

A report of the 4th Japanese agricultural survey team for the establishment of

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A Report of the
4th Japanese Agricultural Survey Team
for the Establishment of
New Agricultural Demonstration Farms in India

July 1964

定額納付
1964. 3月

The Fourth Japanese Agricultural Survey Team

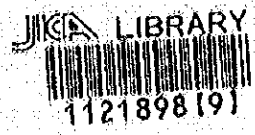
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1. List of Members of the Japanese
Agricultural Survey Team

	<u>Name</u>	<u>Post</u>	<u>Period of engagement</u>
Leader of Japanese Agricul- tural Sur- vey Team	Dr. T. SHIROSHITA	Expert in Rice Culti- vation, Ministry of Agriculture & For- estry	Mar. 8- April 26
Member of Japanese Agricul- tural Sur- vey Team	Mr. N. KAWATA	Expert in Soil & Fertiliser, Min- istry of Agriculture & Forestry	"
"	Mr. T. KOBAYASHI	Expert in Plant Pa- thology, Ministry of Agriculture & For- estry	"
"	Mr. M. IKEDA	Ministry of Foreign Affairs	"
"	Mr. K. KATO	Overseas Technical Cooperation Agency	"
Returned home on sick leave	Mr. S. WATANABE	Expert in Agricul- tural Extension, Ministry of Agricul- ture & Forestry	Mar. 8- Mar. 21
Japanese Participants from India	Mr. Y. MIKI	Second Secretary, Embassy of Japan	Mar. 8- Mar. 22 April 17- April 26
"	Mr. K. INAGAWA	Consul, Consulate General of Japan, Calcutta	Mar. 22- Mar. 31 April 22- April 26
"	Mr. T. NAGATA	Consul, Consulate General of Japan, Bombay	April 12 April 26

	<u>Name</u>	<u>Post</u>	<u>Proposed farm site undercharge</u>
Indian Participants	Dr. G. V. CHALAM	General Manager, National Seeds Corporation	Bapatla
"	Dr. T. R. MEHTA	Director, Farm Advisory Unit	Mandya
"	Dr. M. S. PAWAR	Deputy Agricultural Commissioner, I.C.A.R.	Chengamanad
"	Dr. A. K. DUTT	Soil & Fertiliser Specialist	Khopoli

2. The Outline of Daily Record of the Trip of the
Japanese Survey Team

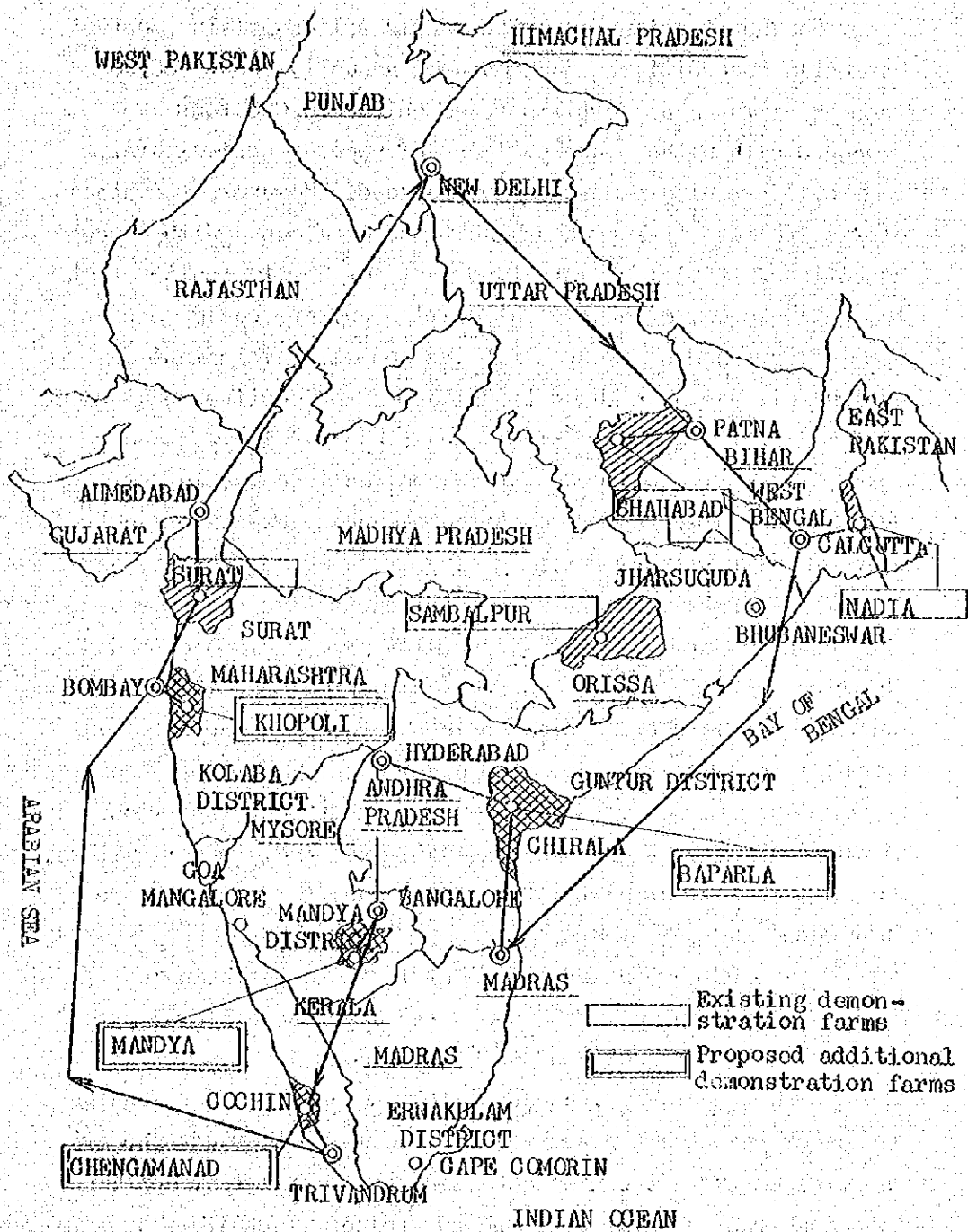
(Trip for 49 nights and 50 days)

March	8	Sun.	Left Japan
	9	Mon.	Made a formal visit to and a consultation with the Embassy of Japan and the Government of India
	10	Tue.	
	11	Wed.	Made a formal visit to and a consultation with the state government of Bihar
	12	Thu.	Made some advices to and a consultation with the Shahabad Farm, Bihar State
	13	Fri.	
	14	Sat.	Made some advices to and a consultation with the Nadia Farm, West Bengal State
	15	Sun.	
	16	Mon.	Made a formal visit to and a consultation with the state government of West Bengal
	17	Tue.	Made some advices to and a consultation with the Sambalpur Farm, Orissa State
	18	Wed.	
	19	Thu.	
	20	Fri.	Made a formal visit to and a consultation with the state government of Orissa
	21	Sat.	
	22	Sun.	Made a report to and a consultation with the Consulate-General of Japan, Calcutta
	23	Mon.	
	24	Tue.	
	25	Wed.	
	26	Thu.	Made a survey on the Bapatla Farm, Andhra Pradesh State
	27	Fri.	
	28	Sat.	
	29	Sun.	
	30	Mon.	Made a consultation with the state government of Korala
	31	Tue.	Made a survey on the Nandya Farm, Mysore State
April	1	Wed.	

