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DEPARTMENT OF THE ARMY
Fort Detrick
Frederick, Maryland

SOME ASPECTS

or the production of rice problem in Vietnam

As you know, the problem of the production of rice-growing is a very vast subject and I have neither the time nor the competence to treat all the questions of the problem, also permit me to limit myself on the two technical aspects of the problem, to know the qualitative aspect and the quantitative aspect of production. As for the economical aspect principally concerning the study of the market, local as well as international, I will leave the care to the economists who will certainly be more qualified in that area.

For the economic rectification of our country, several programs were established envisaging the augmentation of the agricultural production. Among these programs, we distinguish on one hand, those that interest the products for exportation such as rice, rubber, maize, etc... and on the other hand, those that interest the products of which we must import a non-negligible quantity each year, such as the fiber plants, tobacco, the soy bean and many others. In realizing all of these programs, we could win in foreign bills by our exportations as well as by the diminishing of our importations.

We all know that rice is the most important product of our country, as it is the rice which nourishes the 13 millions of Vietnamese, it is also rice that allows the greatest number of our agriculturists to work and it is still rice that we export each year, with the greatest quantity.

On the subject of our exportation of rice, the tonnage is augmented in a very remarkable way during these later years; this year, with 400,000 tons, we are exporting double what was exported in 1957. Just the same, in order to be able to export more in the years to come, the problem of the quality of the product must have the same importance as that of quantity.

1. ____ QUALITY OF THE RICES OF VIETNAM

1. ____ Industrial and commercial quality.

Commercial classification of the varieties of Vietnam can be envisaged in the following manner: the format will determine the great divisions;

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on the interior of each of them, one will define the types by:

- transparency of the grain;
- tolerance in yellow grains and in grains streaked with red;
- rice mill characteristics; degree of bleaching and amount of breakage.

This classification thus takes into account the industrial and commercial quality of the paddy of each variety.

The Rice Office selected a certain number of varieties, considered as the best ones for exportation; several of these varieties are still cultivated actually in all of the regions of South Vietnam. Among the conserved varieties, all of the formats are represented from the round format to the very long format. After a first evaluation, one would count about 2 % of long rice, 31 % of $\frac{1}{2}$ round, 22 % of $\frac{1}{2}$ long, 24 % of long and 21 % of very long.

We have seen that the format plays an important role in the commercial classification, but this factor depends on the preference of buying countries; thus Japan and Formosa prefer round format, while the European market demands in general long format.

These are the varieties cultivated in single transplanting that give the best industrial qualities, and the most transparent rices. We will point out in passing that a special rice category exists, of single transplanting, whose sought after quality is their perfumed odor and their particular taste.

These are, for example, the varieties:

- Nanh Chon of Baria,
- Lua Phat of Can-Tho,
- Tau-Huong of Vinh-Long,
- Nang-Thom of Cholon, etc...

These rices with small grains, give in general a low yield, their industrial and commercial quality can not intervene, as only their table quality counts.

In resume, the varieties of rice of Vietnam can reply to all of the conditions of quality to satisfy the requirements of the buyer countries.

This result was obtained at the end of our long years of research and by selection of which the works follow each other from year to year,

in order to obtain an always growing quality. On the other hand, diverse problems were considered to assure the industrial quality of our rice, as for example:

— the farmers utilize a more restricted number of varieties, utilizing the selected seeds in order to harvest homogeneous lots, bring more care to the harvest, to the transport and stockage of the paddy;

— the rice merchants are more severe on the quality of the paddy that arrives at the mill, pay a more important premium for the homogeneous lots.

All of these considerations are going to permit us to export more rice with sought after quality.

2. Regions producing the best rice, from the point of view of industrial and commercial quality.

We formerly said that it is the rices of single transplanting that represent the best type, we have rice of double transplanting that occupies about 300,000 hectares in the 2 provinces of Vinh-Long and Phong-Dinh, and floating rice which occupies more than 300,000 hectares in the province of An-Giang.

