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NOTE ON POULTRY HUSBANDRY IN HYDERABAD STATE, WITH SUGGESTIONS FOR THE WHOLE OF INDIA.

BY

NIZAMUDDEEN HYDER,

Offg. Director of Agriculture, Hyderabad State.

This note is being written in response to the request of the Secretary of Imperial Council of Agricultural Research. According to the decision arrived at by the Advisory Board of the Council, in connection with the Poultry Research Scheme submitted by the Government of Bombay and the United Provinces Poultry Association, he has asked for information on the following points :—

- (a) What work on poultry husbandry, if any, is already being done in the Hyderabad State ?
- (b) What is still required to be done ?
- (c) Whether a Central Poultry Institute for all-India research is needed ?

Replies to the above questions are given in the following.

2. *Work in progress in Hyderabad State.*—There is an Experimental Poultry Farm at Himayatsagar near Hyderabad city, which is about 5 years old. The breeds of fowls kept at this farm are White Leghorn, Australorp, Rhode Island Red, Light Sussex, Black Minorca and Hyderabad Asseel. Another poultry farm is attached to the Rural Development Centre at Petancheru about 20 miles from the Hyderabad city, which is about 4 years old. The same breeds are kept there, excepting the Asseel. So far, at both the farms, Rhode Island Red and White Leghorn have proved the most satisfactory, on the whole. A small poultry section has been opened at the Experimental Farm at Pambhani, with only the Rhode Island Reds, for demonstration purposes. Birds and eggs for breeding are supplied from these farms to fanciers and village poultry keepers. Great interest is being taken by the Hyderabad public, both urban and rural, in poultry keeping since the establishment of these poultry farms and the inauguration of the Hyderabad Poultry Show, which is apparent from the fact that there were no less than 571 pure birds in the show held last January, all exhibited by the residents of the State.

3. *Work required to be done.*—Research is required to be done on the following subjects :—

- (a) Diseases.
- (b) Breeding.

(c) Nutrition.

(d) Grading, storing and preservation of eggs.

(e) Packing, transport and marketing of poultry and eggs.

(a) The greatest handicap to development of poultry keeping industry is the diseases. The profession will never become reliable, and therefore will never develop until this difficulty is removed. The diseases must be studied, and simple and practical remedies must be found out if any progress is to be made.

(b) Research in breeding is necessary to find out or evolve the most suitable breeds which can be kept with economic success on a commercial scale by the village poultry keeper. The object of research should be to develop poultry keeping industry for the supply of good and cheap produce for the table use. Its aim should not be to satisfy the hobby of the fancier only. The village poultry keeper cannot afford to keep poultry from the fancier's stand point. No such breed exists in India at present which will suit the village poultry keeper, excepting the poor mongrel. Research in breeding can be done along the following lines:—(1) Trial of the existing foreign breeds, with a view to find out the most suitable one for general introduction as a pure breed, (2) Crossing the mongrel or the so-called Indian breeds, with a view to effect improvement in the indigenous bird, and (3) Improving the so-called Indian breeds or the mongrel by selection on scientific lines. Each of the above three is discussed in the following:—(1) Hundreds of people in all parts of India have tried the various well-known foreign breeds during the last forty or fifty years. All of them were fanciers, who could afford to keep the birds under the best possible conditions. Some of these breeds have been more successful than others, for instance, White Leghorn and Rhode Island Red. Although many of these fanciers tried to introduce such breeds in villages, none of these breeds has established itself so well as the Desi fowls is. But, all the promising foreign breeds have not been tested in a systematic manner. It is, therefore, essential that systematic experiments should be carried continuously for a sufficiently long period, to arrive at a definite conclusion. (2) Crossing is another line of attack. The experience so far has been that crossing the Desi fowl with the foreign fowl brings about an immediate improvement in the first generation. Thereafter degeneration sets in and all the improvement disappears gradually in following generations. Here also it does not seem that a sustained effort on scientific principles has been made. Systematic work for a sufficiently long time is required. (3) Excepting the Punjab, where some work on a small scale was started a few years ago, no serious attempt has been made to improve the country fowl itself. It is admitted that if a permanent improvement is to be effected in the larger animals, *i.e.*, cattle, sheep, etc., the indigenous material itself should be improved by selection. The poultry should be no exception to this rule. The experience so far has shown that the foreign breeds are delicate and are more susceptible to diseases than the country fowl. It has been said in some quarters that the foreign breeds are not delicate and are not more susceptible to diseases than the country fowl. But I hold that if the country fowl is kept under the same ideal conditions as are provided to the foreign breed, the country fowl would prove stronger. And, if the foreign breed is kept under

the conditions which are at present available to the country fowl, the foreign birds will prove more susceptible to diseases. No comparison is fair which is not made under identical conditions. The trial of pure foreign breeds as suggested under (1) and crossing as suggested under (2) may or may not give the desired results, but selection in the country fowl itself is in my opinion the surest method of making an improvement. Great success has been achieved by plant breeders in improving the indigenous material by selection. Similar results have been obtained with larger animals by animal breeders. There is no reason why the same results should not be expected in breeding of poultry. For the material for selection may be taken up the few existing breeds in the country, for instance, Chittagong, Naked Neck, Cochin, Brahma, and Karaknath. The Chittagong is a bird of the Aseel type. Its utility qualities are limited, therefore. The Naked Neck is found in many parts of India. It is rather a leggy breed, which is not a good character. Cochin and Brahma are heavy breeds and poor layers. Karaknath is the famous laying breed of the country. Its name and its qualities are known practically all over India, but it is a very rare bird. However, the most promising of the known breeds should be purified and studied, and if they give promise, selection should be made to improve them further. There is the poor mongrel also to be considered. People who have been keeping the ordinary mongrel fowls in their homes know that among them are occasionally met extraordinary hens possessing very good utility qualities. For instance, such hens are occasionally found which are heavy layers and non-sitters, like Leghorns and Minorcas. Such bird is valued even by the illiterate poultry keeper. He does not easily agree to part with it. Some fanciers of the foreign breeds, when they come across with such a country fowl say that that quality the bird must have acquired from one or other of the foreign laying breeds through crossing somehow or other. This assumption is not based on any definite information, but on the belief that the Indian fowl cannot have good utility qualities. I do not think this assumption is fair or justified, considering the fact that all the domestic fowls of the world, including the famous pure breeds of Europe, America, etc., have been derived from the Jungle fowl of India. Systematic and sustained effort should be made, promising birds should be collected and studied, and selection should be made in the progeny, generation after generation, until pure types with definite characters are obtained.

(c) Research in nutrition is needed to find out bases for fixing rations for the poultry kept for different purposes, for healthier production, and for prevention of diseases which may be due to improper feeding, etc., etc.

(d) Research in grading, storing and preservation of eggs is necessary, to assist the poultry keeper in obtaining the proper value for his produce and in avoiding the waste.

(e) Packing, transport and marketing also require investigation with the same object.

4. *Need for an all-India Poultry Research Institute.*—I have suggested five items of research in the above. The last one, Packing, Transport and Marketing, is a subject for the Marketing Department, and it is already in their programme of work. The other four problems are more or less of fundamental

nature. This work can be done at one place for the whole of India. Research of this nature, particularly in diseases, breeding and nutrition, requires well qualified staff and good equipment. The best way would be to establish a Central Institute for the whole of India, at a suitable place. I am strongly of the opinion that such an institute should be opened as soon as possible. Poultry keeping is an industry of importance and of prospects, particularly for the poor villager of India. It is a great pity that the fowl has up till now not received the due attention in its own home.

5. I hope the Advisory Board will agree to the establishment of a Central Poultry Research Institute, and the Governing Body will realise its importance and sanction it. But, it will be some years before it comes into existence. In the meantime, such work as is being done in the provinces and States should be continued. And, if any of them is prepared to carry out some new work, the results of which can be obtained in a few years, and can be of use to other provinces and States also, it may be helped financially by the Imperial Council of Agricultural Research for that purpose. Therefore, I am of the opinion that the scheme submitted by the Bombay Government may be approved, after necessary modification. I would suggest that the programme of work should be cut down, the items of local importance and the superfluous items should be excluded from it. Also, the two sub-stations proposed should be dropped. If any more stations are to be opened by the Council they should be located in other provinces or States. If any province or State wants to have more poultry farms it should establish them at its own expense. The scheme of the United Provinces Poultry Association submitted at the last meeting of the Advisory Board was drawn up by the Director of Veterinary Services of that province, according to the instructions given to him by the Board. It is intended in that scheme to work on the problems which are included in (d) and (e) above, which I have said can be done at one place for the whole of India. This investigation should not take long to give us the desired results. The results may become available even before the proposed Central Research Institute comes into being. Therefore, my opinion is that the present scheme of the United Provinces Poultry Association, as prepared by the Director of Veterinary Services according to the advice of the Advisory Board, should be sanctioned. Refusal to sanction such scheme will not be fair, and I do not like to see the Board blamed for inconsistency.