- | | | |
|---------|------|---|
| April 2 | Thu. | } Made a survey on the Mendya Farm, Mysore State |
| 3 | Fri. | |
| 4 | Sat. | } Made a consultation with the State Government of Mysore |
| 5 | Sun. | |
| 6 | Mon. | } |
| 7 | Tue. | |
| 8 | Wed. | } Made a survey on the Chongamanad Farm, Kerala State |
| 9 | Thu. | |
| 10 | Fri. | } |
| 11 | Sat. | |
| 11 | Sat. | Made a consultation with the state government of Kerala |
| 12 | Sun. | Made a report to and a consultation with the Consulate-General of Japan, Bombay |
| 13 | Mon. | } |
| 14 | Tue. | |
| 15 | Wed. | } Made a survey on the Khopoli Farm, Maharashtra State |
| 16 | Thu. | |
| 17 | Fri. | Made a consultation with the state government of Maharashtra |
| 18 | Sat. | } |
| 19 | Sun. | |
| 20 | Mon. | } Made some advices to and a consultation with the Surat Farm, Gujarat State |
| 21 | Tue. | |
| 22 | Wed. | Made a report to and a consultation with the Embassy of Japan |
| 23 | Thu. | Held a meeting of all leaders of the existing Japanese Demonstration Farms |
| 24 | Fri. | Made a report to and a consultation with the Government of India |
| 25 | Sat. | Made a consultation with the Embassy of Japan |
| 26 | Sun. | Left India for Japan |

(Route taken by the Japanese Survey Team is shown as per attached map.)

Route taken by the 4th Japanese Agricultural Survey Team for the Establishment of New Agricultural Demonstration Farms in India



3. GENERAL IMPRESSION

India is by far an industrialized country compared with other Southeast Asian countries and is self-supplying most of her daily necessities. She consumes annually about 300,000 tons of nitrogen as fertilizer, of which 180,000 tons are produced within the country. Most of popular agricultural chemicals are also domestically produced. However, techniques of rice culture is lagged behind those of Japan. With these conditions, it will be very important for her to realize that the Japanese way of management of rice culture could be considered as a necessary step for the general development of agriculture based on the rational use of productive means such as fertilizer, agricultural chemicals and machinery. Therefore, if the rice cultural method applied in Japan is introduced into India, it will contribute much to expedite such development rather rapidly.

It is praiseworthy that the administrative capacity of the Indian Government has successfully promoted and extended the rice cultural management wide only through audio-visual means of demonstrations such as in the forms of lecture and pamphlet made by administrators under a catch phrase, "Japanese method of rice culture is a synonym of increased rice production" under the present situation of India's agriculture. Some of the easiest parts of the Japanese rice culture were introduced about 10 years ago and since then have been extended over 62 percent of the total irrigated area in India. What the Indian people feel about the Japanese cultural method is seen in a text book used in high schools.

On the other hand, however, it was reported in an Indian newspaper that there was some doubt about further advance of the rice cultural techniques to such a high level as applied in demonstration farms operated by Japanese Technician in India.

(a) Existing demonstration farms

All of the existing demonstration farms operated by Japanese technicians in India have succeeded in obtaining much higher yields of rice than those achieved before the Japanese method was adopted or those achieved by rice farms in their neighborhood. This third year (1964) since the establishment of demonstration farms, the preparation for training Indian farmers is going to start, the Indian Government expects to obtain higher yields, which all the Japanese technicians in demonstration farms are making every possible effort to achieve to answer this expectation.

Impressions on managerial, technical and other problems regarding the demonstration farms will be referred to later. But some of the most important are explained as below.

1) Profitability

The Indian government have become to attach the importance to not only the rate of yield but also profitability of the Japanese method of rice culture. Although a high yield is apt to be taken as a synonym of a high profitability, the former can hardly bring about the latter in a short time as far as the rice culture is concerned. Because it requires a number of experiments in rice growing to find out a technical process for higher yield under a certain topographical condition and it takes years further to improve that process so as to be profitable. Such is the general process for advancing the agricultural productivity. Any profitability worthy of the name cannot be achieved in a farm on an experimental stage such as the Japanese demonstration farms if all costs for working staff and capital investment even for trial cultivation should be counted. In the joint meeting of the Indian Central Government and the Japanese Survey Team, therefore, the latter

stressed as above regarding the problem of profitability placed before them by the latter and the two parties came to an agreement that the profitability of techniques of rice culture for demonstration should be taken into consideration while that of the whole farm should not. However, if the Japanese staff in the farm were requested to develop even for the demonstration such techniques of rice culture that meet the demand for both high profitability and yield in a rather short time, they may stand in a plight.

2) Mechanization and use of animal power

The Indian religion prohibits to kill cattle, which are used only as draft animals. In the demonstration farms power machineries are used instead of animals. Therefore it is necessary to study and explain why the mechanization is useful for the farm management under the weather and soil conditions in India. But as the Indian side is deeply interested in wider use of Japanese farm implements driven by animals, especially those driven by a pair of cattle, it will be necessary to carry out a training cattle for such purpose and a demonstration of how to use animals in farms. In the said joint meeting, both parties agreed upon that one acre would be allocated for such demonstration.

3) Start of training

It takes much longer to adapt agricultural techniques to the local conditions than other industrial ones in the performance of international technical cooperation. In the meantime, technical experts should take some time to learn about various equipments and also to adjust them to such conditions. Although the Indian Government understands that the Japanese farms are now organizing their techniques for demonstration, other Indian quarters concerned are rather too intent to start the training this year (1964). The training

of Indian farmers should be carried out independently from the Japanese demonstration farms which have no capacity to spare for it because they are occupied with achieving both high yield and high profitability to answer India's expectation for the third year after their foundation.

Under the situation, therefore, the Indian side should start the training with Indian counterparts distributed to the farms. Although the Central Government has already requested the state governments concerned to send experts, the distribution of them had not been completed when the Survey Team made a visit to the demonstration farms. If the training is actually started, the Indian side is required to finish the arrangement for accommodations to the Indian trainees while the Japanese side will be required to provide additional equipments and materials for training.

