

TO: GEORGE McCOLM
NEW LIFE DEVELOPMENT DIVISION
USAID II

I liked your two papers on rice -- "The and the Rice Revolution in Vietnam" and "Cultural Requirement for IRS Rice." You've hit all the main points: the need to shift from subsistence to commercial production, the role played by the farm price of paddy, and planned introduction of IRR. I learned a lot.

R.W.K.
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Vietnam is now the third leading rice exporting country in the World - 1986

DATE: 20 DEC 1987

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November 6, 1967

IR-8 AND THE RICE REVOLUTION IN VIETNAM

George L. McColm, CORDS/NLD

PROBLEM

There is considerable speculation and misinformation in regard to the new Philippine rice variety, IR-8, now being tried in Vietnam.

IR-8 is one of many highly sophisticated rice varieties being developed to meet the requirements of commercial rice growers, seeking very high yields in response to carefully controlled growing conditions, high inputs of fertilizer, and mechanization of rice production. The yields obtained with IR-8, IR-5, and some of the new Vietnamese-developed varieties indicate that a revolutionary move from subsistence to commercial rice production is possible in Vietnam. Widespread farmer interest in pumps, land development and labor-saving equipment indicates that the farmers are actually starting this revolution. The question is what should GVN and USAID do to encourage it? Is extensive planting of IR-8 the answer?

DISCUSSION

1. Rice is the principal basic food crop in Vietnam. Basic food crops in any country producing its own food, related to the environment, food preference is actually a conditioned response. Rice is the principal crop in Vietnam because it is the only basic food crop adaptable to the generally unfavorable crop growing conditions of the Vietnamese natural environment: high temperatures, excessive monsoon rainfall, flooding of fields, restricted sun-light, high humidity, and numerous plant pests. For centuries rice has been the subsistence crop in Vietnam, grown in direct response to this natural environment. The yields are low--four to seven hundred pounds of milled rice per acre (about 1/3 the average per acre production in Japan, Australia, or the United States).

2. There is one sure way to produce equally high rice yields in Vietnam: that is - grow rice at the right time of year. Take rice out from under the clouds and into the sunshine - from the wet to the dry time of year, from monsoon to irrigation farming. In short, it means an entirely new approach to rice production with extensive capital investment for irrigation facilities, land leveling, drainage and flood control. Precise water management is needed to grow IR-8 or any other high yielding variety of rice (see attached Cultural Requirements for IR-8). Water management is the basic thing which must be added to change from subsistence to commercial production of rice.

3. Subsistence food production is tolerable only when there is a large acreage available in relation to the population to be fed. In Vietnam, before the present war, 80% of the farmers produced only for their own use; the landlords and 20% of the farmers had rice to sell, enough to feed the cities and some for export. Rice prices were low, too low to encourage capital expenditure for land improvement, or cash inputs to increase production. Extensive land development, irrigation, fertilizer, and spray materials were not considered practical for rice. Rubber, tea, sugar cane, tobacco, vegetables, coconuts, pineapple, and other fruits were the money-making crops for which capitalization was justified;

4. Subsistence agriculture is bankrupt as a method of feeding the growing population in Southeast Asia. But the situation is not hopeless. Higher prices for farm products will enable the farmers to develop a very efficient, highly productive commercial agriculture that can be stabilized by limiting production to the world demand for food. IR-8 and other high yielding rice varieties will expedite this revolution in rice production. The farmers of Southeast Asia are presented with an opportunity to make a greater effort and see it "pay off".

5. In summary:

a. There is a growing market demand for rice. The population is increasing rapidly, primarily in the urban areas where people work longer hours, need more calories, and have more money to buy food.

b. The production of rice is declining and the deficit is being made up by importation of American rice. There has been reduction of acreage, neglect of farms, destruction of irrigation facilities, and excessive VC taxation of commercial rice farmers. But the most fundamental reason for the decrease in production has been the steady decline in labor and power, without significant technical advances to make the remaining labor more productive. (Over two million people have left the farms of Vietnam since the peak production season of 1963-64.)

c. Since 1965, the farm price of paddy rice in Vietnam has increased from the long-standing figures of 3 to 5 piasters per kilo up to an average of 10 to 16 piasters per kilo. This price rise is creating interest in commercial rice production. For evidence, we have the interest in IR-8, the greatly increased demand for pumps and motors, sprayers, farm tractors, threshers, and other labor-saving equipment for rice farming.

ACTION PROGRAM

1. Interest in increased rice production in Vietnam should be stimulated by Government programs designed to encourage the trend toward commercial rice farming. Every effort should be made to establish owner-operated farm units capable of making efficient use of the inputs of modern agriculture, and earning for farm labor a fair share of the national income.

