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MADRAS RECORD OFFICE

Government of Madras

Public Works DEPARTMENT

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Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
1st April 1876.*

No. 7. Read the following letter from Colonel C. H. DICKENS, R.A., Secretary to the Government of India, Public Works Department, (Civil Works—Irrigation,) to the Governments of Madras, Bombay, Bengal, North-western Provinces and Punjab, in the Public Works Department, Irrigation Branch; the Chief Commissioners of Oudh, Central Provinces, British Burmah, and Mysore and Coorg; the Resident at Hyderabad; dated Fort William, 11th March 1876, Nos. 104—13 I.:—

In continuation of Circular, No. 7, dated the 5th February 1870, regarding Agricultural Statistics, I am directed to forward herewith copy of a despatch (No. 55 of 24th June 1875) from the Secretary of State on the subject, and to state that the Government of India considers the collection of these statistics of great importance, and to request that instructions may be issued to all officers of the Public Works Department to afford what aid they can by the observation of facts and collection of information on this subject.

From the Secretary of State for India, to the Government of India, dated 24th June 1875,
No. 55.

THE great importance of possessing accurate information respecting the Agricultural Statistics of India has frequently been felt in many branches of the Administration. In all countries such knowledge is proved to be of great value alike to the Government and the people; and its absence in India,—a country where so large a portion both of the Government revenue and of the public wealth is directly dependent on the land,—is more especially to be regretted.

2. In many provinces machinery exists which appears suitable for the collection of the needful materials, and much information of the nature in question is, indeed, already obtained and recorded. What, for the most part, seems to be principally required is increased attention to the methods of checking and combining the statements now prepared, so that they may be exhibited in the manner which will admit of their being best turned to useful account.

3. The Special Committee which has recently been sitting in this Office has laid before me a report on the subject of the collection of Agricultural Statistics, twelve copies of which are forwarded herewith. It will serve as a guide for your Department of Revenue, Agriculture, and Commerce whenever it is able to deal with this important branch of its work.

4. I would particularly point out that it is not intended to impose on the Executive Officers a greater amount of detailed clerical work than must necessarily be performed by them. The machinery existing in the villages in most parts of India appears to be sufficient, under proper directions, for the purpose of recording the information; but, when collected, the figures should be examined to see if the results exhibited seem trustworthy, and proper endeavours should be made to correct errors. It is at present too often the case that the labor expended in the preparation of the tables appended to the Administration Reports appears to have been thrown away, a sweeping paragraph denouncing them as useless, instead of an attempt being made to render them more trustworthy.

5. As soon as your Excellency has had time to give the matter consideration, I shall be glad to learn what steps you propose to take for obtaining more accurate information regarding the condition and extent of the Agriculture of India, either by an extension of the plan commenced in the North-west Provinces, or in any other manner which you may deem more suitable for local requirements.

FOURTH REPORT OF THE SPECIAL COMMITTEE ON STATISTICS.

THE Special Committee on Statistics have recently had under consideration the practicability of procuring reliable returns of the Agricultural Productions of India. The absence of accurate returns on this subject appears to them remarkable, seeing how large a portion of the Government

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income depends on the land-revenue. It is, however, in most instances due not so much to the want of suitable machinery for the collection of materials, as to deficient organization in dealing with them. It is, therefore, to the means of producing improvements in the latter respect that the Committee have specially turned their attention.

2. Agricultural Statistics are required in India for the guidance of Settlement Officers in the preparation of schemes for Public Works and in the consideration of many sanitary, fiscal, and political questions. In this country they are needed as elements in forming final decisions on important general questions, and also in the preparation of accurate information for Parliament and for the public generally. We believe that the same forms which will meet the administrative requirements in India will also furnish all that is needed for the satisfactory preparation of information in this country.

3. On various occasions attempts have been made to supply the deficiency which has been felt in this respect. Ever since the time of Dr. Buchanan Hamilton, Agricultural Statistics have been collected and recorded in many parts of India; and the Committee appointed in 1862 to revise the Statistical Forms appended to the Administration Reports for the several Presidencies and Provinces drew up the following forms, to impart the information obtained on subjects relating to Agriculture:—

Form I, A 1.—Area, Cultivated and Uncultivated, and Communications.

Intended to show, in square miles, the cultivated area; the waste area, culturable and unculturable, in acres; the unappropriated culturable waste remaining from the last year, sold or granted during the year, and remaining at the close of the year; and, in miles, the water communications, distinguishing navigable rivers and canals, the made roads, 1st, 2nd and 3rd-class, and the rail-roads.

Form I, E 2.—Surveyed and Assessed Area.

To show, in acres, the cultivated area, irrigated by Government or by private individuals, and unirrigated; the uncultivated area, divided into grazing, culturable and unculturable waste; the total area assessed, the gross amount of the assessment, and the rate per acre on cultivation on culturable land, and on the total area of settlement.

Form III, D 1.—Crops Cultivated.

To show, in acres, the actual or approximate area under cultivation for rice, wheat, other food-grains, oil seeds, sugar, cotton, opium, indigo, fibres, tobacco, tea, coffee, vegetables, &c., &c., in each district.

Form III, D 2.—Stock.

To show the number, in each district, of cows and bullocks, horses, ponies, donkeys, sheep and goats, pigs, carts, ploughs, and boats.

Form III, D 3.—Rates of Rent and Produce.

To show, for each district, the average rent per acre for land suited for rice, wheat, inferior grains, indigo, cotton, opium, oil seeds, fibres, sugar, and tobacco, and, in lbs., the average produce per acre of land under cultivation for those crops, with the addition of tea, coffee, &c.

Form III, E 1.—Prices of Produce.

