the transfer of know-how to developing countries.

B - Assisting the publishing and distribution of all technical papers covering the most simple and progressive machinery needed for formulation facilities, safety precaution equipment and first aid chemicals.

C - Organization of studies, research and training programmes in the field of formulation, analysis and waste disposal.

D - As types of pesticides used in every country are changing continuously, it is most important that UNIDO assist in the installation of multi-purpose units such as sulphur grinding, and liquid formulation units.

Our facility at KAFR EL ZAYAT is in need now of a modern unit for the grinding of agricultural sulphur. UNIDO can assist in financing of hard currency and deciding all technical specifications and details for the units required.

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