(b) Proposed sites for new demonstration farms

Proposed sites for new demonstration farms that had been studied already by the last survey team, were re-studied by the present team, which obtained an agreement of each state government concerned on the items of equipment and materials to be furnished by the Indian side that had been listed up by the present survey team in a short time. The team which had made a visit to almost all the existing demonstration farms was about to investigate the proposed sites for new farms, when one of its member fell sick. Despite such accident together with unbearable hot weather, the Team could smoothly carry out its assignments thanks for the state governments' strong support for the establishment of new farms and warm cooperation of all local people concerned. The result of the study on each site that is referred to in detail somewhere else in this report, will be summarized here as below.

1) Arrangement of the proposed demonstration farms

The Indian side realizes that a farm site as proposed in the farm attached to an agricultural college in Andhra Pradesh State is short of water supply, which must be provided by construction of canals. The Indian side is generally less concerned with the levelling of slopes for enlarging field plots so much that machinery and animals can be applied more efficiently, and with the need of drainage.

Especially the proposed sites in Mysore and Maharashtra are located each on a slope with irregular and small size of plots. A drastic levelling work should be performed there if these plots are to be expanded to a size between a half acre and one fourth.

The proposed farm site in Andhra Pradesh as mentioned before will need so complete drainage as to be drained fully whenever required, in the light of its topographical and soil conditions.

At any rate, as the arrangement of farms directly affects the efficiency of rice production and mechanical works, it should be carried out under the instruction of the Japanese staff.

2) Arrangement of buildings

Many of the existing buildings in the proposed sites of the farm in Andhra Pradesh are decided to be renovated while most of those in other states be reconstructed. In the farms in Andhra Pradesh and Mysore where buildings and paddy field for demonstration use are so wide apart in distance as inconvenient for the farm management, some new buildings are required to be set up near the field.

In consideration of accommodations for the staff in the existing farms which are narrow and inconvenient, it is re-

quired that new and comfortable ones with sufficient space should be built up.

All those requirements as mentioned above were requested to be satisfied by the Indian side which has approved the request almost without objection.

3) India's concern with new demonstration farms

As suggested above, Indian side is so anxious to establish new demonstration farms that some state government such as Andhra Pradesh and Kerala State has already mapped out a plan to build temporary accommodations for the Japanese staff in expectation of the opening of the farms this year (1964).

Some of the states concerned were uneasy about that paddy field proposed to be set up in their area might be cancelled because the proposed sites for the farms were not suited. Therefore, most of those states offered that plots might be chosen anywhere within the area designated as the demonstration farm.

Public institutions such as post office, hospital, and others in a locality where the residential quarters for the Japanese staff are to be set up were very kind and hospitable to the Survey Team when it made a visit there for survey. This indicates a general strong expectation to the demonstration farm prevalent there.

The Team was deeply impressed that it should send a group of Japanese rice growers worthy of such expectation.

(c) Problems for further consideration

1) Promotion of establishing facilities attached to proposed farms

The Survey Team expressed its desire to each of the state governments concerned that all facilities and equipments such as paddy field, office building, accommodations of new demon-

stration farms should be completed before the arrival of the Japanese staff. But we were told that the progress of construction work had been delayed due to a hitch in delivery of building materials such as cement and others. This kind of delay was also seen in some of the existing farms. It had prevented them from achieving so high an efficiency as otherwise expected in their management and activity. The Team learned it when it visited those farms. As the levelling work had not been finished in paddy field, they were forced to use a small piece of land for growing rice. But they could raise yields through improving soil fertility. Now entering the stage of actual training of Indian farmers after two years since their establishment, some existing farms still vitally need the levelling of paddy field to be accomplished because they have to start to apply machines to the field. Under the present situation, they will not be able to avoid a reduced production inspite of the general expectation of an increased crop. It is considered necessary that some one should soon be dispatched to India to advise her to finish her arrangement for facilities of new farms and other preparations for receiving the Japanese staff as early as possible.

As the arrangement of paddy field, particularly the drainage for a land to be levelled requires a special technical process, it should be performed under the direction of some Japanese experts from the existing farms or directly from Japan. The state governments also hoped so very much.

2) Dispatch of farm personnel

Four new farms are to be established in 1965 according to the Japanese budget. But in the light of the existing farms' experiences, arrival of the Japanese personnel at new farms in or later than April will fail to bring successful results to the farms as satisfactory preparation cannot be made in so

short a period from their arrival to the opening of farms. Thus the state governments as well as the central government are eager for Japan's dispatching the staff as early as possible. The state government of Kerala said that if the staff would arrive there in April, they would miss one of crops in that year. Thus the staff for new farms should be at their post in late March at the latest with the exception of Kerala where they should be by the middle of March.

The staff for new farms should get help from some one with experience in old farms. But as the latter farms are in their third year and their staff are making efforts to achieve the last and greatest results, vacancy should immediately be filled with a members of the coming staff.

All the fresh members are required to become familiar with things Indian both natural and human before their assignment to new farms. This will help them very much in their initial activity which includes very important preparatory works for the establishment of new farms. Consequently, it is most desirable that they are sent to the existing farms immediately after the training given in Japan to spend some time there before proceeding to their destination.

As each new farm has its peculiar farming conditions, they have to be studied in advance. According to the results of the study, members best suited for the conditions should be selected for the right management of the farm.

3) Machinery provided by Japan

Some of the farm machines supplied by Japan have hardly been used effectively in the existing farms so far. Therefore, it should be considered carefully not to furnish such as already proved rather useless but to supply such as deemed most useful for the conditions of new farms based on the experience

of the old farms.

In view of physical structure and customs of Indian people as well as local soil conditions, machinery to be provided must be durable rather than precise and be accompanied by tools and implements used for repairs to be performed in the farms.

Furthermore, in the light of insufficient transportation facilities in India that often interrupt connection between the Indian authorities and the Japanese farms, automobiles must be furnished to the farms. At present, however, only a jeep is available in each existing farms and is used by all members to make a trip to study agricultural situation around the farm. Therefore, each of the new farms must be supplied with an automobile at least in addition to a jeep.

As to machinery and materials from Japan, India demands to have them delivered by December this year at the latest as agreed in the joint meeting of the Indian authorities and the Japanese Survey Team as mentioned above.

It will not only show our sincerity but also promote India's arrangement for new farms to meet India's demand as soon as possible.

- 4) Technical improvement of rice culture and method for assistance to the activities made by the Japanese Staff

As mentioned above, India is now looking for the old farms to achieve not only an increased yield of rice as well as an economic effect of the Japanese method of rice culture. Under the conditions of climate, soil, water, etc, not to speak of rice variety, all of which are utterly different from those in Japan, it is naturally very difficult for any experimental or research institution to realize a high yield of rice in a short period. As these old farms in this case are not allowed

to confine itself to researches and experiments, it will be more difficult for them to establish a high yield in parallel with a high profitability in rice production. Rice disease such as bacterial leaf blight of rice plant and lack of some of the trace elements that have been found in some of the old farms cannot be overcome at a bound. A number of minor trials must be carried out to overcome them. Besides, Japan must collect and analyze results of studies made by every research and experimental institution not only in India but also in other southern countries and keep the demonstration farms in India informed of them.