To show, for each district, the price of produce, per maund of 80 lbs., for rice, wheat, linseed, jute, cotton, sugar, salt, &c. (the general character of the staple of the district being also stated, as cotton, indigenous; cotton, New Orleans; sugar, raw; sugar, refined; salt, rock; salt, Sambhur Lake, and so on), the price of a plough bullock, and of a sheep, of fish by the seer, of iron by the maund, &c., &c.

Form III, E 2.—Price of Labor.

To show, in each district, the wages per diem for skilled and unskilled labor, and the daily hire of a cart, a camel, a score of donkeys, or a boat.

4. These forms were circulated to the Local Governments on the 31st of October 1866, with a request from the Government of India that an attempt might be made to collect the information in the prescribed shape, if it appeared feasible to set on foot the necessary system of returns and record.

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5. Some of the Governments at once adopted the forms, and appended them to the Administration Reports for 1867-68. In other cases, however, they were considered to be impracticable at any rate, unless a large staff were sanctioned for their compilation; and the Government of India admitted that, in some cases (but apparently not those bearing on Agriculture), the Committee's forms needed modification.

6. In the year 1869-70, the Public Works Department urgently pressed for statistics of agriculture, with the view of ascertaining into which districts canal irrigation could be introduced with the greatest advantage. The forms for which it called, however, were not the same as those already prescribed, and are said to have been adopted from those in use in Scinde, and consequently ill-suited for provinces not under ryotwary tenure. Nevertheless, the matter was pressed on the attention of the local authorities. To the Chief Commissioner of Oudh it was pointed out that, with the Mofussil establishments of the Tehseeldars and the assistance of the Putwarees (or village accountants), there should be no insurmountable difficulty in the preparation of the returns; but, on the abandonment of the Sardah Canal, Sir George Couper considered it unnecessary to have the returns prepared, as they were required for no administrative purpose. In Bengal also they were postponed, as the whole time and attention of the officers were needed for the forthcoming census, a protest against delay being, however, entered by the Public Works Department, who said that these statistics formed the chief means of calculating, with any degree of reliability, the profits on the extensive outlay on Irrigation Works contemplated from Loan Funds.

7. In the North-west Provinces an endeavour was made to comply with the requisition of the Public Works Department, and tables were forwarded relating to the year 1868-69, and professing to show the area of each district whether barren or culturable, the extent not paying revenue, the land culturable but not cultivated, and the fallows of one year,—the rubbee and khurree crops, with the proportion thereof not irrigated, irrigated by canal, whether by lift or by flow, or irrigated from other sources,—the population, town and rural,—the amount of crops, divided into rice, cotton, jowar and bajra, til (oil seed) and other khurree crops, wheat and barley, pulse, oil seed, and other rubbee crops, and sugar, vegetables, fruit trees and other two fuel crops,—the total weight of the produce of each chief crop in the district,—the amount exported, and that kept for consumption,—and the area and population of the districts on the lines of railway in the province. In submitting these statements, however, the Board of Revenue said that, though great trouble had been taken in their compilation, they were full of errors, and that, if returned for correction of those most obvious, they would no more than they already did represent the actual state of things. The Lieutenant-Governor considered that, while the detailed items to be added up in every tehseeldaree would amount to hundreds of thousands, the information, after all, would not be trustworthy, as the putwaree's papers, in spite of every endeavour to make them represent the progressive state of cultivation, are too often, in the particulars required, a mere copy of those of the previous year. The Government of India, nevertheless, considered the returns, even in their present state, to be interesting as well as useful; and begged that they might be compiled annually, with as great accuracy as possible. In reporting the proceedings to the Secretary of State they said that the consideration of the question of the compilation of Agricultural Statistics generally would not be lost sight of when the new Agricultural Department was constituted. The Duke of Argyll, however, thought that, as it was admitted that the returns were incomplete and in many respects not trustworthy, their continued preparation could lead to no useful purpose; and, in a despatch, dated the 10th of August 1871, he desired that the requisition for them might be withdrawn, until it should be found possible to prepare them with that accuracy which might render them serviceable for administrative and statistical purposes.

8. In February 1872 the Board of Revenue for the North-west Provinces submitted their second series of agricultural statements for the year 1869-70, which they accompanied with a letter analysing them, and drawing attention to many absurd deductions from these figures. The Lieutenant-Governor showed that, in some of the cases to which they alluded, there was no improbability in the results; but he, at the same time, said that the Board had "done well to insist

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emphatically on their unreliability and the impossibility of ever making them throughout really that and thoroughly accurate."

9. In view of the strong protest made by some of the Governments, and the expression of opinion on the part of the Secretary of State, the Public Works Department of the Government of India waived its application for the information, except once in five or ten years. They said, however, that the returns had been compiled by all the Local Administrations except Bengal. The Lieutenant-Governor of the North-west Provinces was accordingly informed that the continued submission of the returns would not be pressed for, unless he was satisfied that, by maintaining them in their existing or a modified form, greater accuracy and trustworthiness would gradually be attained. As the Lieutenant-Governor recommended subsequently that they should be discontinued, they have, no doubt, been given up entirely.

10. The Bengal Government, in reply to the demand made on them, remarked that the result of the call for statistics by the Public Works Department had been to distract the attention of the Revenue Officers from the forms prepared by the Statistical Committee; and the Lieutenant-Governor begged that the Government of India would proceed systematically on the returns prescribed for general adoption. The plan which he proposed and proceeded to set on foot was to have in certain selected areas small special establishments to obtain accurate statistics,—to utilize to the full the putwaree and canoongo establishments (that is, those of the Village Accountants and Revenue Officers) in particular districts,—to obtain exact Agricultural Statistics from the wards' and khas estates under the direct administration of Government officers, the information thus obtained being made available as a basis from which approximate figures might be generalized for whole districts containing those estates,—and to get the best information to be obtained in the districts not otherwise provided for, care being taken to avoid the acceptance of information which was not more or less to be trusted.