The rices of double transplanting are often defected. Certain varieties have a good format but the grains are friable and in part opaque. The mode of culture and the characteristics of the soil are responsible for this, but it is above all the procedures of harvest and of drying that one must incriminate. The rice harvested in a bed of water often thick is beaten and dried immediately in the sun, which causes fissures of the grain which give a great percentage of breakage to the rice mill. The industrial yields of these rices vary from 20 % to 60 % from one year to the next.

Certain varieties of floating rice have long grains, but most of them are of type $\frac{1}{2}$ round or $\frac{1}{2}$ long, their commercial quality is little appreciated because of the abundance of red grains and of chalky grains.

The amount of cracks at the rice mill is often increased, the presentation is very defective. However the drying allows to obtain, with these rices of inferior quality, a product of average quality that does not crack at the rice mill.

Finally, another group of rice much less important exists, cultivated principally in the High Plateaus and on the high lands, named mountain-

rice. This type of rice gives in general a lower yield than that of the others and an inferior quality.

In comparing these four groups of rice from the point of view of cultural method and industrial and commercial quality, we will see that the type of rice of single transplanting is the best of all. It is the reason then that all of our programs envisaging the amelioration of the quality and the augmentation of the production must be concentrated in the rice zones of single transplanting. This is not to say that we are going to let fall the other types of rice, only, in the immediate time, it is necessary for us to give priority to the rice of single transplanting.

3. — Amelioration and Selection.

In view of obtaining the best varieties from the triple point of view: industrial and commercial quality, yield, cultural aptitudes.

The amelioration and the selection of varieties are going to permit us to resolve at the same time the problem of the quality and the problem of quantity.

They are based principally on:

- high yield,
- good industrial and commercial quality...

The amelioration is achieved from one side by the growths among the varieties of the country, on the other side by the selection of hybrids Japonice X Indica originating from Cuttack. Although the selection of hybrids may not be finished yet, certain ones of them promise a beautiful future.

The selection works follow each other at the Central Experimental Station of Mytho, in the provincial sub-stations and in all of the rice-growing provinces in utilizing the lands of the farmers.

At the Central Station of Mytho, more than 750 varieties, local and foreign, are cultivated in permanent observation. Each year, several among them, considered as being the best ones, are chosen for selection. When we shall have obtained results for a certain number of varieties at the Central Station, these ones will be then sent to the other regions for the Regional Trials of adaptation.

On the provincial scale, comparative trials were put on their feet with the varieties belonging to each province or to each region. The principle goal of these trials is to select, among the varieties which

exist locally in very great number, those that are actually the best ones whose number will be more restricted.

As results, we have obtained, by selection, a premature variety, named Pung-Ngeon, that is actually very cultivated, thanks to its commercial and industrial quality and its productivity. As another example, we can cite another variety, named Neang-Mess X Taichu X Neang-Mess, obtained by hybridation. This hybrid is cultivated actually in several provinces, it is sought after for the long grain format and the high yield.

II. — AUGMENTATION OF RICE-GROWING PRODUCTION .

We have two possibilities of augmenting our rice production:

- Augmentation of the area cultivated;
- Amelioration of yield.

1. — Augmentation of the cultivated area.

The principle objective is to put back into culture all of the rice-fields that were abandoned during the war. In fact, in 1938, one counted more than 2,300,000 hectares of rice fields in South Vietnam, and actually the official statistics give us a maximum, in round numbers, of 1,900,000 hectares of which there still remains 400,000 ha. of rice fields abandoned in South Vietnam.

The Agricultural Development realized its program of implantation of the Centers of D.A. in the provinces of An-Xuyen, Ba-Xuyen, Kien-Phong, Kien-Tuong and Kien-Giang and contributes in augmenting the area cultivated in rice either by the restoration in culture of the abandoned rice fields or by the clearing of new lands apt for rice-growing. The Agricultural Development continues always its program and each year, we have a new augmentation of the area cultivated in rice.