2. The Ministry of Agriculture and Agrarian Reform should be organized to give commercial farmers assistance in land development, land leveling, drainage, and irrigation projects. This is necessary because commercial rice

production is based upon water control. Also, firm land tenure and land ownership must be established to encourage private capital expenditure for land development, to provide a sound credit base for land bank loans, and insurance for the low cost intermediate term and short term credit loans needed to establish an efficient farming business.

3. Rice prices should be maintained by the Government at world market levels, or in relation to the inflation of the national economy. The rice farmer should be able to sell his crop at a price that will give his family economic parity with the urban population and accumulate profits which can be applied to capital investment in his farming business. Many people would place the price factor first in order of importance because commercial agriculture cannot develop, and production cannot be increased, unless the price received by the farmer will pay for the land development and the cash inputs required to produce high yields.

4. United States and Government of Vietnam sponsorship and distribution of IR-8 rice to farmers should be conducted with a well thought-out plan. Wild and irresponsible promotion of IR-8 should be avoided. The answer to increased production is not IR-8 alone but the basic changes that are required to move from subsistence to commercial rice farming. To make effective use of IR-8 or any other sophisticated variety, century-old farming habits and methods must be changed. All trials should be conducted under strict technical supervision. No seed should be given away for trials without close supervision. If more seed is available than required for properly supervised trials, it should be offered for SALE to farmers in areas where and during the season when it is most likely to succeed. Detailed technical instructions must be made available to farmers who buy this seed and who want to experiment with this new method of rice farming.

5. Finally, IR-8 should not be recommended or issued indiscriminately to replace "floating" varieties or any other adapted local varieties at this time.

CULTURAL REQUIREMENTS FOR IR-8 RICE

IR-8 is one of several very high yielding rice varieties developed by THE INTERNATIONAL RICE RESEARCH INSTITUTE, in the Philippines. It is the first rice variety to be named and officially released by the Institute. IR-8 is a highly sophisticated, very well-bred commercial variety, which will respond to large applications of fertilizer and carefully controlled growing conditions on the commercial rice farms of Southeast Asia. IR-8 has short stiff dark-green stalks which will support a very heavy crop without lodging. It was developed from a cross between the short Dee-geo-woo-gen variety from Taiwan, and the well-known tall Peta variety of the Philippines. In Vietnam, IR-8 will average from 24 to 30 inches in height, with the heavy grain crop drooping down almost out of sight within the upright pointed leaves. It is moderately dormant at harvest time, and will resist high humidity and wet conditions, but not high water because grain is held too close to the ground. It is classed as a disease-resistant variety, but this characteristic can be expected to vary in relation to the local climate, soil fertility, and fertilizer applications. The disease known as Blast may reduce yields with fertilizer applications over 150 kg/ha.

IR-8 is not photo-sensitive. It can be planted any time during the year in Vietnam, and will mature approximately 120 days from time of transplanting. It does require sunny weather for maximum yields, in common with other rice varieties.

IR-8 has an advantage over many varieties because of its consistent ability to tiller and produce a dense stand of stalks. This is a critical factor, though, because the tillering occurs during the approximate period of 21 to 45 days from seeding. This means that IR-8 seedling should be transplanted before they are three weeks old, when they are 6 to 10 inches tall, and with

very little, if any trimming of the tops. They should be transplanted into very shallow water, and the water level maintained at a very low level, never over 4", preferably 1" or 2", for the next month. IR-8 is a short variety, so high water at any time can be expected to damage or destroy the crop. Some surprising yields have been obtained, under unfavorable conditions, but not consistent or spectacular yields.

At the present time, less than thirty percent of the rice in Vietnam is produced under conditions which could be considered reasonably suitable for the production of IR-8 rice. One very knowledgeable Agriculture Advisor has stated that the introduction of IR-8 rice may be a good thing for the country, but it presents a fantastic training job for the GVN Agricultural Services. Almost every practice necessary to get high yields of IR-8 is new and different to the rice farmers of Vietnam.

1. IR-8 should be grown during the dry season with irrigation, to avoid high water and cloudy weather. In some areas development of irrigation may be a prerequisite.
2. Careful land leveling and drainage facilities are required to maintain water levels within a very narrow critical range during the tillering period. Water management is of prime importance.
3. Much larger quantities of fertilizer can and should be used with IR-8.
4. Dry soil preparation will require much more power, also deeper plowing is usually recommended.
5. Insect and disease control must receive more attention. At each different season, new insects and new diseases, or different intensities of attack can be expected.
6. Weed control techniques must be developed for the new variety in each locality.

7. A great many things we don't know about IR-8 in Vietnam right now, must be learned from research and field experience and taught to the farmers.

George L. McColm
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