11. The Madras Government raised objections to many of the tables, and said it would be impossible to prepare them without special establishments; but the Government of India hoped that, with the existing local agency, it would be possible to collect in Madras some at least of the information desired, if not annually, at any rate at periodic intervals.

12. For several of the provinces there have regularly been given, in the Appendix to the Administration Reports, returns based on the forms drawn up by the Committee of 1862; and in the Punjab especially pains appear to be taken to render them as accurate and useful as possible, and to consider the conclusions to which they point.

13. In laying before your Lordship the foregoing abstract of the correspondence relating to the preparation of statistics of agriculture in India, we cannot refrain from expressing our regret that, owing to the remonstrances made against the demands for certain information called for by a particular department, so much discouragement as we fear must have been caused by the wording adopted in the despatch of the 10th of August 1871, should have been given to the efforts that were being made to comply, as regards one branch of statistics, with the instructions laid down four or five years before by the Government of India, with the approval of the then Secretary of State, Sir Stafford Northcote, for the purpose of obtaining information respecting the condition and progress of the people, and enabling the Government to form accurate opinions on the measures best calculated to promote their welfare.

14. In our opinion, the correspondence which took place on the subject, so far from demonstrating the uselessness of such statistics as were obtained, testifies to their value, even in the imperfect condition in which they were forwarded. In the letter from the Board of Revenue of the North-west Provinces, dated the 3rd of February 1872, forwarding the returns for the year 1869-70, they remarked that the change of area in the Dehra and Shahjehanpore districts, and in the total for the North-west Provinces, was "not explicable." The Lieutenant-Governor, however, at once pointed out that, as regards Shahjehanpore (and consequently, to some extent, the total area), it was due to the transfer of certain villages to Oude. Again, with reference to the distribution of the chief crops, the Board considered it "impossible to believe that only 3 per cent. of the khurreef area in Meerut is occupied by rice against 14 per cent. in Mozuffernuggur, or that

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Bijnour has 40 per cent. against 20 per cent. in Moradabad." The Lieutenant-Governor, however, saw nothing "violently improbable in these proportions," Meerut not being a rice-growing district, while canal irrigation is largely used in Mozuffernuggur for the purpose, and Bijnour being a district in which rice is cultivated to a proportionally much larger extent than in Moradabad. Points of this kind are more clearly brought out in a statistical form than in a general report; and it cannot but be productive of good that the Boards of Revenue or Local Governments should have the means of carefully examining, in the best form possible, the conditions of cultivation in the several districts under their charge. Such questions as those discussed in the criticisms passed by the Board of Revenue and the Government of the North-west Provinces may become of vast importance, in the case of an apprehended drought or a proposal to introduce a canal or a railway into a particular part of the country.

15. The machinery for the collection of this information existed under the former Native Administration in a very complete form; and, although the practice of receiving the land-revenue in money instead of in a share of the produce has led to the discontinuance of some of the records, we cannot doubt that in many of the provinces the requisite agency still exists or could be readily revived.

16. In the North-west Provinces and the Punjab the putwarees, or village accountants collect the materials and keep the records. What has been needed is the permanent employment of a special officer to supervise the maintenance of correct village papers, and the supply of an annual series of Agricultural Statistics, as well as to see to the efficient instruction of the village accountants, who form the working machinery by which these objects must be attained. The same officer would finally arrange the statistics in the form required. As regards the North-west Provinces, Mr. Buck, the Secretary to the Board of Revenue, pointed out the necessity for such an appointment in a note, to which the special attention of the Government of India was called in a despatch in the Revenue Department, dated the 27th of August 1874, No. 48. In this despatch your Lordship requested that the subject might receive attention, and desired to be informed of any steps that might be taken in the North-west Provinces to secure the maintenance of correct agricultural records. A Minute by Sir John Strachey, forwarded with the financial letter from India, dated the 22nd January last, No. 33, shows that Mr. Buck's suggestions, to which you had called special attention, have been adopted.

17. Similar arrangements can, without difficulty, be made for the Punjab and the Central Provinces.

18. In Bengal, however, owing to the disintegration of the village system and the absence of available machinery, no such general plan can be introduced, and, for the present, the only results to be expected must be those derivable from the tentative system introduced by Sir George Campbell.

19. In the Bombay Presidency much care and attention have been bestowed upon the form in which such statistics should be prepared. The minutest particulars respecting the land are systematically collected. In a despatch written in the Revenue Department, on the 26th of November 1874, No. 39, your Lordship called for the detailed talooka accounts, and pointed out that some additional particulars and further arrangement would be desirable.

20. The Bombay system has been introduced into Mysore, so that there will be the same machinery for collecting Agricultural Statistics in that State.

21. In Madras, notwithstanding an elaborate system of survey and assessment, there is great want of statistical information, though it is believed to exist in much detail in the different villages. Strong objections seem to be felt to anything which will cause any additional work. At the same time the information appears to be recorded, and to be available when required for the preparation of irrigation and other schemes.

22. We venture, then, to urge on your Lordship the importance of the resumption of measures for obtaining Agricultural Statistics from the various districts throughout India. The mistake, which appears to have been committed on the former occasion, of worrying the officers by calling for two separate sets of returns, should be avoided; the village accountants or other

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officers should be required to prepare, from the information in their possession, returns giving particulars of cultivation on one uniform plan to be prescribed for them, not going into too minute detail, but calculated to enable the superior authorities to form accurate general conclusions respecting the condition of the district; and, where the village machinery is really not available, as in Bengal, the plan in operation in that province might be continued, of having a small staff specially appointed to collect the information in selected areas.

