

disease of oil seed rape were seen in the air over crop several hours after the rains ceased indicating the possibility of a different release and dispersal mechanism apart from rain splash which may be responsible for long distance transmission of the disease.

Nematology: The relationship between a nematode and its host is often highly specific and genetically and morphologically complex. Gel electrophoresis of soluble proteins and modern serological methods are being applied in particular to root knot nematodes, to cyst nematodes and the genus *Ditylenchus* to augmenting microscopical techniques for species identification by newer biochemical characterization.

Pesticides: The quantitative Structure Activity Relationships (QSAR) has provided firm basis for the successful synthesis of pyrethroids and a similar approach is being applied to another class of potential insecticides, the N-alkylamides of which pellitorine forms a naturally occurring example. Results with a strain of housefly whose resistance depends on *super-kdr* mechanism which confers very strong resistance to DDT and the pyrethroids and is considered intractable, are 2-4-fold more susceptible to the N-alkylamides than the insecticide susceptible strains.

Basipetal transport of pesticides is another area of interest. A team of researchers is at work with neutral and weakly acid chemicals with structural features necessary for their movement through phloem of *Ricinus communis* a test species the phloem of which can be easily sampled. The preliminary results indicate that good phloem transport is governed largely by the extent to which the compounds are retained within the phloem rather than recognition by specific carrier mechanisms controlling access to phloem. While many chemicals entered phloem readily and left also readily, relatively polar, neutral chemicals moved into the phloem to some extent but weak acids that are strongly accumulated in phloem by virtue of higher pH are transported best.

Five photolabile pheromones are being tested in Pakistan for mating disruption of *Earias* spp and work on the mosquito oviposition pheromone is in a fairly advanced stage.

This report is most useful for Agricultural Scientists and Agricultural Research Stations.

V. AGNIHOTHRUDU

18/1, First Main
Jayamahal Extension
Bangalore 560 046

NEWS

WEATHER AND EARTHQUAKE FORECASTS GO TOGETHER

The first Soviet experimental computing complex in Tajikistan for the receiving and processing of seismological and geophysical information now makes use of weather forecasts to forecast underground shocks. The methods have been developed by the Tajik Academy of Sciences' Institute of Seismology and are based on the earlier discovered phenomenon—the influence which the earthquake zone radiation produces on the atmosphere. It has been established that, when the seismic activity increases, the correlation between the pressure, temperature and some other weather characteristics is changed. The centre of the future earthquake is forecast from the time and place of the atmospheric

anomalies and from their continuity and strength of the coming shock.

The new method has helped in forecasting a recent earthquake in the Tajik settlement of Sultabad on September 10, which was of 5 magnitude on the 12-mark scale.

This sort of forecasting is important for the economy and the tapping of mineral resources in that republic, which lies in the most seismic region on Central Asia. Housing and industrial construction here relies on Seismologists' recommendations (*Soviet features*, Vol. 25, No. 155; Information Department, USSR Embassy in India, 25, Barakhamba Road, New Delhi 110 001).

A NEW DRILLING TECHNOLOGY

Drilling muds produced under Gel-technology developed by the Gubkin Institute of the Petrochemical and Gas Industry in Moscow raise radically effectiveness of well drilling. These muds increase penetration rates, make the well design simpler, cut time and power consumption and save chemical agents. It is also important that Gel-technology has made it possible to drill deeper wells and produce commercial oil and gas yields on areas of the Caspian region and Eastern Siberia where traditional methods failed.

Prospectors usually use colloidal muds for oil and gas drilling at depths of four–five or more kilometres and for cutting core which gives a clearer idea of a geological structure in a specific area. Such muds are permanently circulated in wells.

Borehole is the only way for operators to connect the surface of the Earth with its deep layers. Bentonitic clay powders are used to lend drilling muds necessary properties. Such muds enter into contact with well walls which are, in fact, also clay powders. The walls swell, narrowing the bore and creating great difficulties for drillers. Researchers started developing additives suppressing clay's ability to swell. But this brought about a paradox; clay was to jellyfy in the mud and, on the contrary, to become compact on the walls. A decision was taken to abandon clay and to lend jelly properties to muds by other methods. The method of condensing the solid phase is one of them: prospectors select solutions of two salts or a salt and an alkali. They start a reaction, as result of which particles of the solid phase precipitate. A small concentration of the solid phase (from two to five per cent) turns mud into jelly.

This method of condensing is more progressive from the energy-saving point of view since clay powder is produced at a factory and then the mud has to be dispersed to a colloidal state.

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Actually, work was started in 1971. Researchers searched for long physical and chemical processes

taking place between drilling muds and clay, salt-bearing rocks and rocks making up productive strata before they developed specifications for the composition and properties of drilling muds. In 1971 experts received the first authors' certificate for the first Gel-mud. Now the number of authors' certificate runs into dozens.

Such relatively new names of drilling muds as hydrogels, saltgels, asbogels and lignogels are known to a wide range of drilling experts.

Polish and East German researchers have developed several drilling muds using Gel-technology. British and US drilling experts have also published patents. Though Gel-technology has not prevailed as yet, the situation is evidently changing in its favour.

Soviet scientists have developed compositions of drilling muds which either contain no free water or it is in a hydrocarbon liquid in the form of drops isolated from one another. Such liquids do not moisten rocks, do not dissolve salts and preserve stability of well walls, which is the main condition for drilling. They do not pollute productive strata and make it possible to cut core unspoiled by moisture. Bitumen-lime muds as well as "emulzhel" emulsion drilling mud raise radically well productivity under the most difficult drilling conditions.

It would be impossible to introduce invented drilling muds on a large scale without chemical agents, for instance a bituminous gel-former. It is also important the researchers scientifically substantiate ways of using the considerable waste of the chemical and metallurgical industries, for instance salt raw material, to prepare washing fluids.

The use of the new technology has brought considerable saving. There are no longer huge cave-ins and rock falls. In short, the barriers to deep well drilling are being efficiently removed.

(*Soviet features*, Vol. XXV, No. 97, June 26, 1986, p. 5; Information Department, USSR Embassy in India, P. B. 241, 25 Barakhamba Road, New Delhi 110 001).

DRUGS GALORE—BUT NOT THE RIGHT ONES

Many people in developing countries still have no access to basic lifesaving drugs. Others are deluged with thousands of dubious preparations under a bewildering choice of brand names. Polypharmacy is rampant, and inappropriate prescriptions, false packaging, and substandard and even fake drugs are common. Nor is it unusual for people to buy their drugs over the counter, like peppermints, from local shopkeepers who do not let their ignorance of pharmaceuticals interfere with a lively trade in extraordinary combinations of tonics, appetite stimulants, vitamins, and hormones. So given that all

this could have been written 10–15 years ago, what is new? The quick answer is nothing dramatic, but there are encouraging signs that the use and misuse of drugs in many developing countries, and the urgent need of these countries to adopt rational drug policies, are receiving more attention than ever before. *British Medical Journal*, 292: 1347 (1986). (World Health Forum, An International Journal of Health Development, 1986, Vol. 7, No. 2, 143; WHO Regional Office for South East Asia, World Health House, Indraprastha Estate, Mahatma Gandhi Road, New Delhi 110 002).

TOXICITY OF PESTICIDES TO FISH

(in two volumes)

by

A. S. Murty

Department of Zoology, Nagarjuna University,
Nagarjuna Nagar 522 510,
India.

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