LETTER FROM THE SECRETARY TO THE GOVERNMENT OF HIS HIGHNESS THE MAHARAJA OF MYSORE, DEVELOPMENT DEPARTMENT, TO THE SECRETARY, IMPERIAL COUNCIL OF AGRICULTURAL RESEARCH, No. 7701, DATED THE 29TH MAY 1935.

With reference to your letter No. F. 41/35-Vet., dated the 3rd May 1935 in regard to the two schemes on poultry husbandry from the Bombay Government and the United Provinces Poultry Association, I am directed to state as follows :—

The American Mission and the Y. M. C. A. have been breeding foreign breeds of poultry in local centres near Bangalore and the Mysore Horticultural Department did similar work for a year or two in 1928 but the work was not continued.

In view of the fact that the maximum production of eggs in India is during the hot season when eggs cannot be preserved long, a Central Research Station on an All-India basis may be started to investigate into the methods of preserving, storing, packing and transporting this perishable commodity. The work of evolving a disease resistant breed of high egg laying strain best suited to the Indian rural conditions may also be undertaken there.

LETTER FROM THE SECRETARY TO THE GOVERNMENT OF BIHAR AND ORISSA, EDUCATION AND DEVELOPMENT DEPARTMENT, TO THE SECRETARY TO THE IMPERIAL COUNCIL OF AGRICULTURAL RESEARCH, No. 280-D.R., DATED THE 4TH JUNE 1935.

With reference to your letter No. F. 41/35-Vet., dated the 3rd May 1935, I am directed by the Government of Bihar and Orissa (Ministry of Education) to enclose a copy of letter No. 5667, dated the 20th May 1935 from the Director of Agriculture, Bihar and Orissa, for the information of your Council. The local Government agree with the Director of Agriculture that a Central Poultry Institute for All-India Research is preferable to a number of schemes scattered throughout the country.

COPY OF LETTER FROM THE DIRECTOR OF AGRICULTURE, BIHAR AND ORISSA, TO THE SECRETARY TO THE GOVERNMENT OF BIHAR AND ORISSA, EDUCATION AND DEVELOPMENT DEPARTMENT, No. 5667, DATED THE 20TH MAY 1935.

I have the honour to reply to your memo. No. 155-D.R., dated the 14th May 1935.

2. (i) Two small flocks of White Leghorns are maintained in the departmental farms, one at the Ranchi farm and one at the Patna farm. No special officer has been recruited for the work though the Ranchi farm was fortunate to recruit as an Agricultural Overseer a man who had received training in Poultry management at Lucknow. No scientific work has been attempted as neither the staff nor the funds is available.

(ii) From the above it will be obvious that only the most elementary work is being done on poultry in this province. Everything in connection with progressive poultry husbandry still requires to be done, such as studies in housing management, breeding, diet, diseases and so on.

(iii) Personally I consider that a Central Poultry Institute for all India research is needed and is preferable to a number of schemes scattered throughout the country. Although popular opinion towards the hen and the egg is rapidly changing, still neither at Patna nor at Ranchi is it possible to get satisfactory prices either for table birds or for eggs. Until there is great advance in this direction there will neither be justification nor incentive in this province to embark on expensive schemes for poultry improvement. At the same time, the Marketing Scheme now being launched may discover markets for eggs and table birds at present unknown and which might give a decided fillip to the poultry industry in the province.

3. The enclosures to the letter from the Imperial Council of Agricultural Research are returned herewith.

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LETTER FROM THE SECRETARY TO THE GOVERNMENT OF THE CENTRAL PROVINCES,
TO THE SECRETARY, IMPERIAL COUNCIL OF AGRICULTURAL RESEARCH,
No. C.-251/451-XIV, DATED THE 6TH JUNE 1935.

I am directed by the Government of the Central Provinces (Ministry of Agriculture) to refer to your letter No. F. 41/35.-Vet., dated the 3rd May, 1935, and to say that no work on scientific lines has so far been attempted on poultry husbandry in the Central Provinces. As regards the question whether a central poultry institute is needed the local Government considers that an all-India research institute would be very useful. It should, however, be so equipped that it may not only be a place where research into all aspects of the industry can be carried out but should also be a training ground for men sent by the departments of agriculture from the provinces. After this institution has been in operation for some time, it may be considered whether the work of the institute could be supplemented by opening in each province subsidiary stations where the findings at the centre could be tried out.

LETTER FROM THE SECRETARY TO THE GOVERNMENT OF ASSAM, TRANSFERRED
DEPARTMENT, TO THE SECRETARY, IMPERIAL COUNCIL OF AGRICULTURAL
RESEARCH, No. 1731-E., DATED THE 8TH JUNE 1935.

I am directed to refer to your letter No. F. 41/35-Vet., dated the 3rd May 1935, and to furnish the following information on the points raised therein :—

- (1) Very little work has been done on poultry in this province. A few poultry are maintained on four of the Government Farms where eggs are hatched and from which surplus birds are sold. Imported X local crosses have been bred but were not appreciated very much by the public. Only the pure breeds are now being maintained.
- (2) There is a demand for imported poultry from the middle class. The first thing required is a supply of good acclimatised birds at a reasonable price, secondly knowledge how best to improve the local strains and to ascertain what their productive capacity is. A good deal of work remains to be done regarding the best method of transporting eggs and birds. The disparity of price between the tea garden areas and some of the other parts of the province is abnormally high.
- (3) This Government support the idea of a central poultry institute to start with, rather than isolated work by the different provinces. There is an undoubted need for such an institute.

COPY OF A LETTER FROM THE DIRECTOR OF AGRICULTURE, PUNJAB, TO THE
JOINT SECRETARY TO THE GOVERNMENT OF THE PUNJAB, DEVELOPMENT
DEPARTMENT, No. 756-S., DATED THE 28TH MAY 1935.

With reference to your endorsement No. 1378-D., dated the 18th May 1935, I have the honour to note as follows on the points on which information is required by the Imperial Council of Agricultural Research :—

1. Since 1927 when the Poultry Section of the Punjab Agricultural Department was established, active research in the improvement of indigenous fowls from certain aspects has been in progress. As the work proceeded it was found that the factors involved were too many for simultaneous development with the facilities available and it became necessary to concentrate on one problem, leaving others for later development. During these years the Poultry Section has confined its principal work to the evolution of improved breeds of indigenous fowls of uniform colour and type which produce a larger number of eggs annually than the average ordinary fowl of the country. Efforts are being made also to produce eggs of larger size. The selection and breeding work done so far has produced one new distinct type of indigenous fowls with an egg-laying capacity above that of ordinary fowls, whilst a second type is being now standardised and shows promise of further improvement. At the same time a good deal of work has been done in the determination of suitable feeding rations for both egg production and fattening purposes.

Pure bred English poultry of various breeds have also been imported from England from time to time during these years and the eggs and young stock from these foreign breeds are being sold to the public.

2. It is considered that the main directions in which further work is needed are two-fold, namely, the improvement of the indigenous fowl of the country for table purposes and investigations connected with poultry diseases which cause large mortality among poultry stock in this country. Proposals have been submitted to the Imperial Council of Agricultural Research for the provision of funds to enable the Poultry Section of the Punjab Agricultural Department to undertake the first of these two lines of work.

3. I am of opinion that a Central Poultry Research Institute is necessary, but that at the same time Provincial Poultry Farms are equally necessary and cannot be eliminated. Clearly a Central Institute could deal with breeding, i.e., the standardisation of Indian types and their improvement for egg production and table purposes. It could also deal with the problem of poultry diseases. In both these directions valuable work could be done for the provinces. In that case Provincial Poultry Sections would be maintained mainly for the provision and distribution of stock and eggs and for the investigation of local problems, such as feeding, housing, etc.

The enclosures received with your endorsement under reply are returned herewith.

REPORT FROM THE SUPERINTENDENT OF AGRICULTURE, COCHIN GOVERNMENT
No. C.-1641/10, DATED THE 9TH JUNE 1935.