If a specialist is sent from Japan to the farm where some problem has occurred, he may solve it in a moment. But this may be an exceptional case. Otherwise, he shall stay there at least for a period of rice cropping cycle until he reaches a solution. This will help much bring the work of the demonstration farms to success.

It may be also necessary to invite Indian research workers and specialists to Japan in order to realize a close relation. Particularly those Indian people to be assigned in the demonstration farms as counterparts should get training in Japan in the first year of the new farms. Vital is to keep a warm watch from Japan over the demonstration farms with ready assistance and not to make them isolated in strange circumstances.

The efficiency of activities made by the Japanese staff in the foreign country will largely depend on their daily living conditions. The Japanese diplomatic establishments in India has been making efforts to render their and their family members' life as easy and pleasing as possible. However, if the new farms are added to the existing ones, the Fishery Products Processing Training Center, the Small Scale Industry

Training Center and etc., the total number of related Japanese residents in India including their family members will amount to more than 100. Distribution and supply of equipments and materials to these institutions have already become a heavy burden on the Embassy. Therefore, it is rather urgent to appoint some person to the Embassy and make him take charge of such work. This is strongly demanded by all farms.

5) Matters to be specified in the Agreement and its memorandum

According to the provisions on the existing farms in memorandum attached to the agreement, it is hardly expected that paddy field attached to new farms will be arranged satisfactorily, that agricultural machinery may smoothly be lent outside the farm, that machine parts may easily be supplied, etc. Therefore, deliberate consideration should be given to specify clearly the following points in the Agreement and its memorandum attached to it regarding the establishment of new farms.

- (1) It should be officially written in a document for exchange between India and Japan that India should make complete arrangement for paddy field and buildings in the demonstration farm while Japan deliver the personnel and equipments and materials, on the date the both parties have agreed, without fail.
- (2) India should assign to the farm not only the director but also at least one mechanical engineer and one rice culture expert as counterparts to the Japanese with a view to making India smoothly take over the farm at the termination of the agreement.
- (3) Conditions under which equipments and materials provided by Japan are lent out from the farm and supply

of machine parts and materials is shared between India and Japan, should be exactly stipulated.

- (4) Arrangement of demonstration paddy field should include the construction of irrigation facilities as well as drainage, readjustment of field partitions (into larger sections in equal size) and construction of farm road.
- (5) "Chicken houses" described under the column of buildings in Table II attached to the old agreement should be stricken off.
- (6) As the size of residences for the project leader and his staff and furnitures and accommodations of those residences and the administration office in the existing farms have been found to be rather inconvenient to users, all of them should be improved.
- (7) Measures should be taken to import annually a certain amount of foodstuffs peculiar to the Japanese diet, free of taxes.

The Survey Team was impressed very much by a great favor and cooperation given by many of the Indian people both official and private during its trip in India.

It would not be able to carry out its tasks so successfully without this kindness, which will surely further the friendly relation between India and Japan.

4. PROGRAM OF WORK FOR AND PROBLEMS IN NEW DEMONSTRATION FARMS
(Refer to the Table on Program of Work for New Demonstration Farms)

In expectation of the commencement of their operation in May 1965 a concrete plan was studied for the arrangement of farms to be set up in Bapatla, Andhra Pradesh State, Mandya, Mysore State, Chongamanad, Kerala State, and Khopoli, Maharashtra State, which had been taken up by the last Japanese survey team, as the sites for new farms.

In mapping out the plan, all conditions described under from Para. (a) to Para. (g) mentioned below were considered carefully to be fulfilled in the light of the past experiences made by the existing 4 farms.

Every part of the program was prepared under mutual understanding and agreement through the deliberate consultation between Indian people concerned including Indian technical experts and the Japanese survey team at each proposed site of new farm.

In each case it took long to reach a mutual agreement as there was a wide difference in opinion between the two parties regarding the requirements for arrangement of demonstration paddy field.

At any rate, however, the requirements demanded by the Japanese team were accepted.

Under the actual situation of the proposed sites in Bapatla (Andhra Pradesh) and Mandya (Mysore), it was agreed upon that the arrangement would be finished respectively by the end of 1964 and by May 1, 1965, while by April, 1965 for the remaining sites. It was requested by India that some Japanese experts should give instruction and cooperation to this arrangement. It would be very important to answer this request so that the Japanese staff might not be forced to start it

over again after their arrival.

Common basic items of the programs of work for all farms

a. Area of paddy field

The area of paddy field should be about 10 acres in consideration of the past experiences made by the existing farms and coincide with average size of such field in India.

b. Area of a plot

The area of a plot should be about 0.5 acre for efficient use of middle and small machines, easy performance of levelling the field surface, etc. This may be reduced if necessary due to the ground situation of the site but not to less than 0.25 acre.

c. Water supply

Irrigation water should be supplied all the year round.

This is aimed at a higher land productivity through cultivation of the second and third crops.

d. Irrigation and drainage

Canals and ditches should be laid out as each plot could be irrigated and drained effectively.

