

Towards Diversification

and More Profits for the Farmer:



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USAID's Integrated Agricultural Program in Central Luzon

I. WHY DOES ORD WORK IN CENTRAL LUZON ?

The priority concern of all Office of Rural Development agricultural programs is to help the Government of the Philippines meet the problems which are arising as the agricultural sector of Philippine society shifts from concentrating on one crop — rice — to greater crop diversification and increased production for the commercial market. ORD's integrated agricultural development program has been concentrated in Central Luzon. Here is why. Out of every seven Filipinos, one resides in Central Luzon, a territory accounting for only 8% of the total land area of the nation.

With a large population and intensive land use, Central Luzon is vitally important to the country for feeding her expanding population. Its topography, volcanic soils, and irrigation potential offer bright horizons for more intensive and more effective use of the land, since most of the land still produces only one rice crop per year, and lies idle during the dry season.

In the past, farmers in Central Luzon have shown that they can and will respond to new agricultural techniques when they believe that there will be profitable returns. In 1966-67, they responded favorably to the Government's campaign to boost rice production by planting IR8, the high-yielding variety de-

veloped at the International Rice Research Institute. At present some 30% of the rice lands of Central Luzon are planted to new high-yielding rice varieties, and more land will soon grow the latest varieties, IR20 and IR22.



LUZON FARMER WITH NEW IR20 RICE VARIETY

The success of the Miracle Rice Program has shown that there is great potential in the area for the introduction of new agricultural techniques, and on a larger scale than the high-yielding rice program. And new programs to broaden the area's agriculture are indeed on the horizon, since the Philippine Government has shifted its agri-

cultural programs from a rice monoculture to the promotion of a diversified agricultural economy, with secondary crops complementing rice. As a result, ORD technicians in Central Luzon are able to work with a growing corps of Filipino technicians and farmers who are interested in and dedicated to their Government's efforts to broaden and diversify crop production in the region.

For the Government and for the people of the area, the simultaneous production of new and profitable cash crops, and increased use of high-yielding varieties of rice, are

essential if Central Luzon is to support the projected trebling of its population by the year 2000.

In the light of this need, Central Luzon has been and will continue to be the focus of ORD's integrated agricultural development program. It is an area where USAID has become well known and respected. This is important to remember as we analyze the steps which USAID has taken to assist the Government in restructuring the agricultural base of that politically sensitive and strategic area of the country.

II. WHAT DOES ORD STRIVE TO ACCOMPLISH IN CENTRAL LUZON ?

The broad objectives of USAID's program in Central Luzon go hand and glove with those of the Philippine Government:

1. To increase the operational efficiency of Government agencies, both provincial and national, which are designed to promote increased agricultural production and improved marketing.
2. To design and conduct programs which will continue to result in increased incomes for farmers from larger agricultural production and more effective marketing.
3. To introduce and teach new technical skills and methods so that a more balanced rural economy will be capable of providing the nation with a greater variety of quality foods at reasonable prices.

Specifically, ORD's agricultural program in Central Luzon has aimed at improving marketing and information services for small farmers, promoting the continued expansion of high-yielding varieties of rice and corn, helping and encouraging farmers to produce secondary cash crops to make more effective year-round use of their land and expanding supervised credit facilities through selected Rural Banks and farmers

cooperatives. In operation, the integrated development program in Central Luzon follows a logical sequence through all phases of agricultural life, from seed production and multiplication, to the introduction of new and adaptable crops, the development of marketing systems for the new crops, and the improvement of the marketing system of old and established crops.

Complementing the seed and marketing projects, ORD technicians are working to improve techniques of irrigation, water management, cultural skills, and the grading and standardization of agricultural products. These aspects of ORD's agricultural program are in turn supported by projects to strengthen the agricultural credit system through the Agricultural Credit Administration, Rural Banks, Development Bank of the Philippines and other private and Government lending institutions.

Finally, to keep farmers and consumers better informed on prices and production trends in agriculture, ORD has been instrumental in developing the Agricultural Marketing News Service and agricultural data improvement projects of Central Luzon. These enhance the opportunities for farmers to profitably market their production armed with better knowledge of the current market.

These several aspects of ORD's program of agricultural development in Central Luzon are intimately a part of Philippine Government programs and so serve to aid the build-

ing of institutions which can strengthen the rural economy and enhance the social and economic well-being of the rural people of Central Luzon.

