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Discussion: Overcoming the Obstacles to Farm Economic Development in the Less-Developed Countries

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prices of some of the supplies, stockers about the slow off-take and implement manufacturers about the inadequate supply of iron and steel.

There is a pronounced dearth of applied research and field testing, especially of the interaction effects of fertilizer rates and plant population. Village level workers are seriously hampered by a "general lack of subject matter knowledge in a usable form." Many cultivators are not making optimum use of water, and water management is not receiving the official attention it deserves. Marketing operations are plagued with malpractices.

Despite the welter of difficulties, the Ministry report concludes that, "The thrill of the programme has instilled in the cultivators a renewed urge for increased production and the enthusiasm it has generated is writ large in the countryside."

What are we to believe? In concluding these remarks, I suggest that the following is credible:

1) That the Package Program is an exciting experiment that sensibly concentrates staff and materiel where the results are not only promising but may be measured and evaluated.

2) That in its embryonic stages, the program is encountering a full schedule of difficulties which can be explained largely, as might be expected, in human terms.

3) That, so far, the officials of the government of India who are most directly responsible for the execution of the program have displayed a relentless and altogether wholesome capacity for self-criticism.

4) And, finally, that the dauntless enthusiasm of foreign participants, as typified by Doug Enslinger, is being applied at a time and a place where it is utterly indispensable.

DISCUSSION: OVERCOMING THE OBSTACLES TO FARM ECONOMIC DEVELOPMENT IN THE LESS- DEVELOPED COUNTRIES

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Dr. F. F. Hill and I recently had occasion to send out a questionnaire to a number of men at the operating level of programs to spur agricultural development in its early stages. By coincidence, one of our questions was quite similar to our topic this afternoon, "What Are the Most Important Obstacles to Agricultural Development?" The most frequent response to this question was that the attitudes of those planning and administering programs to spur agricultural development frequently are greater obstacles to progress than the attitudes of cultivators or the supply of pertinent technology.

What I have to contribute to our discussion this afternoon is to try to suggest what some of these obstacles in the thinking of those planning and administering programs for agricultural development may be.

First among these, I would put our frequent failure to recognize the inherent variability and variation among agricultural inputs. This failure has many facets. We know from a quick perusal of any of our soil maps of American counties or individual farms the term "soil" is not the name of a substance, but a generic term covering almost infinite variations in potentiality to support plant growth. We know from every farm management survey that there is enormous variation among farmers in managerial skill and in aptitude for various enterprises within the farm business; these variations are reflected in substantial differences in farm income. We know that the effective contribution to production of a day of the labor of one man is quite different from the contribution of an equal time spent in the field by another man because of differences in their skills and degree of attention to the job.

Those of us who had our early agricultural experience in the Corn Belt or the Great Plains grew up without much thought of microclimatic variations. In the countries we are thinking about this afternoon, however, such broad, flat agricultural regions are the infrequent exception; they are not the rule. Instead, the moderate to steep slopes of much of the agricultural land of Japan, Java, Taiwan, the Philippines, Ecuador, Bolivia, Colombia, and Chile are the kinds of agricultural conditions under which we are interested in seeing agricultural development accelerated, and in all of these places, differences in microclimates are of great importance not only within regions but on individual farms or holdings. In short, agricultural production is dramatically different from factory production in which the quality of each input and the precise timing of each operation can be carefully regulated within narrow tolerances.

There are two important implications of this variability of agricultural inputs for the process of agricultural development. The first is that in almost every minor agricultural region of the world there is substantial opportunity for an increase in agricultural production without any change in the state of the arts of agriculture simply by much closer adjustment of the crops on each parcel of land to the precise nature and quality of the available inputs. The second implication of this variability is that ultimately the only way to secure maximum agricultural development is to rely heavily on the managerial and operational ability of each farm operator. Adjustments need to be so infinitely varied to take full advantage of minor differences in available inputs that only localized decisions by each farm operator can achieve an optimum rate of development.

To expedite and facilitate this managerial function by individual farmers there are four fundamental requirements. One is a *transportation* net-

work that puts each farm within easy access of the outside world of ideas, markets, and agricultural requisites. The second is widespread general *education* of all farm people and various media of *communications* that keep them in constant touch with developments in agricultural technology and with market conditions. The third is widely dispersed managerial *responsibility* among operators of individual farms so that they have an opportunity to adjust their production programs to the peculiar and unique combination of inputs, of soil, climate, power, skills, and aptitude available to them. And fourth, *ready access to the new inputs* each farm operator must purchase as agricultural development proceeds.

