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PROFESSIONS OF PEACEFUL ATOM

An All-Union conference "20 Years of production and Application of Isotopes and Nuclear Radiation Sources in the USSR's National Economy" has just wound up its work in Minsk. The conferences listened to many interesting reports. Some outstanding reports were made in the agricultural section.

The Selskaya Gazeta correspondent interviewed some of the scientists and asked them to tell about their research activities.

Vital Nitrogen

N.A.Sapozhnikov, D.Sc. agricultural sciences, Head of a Laboratory at the All-Union Research Institute for Agricultural Microbiology

In recent years numerous research groups in the country have been studying the problem of nitrogen in farming. The reason for so much interest is quite obvious. Nitrogen is, in fact, an important constituent in plant nutrition. For a long time the prevailing opinion was that nitrogen was assimilated not badly at all from mineral fertilizers. However, it was later found out that the plants assimilate no more than 40-50 percent of nitrogen, the rest being lost, for nitrogen is a very quick-moving element. This is why the scientists are looking today for more effective applications of nitrogenous fertilizers. The problem is approached from many sides.

Our laboratory is likewise engaged in the search. Numerous experiments produced evidence that nitrogenous mineral fertilizers are forcing the plants intensively to assimilate nitrogen available directly in the soil. The plants have recourse to this source the more willingly, the higher the culture of the soil and the larger the fertilizer dosage. A large part of nitrogen from fertilizers is "stolen" by the soil microorganisms for their vital activity, but later they return it to the plants. And again they return it the more, the better has the soil been cultivated. As we have found out, on water-logged sod-podzol soils the process of nitrogen supply from fertilizers and soil to the plants is inhibited. In our investigations we have found an irreplaceable aid in nitrogen-15 isotope. Whatever the experiment, the isotope will never fail to report on the results either by its presence or absence.

Next year a book written by me will be published by the "Kolos" publishing House. It deals with scientific principles of the system of fertilizers for the nonchernozem zone.

I am maintaining close contacts with my colleagues at Byelorussia's research institutes of farming and soil

science I am well informed about their work and find in it many valuable things for myself. Whenever I come to Minsk I visit their laboratories. I feel special pleasure having talks with my "godson" - Nikolai Bezlyudny from the Farming Institute. He was preparing under my guidance his master's thesis. I am very glad that the conference in Minsk offered another opportunity to meet my old friends.

"Camouflaged Assault"

V.A. Molchanov, scientific worker at
the Biophysics Laboratory, All-Union Institute
for Plant Protection

"Every year a great deal of damage is caused to farm crops by pest. Chemical suppression of pest, however, cannot be too intensive, lest there should be harmful consequences to man.

Research being carried on at our laboratory gives proof that radiation sterilization is a very effective means to fight garden, technical and cereal pests. Having irradiated the insects with proper doses of ionizing radiation, we let them out, like a "camouflaged assault", in the places of habitation of the same species of insects. No offspring coming from such unions, the efforts of the insects to have their kind persist in the future generations prove a failure. Thus the quantity of pest can be progressively reduced to zero.

Suppressed in this way are bean and pea weevil, apple moth and other pest.

Pest larvae can be destroyed in the very grain already stored in the granary. Armed with a mobile ionizing radiation setup, the scientists come to the grain barn.

A great many such sets will soon be available. Truck-mounted, they will be making trips from granary to granary in collective and state farms.

Formed to Our Liking

N.M. Berezina, M.Sc. biology, Head of Radiobiology
Group Laboratory, Institute of Biophysics, USSR
Academy of Sciences

"My colleagues and I are engaged in research on presowing irradiation of seeds. Under the influence of ionizing radiations they yield greater harvests and are more quick to ripen. Work is conducted at present with thirty species of agricultural plants. By irradiating potato tubers with small doses the yield can be raised by 15-20 percent and the starch content increased. The radiation has a favourable effect on vegetable crops. Particularly important is that they increase in vitamin content. Irradiation of carrot seeds is now effected on a commercial scale. Such carrot, containing 20 percent of carotene, rather than 12 as usual, is put to use at the Krasnodar vitamin-producing plant.

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In full)