III THE FIRST PRIORITY: *MORE RICE*

Before 1967, Filipino farmers thought of differences among rice varieties largely in quality and taste, and not in terms of differences in yields per hectare because most varieties produced about the same amount of palay or rough rice. However, with the release of IR8, the first high-yielding rice seed to become available to Filipino farmers, there were new ways of comparing varieties of rice. IR8 could yield four times more palay per hectare than traditional varieties. USAID had closely followed research on rice and developed programs to disseminate the new seed and new production techniques once they left the laboratory and were available to the public.

In 1967, in cooperation with two private fertilizer companies, USAID put up large numbers of "Miracle Rice Kits", each with sufficient seed, fertilizer, and insecticide to plant a 2000-square meter plot of the IR8 rice. These kits were sent to rice production areas, beginning in Tarlac Province. In order to encourage farmers to buy and use the new do-it-yourself rice packages, USAID helped to establish the Agricultural Guarantee and Loan Fund (AGLF) so that selected Rural Banks could provide supervised credit to the farmers.

Soon, the importance of having certified seed of the high-yielding variety (HYV) for use on more paddy land became clear. The

demand in the Philippines and abroad for the new IR8 seeds grew faster than the Bureau of Plant Industry program for certified seed production could satisfy in its experimental seed stations. In response to this growing need, a group of the more progressive and better equipped farmers in Central Luzon united to form the Philippine Seed Growers Association. Today, with ORD support, the Association has spread throughout much of the country. As a result, almost all of the certified rice sold is now produced by members of the Association.



BUREAU OF PLANT INDUSTRY SEED FARM GROWING IR8.

After the Philippines made the breakthrough to self-sufficiency in rice production in crop year 1967-68, USAID branched out into the testing and promotion of secondary crops. However, it has continued to cooperate with the National Food and Agriculture

Council, (formerly the RCPCC), the Bureau of Plant Industry, and the private seed growers' associations to ensure that farmers are provided with new HYV rice seeds at reasonable prices. An early concern over a general regression by farmers to traditional varieties has not been supported by actual developments, and the use of HYVs has gradually increased from about 5-10% in early 1967 to an estimated 30-35% of the total rice area in the country (3 million hectares) in 1970. The bulk of this is produced in Central Luzon, the rice bowl of the nation.



NEW HIGH-YIELDING VARIETIES MEAN SELF-SUFFICIENCY

At present, with IR8, IR5 and the newest HYVs such as IR20 and IR22 continually expanding Philippine rice production, ORD has also been giving attention to other dimensions

of rice economics such as modernization of techniques for harvesting, drying and processing rice and other grains. An AID contract supports research at IRRI on small scale agricultural machinery, and ORD technicians have assisted field testing prototype models developed under this project.

A project to locally manufacture rice dryers and threshers has also been encouraged by USAID, and a growing number of rice mills in Central Luzon are now using a new and inexpensive dryer developed with USAID help.



**DRUM-TYPE HAND THRESHER DEVELOPED AND PRODUCED
IN THE PHILIPPINES**

IV AFTER RICE: THE NEED FOR A BROADER AGRICULTURAL BASE

The Philippine Government and USAID realize that merely producing more and more rice will not be sufficient to promote a healthy agricultural sector in the Philippines. For the farmers of the rice bowl of Central Luzon, it is now clear that if agriculture is to grow and expand, it must also diversify to include new cash crops and products which can be processed for export. In short, the diversification of agriculture has become a major goal of the Philippine Government and USAID.

Along lines similar to USAID's support for the BPI's testing and processing projects for rice seed in Central Luzon, USAID now supports BPI projects which identify and promote, through comparative trials, those vegetable, pulse, and fruit varieties which will earn profits for the farmer, have resistance to insects, pests and disease, and are adaptable to Central Luzon's conditions. Similarly, USAID supports the Government's crop diversification program by assisting in formulating improved methods of seed processing and distribution. In this regard, ORD technicians are working in close cooperation with growers associations and seed sales companies to expand a viable vegetable, pulse and fruit stock industry through the private sector.