e. Farm road

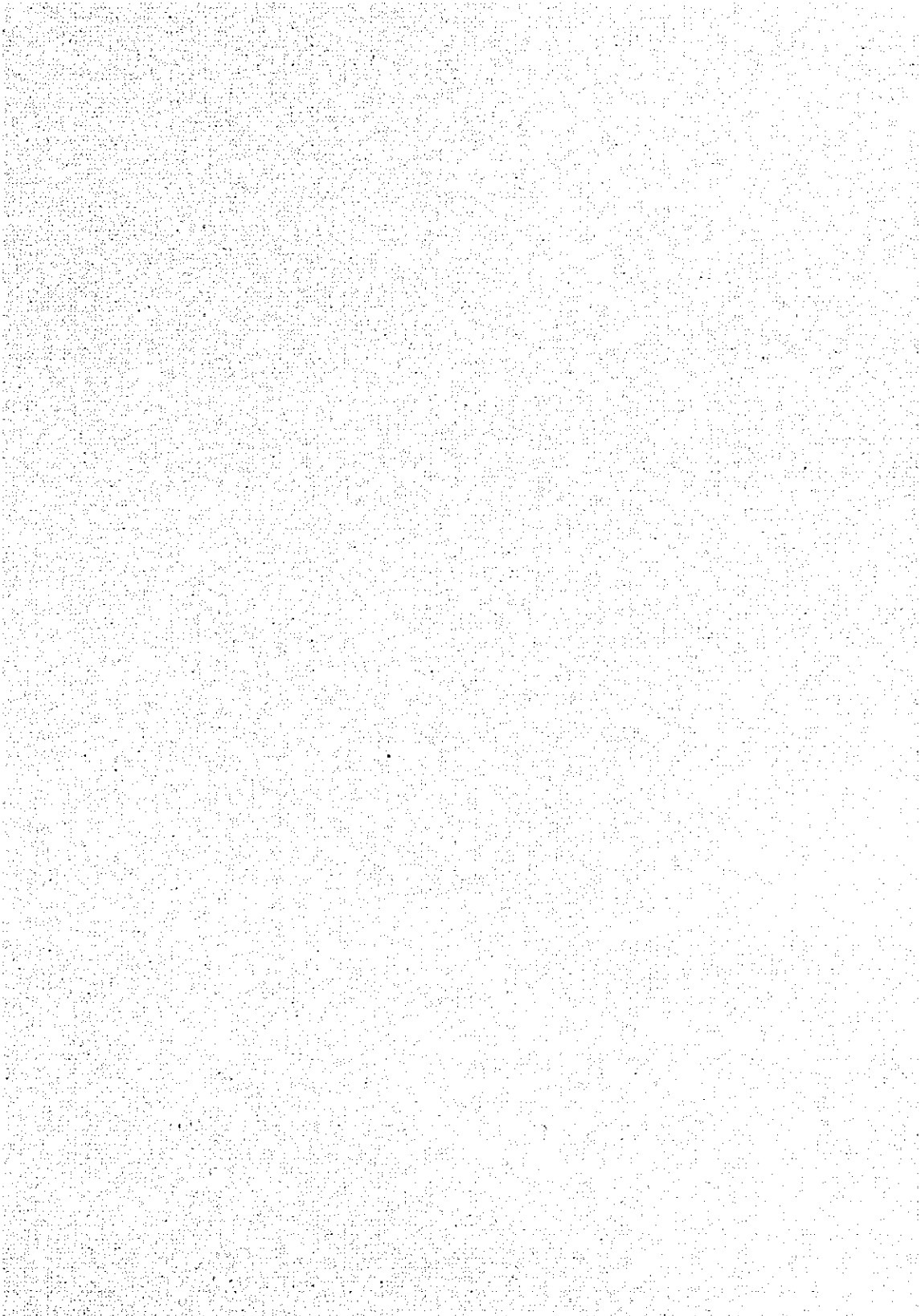
Farm road should be arranged so as human and mechanical farming works could be performed efficiently.

f. Levelling of field surface

Levelling work of paddy field surface should be executed according to a definite method of handling surface soil.

g. Attached facilities

In case that the paddy field is distant from the administration office, buildings should be set up near the paddy field for storage of farm implements and materials and for resting of working people.



Program of Work for New Demonstration Farms

Name of farm Item	Bapatla	Mandya	Chengamanad	Khopoli
(1) Location (a) Proposed site (b) Cities nearest to the farm (c) Seat of the state gov't	Andhra Pradesh State In the attached farm of the Bapatla Agricultural college Guntur, 30 miles away Hyderabad	Mysore State In V.C. Farm Mysore, 28 miles away Bangalore	Kerala State In the State Seed Farm Always, 5 miles away Trivandrum	Maharashtra State In a branch of the state agri. experiment station Bombay, 36 miles away Bombay
(2) Paddy field (a) Area (b) Size of a plot (c) Canal & ditch for water supply & drain and farm road (d) Supply of irrigation water (e) Barbed wire	Cultivated area, 10 acres 1/2 acre. Levelling to be performed for each plot Canal and ditch for water supply and drain to be constructed separately for respective purposes. Road to be big enough for passing of tractor (1) Supply is not necessarily sufficient throughout the year. (Canal to be repaired in May and June) (2) Special consideration to be given to the supply of ample water to nursery bed. Watchman to be posted	10 acres 1/4-1/2 acre. Levelling to be performed for each plot. The surface soil to be removed to the depth of 15 cm to level the soil below, which is, then, to be recovered. Canal and ditch for water supply and drain to be constructed separately for respective purposes. For drain the existing ones to be used. Road to be big enough for passing of tractor (1) The priority is given to the use of water by the farm during the dry season. All paddy fields to be surrounded with barbed wires	10 acres 1/4 acre. Levelling to be performed for each plot so as to keep the surface soil as it is. Canal and ditch to be used for both water supply and drain. Bund: 2 ft. Road to be big enough for passing of tractor. (1) Sufficient water to be supplied for double cropping (including that for nursery bed.) All paddy fields to be surrounded with barbed wires	10 acres Abt. 1/4. Levelling to be performed for each plot. The surface soil to be removed to the depth of 15 cm to level the soil below, which is, then, to be recovered. Canal and ditch to be used for both water supply and drain. Drain to be performed so as the water flooded over the field will not be deeper than 15-20 cm in the wet season. Road is to be big enough for passing of tractor. (1) Efforts to be taken for the supply of adequate water throughout the year. Barbed wires now in use to be repaired and strengthened.
(3) Building (a) Office	(V means veranda and G means garage hereunder.) (1) Office room (to be reconstructed) : 712 sq.ft.	(1) Office bldg.: 1,600 sq.ft. (V: 600 sq.ft.)	(1) Office bldg.: 812 sq.ft. (V: 232 sq.ft.)	(1) Office bldg.: 1,032 sq.ft. (V: 224 sq.ft.)

Item	Name of farm	Bapatla	Mandya	Chongamanad	Khopoli
		(2) Shed for machinery and equipment (to be reconstructed) (3) Washing place for farm implements (to be constructed) (4) Storehouse for fertilizers and seeds (to be reconstructed) (5) Storage (existing) (6) Storehouse for fuels (to be reconstructed) (7) Garage (existing)	(2) Shed for machinery and equipment: 2,700 sq.ft. (V: 720 sq.ft.) (4) Storehouse for fertilizer & seeds: 800 sq.ft. (6) Storehouse for fuels: 100 sq.ft. (7) Garage: 300 sq.ft.	(2) Shed for machinery and equipment: 3,420 sq.ft. (V: 720 sq.ft.) (3) Washing platform for farm implements (4) Storehouse for fertilizer & seeds (to be reconstructed): 600 sq.ft. (6) Storehouse for fuels: 120 sq.ft. (7) Garage: 480 sq.ft. (8) Work room: 1,200 sq.ft.	(2) Shed for machinery and equipment: 1,036 sq.ft. (V: 224 sq.ft.) (3) Washing stage for farm implements (4) Storehouse for fertilizer & seeds: 600 sq.ft. (6) Storehouse for fuels: 120 sq.ft. (7) Garage: 120 sq.ft.
	(b) Paddy field	(1) Preparation room & toilet: 370 sq.ft. (2) Storehouse for farm implements: 450 sq.ft. (3) Washing place for farm implements (4) Roofed threshing place (5) Compost shed: 300 sq.ft.	(1) Preparation room & toilet (2) Storehouse for farm implements (3) Washing place for farm implements (4) Work room: 450 sq.ft. (5) Compost shed: 300 sq.ft.	700 sq.ft. (5) Compost shed: 500 sq.ft.	(4) Work room: 1,200 sq.ft. (5) Compost shed: 500 sq.ft.
	(c) Accomodation (i) Leader	To be constructed: 1,716 sq.ft. (V: 192 sq.ft.; G: 160 sq.ft.)	To be constructed: 1,716 sq.ft. (V: 192 sq.ft.; G: 160 sq.ft.)	To be constructed: 1,776 sq.ft. (V: 144 sq.ft.; G: 216 sq.ft.)	To be constructed: 2,164 sq.ft. (V: 144 sq.ft.; G: 216 sq.ft.)
	(ii) Staff	To be reconstructed: 3 houses 1,668 sq.ft. (V: 472 sq.ft.) 1,208 sq.ft. (V: 288 sq.ft.)	To be constructed: 3 houses 952 sq.ft. (V: 112 sq.ft.)	To be constructed: 3 houses 1,341.04 sq.ft. (V: 113.04 sq.ft.)	To be constructed: 3 houses 1,341.04 sq.ft. (V: 113.04 sq.ft.)
	(4) Facilities attached to buildings (a) Furniture I Office	Existing ones to be used	Table: 8 Chair: 8 Folding chair: 25 Almirah: 3 Steel rack: 7 Chair for reception room: 10	Big table: 1 Small table: 4 Ordinary table: 6 Folding chair: 25 Rattan chair: 5 Almirah: 3 Rack: 4	Big table: 1 Small table: 4 Ordinary table: 6 Folding chair: 5 Revolving chair: 1 Almirah: 3 Rack: 4