Our second obstacle may be our failure to view agricultural development as farm *economic* development. The decisions of farm operators about what they will grow and how they will grow it are *economic* decisions. This is true whether costs are monetary or psychic, and whether utility in consumption or market value is the measure of output. National planners may be interested in increasing the total aggregate production of one or another crop, but what the individual farm operator is concerned about is either the utility or the market value of what he produces, and the relationship between this and his costs of production. Enhanced physical production does not constitute "income" in the calculations of a farm operator in the absence of remunerative prices or if a major portion of it must be turned over to the landlord.

I don't know who phrased the topic for our discussion this afternoon, but the choice was an inspired one. It puts the emphasis in the right place. The problem is farm *economic* development—the *profitable* development of each of many, many quite diverse *farms*. This is where the frequent emphasis needs to be placed.

The third obstacle is failure to view a farm as having an expandable resource base. This attitude is not frequent among American agricultural advisors working abroad, but it is prevalent among agricultural technicians and officials of many of the less-developed countries.

A farm operator whose experience has been within a low-technology, largely static agriculture, thinks of soil as the sole source of plant nutrients. By contrast, in a highly dynamic agriculture, soil comes closer and closer to being merely the anchoring medium in which plants grow, fed by plant nutrients supplied to a large extent by fertilizer, carried in soil moisture frequently augmented by irrigation. Similarly, a background of traditional agriculture causes one to think of man's contribution to cultivation largely in terms of muscular effort applied to farm tasks. In a highly dynamic agriculture, by contrast, the application of technically-informed intelligence and of managerial talent becomes a more potent contributor to agricultural production than muscular effort, although that still remains. Actually, as we all know, there is enormous scope for

the intensification of agricultural production on even small areas, both by increasing the quantity and by improving the quality of the inputs utilized, and by the quality of management that guides the process.

Our fourth obstacle may be our failure adequately to coordinate provision of the requirements for farm economic development *at the local level*. We talk much about the necessity for coordination of research, extension, the provision of requisites, the provision of credit, price policy, etc., but our tendency seems always to try to achieve this first among national ministries in the country's capital. I sometimes wonder whether it may not have been a grave disservice to America's contribution to agricultural development abroad that the American New Deal *preceded* technical assistance, and by so few years. Perhaps if we had become involved in technical assistance back about 1920, when the arrangements for agricultural development were mostly local arrangements, we would have been able to avoid a number of mistakes. Be that as it may, what is imperative is the day-to-day coordination of the various measures for agricultural development at the *local* level. Our case studies of technical assistance are far too full of examples of allegedly improved seeds from central research stations being recommended for local use without adequate local testing, of farm operators being persuaded by extension education to try a new fertilizer without the fertilizer being available on time, and, conversely, of large stocks of fertilizers and insecticides deteriorating in storage because an adequate demand for them had not been built up.

Finally, the fifth obstacle I shall mention is our recent tendency to think of profitable farm operation largely in terms of the optimum allocation of quantities of resources, almost to the exclusion of attention to quality of husbandry. Restricting our attention to those aspects of farm operation that lend themselves easily to quantitative measurement is a scholarly convenience, but the fact remains that the timeliness, precision, and other qualities of various aspects of husbandry, although not easily stated in quantitative terms and although not represented by differences in cost, do have a marked impact on the quantity and market value of output.

If I may restate my observations, this time not as obstacles but as operative requirements for programs that are to spur agricultural development in the less-developed economies, they would read as follows:

1. We must recognize that in dealing with agriculture we are dealing with a production process with a high inherent variability of almost all of the inputs, and consequently, standardized regional recipes are seldom justifiable. Instead, our efforts should be to help each farm operator grow in understanding of the activity in which he is engaged so that he may make a productive adjustment to the unique bundle of inputs of varying quality at his command.

2. We must always keep clearly in mind that the center of our attention must be farm *economic* development, facilitating decisions and practices by individual farm operators, cognizant of the fact that the major criterion to each of them is not quantity of physical production but impact on net economic return.

3. We must ourselves realize, and help each farm operator to realize, that each farm has an expandable resource base. This expansion can come about through the addition of plant food nutrients, of soil moisture, of plant protection measures, of increasing skill and intelligence in the processes of husbandry.

4. The place where it is supremely necessary to coordinate all measures for agricultural development is at the local level.

5. Finally, agricultural production is basically the process of biologic growth, in which the quality of husbandry plays an important role for which the skillful allocation of scarce resources, which is also important, cannot be an adequate substitute.