USAID technicians support several new efforts to improve methods of cultural

management, field testing of fertilizers and insecticides for new seed crops, and experiments in better water and land use for cash crops. ORD specialists have worked in the field along with Filipino counterparts, have taught in Philippine colleges and universities as well as in barrio short courses, and have helped plan long-range agricultural strategy together with the country's top administrators. USAID participant training assistance has also helped build a corps of skilled seed technicians for the area.

In 1969 an agreement was reached between USAID, the UNDP, and the BPI to undertake the final phase of the assistance required for a completely integrated seed



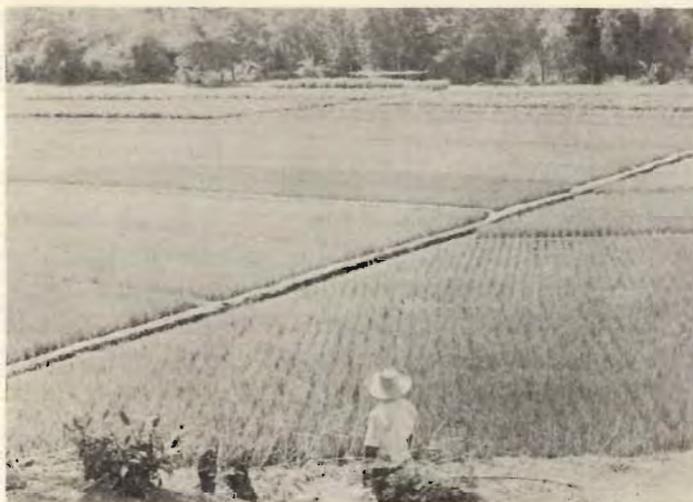
TESTING NEW SEEDS AT THE BPI'S LABORATORY IN MALIGAYA, NUEVA ECIIJA

improvement program. This is the establishment of a seed processing plant which will clean and treat seed. It will also have facilities for drying and storing improved seed and for breaking seed dormancy, as well as a laboratory for packaging vegetable seeds under controlled temperature and humidity conditions. Located at Maligaya, Nueva Ecija, the plant will utilize equipment provided by USAID, and an initial staff provided by the UNDP.

At Maligaya, ORD will assist in training seed production officers, seed inspectors, private seed producers, and members of seed associations in modern techniques of seed processing for rice, grain legumes, corn and vegetable crops. By developing these skilled technicians, the project in Maligaya will also be able to upgrade the technical skills of BPI technicians as well as encourage the adoption by the private sector of modern techniques for seed processing in Central Luzon.

V GETTING NEW TECHNOLOGY TO THE FARMERS

It's hard to break a habit, particularly when there are risks involved. For the farmer of Central Luzon, rice has habitually been his mainstay, the single most important aspect of his efforts to support his family. Yields have been low, only recently averaging 40 cavans per hectare, but there has always been a market for the rice which he produced.



A FARMER SURVEYS HIS PRIMARY CROP.

Now, the Philippine Government desires to diversify agriculture, but the farmer wants only to concentrate on producing more rice. However, most responsible officials agree that possibilities for significant export earnings from rice are declining, since the other countries of Asia are also adopting high-

yielding rice varieties in their own programs to become self-sufficient in rice. So, the farmer of Central Luzon will probably sell his rice to his countrymen, not abroad. Why then has he not attempted to produce other crops besides rice to sell to his countrymen? What are his risks?

Traditionally, in Central Luzon little systematic attention has been paid to vegetable, pulse, and fruit farming, and these areas have been characterized by low levels of production per hectare and poor quality produce. There has been a lack of knowledge regarding fruit and vegetable varieties which will adapt to local soil and seasonal conditions, inadequate supplies of good, tested seed, and poor handling and processing of the produce. There have been few well-trained personnel who might assist farmers in learning effective techniques for growing the new crops. In short, there have been great risks for the farmer who tries to pioneer into new areas besides rice.

For USAID, the problems encountered in helping the Government to diversify agriculture in Central Luzon all boil down to the need to make it profitable for the individual farmer to grow cash crops in rotation with his rice, and to reduce the risks that the farmer must confront. ORD technicians have been working closely with several private

and Government institutions, notably the National Food and Agriculture Council, to promote vegetable and fruit programs through:

1. improving the distribution of seeds to farmers in order to promote better coordination between research and extension agencies of the Government and the private sector.



A NEW TOMATO VARIETY GROWN PROFITABLY ON MARGINAL LAND.