*Schemes—Poultry Husbandry—Advisory Board of the Imperial Council of
Agricultural Research—remarks.*

The information called for by the Secretary, Imperial Council of Agricultural Research, is on the following points :—

(i) What work on Poultry Husbandry, if any, they were doing already.

(ii) What was still required to be done.

(iii) Whether a Central Poultry Institute for All-India Research was needed.

-2. Regarding item (i) the Government are not doing any work on Poultry Husbandry ; but there are some private agencies who are trying to increase the egg production and improve the quality and size of the eggs by crossing the local ones with foreign breeds, such as the Leghorns, Rhode Island, Minorca, Orphington, etc.

Item (ii).—Since nothing has been done by the Government till now on “Poultry Husbandry” it is not possible to say what should be done in continuation of what was done already.

Item (iii).—A Central Poultry Institute for All-India Research is very essential to tackle problems connected with Poultry Husbandry such as Economic Feeding and breeding of different types of birds both local and foreign—so as to know their adaptability to Indian conditions, the diseases that infest them and cheap remedies to prevent the diseases and so on. Problems connected with their preservation and marketing can also be tackled properly if there is a Central Institute.

LETTER FROM THE DIRECTOR OF AGRICULTURE AND STATE CHEMIST, GOVERNMENT OF BHOPAL, TO THE SECRETARY, IMPERIAL COUNCIL OF AGRICULTURAL RESEARCH, No. 249, DATED THE 15TH JUNE 1935.

In reply to your letter No. F. 41/35-Vet., dated the 11th June, I write to say that the work on poultry and cattle breeding is to be taken in hand very shortly.

Bhopal Government will be glad to carry out the suggestions contained in your letter No. F. 41/35-Vet., dated the 3rd May 1935.

COPY OF LETTER FROM THE DIRECTOR OF AGRICULTURE, No. 837-6549, DATED THE 1ST JUNE 1935.

With reference to Government endorsement, No. 844-A/33, dated the 10th ultimo, I have the honour to forward herewith a copy of letter No. 1490 dated the 23rd May 1935, from the Live Stock Expert to Government, Bombay, Poona, who was referred to in the matter, and to state that in view of the contents of Mr. Bruen's letter there should be one Poultry Research Station for investigation in more deadly diseases of poultry as suggested by Mr. Bruen in the last paragraph of his letter but other research stations for other work will be necessary, viz., one in Western India in the Bombay Presidency and one in Southern or Eastern part of India to suit different conditions.

COPY OF LETTER FROM THE LIVE STOCK EXPERT TO GOVERNMENT, BOMBAY,
TO THE DIRECTOR OF AGRICULTURE, NO. 1490, DATED THE 23RD MAY
1935.

With reference to your endorsement, No. 837-6549, dated 17th May 1935,
I have the honour to give below the information required :—

I.

- (a) The Government of Bombay have a Poultry Farm situated in Poona under the supervision of the Live Stock Expert.
- (b) The budget allotment of this farm is Rs. 3,677 for this year.
- (c) The farm is managed by a non-graduate fieldman with a menial staff of 2 men and 2 women servants.
- (d) The farm is intended to produce good European fowls for the improvement of the village poultry industry.
- (e) The farm tests all its birds in single testing pens for one year prior to breeding from these.
- (f) The farm at present is only capable of carrying out the above but cannot carry out any research work owing firstly to staff and secondly for want of suitable accommodation, buildings and appliances. The farm meets the needs for which it was established. To be of any value as a Research station, it needs enlarging.
- (g) The farm this year has proved a commercial success, although run on a small scale.

II. We need research stations to investigate—

- (a) poultry nutrition ;
- (b) prevention of disease ;
- (c) housing and runs ;
- (d) evolving a breed or breeds that will withstand the various conditions under which poultry farming is conducted in India ;
- (e) In India as in other parts of the world, there is a big drop in egg production at certain times of the year. How to overcome this needs careful investigation ;
- (f) We need suitable training centres, and
- (g) research in the every day ailments of fowls and their treatment.

III. A Central Poultry Farm may be very useful for research into the greater problems of poultry farming, such as, investigations in the more deadly diseases of poultry. Such a station will, however, be of little value for other purposes owing to the varied conditions and climate of this vast country.

COPY OF MEMORANDUM FROM THE CHIEF AGRICULTURAL OFFICER IN SIND,
No. 390, DATED THE 10TH JUNE 1935.

The Chief Agricultural Officer in Sind presents compliments to the Under Secretary to the Government of Bombay, Revenue Department, and, with reference to his endorsement, No. 844-A./33, dated the 10th May 1935, has the honour to observe as under :—

(i) *Work done in Sind on poultry husbandry.*—About 15 years ago poultry breeding was carried on a small scale at the Agricultural Stations of Sukkur, Mirpurkhas and Larkana. The breeds consisted of—

- (a) Basrah,
- (b) White Leghorn,
- (c) Black Minorca,
- (d) Asseel.

It was noticed that the acclimatized Leghorn cock and Basrah cock were prepotent and produced hardy birds which were suited for local conditions of Sind, viz., extremes of climate, etc. The birds were light enough to perch on the trees by night and the hens gave good performance of big eggs which weighed up to 2 ounces. The table bird 'Asseel' was also tried and under proper feeding, it was observed to grow quickly and a six-month pullet or cockerel would yield a dressed carcass of 2 to 3 lbs. and an adult bird up to 6 lbs.

Turkeys were also tried but could not stand the rigour of the climate.

The breeding work was carried out for about five years and good results were achieved. For want of funds, however, the concern was closed.

(ii) *Work still required to be done.*—The demand for poultry and poultry products is getting acute in these days and scarcity of fat healthy table birds and good fresh eggs is keenly felt everywhere in towns and consuming centres throughout Sind.

A scheme for improvement of poultry breeding, therefore, is needed and should include—

- (1) Acclimatization and improvement of laying breeds and breeding and rearing of the local table birds.
- (2) Issuing pure-bred hardy cockerels in villages to improve the local 'Tariri' hens whereby a better layer and table birds can be evolved.
- (3) Organization of marketing facilities in villages situated along the railway lines for egg productions and in inland villages for production of table birds.

(iii) *Central Poultry Institute for all India.*—Such an institute is urgently needed for the guidance of the several provinces in India.

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~~APPENDIX XXXV.~~

~~NOTE DATED THE 4TH FEBRUARY 1935 BY THE SECRETARY, IMPERIAL COUNCIL OF AGRICULTURAL RESEARCH ON SUBJECT No. 40.—APPLICATION FROM THE UNITED PROVINCES POULTRY ASSOCIATION, LUCKNOW, FOR A GRANT OF Rs. 32,570 (Rs. 5,784 NON-RECURRING AND Rs. 26,786 RECURRING) SPREAD OVER A PERIOD OF THREE YEARS FOR RESEARCH INTO THE PRESERVATION AND HANDLING OF EGGS AND POULTRY PRIOR TO THEIR DISPOSAL IN THE MARKET.~~

Attention is invited to the attached letter No. 1110-I/XVIII-652 dated the 20th December 1934, from the Government of the United Provinces forwarding a scheme on the subject mentioned above (Annexure I).

2. As members of the Board are aware, the United Provinces Poultry Association submitted a scheme in the first instance for investigation to develop egg and poultry marketing on a co-operative basis. This scheme which was considered by the Board at its meeting held in February, 1934, was returned to the Association for revision on the ground that the Association should deal only with the investigation of the best methods of storage, preservation and disposal of poultry products in various ways, e.g., in the form of dry powder, and that the details of accommodation and facilities which would be available and required for carrying on the work should be stated.

3. The scheme was revised on those lines and was considered by the Cattle Breeding Committee of the Council in the first instance. The Committee was of the opinion (Annexure II) that research work was necessary to study the best methods of testing grading, packing for transport of eggs under Indian conditions and that work should be continued on the preparation of egg-powder and egg pulp. In the absence of a properly established Poultry Institute, work on experimental manufacture of egg-powder and egg pulp should be carried on in collaboration with the Harcourt Butler Technological Institute, Cawnpore, but it was considered that in order to carry out experimentation on an adequate scale it would be necessary to make provision for a regular supply of sterile eggs, the freshness of which could be guaranteed. The Committee also required information as to the resources and staff available for carrying out this work. In the circumstances the Committee recommended that a fresh scheme should be drawn up by the Director of Veterinary Services, United Provinces for the United Provinces Poultry Association to work in collaboration with the Harcourt Butler Technological Institute to deal with the problems connected with the collection, storing and disposal of eggs and powder which would not be part of the work of the marketing staff. The Advisory Board accepted the above recommendation (Annexure III).

