affinity for tryptophan in the activating reaction, contains repressor with *normal* affinity for tryptophan in repression; and (3) a negative correlation exists between tryptophan analogue affinity for synthetase, and affinity for repressor.

• The lack of any detectable $tRNA^{Trp}$ in *trp* repressor preparations, together with the negative correlation between charging of tryptophan analogues and their ability to repress, strongly suggests that $tRNA^{Trp}$ is not required for *in vitro* repression.

No *trp*-up is likely but the temptation to pose an obvious question is too great to let slip by. Is *trp* unique? Probably not, as Maas (New York University School of Medicine) finds methionine and arginine repression without the involvement of their respective tRNA-amino acyl complexes; only the amino acid is required *in vivo* and *in vitro*.

From a Correspondent

PESTICIDES

Social Values

from a Correspondent

ECONOMIC and social values in the assessment of crop protection and pest control methods were considered at an international conference, organised by the Pesticides Group of the Society of Chemical Industry and held from September 7 to 11 at the University of Stirling.

C. Potter (formerly Head, Insecticide and Fungicide Department, Rothamsted Experimental Station) examined critically the effects of pesticides in improving health in man, in relieving hunger and on the environment. The world-wide programme, sponsored by the World Health Organisation, to eliminate malaria now protects 1,329 million people out of 1,802 million living in former malarial areas and control, mainly by insecticides, of the mosquito vectors of the protozoa causing the disease has reduced the world annual death rate from malaria from 6 million in 1939 to 2.5 million now. He quoted many such examples of disease control and pointed to the sad situation in Ceylon where, after reducing the incidence of malaria from 2.8 million cases in 1946 to 110 in 1961, the numbers had shot up to 2.5 million when spraying was stopped for economic reasons.

Both Potter and H. R. Fell, a farmer, stressed the magnitude of changes in agriculture in Great Britain since 1939; assisted by mechanisation, crop protection chemicals and fertilisers, food production has been doubled though there are a million less acres under cultivation and 500,000 fewer workers on the land. Comparable changes have yet to reach the developing countries. Potter contrasted the performances in rice production of Japan, now an exporter, and India: average yields 5.1 and 1.6 tonnes per hectare and losses to pests and diseases 5% and 46%, respectively.

The evolution and functioning of the United Kingdom's Pesticide Safety Precautions Scheme were outlined by M. Cohen (Plant Pathology Laboratory, Harpenden) and A. Wilson (University of Liverpool), who is chairman of the Advisory Committee on Pesticides and Other Toxic Chemicals. Wilson stressed that, however carefully assessment is made and incorporated into recommendations, safety depends on the care with which pesticide products are handled and applied; he pleaded for more training of operators and communication with the public about what is going on. The need for greater publicity of the steps taken by pesticide manufacturers to establish the safety of their products was frequently echoed in the discussion. There was unanimous agreement with the praise given by K. Mellanby (Nature Conservancy, Monks Wood) of the working of the voluntary scheme in Britain, and he pointed out that through it restrictions were introduced on organochlorine seed dressings before the publication of Rachel Carson's *Silent Spring*.

There is a danger that the complete ban introduced for political reasons by several developed countries on some organochlorine insecticides may be extended, again for political reasons, to the developing countries before the latter have suitable replacements. P. O. Park (FAO, Chad) stated that the Food and Agriculture Organisation encourages substitutes to DDT whenever possible but it is unwilling at present to see the complete disappearance of the organochlorine insecticides, which are so economically valuable to the developing countries.

Several speakers expressed concern over increasing pressures on pesticide manufacturers by the regulatory authorities. The necessity for more stringent tests to ensure the safety of new pesticides and the smaller chances of discovering compounds with more selective action mean that development costs of a new pesticide have doubled in the past 5 years and the time interval from discovering to marketing a product has increased from 5 to about 7 years, with a corresponding decrease in the time remaining for protection under the firm's patent. If the new compounds needed to combat the growing threat of resistance in pests and fungi are to be obtained, then pesticide prices must rise and ultimately the cost will have to be borne by the consumer. Greater uniformity between countries in the requirements to establish the safety for a particular use was suggested as one way of reducing the development costs of a new pesticide.

Participants from overseas stressed the need for uniformity in the residue tolerances permitted in different countries for a given pesticide/crop combination and in the methods used for determining them if international trade is not to be hindered. Some countries, for example the United Kingdom, do not have limits set by legislation but depend on codes of practice and a stated minimum time interval between the last application and harvest. P. Slade (Imperial Chemical Industries Ltd) referred to the Commission of the Pesticides Section of the International Union of Pure and Applied Chemistry which, at the request of FAO and WHO, is examining residue methods for their suitability for international regulatory application. The setting of tolerances based on sound agricultural practice for a given crop in widely different climatic conditions would involve considerable negotiation.

The value of pest and disease forecasts, which reduce the need for prophylactic treatments and permit optimum timing of pesticide applications, was stressed by several speakers and Cohen called for more work to establish the levels at which pest and disease damage to crops becomes economically significant. Problems also change with time: R. Hull (Broom's Barn Experimental Station) explained that modern herbicides allow sugar beet to be sown as pelleted seed at a low density, making it more important to protect the young plants from soil pests. The value of growing plant varieties resistant to pests and diseases was noted by several contributors and the dangers inherent in monoculture emphasised. Currently Golden Promise, a barley variety excellent for malting but highly susceptible to mildew, constitutes 65% of the 430,000 acres of the spring barley crop in south-east Scotland. It provides a residue of inoculum and potentially a very serious situation should strains of the pathogen tolerant to modern fungicides be selected.

VIRUSES

SV40 Defectiveness

from a Correspondent

IT has been known for some time that when SV40 virus is serially passaged, undiluted, in BSC-1 monkey cells, virions are produced which contain circular DNA molecules consisting of host and viral sequences (Lavi and Winocour, *J. Virol.*, **9**, 309; 1972). This suggests that recombination between host and viral DNA occurs readily during lytic infection in these particular circumstances. If the viral DNA is