2. demonstrating to the farmers in Central Luzon that with recommended management practices, adequate credit support, and effective marketing associations, such as in the Candaba Melon Project, fruits, vegetables and pulses of a high quality can be produced and sold with profitable returns.
3. assisting in the application of a system of grades and standards for vegetables, pulses and fruits so that the grower and the consumer receive fair returns for their investment.
4. improving land use in Central Luzon by means of promoting the production of new crops in the offseason in areas where only one crop of rice is now usually grown, and by promoting the changeover to crops other than rice on lands with marginal supplies of irrigation water during the dry season, and by
5. encouraging credit institutions such as the Rural Banks to support new projects in vegetable and pulse production with supervised credit assistance.

A successful example of the integrated support which ORD has offered to ventures in Central Luzon is now in progress in Candaba, Pampanga, where 176 farmers have

affiliated into a Melon Growers Association, and have planted over 1,000 hectares under this NFAC-encouraged program. A USAID-introduced variety of melon seed from the U. S. called "Gulfstream" has performed exceptionally well and has provided substantial economic returns to the producers. This variety, which ORD obtained for the Association, has demonstrated high mildew resistance, whereas all other varieties used previously had experienced serious infection due to the unusual climatic factors in the area.



HARVESTING NEW "GULFSREAM"

The Candaba Melon Project provides an illustration of several aspects of ORD's agricultural program. Marginal land, in this case a swamp, was transformed with much

hard work into a dramatically productive agricultural area. The farmers organized, and obtained credit for their organization. They also sought and obtained technical advice from ORD technicians as well as from agronomists with the BPI, and adopted correct agronomic practices to successfully grow a new and adaptable melon seed from the United States. With the help of ORD marketing experts, the farmers association was able to wisely negotiate marketing contracts, and to turn their farming activities into a highly profitable enterprise. ORD's agricultural marketing and credit technicians have also assisted in structuring the AGLF credit program from which the Candaba Melon Growers Association received working capital via the Rural Bank of Santa Ana.



MOVING THE MELONS TO THE MARKET

By helping to stimulate higher production levels of new crops in offseasons, and better use of marginal land such as the Candaba

Swamp throughout the year, ORD foresees growth in the production of tomatoes, lettuce, onions, mung beans, and sweet corn by Central Luzon's farmers. This will mean increasing profitability for the farmers in new crops and in offseasons when they have not previously been able to profitably pro-

duce for the commercial market. When the private sector is also stimulated to develop processing industries for locally-grown vegetables, pulses and fruits, then a well integrated, progressive and expanding agri-industrial operation can be seen on Central Luzon's horizon.

VI FROM BROWN TO GREEN: IRRIGATING CENTRAL LUZON

With the increasing use of high-yielding rice varieties which need abundant and carefully controlled irrigation for their highest yields, as well as new production of alternate cash crops, it is becoming clear that improved water management techniques must become a high priority aspect of the Government's agricultural development program in Central Luzon. In that area, although irrigation using pumps has steadily increased, the region is still plagued by inefficient use of available irrigation water. To meet this problem, ORD water management technicians have assisted Filipino specialists in structuring pilot demonstrations which will stress:

1. Proper installation, operation, and repair of pumps and equipment for rice and alternate crop irrigation.
2. Contour farming for more effective use of land and water to facilitate the introduction of more mechanization in rice farming and secondary crops.
3. The investigation of effective rotations of alternate crops with rice for better land use.

Currently, USAID is assisting two pilot projects in water management in Nueva Ecija at Baloc, Sto. Domingo (100 hectares) and in Soledad, Santa Rosa (150 hectares).



**A SMALL FARMER'S IRRIGATION SYSTEM FOR GROWING NEW
HIGH-YIELDING RICE VARIETIES**

The latter also includes a special rodent control study undertaken by the Rodent Research Team of ORD. In the future, assistance will be provided in other special projects related to water management, such as the seed farm at the Maligaya Experimental Station, where ORD water management technicians will work with Government agencies including the National Irrigation Administration, the Irrigation Service Unit, and the BPI, as well as with the private sector. Soon the Central Luzon State University will develop the field of water management as a major aspect of its agricultural economics department, and joint field projects working with ORD technicians are planned. Also on the horizon is the development of the Upper Pampanga River water shed which promises to be an area where ORD technicians in water management will play an important role.