4. The scheme now received has been drawn up on the lines of the recommendation of the Cattle Breeding Committee and will be considered by that Committee in the first instance. Its report will be submitted to the Advisory Board for consideration.

ANNEXURE I.

COPY OF A LETTER No. 1110-I/XVIII-652, DATED THE 20TH DECEMBER 1934, FROM P. M. KHAREGAT, Esq., I.C.S., M.L.C., SECRETARY TO GOVERNMENT, UNITED PROVINCES, INDUSTRIES DEPARTMENT, LUCKNOW, TO THE SECRETARY, IMPERIAL COUNCIL OF AGRICULTURAL RESEARCH, NEW DELHI.

SUBJECT :—*Revised application from the United Provinces Poultry Association, Lucknow, for a grant of Rs. 32,570 spread over three years for research into the preservation and handling of eggs and poultry prior to their disposal in the market.*

With reference to your letter No. F-7-(4)/34/Vety. dated November 9, 1934, I am directed to forward a revised application (with 200 spare copies) from the United Provinces Poultry Association, Lucknow, for a grant of Rs. 32,570; (Rs. 5,784, non-recurring and Rs. 26,786 recurring spread over a period of three years) for a fresh scheme for research into the preservation and handling of eggs and poultry prior to their disposal in the market, and to state that it has been recommended by the United Provinces Agricultural Research Committee at its meeting held on November 16, 1934. A copy of the Committee's resolution on the subject is enclosed.

2. I am to request that the scheme may please be placed before the next meeting of the Advisory Board of the Imperial Council.

ENCLOSURE TO ANNEXURE I.

Copy of resolution No. 7 passed at the 11th meeting of the U. P. Agricultural Research Committee, held at the Council House, Lucknow, on November 16, 1934 at 11 a.m.

Agenda.

Resolutions.

7. Consideration of an application from the U. P. Poultry Association, Lucknow, to the Imperial Council of Agricultural Research for a grant of Rs. 33,770 (Non-recurring Rs. 5,784 and recurring Rs. 27,986) spread over 3 years for research into the Preservation and handling of eggs and poultry prior to their disposal in the market.
7. Resolved that the scheme as amended to Rs. 32,570 be recommended to the Imperial Council of Agricultural Research.

Revised scheme for research into the preservation and handling of eggs and poultry prior to their disposal in the market for a grant of Rs. 32,570 spread over a period of three years.

A scheme for the purpose stated above was submitted to the Imperial Council of Agricultural Research by the United Provinces Poultry Association in September 1934, but the Advisory Board of the Imperial Council, in view of the fact that the position had altered owing to the creation of marketing officers, who would deal with most of the work for which the previous scheme was drawn up, decided at its meeting held in Simla on September 6, 1934, that the Director, Civil Veterinary Department, United Provinces, should be asked to draw up a fresh scheme for the United Provinces Poultry Association to work in collaboration with the Harcourt Butler Technological Institute, Cawnpore. A scheme is now being submitted embracing a programme for experiments on testing, grading, preserving, and packing eggs under Indian conditions and their methods of disposal in forms other than in shell especially the manufacture of dry powder, experiments on which should be continued at the above mentioned institute.

The production of eggs has increased 75 per cent. during the past 10 years particularly in the United Provinces. During that time a great deal has been done in the province to improve the general standard of poultry and eggs not only by the Poultry Association and its members but also through other sources, chiefly Mr. Slater of Etah district. This improvement in the quality of eggs has led to a rise in prices and a more general demand for this commodity not only in cities but in rural areas as well. This demand is not being met, partly owing to bad marketing but chiefly to the failure to preserve the surplus stock in time of plenty.

The value of conservation of perishable surplus produce for consumption in times of scarcity is recognized all over the world, as it is by conservation that a uniform supply of eggs is made available throughout the year, prices are stabilized, and the producer and consumer benefit alike.

Perhaps in no other country is there a greater need for conservation of eggs and other perishable commodities than India. The scattered areas of production, their inaccessibility, absence of proper communication and slow method of transport in rural areas offer additional stimulus, also the months of the heaviest production are those when seasonal changes are taking place, viz., March to June a period when the life of an egg in its fresh condition is extremely short. We are all familiar with the difficulties of obtaining fresh supplies during these months.

The position of the poultry keeper must also be considered and the anxious times he has owing to his inability to preserve his commodity and market it in a saleable condition.

When the work of marketing these commodities is undertaken the value of this scheme for preservation will be realized and appreciated by the marketing staff as its success will depend on the thoroughness with which these perishable commodities are preserved and the condition in which they are put on the market.

Preservation is intimately bound up with poultry keeping and marketing of all poultry products and the object of this scheme is to carry out investigation on the best way to preserve these commodities and to ascertain the relative value of cold storage, pickling and other forms of preservation.

With a view to overcoming these difficulties it is intended to study the following problems:

- (a) Study of the best method of grading eggs by interior quality determined by candling; weight; size; and colour.
- (b) Investigation into the method of preserving eggs by cold storage, pickling and other methods.
- (c) Investigation into the method of storing eggs.
- (d) The best method of packing and transporting eggs.
- (e) The best method of disposal of eggs other than in shell.

Item (e).—It is intended that investigation on this work will be carried out at the Harcourt Butler Technological Institute, Cawnpore and the work in connexion with the rest of the investigation will be done in close co-ordination with that institute at the United Provinces Poultry Association. The necessary materials for experimental purposes (eggs and table fowls) will be supplied by the United Provinces Poultry Association by maintaining a small flock of fowls on the farm for this purpose.

The experiment at the Harcourt Butler Technological Institute will be one on a small scale and will be confined to the production of 2 lbs. of egg powder per Jay which will require the use of 100 infertile eggs. From enquiries so far made it appears that experimentation on a large scale is not feasible until such time as the extent of the demand for egg products in India and abroad has been fully explored.

Land and buildings will be provided by the United Provinces Poultry Association and the service of a member of their staff will be placed at the disposal of the Director, Civil Veterinary Department, United Provinces, who will supervise and control this work.

The returns from the sale of eggs and egg produce while the scheme is in operation and the stocks at the end will be credited to the I. C. A. R.

Two statements giving details of the cost of the scheme are enclosed.

NON-RECURRING.

1.—Purchase of stock—

<i>Stock—</i>	Rs.
Cockereils 4 at Rs. 15 each	60
Hens 20 at Rs. 15 each	300
Laying Pullets 150 at Rs. 15 each	2,250
Broody Hens 20 at Re. 1 each	20

3.—Housing accommodation—

Houses and runs for adult birds—

Houses and runs for pullets	180
Houses and runs for breeding pens	} 168
(Housing accommodation for spare cockerels and chicks to be provided for by the United Provinces Poultry Association)	

2.—Appliances, etc.—

Hatching and rearing.	{	One Incubator (silver hen 50 egg capacity)	65
		Two Foster-mothers 150 chicks capacity at Rs. 75	150
Feeding and watering.	{	Four tin canisters, 4 kundas, 4 earthenware tubs, 12 each of wooden feeding troughs and mash hoppers.	150
		Egg cases 2 at Rs. 25 each for storing hatching eggs	50
Sprayer 1			30
Wall Thermometers 2 at Rs. 2 each			4
Miscellaneous contingencies			200

4.—Materials and appliances for candling, grading, preserving, storing and pack eggs for transport and for experiments on table fowls—

Egg testing and grading machine 1	200
Pickling tank—capacity 300 eggs	25
Egg testing lamp 1	3
Egg weighing scale 1	5
Egg stamp	7
Caponising set	17

5.—Cost of the experiment at the Harcourt Butler Technological Institute, Cawnpore

	Rs.
(Putting up a small plant for the manufacture of dried egg powder estimated by the Industrial Chemist to Government, United Provinces, Cawnpore)	300
Refrigerator	1,000
6.—Office equipment	600

Total, Non-recurring 5,784

RECURRING.