23. It is, however, necessary in the first place to decide what area shall form the agricultural unit in the treatment of Statistical Returns. In India this unit is the field, or "number" as it is called in Bombay. But, in the preparation of information in this country, it is desirable to select a larger space, which, while not so small as to render the returns unmanageable, will enable the facts to be shown in sufficient detail. The districts or collectorates are too

Average size of these sub-divisions, &c.

	Sq. Miles.
Bengal	1,500
North-west Provinces	458
Oude	571
Punjab	786
Central Provinces	1,603
British Burmah	3,682
Madras	587
Bombay	593

large for this purpose; they frequently include totally distinct regions, mountains and plains, with different climates, soils and agricultural products. The unit should, however, be one adopted in the census returns, so as to admit of ready comparison between the numbers and other particulars relating to the population in a given area, and the food or other products of the ground within that area. In the English

returns the county or riding is used; and in India the most suitable area will be found in the "sub-divisions" in Bengal and British Burmah, the "tehsils" in the North-west Provinces, Oude, the Punjab and the Central Provinces, and the "talookas" in Madras and Bombay.

24. In the next place, it is most desirable that, as far as possible, the returns should be framed on a uniform system, and that the terms used should represent the same thing in all cases. Thus, "culturable" land, while used in some provinces to mean all land capable of cultivation, should not in others (as is apparently done in Bombay) be limited to land bearing assessment, all culturable waste land being omitted. Nor should "prices" be taken to denote in some instances the number of rupees to be paid for a maund or garce, and in others the number of seers and chittacks to be obtained for a rupee.

25. In some of the provinces no great difficulty seems to have been found in filling up the forms drawn out by the Statistical Committee in 1862; but the accuracy of the information appended to the Administration Reports is so frequently questioned in the reports themselves, that they can be used to a very slight extent.

26. The chief points required appear to be—

See Appendix A.

- Area under rubbee and khurreef crops, unirrigated and irrigated, including bhagayat or garden crops;
- Area of fields not under cultivation;
- Amount of pasture and of forest land;
- Extent of barren or waste unculturable land;
- Total area assessed;
- Total assessment;

See Appendix B.

- Area under cultivation of the chief products of the district;

See Appendix C.

- Amount of stock, specifying the number of the principal kinds of animals;

See Appendix D.

- Average rates of wages for skilled and unskilled labor;

And average rates of hire for live and dead stock.

27. With the view of assisting the preparation of these returns in a uniform shape, we append a series of tables embodying in what appears to us to be a convenient form the desired information; and also a list prepared in the Department of the Reporter on products, showing the principal kinds of crop under their English and Scientific names, and the Native names

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used in the several parts of India. We would also suggest that each District Officer should append to his agricultural returns a brief note, showing in what class of soils each of these principal products is cultivated, at what season of the year, and of what quality, and whether it is consumed within the district, or exported, and, if so, in what directions, and to what extent; he should also mention if there is any considerable importation of the same articles, and for what purposes they are chiefly used. It would be also useful that he should specify the quantity of seed required for sowing an acre; the estimated average yield per acre of each principal kind of crop; the average price of each principal kind of produce; the average rent per acre for each principal crop; and the number of ploughs and carts.

28. These forms or modifications of them might, when finally approved by the Government of India, be forwarded for the guidance of the officer in the North-west Provinces selected by Sir John Strachey, and instructions might be given for similar arrangements in other parts of British India.

29. These returns should be filled up with care, and duly criticised, so that any obvious errors may be at once detected; and then it may be hoped that before long the materials will exist for the compilation of a useful agricultural map of India, showing the area over which the main staples are chiefly cultivated, and that India will not be the only important part of the British Empire for which no information on the subject of agriculture can be laid before Parliament.

LOUIS MALLET,
ANDREW CASSELS,
HENRY WATERFIELD,
C. CAMPBELL PRINSEP,
H. READER LACK.

29th April 1875.

To the Secretary of State for India in Council.

APPENDIX A.
AGRICULTURAL STATISTICS.

Statement showing the Area in Acres, Cultivated and Uncultivated, &c., Area Assessed, and amount of Assessment in each Sub-division of Districts in																
District.	Sub-division.	Area of each Sub-division.	AREA CULTIVATED.						AREA UNCULTIVATED.					Total Area assessed.	Total Assessment in Rupees.	
			Unirrigated.			Under Irrigation.			Total of Columns 6, 9 and 10.	Fields not cultivated.	Pasture and Forest Lands.	Barren or waste land unculturable.	Total of Columns 12, 13 and 14.			
			Rabbee.	Khurreef.	Total of Columns 4 and 5.	Rabbee.	Khurreef.	Total of Bhagayat Columns or Garden Crops.								
			4	5	6	7	8	9	10	11	12	13	14	15	16	17

Note.—The total columns 11 and 15 should equal column 8.

APPENDIX B.
AGRICULTURAL STATISTICS.

Statement showing the Total Area in Acres under cultivation of the Chief Products of each Sub-division.

CROPS IN ACRES.																										
District.	Sub-division.	CEREALS.										PULSES.										CONDIMENTS AND SPICES.				
		CEREALS.										PULSES.										CONDIMENTS AND SPICES.				
		Wheat.	Barley.	Paddy and Rice.	Maize.	Great Millet.	Spiked Mi-let.	Indian Mi-let.	Raggee.	Chennab.	Koda.	Others.	Total.	Gram.	Cajaput.	Horse Gram.	Green Gram.	Black Gram.	Pean.	Lentils.	Chickling & Vetch.	Others.	Total.	Orchard and Garden produce.		
		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

District.	Sub-division.	DRUGS AND NARCOTICS.										CONDIMENTS AND SPICES.					STARCHES.					SUGARS.						
		DRUGS AND NARCOTICS.										CONDIMENTS AND SPICES.					STARCHES.					SUGARS.						
		Opium.	Tobacco.	Hemp.	Cinchona.	Ipecacuanha.	Tea.	Coffee.	Hop.	Others.	Total.	Cardamum.	Pepper.	Ginger.	Others.	Total.	Arrowroot.	Others.	Total.	Cane.	Palm.	Others.	Total.	Starch.	Sugar.	Others.	Total.	
		28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54

