

Agricultural Research, Education and Extension as a Farmer Sees Them

by Sri R. M. SAVUR,
Retired Divisional
Inspector of Schools

Farmers and farming existed long before agricultural science was born or even conceived. For the first few decades after the birth of Agricultural science, scientists were merely engaged in finding out why and how certain farming practices worked. In the early stages, therefore, it was the farmers who led the scientist but not for very long. Very soon scientists took the lead and today they have far outstripped farmers and farming practices. However even today not infrequently a more successful practice is developed long before the causes of the improvement in results are discovered. For instance, take the successful practice evolved of placement of fertiliser below the seed or below and a little to either side of the seed. Why and how this works was discovered only several years later by plant physiologist using radio active phosphorus. In any science whatsoever but especially so in agriculture the dividing line between fundamental and applied research is so fine as almost to satisfy Euclid's definition of a line.

Application of Fundamentals: Whatever the science—pure mathematics or agriculture—some day or other the findings of basic research are sure to be put to some practical use. There is, however, always a time lag between the discovery of some basic principle and its practical application. The atom was split some forty years after Einstein's theory was propounded and accepted and several more years passed before the first successful atomic energy power plant was developed for the benefit of man. This gap between theory and its practical application is widest in the sphere of agriculture. Some idea of the magnitude of the time lag can be gained by studying the farm development in the United States, a country in which extension services are most highly developed, efficient and widespread.

American agriculture has from its beginning been entirely of a soil-exploitative type—continuous mono-crop cultivation of maize or wheat or cotton. In considering the advisability of introducing the soil building system of crop rotation farming comprehensively named 'Alternate Husbandry' United States Department of Agriculture

authorities said that to convince the hard headed American Farmer of the advantages of a crop rotation with a grass crop as a pivotal soil-rejuvenating crop it was first necessary to collect ample experimental data of the profitability of such a change in practice. This appeared in a C. A. B. publication of 1944 entitled 'Alternate Husbandry'. In little more than ten years the United States Department of Agriculture experts had collected such a mass of experimental data that these statistics were being freely used in books published as early 1953 (e. g. *vide* 'Farm Management Economics' by Prof. Heady and Jensen). Yet it is stated that even to-day 'True soil building rotations are practiced on only a small percentage of American farms. Animal manures have been quite commonly simply wasted. Backward agriculture is not confined to the rural villages of Africa and Asia. Many a farmer in the United States makes no more use of this valuable source of fertility than do those who burn cow-manure cakes for fuel. Very often the problem could be very simply and satisfactorily solved by the use of a big system of farming. So fixed in the American mind is the concept of the cash crop that a grass land solution to many of the common fertility problems has not even occurred to many agricultural leaders let alone farmers at large.

In a country of highly educated and progressive farmers the gap between basic information and its practical application, to the business of farming is ten years, in ours the gap is hundred years, for our farmers are still in the age of the wooden plough, the *mamooty* and the sickle. The research work in the Coimbatore Research Institute is on a par with the best in the world. It is necessary to consider what are the factors which are responsible for this wide gap between fundamentals and practice and make immediate, earnest efforts to deal with the situation if our plans are to succeed. Merely spending crores to thrust loans and fertilizers on farmers will effect nothing.

The prime-movers in the task of bridging this wide gap are:

1. Teachers in Agricultural Colleges.
2. Research workers and Specialists.
3. Extension Services.

The more ignorant and uneducated the farmers the more efficient should be these three prime-movers. Whenever I have remarked that if farmers should know something about science it is

equally necessary that scientists should know something about farming, I have experienced only derisive smiles or ironically lifted eyebrows accompanied by a contemptuous silence. Farming however is a complex business. What can those know of the complexity of farming who have never cultivated a single acre with money out of their own pockets and made a profit however minute? It is more difficult to be honest with oneself than to be honest towards society. I would suggest that our Professors and Research Workers should do some honest introspection asking themselves the question 'How much do I really know of this business of farming?' and then read some books like 'Farm management Economics' by Professors Heady and Jensen.

That my diagnosis is correct, has been amply confirmed from what I read recently. Professor Jack. R. Harlan Professor of Agronomy, Oklahoma Agricultural and Mechanical College and Geneticist, Agricultural Research Service, United States Department of Agriculture says in his book 'The theory and dynamics of grass-land agriculture'. In this age of specialization those who teach practice tend to ignore basic theory and are in fact, usually unfamiliar with it. Those who conduct research or teach in fundamental areas are generally ignorant of agronomic practice.

Agricultural College students are the recruits for the extension service army. Only if their training is on the right lines of a high quality, can they be of real help to the practicing farmer at large. It is scarcely likely that their teachers themselves have little knowledge of the latest basic information and none at all of the complex business of farming. Due to some vague realisation of this defect in our agricultural education an attempt was made to rectify this by prescribing short period of practical training to final year students. In pursuance of this new rule small batches were sent for practical training not to a successful farmer but to one or other of the so called agricultural Research Stations which are really nothing but seed multiplication stations in which there is neither research nor farming on commercial lines. Needless to say that they return knowing no more of the farming business than when they stepped in these.

The foundation for building a permanent and prosperous agriculture is a sound education in agriculture. It is beyond the scope of this essay to make exhaustive and detailed suggestions. I must rest content with stating for what they are worth my ideas of the barest outlines of a reformed education in agriculture.

1. Education has two aims — the ultimate aim and the immediate one.
2. The ultimate aim should be to fit agriculture students to teach farmers the application of fundamentals to improve the status of their farming and thereby enable them to improve their standards of living by increasing of farm incomes.
3. The immediate aim should be to impart to the students a sound knowledge of basic information and its application to practice and of the principles of farm management and farm management economics. This will necessarily entail a thorough overhaul of our Colleges, our curricula and choosing lecturers not on the basis of exigencies of Government service but solely on their fitness.