**VII KEEPING FARMER AND CONSUMER
INFORMED: IMPROVEMENT OF
INFORMATION AND MARKETING SYSTEMS**

Before 1968, agricultural marketing was just not considered to be an important area for public policy concern. However, with the advent of high-yielding rice varieties, and more recently with the growth of cash crops, the benefits to be reaped by the nation from increased agricultural production were soon recognized, and agriculture became the focal point of the Marcos administration. Rice surpluses brought by IR8 and more recent high-yielding varieties highlighted the need for better marketing systems. Unfortunately, though, basic and reliable information on production, demand, and prices of agricultural products was not available to concerned Government agencies, nor to the farmers with produce to sell. ORD soon responded to the need for better agricultural data.

To encourage the Government to solve problems of national data collection and information dissemination, ORD supported the Bureau of Agricultural Economics (BAECON) in establishing a Radio Marketing News Service. This project was designed to collect daily market prices for key farm products and to disseminate this information through national and local radio stations and newspapers. Soon, coverage had grown to 29 radio stations broadcasting 441 times a week, and to more than a dozen newspapers and periodicals. This ready availability of infor-

mation has permitted farmers to better plan their marketing, particularly those who are now growing cash crops in addition to rice. The popularity of the agricultural news service among cooperatives, merchants and farmers is creating a demand for increasing the coverage from 14 to 28 principal markets in 1970. At present, the 29 stations report to the BAECON office in Manila through the radio network of the Philippine Constabulary, and additional stations contact the BAECON through the NFAC network.

The effectiveness of the AMNEWS reporting system is revealed in the fact that it has become part of the daily life of Central Luzon's farmers, cooperatives and



**FOR FARMER AND MERCHANT ALIKE, UP-TO-DATE INFORMATION
ON PRICES, STANDARDS AND MEASURES MEANS PROFITS**

merchants. Poignant proof of the program's benefits for the farmer is found in a statement of a middleman who reportedly bewailed that he cannot bola (fool) the farmers anymore because for all he knows they might have been listening to the day's prices over the radio just before he starts to bargain with them.

In order to further improve the accuracy of data and to encourage more rapid reporting of rice harvesting and storage data, ORD and U. S. Department of Agriculture technicians recently assisted BAECON in establishing a new project to streamline survey forms and procedures in the pilot province of Nueva Ecija. The new system was tested in 1969, and early in 1970 other regional directors of BAECON were being trained to use the new methods in their areas. The net result should mean faster and more accurate reporting on national grain harvests and stock levels. As the training program expands, new techniques will be developed and employed to improve the collection of data for other crops and livestock. Such information is, and will continue to be, vital to meaningful agricultural planning and price support programs of the Government, as well as to the individual farmer of Central Luzon.

To assist farmers in using market information as they market their vegetables, fruits, feedgrains, and livestock, ORD has worked with the NEAC in establishing a small corps of marketing consultants. After initial training by ORD's Marketing Advisor,

these previously inexperienced but dedicated officials were able to help a number of farmer associations and cooperatives to better organize and to upgrade the quality and packaging of their produce. In this way, the associations and coops can more effectively make direct contracts with wholesalers and large consuming institutions in Manila and other urban centers. The higher profits earned by farmers in cooperating areas have led others to express their desires for similar assistance in organizing themselves, and their products, for more effective marketing and higher profits. To meet this expanding need, ORD also helped organize two national workshops on marketing in late 1969 and early 1970 to discuss current marketing issues and practices, and to recommend new approaches and policies for agricultural marketing.



OFFICIALS OF A FARMERS COOPERATIVE DISCUSS PRODUCTION OF SITAO, A NEW CASH CROP

VIII ORD AND THE INDIVIDUAL FARMER OF CENTRAL LUZON: *THE SUCCESS OF FRANCISCO MENDEROZ*

The foregoing chapters have described several aspects of ORD's integrated agricultural program in operation in Central Luzon, and how various groups in that region participate in and benefit from the mutually complimentary projects of ORD and the Philippine Government. But what are the benefits for the individual farmer? Short of joining a farmers' cooperative or an association of rural producers in order to gain farm credit, can the individual farmer reap rewards from contact with ORD's agricultural development program and its technicians in Central Luzon? The answer is yes, and here is an example of a highly productive and energetic farmer in Urdaneta, Pangasinan who has tangibly benefited from participation in an ORD pilot project.