Particulars.	First year.	Second year.	Third year.	Total for three years.
One egg experimental officer, at Rs. 200 —15—230.	Rs. 2,400	Rs. 2,580	Rs. 2,760	Rs. 7,740
One clerk at Rs. 40—2—44	480	504	528	1,512
One peon at Rs. 12 per mensem	144	144	144	432
Two poultrymen at Rs. 10 per mensem	240	240	240	720
One waterman at Rs. 12 per mensem	144	144	144	432
Feeding cost for adult birds and young stock.	1,000	1,200	1,200	3,400
Running of Incubators and Foster- mothers.	100	100	100	300
Medicines, etc.	50	50	50	150
Repairs to farm houses and runs . . . . .	..	100	150	250
Materials for experimental purposes (containers and other packing material).	300	300	300	900
Preservatives (water glass, oil, and waxes, etc.).	1,200	1,200	1,200	3,600
Contingencies, stamps and stationery	100	200	300	600
Miscellaneous	200	200	200	600
Books and periodicals	50	50	50	150
Travelling allowance	800	800	800	2,400
Cost of experiment at the Harcourt Butler Technological Institute, Cawn- pore, at Rs. 100 per mensem.	1,200	1,200	1,200	3,600
Labour Rs. 20 per mensem . . . . .	..	..	..	..
Fuel Rs. 10 per mensem . . . . .	..	..	..	..
Cost of transport of eggs from the Luck- now Farm to the Harcourt Butler Technological Institute, Cawnpore, Rs. 30 per mensem.	..	..	..	..
Contingencies including packing materials and containers, etc., Rs. 40 per men- sem.	..	..	..	..
Total, Recurring	8,408	9,012	9,366	26,786
Total, Non-recurring	5,784	..	..	5,784
GRAND TOTAL	14,192	9,012	9,366	32,570

ANNEXURE II.

EXTRACT FROM THE REPORT OF THE SECOND MEETING OF THE STANDING CATTLE BREEDING COMMITTEE HELD ON THE 3RD SEPTEMBER 1934.

Item No. 4—United Provinces Poultry Scheme.—In the discussion on this scheme it was pointed out that 3 of the items of work suggested by the Secretary, United Provinces Poultry Association, in his letter to the Director, Civil Veterinary Department, United Provinces, No. E. S. 1069, dated 6th August 1934, were essentially work which would be done by the Marketing organisation. It was agreed however that research work was necessary to study the best methods of testing, grading, packing for transport of eggs under Indian conditions and that work should be continued on the preparation of egg-powder and egg pulp. It was agreed that in the absence of a properly established Poultry Institute, work on experimental manufacture of egg-powder and egg pulp should be carried on in collaboration with the Harcourt Butler Technological Institute, Cawnpore, as at present, but it was considered that in order to carry out experimentation on an adequate scale it would be necessary to make provision for regular supply of sterile eggs, the freshness of which could be guaranteed. Further information was also necessary as to the resources and staff available for carrying out this work. In view of the above it was proposed that a fresh scheme should be prepared by the Director of Veterinary Services for the United Provinces Poultry Association to work in collaboration with the Harcourt Butler Technological Institute to deal with the problems connected with the collection, storing and disposal of eggs and powder which would not be part of the work of the Marketing Staff.

ANNEXURE III.

EXTRACT FROM THE PROCEEDINGS OF THE MEETING OF THE ADVISORY BOARD HELD ON THE 6TH SEPTEMBER 1934.

6. *Application from the United Provinces Poultry Association, Lucknow, for a grant of Rs. 15,864 spread over three years for a scheme to investigate the preparation of eggs for marketing and other methods of disposal (Subject No. 25 of the Agenda).*

Colonel Olver introduced the report of the Cattle Breeding Committee on this subject and said that the scheme was considered by a sub-committee of the Board and the Board in February 1934 with the result that it was returned to the United Provinces Poultry Association for revision. Since the revised scheme was received the position had altered by the institution of a Marketing Section of the Council. The Marketing Section would deal with a greater portion of the scheme. The Committee therefore recommended that a fresh scheme should be prepared by the Director of Veterinary Services, United Provinces, for the Poultry Association to work in collaboration with the Harcourt Butler Technological Institute to deal with the problems connected with the collection, storing and disposal of eggs and powder which would not be part of the work of the Marketing Staff. Mr. Nurul Islam accepted that the scheme did contain some points connected with the marketing of eggs but he wanted clearer instructions for the preparation of a fresh scheme than were given by the Committee. He then pointed out that the Association could not supply sterile eggs free of cost and this was why a provision of Rs. 500 per annum had been made in the scheme. Mr. Nurul Islam then moved that the following portion of the Committee's report be deleted:—

“Item No. 4—United Provinces Poultry Scheme, page 1 of the Report, lines 7 to 9. Research work was necessary to study the best methods of testing, grading, packing and transporting eggs under Indian conditions and”.

Mr. Egan said that it would be necessary to provide material for research at the Harcourt Butler Technological Institute at Cawnpore. The Institute could not supply sterile eggs and unless a small grant was sanctioned for the purpose it was not possible for the Institute to carry on the research. Mr. Bruen proposed that the words “packing and transporting eggs” be changed into “packing for transport of eggs”. He also added that the United Provinces Poultry Association should supply the sterile eggs by having poultry on their farm and not purchase them. The scheme should be prepared in the best method for storing and packing eggs. In replying to Mr. Nurul Islam's objections Colonel Olver explained that what the Committee proposed to cut out was the work which dealt with marketing aspects of the scheme as it was considered that this work would be done by the marketing staff. On the other hand it was definitely agreed that research work was necessary to study the best methods of testing, grading,

packing eggs for transportation under Indian conditions and that work should be continued on the preparation of egg-powder and egg pulp. To carry on this work it was necessary to have a supply of sterile eggs which were known to be fresh. Mr Nurul Islam had stated that he could not supply them from the Association and it was therefore necessary to make provision for this in the scheme. The Committee had also recommended to omit that portion of the scheme which involve travelling about the country. Mr. Quirke agreed with Colonel Olver. Mr. Livingstone said that there were four points in the scheme, viz.

- (a) Study of indigenous methods of producing eggs;
- (b) Study of the question of organised collection;
- (c) Study of methods of testing, grading and standardisation; and
- (d) Study of the work done by the Association in regard to storage, preservation and packing of eggs. The first three concerned the marketing staff and the Committee had therefore recommended that they be left out of the scheme. The fourth point was for the Association to take up and therefore the Committee had recommended that a fresh scheme be prepared in the light of the remarks offered by it.

The Chairman then summed up the discussion on the subject and put the amendment of Mr. Nurul Islam before the Board. The amendment fell through for want of a seconder. The amendment of Mr. Bruen was accepted by the Board. The report of the Standing Cattle Breeding Committee on the subject was then adopted by the Board.

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~~APPENDIX XXXIV~~

NOTE DATED THE 11TH FEBRUARY 1935, BY THE SECRETARY, IMPERIAL COUNCIL OF AGRICULTURAL RESEARCH, SUBJECT NO. 16.—APPLICATION FROM THE GOVERNMENT OF BOMBAY FOR GRANT OF RS. 51,136 SPREAD OVER A PERIOD OF 5 YEARS FOR RESEARCH IN POULTRY HUSBANDRY.

At its meeting held in August 1933, the Advisory Board considered a scheme of Poultry Breeding from the Government of Bombay. The estimated cost of the scheme was Rs. 52,995, the anticipated income was Rs. 28,000 and it was estimated that at the end of five years stock and buildings valued at Rs. 11,950 would be left on the farm. The Advisory Board recommended that a net grant of Rs. 13,045 be made after taking into account the two items mentioned above, and this recommendation was accepted by the Governing Body. The Government of Bombay were, however, unable to accept the net grant as sanctioned by the Council.

2. The Government of Bombay have now submitted a fresh scheme involving a total expenditure of Rs. 61,053 (Rs. 22,023 non-recurring and Rs. 39,030 recurring), (Annexure). They are prepared to meet Rs. 4,653 on account of capital expenditure and Rs. 6,253 on account of recurring expenditure. The estimated income is Rs. 3,664 only. The Council is asked to meet Rs. 51,136 only.

3. The scheme will be placed before the Cattle Breeding Committee and their report circulated to the Advisory Board in due course.

ANNEXURE.

A SCHEME FOR RESEARCH IN POULTRY HUSBANDRY TO BE CONDUCTED IN THE BOMBAY PRESIDENCY.