District.	Sub-division.	OILS AND SEEDS (NOT FOREST).					DYES (NOT FOREST).					FIBRES.																
		OILS AND SEEDS (NOT FOREST).					DYES (NOT FOREST).					FIBRES.																
		Kapo.	Mustard.	Linseed.	Sesame.	Others.	Total.	Indigo.	Munjeet.	Safflower.	Others.	Total.	Cotton.	Bombay Hemp.	Jute.	Flax.	Sunn Hemp.	True Hemp (Gile not Nacool).	Others.	Total.								
		49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75

Note.—The total area is to include all land under cultivation of each chief product, both irrigated and unirrigated, and for both rabbee and khurreef crops.

APPENDIX C.

AGRICULTURAL STATISTICS.

Statement showing the number of Live and Dead Stock.

[illegible]

APPENDIX D.

AGRICULTURAL STATISTICS.

Statement showing Average Rates of Wages for Skilled and Unskilled Labor and Rates of Hire for Live and Dead Stock per Day.

[illegible]

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APPENDIX E.
Principal Crops under cultivation in India.

Class.	English Name.	Scientific Name.	Native Names.	Description and Illustration.
I.—CEREALS ...	1.—Wheat ...	Triticum vulgare ...	Goon, Hind. Gom, Beng. Godumbay arisee, Tam. ow Jao, H. Barleo arisee, Tam. Java, Tel. Dhan, H. Arisee, Tam. ...	Madras Jury Report, 1857, plate 1. Dict. Sci. Nat. 23, C.
	2.—Barley ...	Hordeum hexastichon &c		
	3.—Paddy and rice.	Oryza sativa ...		
	4.—Maize ...	Zea Mays ...	Mukka, H. Mulka-cho-lum, Tam.	Madras Jury Rept. pl. 4
	5.—Great millet ...	Sorghum vulgare ...	Joar, H. Jywaree, Dec. Cholam, Tam.	Ditto, pl. 3.
	6.—Spiked „ ...	Panicum spicatum ...	Bajree, H. Cumboo, Tam.	Ditto, pl. 7.
	7.—Italian „ ...	Secaria Italica ...	Kungoo, L. Tenney, Tam. Chonna, Dec.	Ditto, pl. 2
	8.—Raggee ...	Eleusine coracana ...	Ragee, H. Murooa, B. Natchoo, Dec.	Rheede Hort. Mal., xii, 61.
	9.—Chenna ...	Panicum miliaceum ...	Sawa, Chenna, H. Katakany, Tam. Warree, Dec. Kodaka, H. Koda, B. Kodro, Mahr.	Madras Jury Rept., pl. 8.
	10.—Koda ...	Paspalum scrobiculatum.		
	11.—Others.			
II.—PULSE ...	12.—Gram ...	Cicer arietinum ...	But, Chenna, H. Cadolei, Tam.	Bot. Mag., pl. 2, 274.
	13.—Cajan pea ...	Cajanus Indicus ...	Urbur, Toor, H. Towaray, Tam. Kand doo, Tel. Kodithoo, H. Kooloo, Tam.	Bot. Reg., 31, pl. 81.
	14.—Horse gram ...	Dolichos uniflorus ...	Moong, H. Mash, B. ...	
	15.—Green „ ...	Phaseolus Roxburghii.	Oornd, H. Kahi-moong, B. Oolando, Tam.	Hort. Mal. viii, pl. 50.
	16.—Black „ ...	„ Mungo ...	Nuttur, H. Wattana, Dec. Pattanie Tam.	
	17.—Peas ...	Pisum sativum ...	Museoor, H. ...	
	18.—Lentils ...	Ervum lens ...	Kesaree, B. Kusoor, H.	Bot. Mag. pl. 15.
	19.—Chickling vetch. 20.—Others.	Lathyrus sativus ...		
III.—ORCHARD AND GARDEN PRODUCE (exclusive of condiments and spices).				
IV.—DRUGS AND NARCOTICS.	21.—Opium ...	Papaver somniferum.	Asfum, H. Abinie, Tam. Ateem, Dec.	Engl. Bot., 2, 145.
	22.—Tobacco ...	Nicotiana tabacum, &c.	Tambaca, H. Tumak, B. Peghei, Tam.	Woodv. Med. Bot. ii, pl. 77.
	23.—Hemp ...	Cannabis sativa ...	Bhang, H. Ganja, B. Ganja, Tam.	Hort. Mal. x., 60, 61.
	24.—Cinchona ...	Cinchona succirubra, &c.		
	25.—Ipecacuanha ...	Cephaelis ipecacuanha.		Woodv. Med. Bot. iv, pl. 274.
	26.—Tea ...	Thea Sinensis ...	Cha, H. Cha-i, Guz. ...	Ditto, pl. 225.
	27.—Coffee ...	Coffea Arabica ...	Kawa, H. Capie, Tam. ...	Wight, Icones, 1, pl. 53.
	28.—Hop ...	Humulus lupulus ...		Woodv. Med. Bot. v, pl. 26.
	29.—Others.			
	30.—Chillies ...	Capsicum sp. ...	Mirchie, H. Moolaghai, Tam. Merapukai, Tel. Elachee, H. Ailu-cheddie Tam. Yaylakooloo, Tel.	Woodv. Med. Bot. 2, pl. 80.
V.—CONDIMENTS AND SPICES.	31.—Cardamums ...	Elettaria cardamum ...	Mirch, H. Gol-murich, B. Mellaghoor, Tam.	Wight, Icones, pl. 1034.
	32.—Pepper ...	Piper nigrum ...	Adrak, H. Soothoo, Tam. Sonti, Tel. Udruck, B.	Hort. Mal. xi, pl. 12.
	33.—Ginger ...	Zinziber officinale ...		
	34.—Others.			
VI.—STARCHES ...	35.—Arrowroot ...	Maranta arundinacea.	Tikur, H. Koca, Tam. ...	Bot. Mag., pl. 2397.
	36.—Others.			
VII.—SUGARS ...	37.—Cane ...	Saccharum officinarum	Shukhr, H. Suttarei, Tam.	Hook, Bot. Misc., pl. 26.
	38.—Palm ...	Elagaria ...	Vajar, H. Eetchumpan-nay, Tam.	Hort. Mal. iii, pl. 22.
	39.—Others.			
VIII.—OILS AND SEEDS (not Forest).	40.—Rape ...	Brassica Napu.	Sursoo, H. B. ...	Woodv. Med. Bot. pl. 2, 146.
	41.—Mustard ...	Sinapis sp. ...	Surson, Toris, H. Rase, B. Kadaghoor, Tam.	
	42.—Linseed ...	Linum usitatissimum.	Tisi, Ulsee, H. Musina, B.	Woodv. Med. Bot. iii, 202.