Item	Name of farm	Bapatla	Mandya	Chengamanad	Khopoli
II Residence	(i) Leader	Bed: 4	Bed: 4	Stool cot with mattress: 4	Stool cot with mattress: 4
		Wall almirah: 2	Wall almirah: 2	Wall almirah: 2	Wall almirah: 2
		Wall cupboard: 4	Wall cupboard: 4	Wall cupboard: 1	Wall cupboard: 1
		Desk & Chair: each 1	Desk & Chair: each 1	Table & chair: 6	Table & chair: 6
		Dining table: 1	Dining table: 1	Dining table: 1	Dining table: 1
		Armless chair (rattan seat): 10	Armless chair (rattan seat): 10	Armless chair: 10	Armless chair: 10
		"S" shaped cane chair: 10	"S" shaped cane chair: 10	Cane chair: 6	Cane chair: 6
		Side table: 5	Side table: 5	Side table: 5	Side table: 5
		Mirror & bath tub: 1	Mirror & bath tub: 1	Sofa set: 5	Sofa set: 5
	(ii) Staff	Bed: 4	Bed: 4	Mirror & bath tub: 1	Mirror & bath tub: 1
		Wall almirah: 2	Wall almirah: 2	Stool cot with mattress: 4	Stool cot with mattress: 4
		Wall cupboard: 4	Wall cupboard: 4	Wall almirah: 22	Wall almirah: 2
		Desk & chair: 1	Desk & chair: 1	Wall cupboard: 4	Wall cupboard: 4
		Dining table: 1	Dining table: 1	Small table: 2	Small table: 2
		Armless chair (rattan seat): 6	Armless chair (rattan seat): 6	Dining table: 1	Dining table: 1
		"S" shaped cane chair: 5	"S" shaped cane chair: 5	Armless chair: 6	Armless chair: 6
		Side table: 2	Side table: 2	Cane chair: 6	Cane chair: 6
		Mirror & bath: ea. 1	Mirror & bath: ea. 1	Side table: 5	Side table: 5
	(b) Others	1. Telephone to be installed at leader's residence	1. Telephone to be installed at the office and leader's residence	Mirror & bath tub: ea. 1	Mirror & bath tub: ea. 1
		2. Residences' floor to be plastered	2. -	Sofa set: 1	Sofa set: 1
		3. Screen to be applied to windows and doors	3. Ditto	1. Telephone to be installed each at the office, leader's residence, and farm manger's residence	1. Telephone to be installed at the office and leader's residence
		4. Ceiling fan to be applied to bed and sitting rooms	4. Ditto	2. -	2. Residences' floor to be tiled
		5. Water tank to be applied to each residence	5. Ditto	3. Ditto	3. Ditto
		6. Running water tub to be set in sitting, kitchen, and bath rooms and in garden.	6. Ditto	4. Ceiling fan to be applied to bed, office and implements shed	4. Ditto
		7. Kitchen and toilet to be set up in western style	7. Ditto	5. Ditto	5. Ditto
		8. Drainage to be applied to each residence	8. Ditto	6. Ditto	6. Ditto
				7. Ditto	7. Ditto
				8. Hygienic facilities of all residences are to be made perfect.	8. Ditto

Item	Name of farm	Bapatla	Mandya	Chongamanad	Khopoli
(5) Management	<p>9. Fluorescent light to be applied to all residences</p> <p>10. Two plugs to be set each in sitting, bed, and kitchen rooms</p> <p>11. Residences to be fenced round</p> <p>As the proposed farm is to be located in the farm attached to the college,</p> <p>1. It is advisable to form a steering committee consisting of the president, professors concerned, and staff members of the farm, thus obtaining cooperation from the college;</p> <p>2. Japanese experts may give instructions to college students in their field study</p>	<p>9. Ditto</p> <p>10. Ditto</p> <p>11. Residences to be surrounded with barbed wire</p> <p>12. Electric heater to be applied for bath</p> <p>As the proposed farm is to be located in V.C. farm,</p> <p>1. It is essential always to be on the alert to extend results achieved in the farm over irrigated area;</p> <p>2. It is probably required for the farm to help the extension work as a part of its activity.</p>	<p>9. Fluorescent light is to be applied to all buildings and attached facilities</p> <p>10. Plugs are to be set in residence, office, and other buildings</p> <p>11. Buildings to be surrounded with iron fence</p> <p>12. Ditto</p> <p>13. Street lighting to be applied</p> <p>Though the proposed farm is to be placed in a seed farm, it is considered an independent farm. Therefore,</p> <p>1. It is necessary to map our and actively carry out a plan to manage the farm efficiently.</p> <p>2. As the state government is always ready to help the farm, the farm will be able smoothly carry out its tasks.</p>	<p>9. Ditto</p> <p>10. Ditto</p> <p>12. Ditto</p> <p>13. Ditto</p> <p>As the proposed farm is to be considered independent from the same reason as above,</p> <p>1. It is necessary to follow the same way as above.</p> <p>2. It is necessary to keep a close connection with the state government.</p>	
(6) Staff	<p>It seems very important to include in the staff at least a member with basic knowledge of agronomy.</p>	<p>For this purpose, the staff members are required to be cooperative.</p>	<p>At least a member of the staff is required to have ability of planning and be active.</p>	<p>The same as above.</p>	

Name of farm Item	Bapatla	Mandya	Chengamanad	Khopoli
(7) Other out- standing problems	In levelling the proposed farm land, one of the leaders of existing farms is desired to be invited for supervision	As the suggestion made by the team on "Accomodation" has some points to be studied further, the state government will present an alternative, which should be considered.	1. The staff members should desirably arrive at the site in September this year or by March next year at latest. 2. Farm implements should desirably be lent outside the farm.	