On the other hand, the Laws of the Agrarian Reform contribute also to augmentation of the area cultivated. We all know that during the troubled years, several proprietors abandoned their lands, and many of these lands have remained uncultivated after the war.

Thanks to the Agrarian Reform, a great part of these lands were able to be restored in culture.

In resume, the Agricultural Development and the Agrarian Reform can cause the area cultivated in rice to augment directly, principally by the restoration in culture of the rice fields abandoned during the war.

We also have another means that can make the area cultivated in rice augment, although indirectly: transform the rice fields with one crop to rice fields with two crops.

Here, again, we are only speaking of rice of single transplanting, as we can only have 2 crops per year on the rice fields of this type. Actually, on a million hectares of rice fields of single transplanting in South Vietnam, one only counts on about 30,000 ha. of rice fields at 2 crops per year, there is thus a great possibility of transforming the rice fields of one crop into rice fields of 2 crops. Nevertheless, certain regions are not adapted to the practice of 2 crops, by the fact that the water is not sufficient during the year. These regions are found above all in the zones of salty water or in the zones where the dryness is frequent.

In order to practice two crops per year in these regions, it is necessary to think before anything of irrigation.

Other questions of a technical order must be considered, such as:

- The organization of the drying and of the stocking of the paddy of the 1st crop, fallen in the full rainy period;
- The necessity of employing sufficient fertilizer to the 1st as to the 2nd crop;
- The culture in great area in order to limit the spoilage by birds, at the 1st crop.

2. Augmentation of yield.

We have seen the 1st solution concerning the augmentation of the production by the augmentation of the area cultivated, we are now going to see the 2nd solution concerning the augmentation of the production by the amelioration of yield. In our opinion the second solution seemed more important than the first, as it is certainly less costly and more easily realizable in a short lapse of time.

One often says that there are, in Vietnam, too much land in relation with the rural population. This always remains true if we compare Vietnam with Formosa or Japan. The fact that there are too many lands in our country explains in part the small yield of our rice fields, as our farmers do not give much care to their rice fields, from the moment that they have sufficient lands to work. On the contrary, a very high yield is obtained in Japan and in Formosa, thanks to their intensive exploitation that is more or less equivalent to a garden plot.

This small comparison is going to show us that there is a great possibility of augmenting the yield of our rice fields, if we adopt the rational technique in the culture of rice. Thus, a certain number of programs having for goal to aid our farmers in ameliorating the yield of their rice fields, were established by the Minister of Agriculture. These programs are divided principally into two categories:

- A short term program having for objective the rapid augmentation of the rice production, in taking into consideration the quality of the product for exportation;
- A long term program which demands a longer period and a necessary credit in order to execute the most important works.

A. — SHORT TERM PROGRAM

This short term program comprises a certain number of the following technical programs:

1 Irrigation:

During these past years, one was able to observe the birth of very numerous small irrigation canals indispensable to the rice fields of single transplanting; most of these canals being dug by the farmers themselves, following the technical guidance of competent services.

On another side, the Minister of Agriculture has a project of importation of a great number of irrigation pumps whose utilization, individual or cooperative, will contribute certainly in ameliorating the production of rice of single transplanting.

2 Selected seeds:

We will first consider the problem of the choice of varieties to cultivate in each region.

The Indochinese Rice Office had selected a certain number of varieties, so-called patronized varieties, for all of the regions of Vietnam. Certain ones of these varieties are still cultivated at the actual present time, but it is necessary for us to control each year the quality of these varieties in order to only keep the best ones from the point of view of productivity and industrial and commercial quality.

Next comes the multiplication program and the distribution of the seeds, this program having for goal to furnish to the farmers the good seeds of the selected varieties so that they can ameliorate simultaneously the quantity and the quality of their product.

Being given that the seeds program is more and more important, we demanded, after last year, to all of the rice-growing cooperatives to aid us in the distribution, and perhaps for the multiplication in the years to come.