Proceedings of the Madras Government, Public Works Department,
1st April 1876.

Principal Crops under cultivation in India.—(Concluded.)

Class.	English Name.	Scientific Name.	Native Names.	Description and Illustration.
VIII.—OILS AND SEEDS (not Forest).	43.—Sesame ...	Sesamum indicum ...	Til, H. Noovooloo, Tel. Gingelly, B.	Wight, Illus., pl. 163.
	44.—Others.			
IX.—DYES (not Forest).	45.—Indigo ...	Indigofera tinctoria ...	Neel, H. Neelum, Tam. Neelie, Tel.	Wight, Icones., pl. 365.
	46.—Munjeet ...	Rubia cordifolia ...	Munjista, H. Manjittee, Tam.	Wight, Icones., pl. 187.
	47.—Safflower ...	Carthamus tinctorius...	Koosum, H. Koosumbha, B. Sendoroom, Tam.	Bot. Reg., pl. 170.
X.—FIBRES ...	48.—Others.			
	49.—Cotton ...	Gossypium herbaceum.	Kapas, H. ...	Roxb. Corom., pl. 269.
	50.—Bombay Hemp.	Hibiscus cannabinus.	Ambaree, Dec. Mestapat, H. Gongkura, Tel.	Ditto, pl. 190.
	51.—Jute ...	Corchorus olitorius, &c.	Kooshta, H. Bhingee pat, B.	Bot. Mag., pl. 2, 810, and Wight, Icones., pl. 311.
	52.—Flax ...	Linum usitatissimum.	Tisi, Ulsee, H. Dec. Musina, B.	Eng. Bot., pl. 1, 357.
	53.—Sunn hemp ...	Crotalaria juncea ...	Sunn, B. H. Janapa-nar, Tam. Shanamoo, Tel.	Roxb. Cor., pl. 193.
	54.—True hemp (when cultivated as fibre not narcotic).	Cannabis sativa ...	Bhang, H. Ganja, B. Ganja, Tam.	Hort. Mal. x., 60, 61.
	55.—Others.			

GEORGE BIRDWOOD, M.D.

No. 8.

ORDER THEREON, 1st April 1876, No. 857.

IRRIGATION, No. 1.

COMMUNICATED to District Engineers
for information and guidance.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,

Secretary to Government.

To the District Engineers concerned.
„ Chief Engineer for Irrigation.

Exd. E. C. Shunker.
Spare Copies

2
Enclosure to P. W. Dept. No. 104—113 I, dated 11th March 1876.

No. 55, dated 24th June 1875.

From—The Secretary of State for India,
To—The Government of India.

The great importance of possessing accurate information respecting the Agricultural Statistics of India has frequently been felt in many branches of the Administration. In all countries such knowledge is proved to be of great value, alike to the Government and the people; and its absence in India, a country where so large a portion both of the Government revenue and of the public wealth is directly dependent on the land, is more especially to be regretted.

2. In many Provinces machinery exists which appears suitable for the collection of the needful materials, and much information of the nature in question is indeed already obtained and recorded. What, for the most part, seems to be principally required is increased attention to the methods of checking and combining the statements now prepared, so that they may be exhibited in the manner which will admit of their being best turned to useful account.

3. The Special Committee which has recently been sitting in this Office has laid before me a report on the subject of the collection of Agricultural Statistics, 12 copies of which are forwarded herewith. It will serve as a guide for your Department of Revenue, Agriculture and Commerce, whenever it is able to deal with this important branch of its work.

4. I would particularly point out that it is not intended to impose on the Executive Officers a greater amount of detailed clerical work than must necessarily be performed by them. The machinery existing in the villages, in most parts of India, appears to be sufficient, under proper directions, for the purpose of recording the information; but, when collected, the figures should be examined to see if the results exhibited seem trustworthy, and proper endeavours should be made to correct errors. It is at present too often the case that the labour expended in the preparation of the tables appended to the Administration Reports appears to have been thrown away, a sweeping paragraph denouncing them as useless, instead of an attempt being made to render them more trustworthy.

5. As soon as your Excellency has had time to give the matter consideration, I shall be glad to learn what steps you propose to take for obtaining more accurate information regarding the condition and extent of the Agriculture of India, either by an extension of the plan commenced in the North-West Provinces, or in any other manner which you may deem more suitable for local requirements.

Dated 29th April 1875.

FOURTH REPORT OF THE SPECIAL COMMITTEE ON STATISTICS.

To The—Secretary of State for India in Council.