The proposed Scheme is spread over a period of five years with the Capital and Recurring Expenditure and the Probable Income as under :—

1. Capital Expenditure for all the three stations :—

	Rs.	Rs.
(1) Government Central Poultry Farm, Kirkee	11,491	
(2) American Mission Vocational School and Rural Centre, Vadala Mission, District Ahmednagar	5,277	
(3) Vocational Training School, Anklesvar, District Broach	5,255	
	22,023	

2. Recurring Expenditure for all the three stations :—

(1) Government Central Poultry Farm, Kirkee	14,290	
(2) American Mission Vocational School and Rural Centre, Vadala Mission, District Ahmednagar	11,570	
(3) Vocational Training School, Anklesvar, District Broach	11,570	
(4) For replacing Indian stock, a provision of Rs. 100 per year for 4 years	400	
(5) For bringing fresh blood into stock every second year	1,200	
	39,030	
Grand Total estimated expenditure		61,053

Deduct—

(1) To be provided by the Government of Bombay :—

Capital expenditure—

(a) Incubator House	2,000
(b) Foundation stock	2,653

<i>Recurring expenditure—</i>	Rs.	Rs.
(a) For replacing Indian stock	400	
(b) For bringing fresh blood	1,200	
	<hr/>	6,253
(2) Probable Income for the period of the Scheme		3,664
		<hr/>
		9,917
Net provision to be made by the Imperial Council of Agricultural Research		51,136

NOTE.—In addition, the Government of Bombay will provide for the following :—

(1) Supervising Staff :—

The Live Stock Expert to Government with his Nutrition Assistant.

Rev. R. W. Fairbank, Vadala.

Mr. I. W. Moomaw, Anklesvar.

(2) Land for all the three stations.

(3) Staff quarters.

RESEARCH IN POULTRY HUSBANDRY TO BE CONDUCTED IN THE BOMBAY PRESIDENCY.

That there are great possibilities in Poultry Keeping, both on a large commercial scale and as a cottage industry, has been proved in many parts of India. Conditions in India are so varied that it is not possible without careful investigation to produce breeds or types that will be useful under these different conditions prevailing.

To conduct such experiments knowledge of the business is essential plus a fair amount of expenditure which cannot be made available under present Provincial financial stringency.

This Presidency is very favourably situated for Poultry Investigation; firstly,—a well-equipped Farm exists at the headquarters of the Live Stock Expert and his Nutrition Assistant. To enable the Scheme to provide data and information of all-India importance, all that is needed are certain facilities of housing and staff. We intend in this Scheme to improve certain Indian breeds, which at present exist and which offer great possibilities. Apart from improving these firstly by purifying the breed and then fixing breed characters, we shall endeavour to improve on them by the judicious introduction of European blood at certain stages of our improvement and then fix the type.

At the two proposed sub-stations we are fortunate in having experienced and highly qualified Missionary gentlemen, who are prepared to supervise their stations free of charge, provided that they are given the facilities enunciated in the Scheme. It will be seen that the facilities offered by the Bombay Presidency are unique. If such a Scheme were put up anywhere else, it would cost at least four times the expenditure now proposed.

Agriculturists in many parts in India through force of circumstances cannot fill in their time during a great portion of the year; some form of subsidiary occupation is essential, Poultry keeping fills the bill.

As a home or cottage industry for the poor labouring classes, it has no equal. To make this industry still more useful in India, investigations of the following are essential :—

(1) Study of a few of the European and American breeds, particularly Mediterranean breeds, that have proved themselves more or less suitable.

(2) A study and purifying of a few of the better known Indian breeds or breeds that have been known to exist in India for many years, such as, (a) The White Chittagong or Bramhaputra, (b) The Karaknath, the breed as the name denotes is evidently a spirited hardy breed, having a tuft of feathers on the head, evidently of foreign origin, said to be the best Deshi breed in the U. P., (c) Along the west coast of the Bombay Presidency, the author of this Scheme came across a breed of fowls with a Naked Neck known in these parts to lay many and large eggs; the breed commands a bigger price than the ordinary Deshi in the market. It is known as the "Govagiri" (i.e.) coming from Goa and "Firangi" meaning foreign. It has been bred so long that it may now be considered an Indian breed. In European books on Poultry, a breed of Naked Neck is mentioned and is known as "Turkey Neck, Naked Neck and Gilli Kena." In Wright's book on Poultry edited by S. A. Lewis, the

following remarks are offered regarding a Naked Neck breed. The same authority states that the economic merits of this curious fowl are considerable. It is said to be very hardy, a moderate eater and a good layer, the eggs being of considerable size. It is also a very satisfactory breed. The young chicks are said to be particularly hardy as regards the thriving in inclement weather, their ancestors having been reared on the rugged slopes of the Carpathian Mountains, in Austria and in Transylvania.

These remarks tally with what was seen of the breed along the western coast. The home of the breed is given as the Carpathian Mountains, Austria and Transylvania. However, whatever be the origin, it is sure that the breed is now acclimatised to Indian conditions and should prove good material to work on. At one time the Portuguese authorities prohibited the export of this breed from Portuguese India into British India. Many ingenious devices for bringing these out were resorted to.

(3) The combination of useful characters of foreign and Indian breeds by crossing.

(4) Investigation into the different types of Poultry farming, intensive, semi-intensive types for would-be pedigree breeders and the free Range System for purely egg farmers.

(5) Investigating modern hygienic methods of housing, which is to include cheap types of houses, runs and appliances to suit the poorer class of people.

(6) Investigation into incubation, artificial and natural, testing eggs, storing eggs for hatching and marketing, packing and transport.

(7) Investigation in Nutrition including feeding with cheap foods available in villages.

(8) Investigation into the best methods of introducing better poultry keeping in villages, co-operative marketing, etc., etc.

(9) Methods of passing on knowledge obtained into villages.

(To enable this Programme of Work to be carried out, it is proposed to divide the work up into three Centres :—

(1) Government Central Poultry Farm, Kirkee, under the Live Stock Expert to Government, B.P., Poona.

(2) American Mission Vocational School and Rural Centre, Vadala Mission, District Ahmednagar, under Rev. R. W. Fairbank.

(3) Vocational Training School, Anklesvar, District Broach, under Mr. I. W. Moomaw.

Both Mr. Moomaw and Rev. Fairbank are highly qualified men having considerable experience in Poultry Farming.

It is proposed to divide this work up as follows :—

(1) *Government Central Poultry Farm, Kirkee—*

Breeding research will be duplicate, all work being done at the two other centres, and investigate the problem of keeping fowls for egg production only.

The breeding of improved varieties of Ducks for table and egg production, the breeds suggested being "The Indian Runner" and "Khaki Campbell". Ducks do well in India, are not so liable to disease as fowls. In England, the egg-laying capacity of the duck equals and if not excels the fowl. Duck keeping as a secondary occupation will be very suitable to many parts of India.

(2) *At American Mission Vocational School and Rural Centre, Vadala Mission, District Ahmednagar—*

Breeds.—White Leghorn, Black Minorca and White Chittagong pure and by crossing to investigate the possibility of producing a more useful fowl for introducing into villages cheap housing, incubation natural and artificial, research in poultry foods, especially foods readily available, poultry as a secondary occupation, investigating best methods of storing eggs for hatching and table; the collection and marketing of village eggs and most suitable periods for hatching. In Western countries hatching is conducted from October to March. In India from the small experience we have had, we find that hatching between November and February are good but later it gets hot and there is great loss by dead chicks in shell. We propose to investigate the possibility of hatching in the monsoon when the humidity is greater.

(3) *At Vocational Training School, Anklesvar, District Broach—*

It is proposed to breed the Rhode Island Red, Light Sussex and the Naked Neck breed pure. To cross these European breeds with the Indian hens, with an idea of producing, if possible, a breed of better utility, that will stand the climate and conditions of Indian villages.

Housing.—To investigate methods of cheap yet effective housing and runs.

Nutrition.—To investigate the possibility of raising poultry on foods readily available in villages.

Propaganda and Marketing.—To investigate the best methods of introducing poultry into villages, the collection and marketing of village eggs.

All birds kept under this Scheme will be leg banded or suitably marked and details of all work will be suitably recorded.

As I have said, poultry keeping is nothing new to India, in every village one sees fowls but these are of very poor quality. They lay few eggs and these of such small size that they command very poor prices.

With the present system of marketing, the poultry keeper makes nothing, the profit at present going to the middle man. To remedy this, we need a fowl that will lay more and better eggs and we need to educate the farmer or producer in better methods of marketing.

The information collected under this Scheme will be of great importance to the whole of India. We shall produce a suitable bird and at the same time be able to investigate cheap methods of keeping fowls, storage of eggs and marketing. When once established, the centres at which we are working can be utilised as training grounds for either village or Rural Uplift teachers or those interested in introducing Poultry Keeping as a profitable secondary occupation.

