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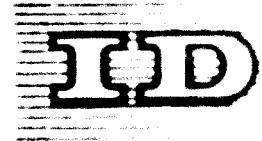
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FAO ASSISTANCE TO DEVELOPING COUNTRIES IN THE
PRODUCTION OF VETERINARY BIOLOGICALS

presented by the
Food and Agricultural Organization

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INTRODUCTION

The Food and Agriculture Organization of the United Nations, through its Animal Health Branch, has been instrumental in introducing a wide range of veterinary pharmaceutical and biological products to the developing countries. Up to the present time our activities have been based upon the utilisation of such products rather than on their production.

The association between the pharmaceutical industry goes back over 200 years. The chief interests always laid in the production and use of such biological products as vaccines and sera; most of the leading pharmaceutical concerns are active in this field. Indeed, much of the research into new means of controlling livestock diseases and the zoonoses - the group of infections common to and intercommunicable between man and his animals - has been done by commercial private industry throughout the world. The association with the industry has been greatly strengthened in recent years by the work of the FAO Industry Cooperative Programme in which the world's leading firms are represented.

The lack of our own veterinary services in this field in developing countries has been facilitated by the use of mobile laboratories and dispensaries frequently supplied by donors in support of the Freedom from Hunger Campaign and closely associated with training activities operated by the experts. Such vehicles have been invaluable in reaching large numbers of animals to whom to be administered on a much wider scale than has previously been possible.

THE APPLICATION OF GROUP TREATMENT

It is necessary, I think, to emphasize that there is little need in most of the developing countries for the more sophisticated drugs and compounds. The drug is administered simultaneously to large groups of animals at village, district and province levels. There is, therefore, only a small requirement for preparations like the cortico-steroids and other recently developed products which are in considerable demand in the more advanced countries.

While the relief of suffering in the individual animal is one of the tenets of the veterinary profession, those of us who work in the international field are much more concerned with treatments that can be applied on the mass and which are aimed at increased productivity through improved health. In the developing countries the value of the individual animal is seldom such as to justify the expense of sophisticated treatment.

FAO has been vitally concerned for many years with the application of a wide range of pesticides aimed at the control or elimination of parasites of various kinds whose ingests or effectiveness are detrimental to animal productivity. They include anthelmintics, insecticides, molluscicides and rodenticides, and all of these work has been done in close association with individual governments, local farms and with our sister Organization, WHO. An example of this type of collaboration is shown in the many large-scale irrigation projects with which FAO has been associated. The value of any such irrigation project is essential to any level of agricultural production in semi-arid zones which make up a large proportion of the underdeveloped areas of the world; but irrigation creates ideal conditions for parasites of man and animals which pass part, or all of their life cycle in water, and for the small arthropod vectors which are essential to the completion of these life cycles. Liver fluke and schistosomiasis are conditions which can have such an adverse effect on the health and productivity of both man and his livestock as to nullify the advantages achieved by extensive irrigation.

PARASITISM

The developing countries have a great need for the general application of modern anthelmintics. It is probable that internal parasitism is the greatest single cause of economic loss in livestock throughout the developing world. The true nature of such losses is seldom obvious because parasitism is so insidious. We have demonstrated on many occasions with sheep, how greatly the yields of wool and of carcasses meat are increased when regular worming routines are adopted. Overall losses, including the death of from 10 to 30 percent of animals under one year of age and the unthriftness of adult animals which, upon culling after reproduction, exhibit weight loss, slow fattening and increased susceptibility to infections can be greatly reduced by such relatively simple routines. The condemnation as unfit for human consumption of vast quantities of parasitized meat and offal on post-mortem inspection is alone of outstanding economic importance and an indication of the importance of such treatment.

It can confidently be expected that the use of modern anthelmintics will greatly increase in coming years and will make a substantial contribution to the development of rural peoples. In Latin America, for example, FAO is implementing pilot projects in the control of parasitic diseases of livestock. Such projects are operated with a small number of untreated control animals to demonstrate the economic advantages of systematic preventive and curative treatment. There is a demand also for insecticides for the control of arthropods which not only exert a debilitating effect as blood suckers but may also transmit such virus infections as African horse sickness and bluetongue or such blood protozoan conditions as babesiosis and East Coast fever.

The Animal Health branch of FAO will continue to place emphasis upon parasite control, both as a means of increasing livestock production and as the control of those diseases for which parasites are a vector. We have enjoyed a considerable number of successful campaigns in this regard under the Special Programme of Technical Assistance activities of the United Nations Development Programme. These have consisted to survey parasitic infestations, to identify the situations of major economic importance to livestock producers and to necessary control measures.

ANTHRAZINIC USE

Anthrazinics are gradually coming into more extensive use in the developing countries and it has been our experience that their application on a wide scale is limited by the necessity of avoiding the market glut which is the result of discouraging prices. We do not have to be concerned with the use of anthrazinics as food additives for growth promotion purposes, as a result of our extensive experience in this regard, the use of such drugs must be the control of the disease, rather than the control of the diseases.