3 The fertilizers:

You all know that the fertilizers play a very important role in the augmentation of the yield. This is why the utilization of fertilizers must be known and spread in our producer of rice regions. Our fertilizer program, in the course of realization, comprises two parts: supplying and propaganda.

In that which concerns supplying, our program consists in procuring sufficient fertilizer for our farmers, at the lowest possible price, and in this goal, the Minister of Agriculture realized his program of importation and of the distribution of chemical fertilizers, in order to avoid all speculation on price as on quality of the product, when this one is found insufficient on the market.

Next comes the 2nd aspect which is propaganda. Technical informations on "why and how one must utilize the fertilizers" were diffused to the farmers by all of the means such as: agricultural press, film, printed matter, brochures, chats...

On the other hand, trial fields of demonstration are established each year to show the farmers the effect of the chemical fertilizers in the rice fields.

The results of this program showed us:

- a sharp amelioration of the commerce of fertilizers (there is no longer speculation, lowering of prices...);
- a more generalized use of the fertilizers by the farmers;
- a sharp augmentation in the exportation tonnage of rice from 120,000 tons in 1958 to 400,000 in 1960).

4 Fight against the insects:

Insects can sometimes cause more than 50 % of loss in the rice fields. To fight against the insects is thus an indirect means of augmenting production. The Government's program consists of:

- from one part, to study the means of effectively fighting against the different sorts of insects;

- on the other part, to help the farmers to procure sufficient insecticides and atomizers for themselves, when it is necessary.

5 Help from the Agricultural Credit:

We all know that the Agricultural Credit is a very important factor in the development in agriculture, economically speaking. In the program of augmentation of the rice-growing production, one cannot deny its utility. By a system of long term credit, the Agricultural Credit is going to permit farmers to buy agricultural machines, where the conditions are favorable to mechanization. Also, by a short term credit system, and this is the most important one at the present time, the Agricultural Credit is going to allow farmers to obtain the necessary financial means with which they can pay for the culture jobs, buy fertilizers and the selected seeds, to ameliorate their harvest.

6 Program of agricultural popularization:

Being given that most of our farmers are still not used to the new techniques in agriculture, the program of agricultural popularization must have its importance, if we wish that our programs previously cited be realized in a decisive manner. Very simple demonstrations and very precise technical informations are necessary to convince our farmers of loaning the contribution of their support in our programs.

The short term program having just been examined, we can conclude in saying that, if this program is realized, production will easily be augmented by 50 %, thus, on nearly two millions of tons of paddy of single transplanting (of actual production), we will have an augmentation of a million tons of paddy or 600,000 tons of white rice for exportation, beyond what we are actually exporting.

B. — LONG TERM PROGRAM

Understood that in the long term program we could cite the great works in agricultural hydraulics, mechanization in favorable regions...., but the most important works for the moment are the works of experimentation, as the farmers were able to utilize gratis the practical results of our researches to ameliorate their rice-growing production.

For our research work, we adopt the most important works that are actually taking place abroad, to know:

- on the amelioration and the selection of varieties;
- on the fertilization trials.

Other research works on the amelioration of cultural technique will later be undertaken, we will have the necessary means.

I do not want to enter into the technical details of our works, I only want to make you notice that our experimentation works have for a goal the practical utilization of obtained results, this is why our experimentation is effectuated not only in the experimental stations, but also in the field, in the natural conditions of soil and of climate. We think that, three years from now, concisive results from our actual works could be applied in our program of rice-growing production.

Certainly, we remain at your disposition, if you are interested in the technical details of our research.

CONCLUSION

In the years to come, our country will certainly produce far more rice, which will permit us to once more find our before war exportation statistics.

From the point of view of quality, the amelioration and the selection of varieties are going to allow us to obtain an always improving quality.

From the point of view of quantity, the amelioration of yield can make production increase and at the same time can make the returns price lower, which permits us to have a competitive price on the international market.

Thus, the two factors: quantity and quality represent all of the technical aspects of the problem of production in rice-growing in Vietnam.

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