

AGRICULTURAL RESEARCH IN BRITAIN

An Abstract

Referring to the "Varying Pattern of British Farming" in Agriculture, *The Journal of the Ministry of Agriculture* (Vol. 54, March, 1948), George Goodman writes:

"Each holding in this infinite variety presents its own technical problems. Every crop and every form of stock have to endure constant biological aggression—by weeds, by insects, fungi, bacteria, and viruses. And no two units present identical features of soil, even within a single field heterogeneity is frequently evident within a few square yards. This unending diversity has in fact been responsible for a valuable contribution to scientific method, since it was the difficulties of dealing with agricultural sampling and investigation that led to the development of modern statistical analysis."

Goodman referring to the variety of agricultural research going forward in Britain continues: "In soil research the physicists are down to such fundamentals as the electric charges on clay particles and organic matter colloids; the bacteriologists are, among other things, concerned with micro-flora and the legume nodules and their bacteria that play so important a role in soil fertility; the chemists' investigations range from lime content to trace elements; the engineers endeavor to take away the waters on the one hand and put them back somewhere else on the other; and they devise implements that shall make the soil fit the needs of the plant.

"The plant world finds the geneticist allied to the plant-breeder-part scientist, part artist—in their basic quest for higher yields combined with such things as resistance to disease or pests in wheat and oats, or a higher malting quality in barley, higher sugar content in beet, earlier ripening in beans and higher proteins in grasses".

"Then there is livestock. . . . Today the animal geneticist is very closely concerned with such homely and comforting matters as more milk, more beef, more eggs, more bacon, and more mutton, but his way lies through such mysteries as the molecular structure of genes and the chemical organization of the chromosomes. . . .

"Important research is also being undertaken in animal nutrition and in the veterinary side activity is almost as wide and as varied as in medicine itself, as well it might be. . . .

"These are but haphazard examples. I have omitted the entomologists, the plant pathologists, the animal husbandry specialists, the agronomists, the endocrinologists and many others. The list embraces every science, bar one—astronomy—but the agricultural meteorologists may yet bring that in. And there is a school that thinks we should pay rather more attention to the moon. And the nuclear physicists are in—only last month they held a conference at Oak Ridge on the use of their isotopes in agricultural research."

Space forbids abstracting at greater length; suffice it to say that what is going forward in farm research in Britain is even now and has

for many years been going forward in North Dakota. The problems grow in complexity—their solution can only be obtained through the work of men possessing the best of training which modern science affords and they need all of the modern tools of science—the isotopes of the nuclear physicist, the Geiger counter, the ultramicroscope, the electron microscope, the supercentrifuge, etc., as well as land and laboratories and a great variety of tools and machinery. (Abstract by H. L. Walster)

“North Dakota Wheat Yields” is the title of Bulletin 350 recently issued by the Station. The authors are H. L. Walster, Director, and P. A. Nystuen, Asst. to the Director. Bulletin 350 reviews the history of all harvested wheat yields for the State for the period 1879 to 1947, presents evidence showing the upward trend in yields from 1919 to 1944, and discusses the effect of the introduction of new varieties upon the yields of hard red spring wheat over the period 1913 to 1947, particularly as revealed by trials at the Dickinson and Fargo Stations.

County average yields have been submitted to a statistical study showing the frequency of yields of 15 or more bushels per acre, of 12.5 or more bushels per acre, and of 10 or more bushels per acre in the 35 year period 1911 to 1945 inclusive. Correlation coefficients between May plus June rainfall and county yields over the period 1911-1945 have been worked out. Correlations coefficient have also been calculated to show the degree of correlation between June mean temperatures and county wheat yields, and similar calculations have been made to show the effect of July temperatures. A comprehensive appendix reports all harvested wheat yields for each county for the period 1911 to 1947. This bulletin is free to citizens of North Dakota upon application to the Information Department, State College Station, Fargo, North Dakota.