

AGRICULTURE

Russians Visit U. S. Farms

Agricultural leaders from the U.S.S.R. find a different kind of genetics in the United States than they know in Russia. Not one of the visitors is a "dirt farmer."

► THE TEAM of Soviet agriculturalists now looking over American farms and farm techniques are seeing the practical results of a kind of science politically forbidden to scientists in Russia.

In a two-day stay at Iowa State College of Agriculture and Mechanical Arts, the Russians heard U. S. scientists tell about livestock and plant breeding techniques followed here and in the free world.

They saw breeding farms and laboratories, and are scheduled to visit private farms having the lush fields and fat livestock that are products of Western genetics.

Behind the Iron Curtain, it is political heresy to use or defend genetics as we understand it. Russians have their own brand, tailored to fit the Communist theory.

The official Soviet line in genetics, called neo-Michurianism, goes something like this:

The hereditary constitution of a plant or animal can be "shattered" by "shock treatment." This treatment may be new environmental conditions at critical moments in the life cycle. Thus, changes that occur in a given plant when it is put into a new environment, called "adaptation of the individual" in western genetics, are supposed to become hereditary changes to the Russians.

By this theory, if the Soviet officials desire a new spring wheat, they would try to sprout winter wheat under spring conditions. This environmental "shock" should produce changes in the winter wheat that make it offspring grow naturally as spring wheat.

Heredity just does not work that way on this side of the Iron Curtain.

Genetics in the free world—the genetics that has produced the famous hybrid corns, disease-resistant plants, smaller turkeys and larger cattle—holds that hereditary processes are controlled by chemical groups in the cells called "genes." Only a change in the nature of the genes, a mutation, will lead to a difference in heredity from parent to offspring.

Mutations may occur spontaneously, or they may be induced by such methods as exposure to X-rays or other irradiation. There is no way, however, of predicting how mutations will affect the grown plants or animals. Only observation can show that.

The great practical successes of geneticists in the free world in creating new and better varieties come from their techniques of selective breeding.

They watch for desirable mutations among their test plants or animals. When one is spotted, that individual is separated from the rest, then bred and cross-bred to

develop a pure-breeding strain that shows the desired traits according to well worked-out laws of heredity.

The Russians scorn this slow scientific method of trial and error, since by their theory they should be able to coerce nature into their own designs, not adapt nature's varied designs to fit their needs as the west does.

It is, however, the Russians who are having an agricultural crisis, while United States' farm larder is bulging.

The Iron Curtain seems to be lifting a bit recently. Perhaps the agricultural delegation will return with reports of western genetics and its practical results they have seen.

Then, perhaps, genetics may change from a political doctrine into a science in Russia.

Two Are "Zoo Techniks"

► TWO MEMBERS of the Russian farm delegation are "zoo technicians."

"Zoo techniks," as they are called in Russia, are animal husbandmen or livestock experts. The schooling required for this title is equivalent to a bachelor's degree in the United States.

Only one member of the 13-man delegation has a doctor's degree. One other has a master's degree. Both degrees are in agricultural science.

It appears that all visiting experts are high officials in Russian agriculture, not one being a "dirt farmer."

The highest ranking official is the chief of the delegation, Vladimir Vladimirovich Matskevich, who is First Deputy Minister of Agriculture and a Deputy of the Supreme Soviet. He is equivalent to an undersecretary of agriculture in the U. S.

The delegates' average age is 48. The youngest, Aleksandr Aleksandrovich Ezhviski, 39, is a deputy minister of Automobile Tractor and Agricultural Machine Building, responsible for the manufacture of this equipment.

Two delegates, the oldest, are 58. They are Yuri Fedorovich Golubash, a deputy minister of State Farms for the Russian Socialist Federated Soviet Republic, a zoo technician, and Dr. Boris Pavlovich Sokolov, chief of the laboratory for selection of corn at the Ukrainian Scientific Research Institute of Grain Agriculture.

All phases of agricultural study appear to have been included in the Russians' choice of visiting delegates, from a farm editor to the chairman of a kolkhoz, or collective farm.

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BLINDNESS CARRIER—J. P. McMahon of the Kenya Medical Department is shown here holding a freshwater crab, which he discovered was host to tiny flies carrying river blindness, a disease that once afflicted 36% of Kenya children under six. Treating the river water with DDT eliminated the disease.

EMBRYOLOGY

Pre-Fab Proteins May Cause Embryos' Growth

► RAPID GROWTH of embryos may be caused by "prefabricated" proteins.

Evidence uncovered by Dr. A. M. Schechtman and Patricia Knight, zoologists of the University of California at Los Angeles, suggests that whole proteins needed for tissue building may be passed on to the embryo via the mother's blood.

It has generally been thought that proteins cannot get into cells unless they are first broken into amino acids, which then enter cells and are manufactured into big protein molecules.

The U.C.L.A. zoologists injected cow and lobster proteins into chickens. Later what were apparently these identical proteins were detected in the chickens' eggs. Further experiments indicated that the same proteins, when injected into incubated eggs, were absorbed intact by embryos.

It is known that the mother passes antibodies, proteins that protect the embryo against disease, directly to the embryo. It seems likely that other proteins, such as those needed in tissue building, are also passed on without being digested by the embryo.

"Our experiments suggest that this may be a shortcut by which nature provides the embryo, which grows at a phenomenal rate, with the large amount of proteins necessary to maintain this growth," Dr. Schetchtman said.

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