The Special Committee on statistics have recently had under consideration the practicability of procuring reliable returns of the agricultural productions of India. The absence of accurate returns on this subject appears to them remarkable, seeing how large a portion of the Government income depends on the land revenue. It is, however, in most instances due, not so much to the want of suitable machinery for the collection of materials, as to deficient organization in dealing with them. It is, therefore, to the means of producing improvements in the latter respect that the Committee have specially turned their attention.

2. Agricultural Statistics are required in India for the guidance of Settlement Officers, in the preparation of schemes for Public Works, and in the consideration of many sanitary, fiscal, and political questions. In this country they are needed as elements in forming final decisions on important general questions, and also in the preparation of accurate information for Parliament and for the public generally. We believe that the same forms which will meet the administrative requirements in India will also furnish all that is needed for the satisfactory preparation of information in this country.

3. On various occasions attempts have been made to supply the deficiency which has been felt in this respect. Ever since the time of Dr. Buchanan Hamilton, Agricultural Statistics have been collected and recorded in many parts of India; and the Committee appointed

in 1862, to revise the Statistical Forms appended to the Administration Reports for the several Presidencies and Provinces, drew up the following forms, to impart the information obtained on subjects relating to agriculture:—

Form I, A 1.—Area, cultivated and uncultivated, and communications.

Intended to show, in square miles, the cultivated area; the waste area, culturable and unculturable, in acres; the unappropriated culturable waste remaining from the last year, sold or granted during the year, and remaining at the close of the year; and, in miles, the water communications, distinguishing navigable rivers and canals, the made roads, 1st, 2nd and 3rd class, and the rail-roads.

Form I, E 2.—Surveyed and assessed area.

To show, in acres, the cultivated area, irrigated by Government or by private individuals, and unirrigated; the uncultivated area, divided into grazing, culturable and unculturable waste; the total area assessed, the gross amount of the assessment, and the rate per acre on cultivation, on culturable land, and on the total area of settlement.

Form III, D 1.—Crops cultivated.

To show, in acres, the actual or approximate area under cultivation for rice, wheat, other food-grains, oil seeds, sugar, cotton, opium, indigo, fibres, tobacco, tea, coffee, vegetables, &c., &c., in each District.

Form III, D 2.—Stock.

To show the number, in each District, of cows and bullocks, horses, ponies, donkeys, sheep and goats, pigs, carts, ploughs and boats.

Form III, D 3.—Rates of rent and produce.

To show, for each District, the average rent per acre for land suited for rice, wheat, inferior grains, indigo, cotton, opium, oil seeds, fibres, sugar, and tobacco, and, in pounds, the average produce per acre of land under cultivation for those crops, with the addition of tea, coffee, &c.

Form III, E 1.—Prices of produce.

To show, for each District, the price of produce, per maund of 80 lbs., for rice, wheat, linseed, jute, cotton, sugar, salt, &c. (the general character of the staple of the District being also stated, as cotton, indigenous; cotton, New Orleans; sugar, raw; sugar, refined; salt, rock; salt, Sambhur Lake, and so on), the price of a plough bullock, and of a sheep, of fish by the seer, of iron by the maund, &c., &c.

Form III, E 2.—Price of labour.

To show, in each District, the wages per diem for skilled and unskilled labour, and the daily hire of a cart, a camel, a score of donkeys, or a boat.

4. These forms were circulated to the Local Governments on the 31st of October 1866, with a request from the Government of India that an attempt might be made to collect the information in the prescribed shape, if it appeared feasible to set on foot the necessary system of returns and record.

5. Some of the Governments at once adopted the forms, and appended them to the Administration Reports for 1867-68. In other cases, however, they were considered to be impracticable, at any rate unless a large staff were sanctioned for their compilation; and the Government of India admitted that, in some cases (but apparently not those bearing on agriculture), the Committee's forms needed modification.

6. In the year 1869-70, the Public Works Department urgently pressed for statistics of agriculture, with the view of ascertaining into which Districts canal irrigation could be introduced with the greatest advantage. The forms for which it called, however, were not the same as those already prescribed, and are said to have been adopted from those in use in Sind, and consequently ill-suited for Provinces not under ryotwary tenure. Nevertheless, the matter was pressed on the attention of the local authorities. To the Chief Commissioner of Oudh it was pointed out that, with the Mofussil establishments of the tehseldars and the assistance of the putwarees (or village accountants), there should be no insurmountable difficulty in the preparation of the returns; but, on the abandonment of the Sardah Canal, Sir George Couper considered it unnecessary to have the returns prepared, as they were required for no administrative purpose. In Bengal also they were postponed, as the whole time and attention of the Officers were needed for the forthcoming census,—a protest against delay being, however, entered by the Public Works Department, who said that these statistics formed the chief means of calculating, with any degree of reliability, the profits on the extensive outlay on Irrigation Works contemplated from Loan funds.

7. In the North-West Provinces an endeavour was made to comply with the requisition of the Public Works Department, and tables were forwarded relating to the year 1863-69, and professing to show the area of each District, whether barren or culturable, the extent not paying revenue, the land culturable but not cultivated, and the fallows of one year,—the rubbee and khurree crops, with the proportion thereof not irrigated, irrigated by canal, whether by lift or by flow; or irrigated from other sources,—the population, town