5. STANDARDS FOR SELECTING THE STAFF ACCORDING TO THE SITUATION OF RESPECTIVE FARMS

1) Bapatla Farm (Andhra Pradesh)

As this demonstration farm will be set up in the farm attached to the Agricultural College in Bapatla, it should keep a close relation with the College.

It may be necessary for the demonstration farm to answer some technical questions and to send a member of its staff for a lecture or cooperation in a field work for students according to a request from the College.

In expectation of such request, a member of the staff (preferably the leader) is required to have some scientific knowledge of agriculture.

As the demonstration farm is fairly distant from the seat of the state government (Hyderabad), the president of the College should take charge of the administration of the farm.

2) Mandya Farm (Mysore)

Mandya, the proposed site of this farm, is an area designated by the Package Program, where the farm is to be established in the Sugar Cane Experiment Station that is carried on as a part of the Program. This Program has been widely performing activities such as not only to give technical guidance and training to farmers but also to advise on the improvement of agricultural cooperative and standard of living of rural people. Thus it is advisable to assign a man of action and cooperation to the leadership of the farm in expectation of request from the Indian side for technical guidance and extension service.

3) Chengamanad Farm (Kerala)

As this demonstration farm to be established in an existing seed farm is to be provided with almost all the facilities and

paddy field by the seed farm, it may be considered as an independent farm.

Besides, the state government is very cooperative and the people of the state has generally a high rate of literacy, it will be easy for the Japanese staff to manage the demonstration farm smoothly and spread results of their work among farmers. Therefore, the staff should consist of men of action with a lot of agricultural experience.

4) Khopoli Farm (Maharashtra)

This demonstration farm is to be located in a seed farm of a branch of the agricultural experimental station in Karjat 10 miles away from the proposed site. Thus it may easily avail itself of technical cooperation from the station. But as it is rather near Bombay, the second largest city in India and in an area where industries have developed to some extent, its agricultural management may meet with difficulties. Therefore, the staff should be made up with men of action with persuasive power.

6. SUPPLY OF NECESSARY EQUIPMENTS AND MATERIALS

(1) New farms (Ref.: List of Necessary Equipments and Materials for New Farms)

a) The following list is prepared based on the unchanged principle that the demonstration should be exclusively carried out for the first three years and based on the experiences so far gained by the old farms.

b) Items of supplies different from those for old farms

i) Two motor cars in all with addition of one station-wagon.

ii) The type and number of farm implements and machines have been decided in view of their utility and demonstration effect: 2 sets of the following items of machine have been added to the items in the list for old farms:

Power tiller

Power sprayer

Power mist duster

Transplanting rope

Hand Weeder

Power thresher (entirely automatic)

iii) The number of farm machines to be supplied has been decided partly in the light of experiences made by the old farms.

(2) Existing farms

a) A list of farm implements and machines to be supplied to the existing farms has been prepared with the purpose of mainly improving their demonstration work further for the additional two years, giving due consideration to the training of Indian farmers if required.

b) Additional equipments and materials

- i) One worn out jeep now in use should be replaced by a new one and one station wagon be newly supplied.
- ii) Farm machines with higher utility to be supplied to the new farms should be supplied, too.
- iii) Machines and implements to be provided to new farms should be supplied if they have not been equipped to the existing farms.

LIST OF NECESSARY EQUIPMENTS AND MATERIALS FOR NEW FARMS

Item	Proposal by the Team
Four-wheel tractor	1, Blades and shovel dozer to be added to the attachments already provided. In the Bapatla Farm, one with more than 18 Hp is preferable.
Power tiller	4, the number of tilling blade (ordinary type) to be reduced while that of tilling blade (hatched type) increased.
Small power tiller	Of the same type as already provided.
Jeep, Scooter, Bicycle	1 jeep; 1 station wagon; 3 motorcycle; 4 bicycles. Spares of tyre and tube to be supplied more than before
Ox cart	Not wanted
Rear car	2
One-wheel cart	6
Grain drier	1
Power sprayer	4
Power mist duster	4
Hand sprayer	2
Power duster	2
Weeding chemical sprayer	Not wanted
Hand weeder (18 cm)	20
" (21 cm)	20

Hand weeder (24 cm)	20
Transplanting scale (used for transplanting rice plants in regular rows)	Not wanted
Transplanting rope (used for transplanting rice plants in regular spacing)	30
Measuring tape	Three, 50 m ones of ethlon and two 2 m ones of stainless steel
Power thresher (automatic)	4, of the same type as already provided
Power thresher (semi-automatic)	Not wanted
Hand thresher	1
Tent	Additional one, 30 ft. x 15 ft. of ridge roofed type.
Sparrow net (net pro- tecting rice plant from sparrows)	Of the same type as already provided.
Huller } Polisher }	Not wanted
Hand noodle making machine	1
Winnower	2
Power straw-rope making machine	Not wanted
Straw softening machine	Not wanted
Feed grinder	Not wanted
Power cutter	2
Hand cutter	1
Vertical pump	2 for the Bapatla Farm
Centrifugal pump	2 each for the Chengamanad, Mandya, and Bapatla Farms
Deep well pump	Not wanted

Sprinkler set	1 each for the Chengamanad, Mandya Farms
Oil engine (kerosene)	} Of the same type as already furnished.
" (gasoline)	
Motor	Not wanted
Fertilizer mixer	1. for the Mandya Farm
Hand driven direct sowing machine	Not wanted
Straw matt making machine	Not wanted
Straw cutter	Not wanted
Straw raincoat	Of the same type as already provided.
Duster of rodenticide	Not wanted
Power reaper	} Not wanted
Hand reaper	
Vinyl coat	Of the same type as already furnished.
Burring machine	Of the same type as already provided.
Animal driven farm implements:	2 each for demonstration purpose
Plow: single purpose	}
multipurpose	
Power harrow	
Horse driven nursery bed scratching machine	
Paddy cultivator	
Weeder for paddy	
Harrow applicable to both lowland and upland	
Rope	
Rigging	
Others	
Water purifier (for drinking water)	4
Small farm implements	Of the same type as already furnished. Scoops, rakes, hoes, hatchets, axes, etc. to be increased to three times the number of those already supplied.