Francisco Menderoz has a high school education and started farming in 1938. For the next eighteen years his farm was really indistinguishable from those around it. However, after laboring for small profits, Menderoz finally scraped together enough money to purchase a small water pump, so that he could lift water up 20 feet from a small river near his property to irrigate his rice lands.

Soon Menderoz was able to produce at least two crops of rice each year, and some



FARMER MENDEROZ OPERATES HIS PRIZED IRRIGATION PUMP

vegetables on secondary land, while his neighbors continued to depend on the yearly rains to irrigate their single crop of rice. As a result of his doubled rice production, his profits were larger than those of his neighbors, and he invested them wisely in fertilizers, insecticides, and small machinery to further increase his production.

In 1967, the first high-yielding rice variety, IR8, was made available to Filipino farmers, and Menderoz eagerly planted the new variety, since he already had the irrigation system and necessary capital for fertilizer and insecticide. But more important, he was and is willing to give the rice

the care which it requires. Although his rice plots are small, Menderoz has harvested as much as 250 cavans of palay per hectare, well above the record yield for IR8 of 234 cavans which the International Rice Research Institute obtained. In addition, his yields for ordinary Dwarf Peta rice have been an extraordinary 176 cavans. Soon, Menderoz was trading with his neighbors IR8 seeds which he had grown in exchange for other kinds of palay for his family to eat. In this way, he has helped spread new seeds and new farming technology in his community.

This progressive farmer has recently obtained seeds for the newest high-yielding rice varieties, IR20 and IR22. On these, as on IR8, he is employing proper insecticides against stem borer, weeding the seedlings regularly to prevent suffocation, and using large amounts of fertilizer to nourish the rice so that it will produce optimum yields of seed.

On drier land, Menderoz last year planted the "Indian River" tomato seed, and this year will also plant Manapal and Manalucie varieties. Next door to the tomatoes is a 500-square meter plot of eggplants of the "California" variety which bears fruit for a full half year, more than double the producing time of traditional varieties.

ORD agricultural technicians in Central Luzon have recognized that Menderoz is a successful farmer because he can make



MENDEROZ OBTAINS TWICE THE NORMAL PRODUCING TIME BY USING A NEW VARIETY OF EGGPLANT.

shrewd capital investments to improve his operations, is willing to experiment with new and adaptable seeds, seeks out advice and technical data from many sources, and devotes the necessary time and attention to his farming to insure maximum growing conditions for his crops. And, so that those efforts will not be lost by damage to the harvested crops, Menderoz has designed and built a rat-proof warehouse to store his grain and vegetables until they go to market.

In order to encourage this progressive farmer, and to help his farm serve as a demonstration of modern agricultural production techniques for others in the area to study, ORD technicians have obtained all of the above-mentioned seeds for him, and have

worked closely with him in order to obtain the best possible planting, growing, harvesting, and marketing results from his efforts.

Menderoz' profits on his small 2-1/2 hectare farm are large compared to those of his neighbors, and have encouraged him to plant still more cash crops on land not needed for rice. As a result, in fields flanking the paddies there can be seen corn, camote, eggplant, squash, tomato, beans, ampalaya, mongo, cashew, and sorghum, in addition to several kinds of fruits. As a good farmer like Mr. Menderoz knows, the correct timing of planting and harvesting cash crops is an essential part of profitable farming. After conferring with ORD agriculturists on optimal timing for cultivating the imported tomato seeds, Menderoz now plants them in September, the cool season, since he has learned that there must be at least an eleven degree difference between night and day time temperatures for the high quality varieties to bear fruit. Learning such techniques has born not only fruit, but good profits as well.

If the surest sign of success is imitation, then Menderoz' adoption of new seeds and new techniques is now receiving flattering praise from not only his neighbors -- who visit his farm to learn "what's new" -- but also by groups from the University of the Philippines College of Agriculture and by teams from the Bureau of Plant Industry. Neighbors and agriculturists alike come

today to find out how this remarkable farmer obtains such high yields of rice, how he produces such large and profitable cash vegetable crops, and to study his farm management and marketing operations. The spread of new techniques from this demonstration farm to other farmers and agriculturists is the benefit of hard labors by ORD technicians and Francisco Menderoz.



MR. & MRS. FRANCISCO MENDEROZ: THE SMILE OF SUCCESS