The expenditure proposed on housing and runs will be of very little value after the experiment is completed, that it is proposed to hand these over to stations concerned. In the case of livestock, these will be available for sale at purely cost price to other Provinces, which may be interested in Poultry Keeping. A large number of hatching eggs and livestock will be utilized in investigation into the methods to be adopted in villages.

The records are proposed to be maintained in the enclosed forms (7).

Livestock—

It is proposed to keep two breeding pens of each breed at each centre; thus we shall start with :—

(1) At Government Central Poultry Farm, Kirkee :—

	Rs.
One Pen, Naked Neck, 10 hens and 1 cock at Rs. 5 each	55
One Pen, Chittagong, 10 hens and 1 cock at Rs. 6 each	66
One flock of :—	
25 hens and 2 cocks of white Leghorn breed	
25 hens and 2 cocks of Rhode Island Red breed at Rs. 10 per bird	
(54 × 10)	540
Two Pens—16 Ducks and 2 Drakes at Rs. 45 each, including freight, packing, insurance, etc.	810
One Pen—Black Minorca, 10 hens at Rs. 10 each, and 1 cock at Rs. 25 each	125
One Pen—Light Sussex, 10 hens at Rs. 10 each, and 1 cock at Rs. 25 each	125
Total	1,721

Rs.

(2) At American Mission Vocational School and Rural Centre, Vadala Mission, District Ahmednagar :—

2 Pens—20 hens and 2 cocks, White Leghorn breed at Rs. 10 each	220
2 Pens—20 hens and 2 cocks, Chittagong breed at Rs. 6 each	132
1 Pen—10 hens at Rs. 10 and 1 cock at Rs. 25 each, Black Minorca breed	125
Total	477

(3) At Vocational Training School, Anklesvar, District Broach :—

2 Pens—20 hens and 2 cocks of Rhode Island Red breed at Rs. 10 each	220
2 Pens—20 hens and 2 cocks of Naked Neck breed at Rs. 5 each	110
1 Pen—10 hens and 1 cock of Light Sussex breed at Rs. 10 and 25 each respectively	125
Total	455

Thus the estimated expenditure on Foundation Stock for all the three Stations would arrive at :—

	Rs.
(1)	1,721
(2)	477
(3)	455
Total	2,653

In each station where we are dealing with foreign breeds, it will be essential to import male stock every second year to bring fresh blood into the stock, it is proposed that a lump sum of Rs. 600 every second year be provided for this; thus in five years, we shall require Rs. 1,200 (excluding Foundation Stock). Rs. 1,200

The Indian stock will also need new blood, and a provision of Rs. 100 a year for each year is suggested, viz., Rs. 400 Rs. 400

The probable cost of the Scheme would be as follows :—

CAPITAL EXPENDITURE.

(1) Government Central Poultry Farm, Kirkee—

	Rs.
(1) Incubator House—One provided by the Local Government	2,000
(2) Addition and alteration to above	1,000
(3) Duck Pond	170
(4) Providing necessary housing and runs	5,500
(5) Water pipe connection to runs and houses	300
(6) Four small incubators Hot Air and Hot Water for individual hatching at Rs. 100 each	400
(7) Miscellaneous instruments, egg boxes, and other small appliances	400
(8) Livestock—Purchase of Foundation Stock	1,721
Total	11,491

	Rs.
<i>(2) American Mission Vocational School and Rural Centre, Vadala Mission, District Ahmednagar—</i>	
(1) Livestock—Purchase of Foundation stock	477
(2) Housing yards, etc., etc.	3,600
(3) Equipment, trap, nests, feeders, perches, incubators, scales, etc.	1,200
Total	5,277.

<i>(3) Vocational Training School, Anklesvar, District Broach—</i>	
(1) Livestock—Purchase of Foundation Stock	455
(2) Housing yards, etc., etc.	3,600
(3) Equipment, trap, nests, feeders, perches, incubators, scales, etc.	1,200
Total	5,255

Thus the estimated grand total Capital Expenditure will arrive at —

	Rs.
(1)	11,491
(2)	5,277
(3)	5,255
Total	22,023

Capital Expenditure.

Out of the estimated Capital Expenditure of Rs. 22,023, the Government of Bombay will provide for the following :—

Rs.	
2,000 Incubator House.	
2,653 Livestock—Foundation stock for the proposed three Stations.	
Total	4,653

The net provision for Capital expenditure to be made by the Imperial Council of Agricultural Research would arrive at Rs. 17,370 (Rs. 22,023 minus Rs. 4,653).

RECURRING EXPENDITURE.

	1st year.	2nd year.	3rd year.	4th year.	5th year.
<i>Staff.</i>	Rs.	Rs.	Rs.	Rs.	Rs.
(1) At Government Central Poultry Farm, Kirkee—					
Additional pay to the Manager, Rs. 25—5—50	300	360	420	480	540
One Assistant Manager on Rs. 35—5/2—60—4—100	420	420	480	480	540
Two labourers at Rs. 20 each p. m.	480	480	480	480	480
Two women for cleaning at Rs. 10 each p. m.	240	240	240	240	240
Total	1,440	1,500	1,620	1,680	1,800

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	1st year.	2nd year.	3rd year.	4th year.	5th year.
	Rs.	Rs.	Rs.	Rs.	Rs.
(2) At American Mission Vocational School and Rural Centre, Vadala Mission, District Ahmednagar—					
One Assistant Manager at Rs. 35—5/2—60—4—100	420	420	480	480	540
One Village Research and Investigating Officer at Rs. 35—5/2—60—4—100	420	420	480	480	540
One skilled labourer at Rs. 20 p.m.	240	240	240	240	240
Two women at Rs. 10 each p.m. for cleaning	240	240	240	240	240
Total	1,320	1,320	1,440	1,440	1,560
(3) At Vocational Training School, Anklesvar, District Broach—					
One Assistant Manager at Rs. 35—5/2—60—4—100	420	420	480	480	540
One Village Research and Investigating Officer at Rs. 35—5/2—60—4—100	420	420	480	480	540
One skilled labourer at Rs. 20 p.m.	240	240	240	240	240
Two women at Rs. 10 each p.m. for cleaning	240	240	240	240	240
Total	1,320	1,320	1,440	1,440	1,560
<i>Upkeep.</i>					
(1) Government Central Poultry Farm, Kirkee—					
Feeds and Feeding	800	1,000	1,000	1,000	1,000
Miscellaneous oil, medicines, etc.	200	200	200	200	200
Postage, records, forms, etc.	90	90	90	90	90
Total	1,090	1,290	1,290	1,290	1,290

	1st year.	2nd year.	3rd year.	4th year.	5th year.
	Rs.	Rs.	Rs.	Rs.	Rs.
<i>Upkeep—contd.</i>					
(2) At American Mission Vocational School and Rural Centre, Vadala Mission, District Ahmednagar—					
Feeds and Feeding	480	640	640	640	640
Miscellaneous oil, medicines, etc.	200	200	200	200	200
Postage, records, forms, etc.	90	90	90	90	90
Total	770	930	930	930	930
(3) Vocational Training School, Anklesvar, District Broach—					
Feeds and Feeding	480	640	640	640	640
Miscellaneous oil, medicines, etc.	200	200	200	200	200
Postage, records, forms, etc.	90	90	90	90	90
Total	770	930	930	930	930

Thus the grand total of Recurring Expenditure would arrive at—

	Rs.
1st year	6,710
2nd year Rs. 7,290 plus Rs. 100 for replacing Indian stock	7,390
3rd year Rs. 7,650 plus Rs. 100 for replacing Indian stock and Rs. 600 for bringing fresh blood	8,350
4th year Rs. 7,710 plus Rs. 100 for replacing Indian stock	7,810
5th year Rs. 8,070 plus Rs. 100 for replacing Indian stock and Rs. 600 for bringing fresh blood	8,770
Grand Total	39,030

Out of the estimated Recurring Expenditure of Rs. 39,030, the Government of Bombay will provide for the following :—

Livestock—

	Rs.
400 For replacing Indian stock ; and	
1,200 For bringing fresh blood.	
Total	1,600

The net provision for Recurring Expenditure to be made by the Imperial Council of Agricultural Research would arrive at Rs. 37,430 (Rs. 39,030 minus Rs. 1,600).