IMPORTANT NEW VETERINARY DRUGS

Shortage of foreign exchange and of available local funds is the most usual cause for the failure of governments to import pharmaceuticals. It is in such a situation that the lack of an adequate supply of drugs is a deterrent to progress. FAO wishes to emphasize the extent to which the shortage of drugs is a problem for countries on a national scale. It is not only the case of a few self-sufficient countries which are able to produce a wide range of the most important drugs, but also the case of those that it must be possible to produce a wide range of drugs established at a detailed level. It is not only the case of those research workers who are able to produce a wide range of specific needs of their patients, but also the case of those

THE PROBLEM OF THE DEVELOPING COUNTRIES

The work of FAO in the development of veterinary drugs and biological products will be continued as closely with the pharmaceuticals industry as possible. The development of biologicals may point the way to the development of pharmaceutical techniques in developing countries.

We have given emphasis, during the past two decades, to the control of the major infectious diseases of livestock. These are often of a zoonotic nature because of the heavy overall losses which can result either in product and a percent of infected stock.

For the past several years, emphasis has been placed on the development of a vaccine for the control of the disease. The development of a vaccine for the control of the disease has been a major objective, and the development of a vaccine for the control of the disease has been a major objective. The development of a vaccine for the control of the disease has been a major objective, and the development of a vaccine for the control of the disease has been a major objective. The development of a vaccine for the control of the disease has been a major objective, and the development of a vaccine for the control of the disease has been a major objective.

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CONTROL OF OTHER DISEASES OF MAJOR ECONOMIC IMPORTANCE

During the last 20 years FAO has been requested to assist a majority of the developing countries in establishing vaccine production laboratories to assist in the control of all animal diseases of major economic significance. Governments are encouraged to consider the pros and cons of initiating such production, which involves continuing commitments in building, staffing, and maintaining the necessary premises, by comparison with the purchase and importation of the biologicals concerned.

Following an FAO Regional Animal Production and Health meeting in Cairo in 1955, member countries in the Near East region requested FAO to establish a Near East Animal Health Institute (NEAHI) as part of a concerted attempt to control the major diseases of livestock. Under the Special Fund, units were established in Lebanon, Sudan, UAR (Egypt), Iraq and Iran, which were to function for five year periods. This project has provided a unique example of inter-country cooperation in a field of common and vital importance, that of animal health.

The Panar Laboratory in Beirut undertook the development and production in quantity of poultry disease vaccines. Progress has been so satisfactory that the production of Newcastle disease vaccine alone increased from 1.5 million doses in 1952 to 40 million doses in 1967. This is a freeze-dried vaccine intended for use in all the countries of the region and it entails constant checking for potency and innocuity.

In Khartoum, Sudan, a new vaccine against contagious bovine pleuropneumonia was developed, as well as an antigen to facilitate diagnosis. The early detection and elimination of carrier animals is an essential complement of a large-scale vaccination campaign.

In the UAR (Egypt) the project has concentrated particularly on research into the control of rinderpest. Particular attention has been given to the isolation of the rinderpest virus to cultivation on bovine kidney cell cultures with a view to the production of a vaccine which will protect animals for the duration of their economic life, between 1955 and 1957 more than 10 million doses of the culture rinderpest vaccine were produced. Each batch was tested for potency and innocuity before release to the public. The vaccine was used in UAR (Egypt) and in neighbouring countries such as Saudi Arabia and Libya. Other countries which received supplies of the vaccine were Afghanistan, India, Nepal, Jordan and Pakistan.

In Iran, assistance was provided by the Nazi Institute in developing artificially a new vaccine against African horse sickness. The research conducted by FAO experts and their Iranian counterparts indicated that the most suitable method for the production of African horse sickness vaccine was by using cell cultures. The new vaccine was supplied to Morocco, Algeria, Tunisia, Libya, Saudi Arabia, etc. From 1955 to 1967 more than 2 million doses of the vaccine were produced at the Nazi Institute and distributed to these countries where agriculture is heavily dependent upon the equine animal.

EDUCATION AND TRAINING

In all FAO projects and assignments emphasis is given to education and training. Fellowships are provided, and services and training courses are made available in such subjects as virology, bacteriology and parasitology. Courses are held at each of the FAO units and instruction is given on how to check the effects of vaccination in the field. The necessary liaison between field and laboratory is established with particular reference to diagnosis and control of the infections concerned.

CONCLUSION

The foregoing examples of FAO's activities are quoted to illustrate the types of assistance which are given to member countries in veterinary biological protection. Many more examples could be given of similar efforts to control animal diseases in other countries and thus to assist them to secure the basis for a successful expansion of animal production throughout the world.

The establishment of laboratories for the production of veterinary biologicals and all the related activities of research and training has been seen by FAO to be primarily a matter for government control. It may well be that the patterns which have been established in this field can provide guidance and support in the production and application of veterinary pharmaceutical products in the developing countries.





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