Metal and wood working implements:	Of the same type as already furnished.
Gas welding machine	Electric welding machine to be supplied instead.
Electric drill, electric iron, transformer, cap tyre	} Of the same type as already provided.
Platform scale	
Audio-visual aids	Old ones to be replaced with new ones as much as possible after testing the former.
Rain-gear	Of the same type as already furnished
Portable megaphone and siren	Of the same type as already provided.
Hand level	stricken off
Pipette:	ditto
Paraffin melter:	ditto
Microtome:	ditto
Set of slide dyeing apparatus	ditto
Photomicroscope:	ditto
Phase different photomicroscope	ditto
Grain drier	ditto
Fertilizer	only special one such as silicic lime
Chemicals for laboratory studies	stricken off
Chemicals for various testings	added
Calculator:	2, of which one is adding machine
Equipments to be newly supplied:	
1. Peanuts thresher:	2
2. Peanut sheller:	2

- | | | |
|--|--|-----|
| 3. Corn thresher: | 2 row-type with 1-2 hp motor: | 1 |
| | Hand driving type: | 4 |
| 4. Vat, enamelled in cabinet size: | | 10 |
| 5. Alumite bowl, 10cm in dia: | | 40 |
| 6. Polyethylene bucket with cover | | 20 |
| 7. Glass tube to keep sample seeds: | | 100 |
| 8. Rubber boots: | | 15 |
| 9. Kerosene burner: | 4 (only for farms in Bapatla and Mandya) | |
| 10. Stereometer: | | 10 |
| 11. Set of text books used by agricultural senior high schools in Japan. | | |
| 12. Colored picture books | | |

7. PROBLEMS IN THE EXISTING FARMS (Ref.: List of Problems in the Existing Demonstration Farms) COMMON PROBLEMS AMONG THE EXISTING FARMS

(1) Summarizing the general impression on the four existing demonstration farms, they look like to be fully prepared for their works originally expected from them, 2 years after their establishment. It should be much appreciated how hard their leaders and staffs had made efforts to bring the farms in such full preparedness under the situation of such a foreign country as India. It should also be remembered that the Indian side had managed hard to carry out what they had promised to Japan, though rather slowly.

It takes longer for technical cooperation in agriculture than for that in other sectors. Because it has to be adjusted to the natural conditions different in foreign country. A certain length of time must be spent for training the staff himself and having necessary facilities arranged. Consequently, if fruitful results in a short period are prematurely demanded strongly to the staff, it will only give a useless burden to him. Thus it is requested that all those concerned should be generous and cooperative to the staff in the preparatory stage of the farm management.

(2) Each farm has been managed in a way peculiar to it. It is natural that each has different natural conditions and the state government in addition to the central government is responsible for the farm's management. But the management of each farm has been influenced more by its leader than by such natural conditions.

Although it is very important that the farm has its peculiarity in its management according to the leader's speciality, the management as a whole should be directed and proceeded with

full understanding not only of what India desired to obtain from the technical cooperation in view of its origin and development but also on what principle the present cooperation was based.

To make the above complicated situation plain, Japan is responsible for the adaption of Japanese method of rice culture to the farming in India, that is, the indianization of Japanese rice culture and its demonstration. The staff who take part in this process are to consist of actual rice producers; the size of paddy field used for the rice culture and farm management is to correspond to the averaged one in India; Proceeding to the demonstration of rice culture, it is necessary to consider profitability of the rice growing techniques, though the profitability is not in whole farm, but in the demonstration field.

(3) One of the methods in the field management is considered as follows:

Large paddy field is used for the demonstration for rice culture. It is necessary, however, for carrying out cultural techniques to practice a lot of such trials as variety, fertilization and plowing etc. in rice culture because the agricultural techniques are different from natural conditions. Small plots are used for doing such trials and if good results are acquired in the small plots, those results will be adopted to the large paddy field next year.

LIST OF PROBLEMS IN THE EXISTING DEMONSTRATION FARMS

Name of farm Item	Shahabad	Nadia	Sambalpur	Surat
(1) Environment	Environmental conditions of the farm to be orderly arranged and made beautiful.	Social environment around the farm is not agreeable. Many cases of theft are reported.	Ditto (The farm had 12 cases of theft after the foundation)	Ditto
(2) Facilities (A) Paddy field	Water canal to be repaired.	Water canal better be reconstructed with concrete than repeating repairs year after year.	As levelling work was done independently for each small plot, efficient use of farm machinery is prevented.	(1) As levelling work was performed incompletely, growth of rice is uneven. (2) Due to insufficient water supply in the dry season, rice is grown only on 3 acres of the field.
(B) Buildings and other establishment	(1) Concrete platform for work place to be extended further. (2) Storage for farm implements to be fenced.	(1) Setting up of garage. (2) Setting up of fuel storage (3) Setting up of washing place for farm implements (4) Setting up of manure storing place (5) Setting up of hay shed (6) Improvement of road to residence (7) Residence for assistant operators of farm implements	(1) Old buildings that are now in use are inconvenient. (2) Door of farm implement storage is now under construction.	(1) Storage for farm implement to be established anew. (2) Repairs and re-setting of barbed wire to be performed. (3) Water tank is now under construction to be exclusively used by the farm.
(C) Accomodation	Size and structure of residences are the same regardless of the post of resident. They are generally too small.		(1) Old building was reconstructed to add a room. But it is still too small. (2) Well pump for exclusive use to be repaired. (3) Toilet to be repaired.	Servant quarter to be added.
(D) Others	(1) Signs at the entrance and other establishments and facilities to be put or improved for visitors. (2) A notice-board with explanation to be put up at each of the demonstrated articles.	Ditto	(1) Ditto (2) Ditto (3) Small machine parts to be made easily available.	(1) Ditto (2) Ditto

Name of farm Item	Shahabad	Nadia	Sambalpur	Surat
(3) Management	<p>(1) Counter measure to bacterial leaf bright of rice plant to be studied.</p> <p>(2) Fertilization method to be studied</p>	<p>(1) Crop rotation for paddy field to be studied.</p> <p>(2) Application of manure to be studied.</p> <p>(3) Problems of manure to be considered.</p>	<p>(1) Farm manager's post to be stabilized so as he can devote himself to his proper work. (So far the post has been occupied by 6 different persons)</p> <p>(2) Accounting to be made independent from that of the Cotton Experiment Station.</p> <p>(3) Additional counterparts to the Japanese members, field men, and office boys to be considered.</p> <p>(4) Payment of travelling expenses (after the opening of the farm)</p> <p>(5) Extension line to be set in the leader's residence.</p> <p>(6) Counter measures to deficiency of trace elements to be studied.</p>	<p>(1) Cultivation of rice of Formosa variety to be studied.</p> <p>(2) Use of animal driven farm implements to be studied.</p> <p>(3) Additional counterparts to the Japanese Members to be considered.</p> <p>(4) Farm manager to be devote himself to his proper work.</p> <p>(5) Payment of travelling expenses (after the opening of the farm)</p> <p>(6) Extension line of telephone to be set in the leader's residence.</p>



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