The probable Income of the Scheme would be as follows :—

INCOME.

	1st year.	2nd year.	3rd year.	4th year.	5th year.
	Rs.	Rs.	Rs.	Rs.	Rs.
(1) Government Central Poultry Farm, Kirkee—					
50 laying hens for commercial egg farm at 10 dozen eggs per bird.					
500 dozen eggs at 0-8-0 per dozen	250	313	375	438	500
20 Country fowls at 5 dozen eggs each per annum at 0-6-0 per dozen.	38	48	57	67	76
(2) American Mission Vocational School and Rural Centre, Vadala Mission, District Ahmednagar—					
20 English hens at 10 dozen eggs per annum per bird at 0-6-0 per dozen. 200 dozen at 0-6-0 per dozen.	75	94	113	131	150
20 Country fowls at 5 dozen eggs per bird per annum at annas 4 per dozen.	25	31	38	44	50
(3) Vocational Training School, Anklesver, District Broach—					
20 English hens at 10 dozen eggs per annum per bird at as. 6 per dozen 200 dozen at 0-6-0 per dozen.	75	94	113	131	150
20 Country fowls at 5 dozen eggs per bird per annum at as. 4 per dozen.	25	31	38	44	50
Total	488	611	734	855	976

Thus the total estimated Income for five years would amount to Rs. 3,664.

The income is based at a modest figure, taking into consideration the two stations which are away from large towns, and consequently there is a difficulty of finding a market.

Any excess income received over and above the estimated figure will be credited to the Imperial Council of Agricultural Research.

(Signed) E. J. BRUEN,
Live-Stock Expert to Government, Poona.

DEPARTMENT OF AGRICULTURE.

Form No. 1.

MONTHLY EGG RECORD SHEET.

<i>Month</i>												<i>Breed</i>												<i>Pen</i>							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.

DEPARTMENT OF AGRICULTURE.

Form No. 1

MONTHLY EGG RECORD SHEET.

<i>Year</i>												<i>Breed</i>												<i>Pen</i>			
No. of Hen.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Total.	Pre-vious Total.	Date of Start.	No. of Dam or Pen.	12 months' record.	Remarks								

DEPARTMENT OF AGRICULTURE
INCUBATOR RECORD

DEPARTMENT OF AGRICULTURE.
INCUBATOR RECORD.

Form No. 2.

No. of Incubator.

Name of Incubator.

Name of Operator.

Date—Eggs placed in Incubator.

No. of eggs.

Kind of eggs.

Date—Hatch due.

Day	x	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	x
Date																							
107°	a.m. p.m.																						a.m. p.m.
106.5°																							
106°																							
105.5°																							
105°																							
104.5°																							
104°																							
103.5°																							
103°																							
102.5°																							
102°																							

m

DEPARTMENT OF AGRICULTURE.

Form No. 3.

BROODER RECORD.

Brood No.

Sheet No.

4-week Period Beginning

No. of Brooder.

Name of Brooder.

Name of caretaker.

Date Chicks Placed in Brooder.

No. of Chicks.

Breed(s)

Band Nos. of Pedigreed Chicks.

Day of Brood.	x	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Date of Month.																													
Ration Used.																													
Mortality*(total)																													
Moist Temp.																													
Weight of Lot.																													


248
716

DEPARTMENT OF AGRICULTURE.

PEDIGREE CHICK RECORD.

Key
 D. Extra Special. B—Blue. C—Black.
 Special R—Red. Sold S—Yellow. Kept—K.

Wing Band No.	Dam No.	Sire No.	Date of Hatch	Sex.	Grade Disp.	Adult No.	Wing Band No.	Dam No.	Sire No.	Date of Hatch	Sex.	Grade Disp.	Adult No.	Wing Band No.	Dam No.	Sire No.	Date of Hatch	Sex.	Grade Disp.	Adult No.	

150


DEPARTMENT OF AGRICULTURE
POULTRY FLOCK RECORD

Breed

Month

Section

Exp. Period

Pen No.

Date.	Grain.	Mash		Shell.	Grit.	Green Food.	Eggs.		Dead.	Hospital.		Broody.		Notes.
		wet.	dry.				Broken.	Total.		Sent to	Re-turned.	Taken out.	Re-turned.	
Weigh back														
Total														
Weigh back														
Total														

186
[Handwritten signature]

DEPARTMENT OF AGRICULTURE
POULTAY FLOCK RECORD

Breed

Month

Section

Exp. Period

Pen No.

Date.	Grain.	Mash		Shell.	Grit.	Green Food.	Eggs.		Dead.	Hospital		Broody.		Notes.
		wet.	dry.				Broken.	Total.		Sent to	Re-turned.	Taken out.	Re-turned.	
Weigh back														
Total														
Weigh back														
Total														

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SUMMARY.

Total Eggs.

Food Consumption.—	Grain	_____	_____
	Mash	_____	_____
	Shell	_____	_____
	Grit	_____	_____
	Green Food	_____	_____

DEPARTMENT OF AGRICULTURE
MATING RECORD

Date Mating made Year Variety Mating made by Pen No.

MALE.	Hen No.	No. Eggs.	Egg Weight.	Body Weight.	Mating No.	No. Eggs Set.	No. Inf.	No. Vig. Chicks.	% Fert.	% Total Hatch.	Remarks.
Leg Band No.											
Wing Band No.											
Male's Sire											
Male's Sire's Body Weight											
Male's Dam											
Male's Dam's No. Eggs											
Male's Dam's Egg Weight											
Male's Dam's Body Weight											
Out of Mating No.											
Description.											
Comb											
Eye											
Head											

W

DEPARTMENT OF AGRICULTURE
MATING RECORD

Date Mating made.....Year.....Variety.....Mating made by.....Pen No.

MALE.	Hen No.	No. Eggs.	Egg Weight.	Body Weight.	Mating No.	No. Eggs Set.	No. Inf.	No. Vig. Chicks.	% Fert.	% Total Hatch.	Remarks.
Back											
Tail											
Legs											
Plumage											
Vigour											
Carriage											
Reserve Males.											
Leg Band No.											
Wing Band No.											
Leg Band No.											
Wing Band No.											
	Male's Hatching		Record		—Totals.						

26
M

Remarks.

DEPARTMENT OF AGRICULTURE
MONTHLY SUMMARY OF EXPERIMENTAL DATA

House—

	1	2	3	4	5	6	7	8	9	10
Percentage production										
Eggs per bird										
Total Production										
Income										
Feed cost										
Margin over Feed cost										
Food Consumption per bird										
Mortality										
Average Weight of birds										
Average Weight of eggs										
1st Grade eggs										
2nd Grade eggs										

23

ANNEXURE III.

~~COPY OF RESOLUTION~~ No. 4 PASSED IN THE 8TH MEETING OF THE U. P. AGRICULTURAL RESEARCH COMMITTEE HELD AT THE COUNCIL HOUSE, LUCKNOW ON APRIL 24, 1933.

Agenda.

4. Consideration of an application from the Benares Hindu University to the Imperial Council of Agricultural Research for a total grant of Rs. 1,11,060 (Rs. 26,000 non-recurring and Rs. 85,060 recurring) spread over five years for research in physiology of cane and wheat.

Resolution.

4. Resolved that the Director of Agriculture should in consultation with Dr. B. N. Singh recast the programme of work to be done and the estimates of cost in the light of discussions and that the scheme so modified be recommended to the Imperial Council of Agricultural research.

COPY OF RESOLUTION No. 2 PASSED AT THE 10TH MEETING OF THE UNITED PROVINCES AGRICULTURAL RESEARCH COMMITTEE HELD AT THE COUNCIL HOUSE, LUCKNOW, ON APRIL 27, 1934, AT 9-30 A.M.

Resolution.

2. Further consideration of the scheme of the Benares Hindu University for Research on the physiology of cane and wheat, as amended in accordance with the United Provinces Agricultural Research Committee resolution 4, dated April 24, 1933, to Rs. 1,11,060 (Rs. 26,000 non-recurring and Rs. 85,060 recurring) spread over 5 years, with special reference to any overlapping or conflicts with the scheme of the United Provinces Government for Physiological research on cane at Shahjahanpur, as required in G. O. No. 105-A/XIIA-128, dated February 17, 1934.

Agenda.

2. Resolved that the amended scheme for Rs. 1,11,060 does not overlap or conflict with the United Provinces Government scheme for physiological research on cane at Shahjahanpur and that it be recommended to the Imperial Council of Agricultural Research.