and rural,—the amount of crops, divided into rice, cotton, jowar and bajra, til (oil seed) and other khurree crops, wheat and barley, pulse, oil seed, and other rubbee crops, and sugar, vegetables, fruit trees and other two fust crops,—the total weight of the produce of each chief crop in the District,—the amount exported, and that kept for consumption,—and the area and population of the Districts on the lines of Railway in the Province. In submitting these statements, however, the Board of Revenue said that, though great trouble had been taken in their compilation, they were full of errors, and that, if returned for correction of those most obvious, they would no more than they already did represent the actual state of things. The Lieutenant Governor considered that, while the detailed items to be added up in every tehseldaree would amount to hundreds of thousands, the information, after all, would not be trustworthy, as the putwaree's papers, in spite of every endeavour to make them represent the progressive state of cultivation, are too often, in the particulars required, a mere copy of those of the previous year. The Government of India, nevertheless, considered the returns, even in their present state, to be interesting as well as useful; and begged that they might be compiled annually, with as great accuracy as possible. In reporting the proceedings to the Secretary of State they said that the consideration of the question of the compilation of agricultural statistics generally would not be lost sight of when the new Agricultural Department was constituted. The Duke of Argyll, however, thought that, as it was admitted that the returns were incomplete, and in many respects not trustworthy, their continued preparation could lead to no useful purpose; and, in a Despatch, dated the 10th of August 1871, he desired that the requisition for them might be withdrawn, until it should be found possible to prepare them with that accuracy which might render them serviceable for administrative and statistical purposes.

8. In February 1872, the Board of Revenue for the North-West Provinces submitted their second series of agricultural statements for the year 1869-70, which they accompanied with a letter analysing them, and drawing attention to many absurd deductions from these figures. The Lieutenant Governor showed that, in some of the cases to which they alluded, there was no improbability in the results; but he at the same time said that the Board had "done well to insist emphatically on their unreliability and the impossibility of ever making them throughout really and thoroughly accurate."

9. In view of the strong protest made by some of the Governments, and the expression of opinion on the part of the Secretary of State, the Public Works Department of the Government of India waived its application for the information, except once in five or ten years. They said, however, that the returns had been compiled by all the Local Administrations except Bengal. The Lieutenant Governor of the North-West Provinces was accordingly informed that the continued submission of the returns would not be pressed for, unless he was satisfied that, by maintaining them in their existing or a modified form, greater accuracy and trustworthiness would gradually be attained. As the Lieutenant Governor recommended, subsequently, that they should be discontinued, they have, no doubt, been given up entirely.

10. The Bengal Government, in reply to the demand made on them, remarked that the result of the call for statistics by the Public Works Department had been to distract the attention of the Revenue Officers from the forms prepared by the Statistical Committee; and the Lieutenant Governor begged that the Government of India would proceed systematically on the returns prescribed for general adoption. The plan which he proposed and proceeded to set on foot, was to have in certain selected areas small special establishments to obtain accurate statistics,—to utilize to the full the putwaree and canoongo establishments (that is, those of the village Accountants and Revenue Officers) in particular Districts,—to obtain exact Agricultural Statistics from the wards and khas estates under the direct administration of Government Officers, the information thus obtained being made available as a basis from which approximate figures might be generalized for whole Districts containing those estates,—and to get the best information to be obtained in the Districts not otherwise provided for, care being taken to avoid the acceptance of information which was not more or less to be trusted.

11. The Madras Government raised objections to many of the tables, and said it would be impossible to prepare them without special establishments; but the Government of India hoped that, with the existing local agency, it would be possible to collect in Madras some at least of the information desired, if not annually, at any rate at periodic intervals.

12. For several of the Provinces there have regularly been given, in the Appendix to the Administration Reports, returns based on the forms drawn up by the Committee of 1862; and in the Punjab especially, pains appear to be taken to render them as accurate and useful as possible, and to consider the conclusions to which they point.

13. In laying before your Lordship the foregoing abstract of the correspondence relating to the preparation of statistics of agriculture in India, we cannot refrain from expressing our regret that, owing to the remonstrances made against the demands for certain information called for by a particular Department, so much discouragement as we fear must have been caused by the wording adopted in the Despatch of the 10th of August 1871, should have been given to the efforts that were being made to comply, as regards one branch of statistics, with the instructions laid down four or five years before by the Government of India, with the approval of the then Secretary of State, Sir Stafford Northcote, for the purpose of obtaining information respecting the condition and progress of the people, and enabling the Government to form accurate opinions on the measures best calculated to promote their welfare.

14. In our opinion, the correspondence which took place on the subject, so far from demonstrating the uselessness of such statistics as were obtained, testifies to their value, even in the imperfect condition in which they were forwarded. In the letter from the Board of Revenue of the North-West Provinces, dated the 23rd of February 1872, forwarding the returns for the year 1869-70, they remarked that the change of area in the Dehra and Shahjehanpore Districts, and in the total for the North-West Provinces, was "not explicable." The Lieutenant Governor, however, at once pointed out that, as regards Shahjehanpore (and consequently, to some extent, the total area), it was due to the transfer of certain villages to Oude. Again, with reference to the distribution of the chief crops, the Board considered it "impossible to believe that only 3 per cent. of the khurreef area in Meerut is occupied by rice against 14 per cent. in Mozuffernuggur, or that Bijnour has 40 per cent. against 20 per cent. in Moradabad." The Lieutenant Governor, however, saw nothing "violently improbable in these proportions." Meerut not being a rice-growing District, while canal irrigation is largely used in Mozuffernuggur for the purpose, and Bijnour being a District in which rice is cultivated to a proportionally much larger extent than in Moradabad: Points of this kind are more clearly brought out in a statistical form than in a general report; and it cannot but be productive of good that the Boards of Revenue or Local Governments should have the means of carefully examining, in the best form possible, the conditions of cultivation in the several Districts under their charge. Such questions as those discussed in the criticisms passed by the Board of Revenue and the Government of the North-West Provinces may become of vast importance, in the case of an apprehended drought or a proposal to introduce a canal or a railway into a particular part of the country.

15. The machinery for the collection of this information existed under the former Native administration in a very complete form; and, although the practice of receiving the land revenue in money instead of in a share of the produce has led to the discontinuance of some of the records, we cannot doubt that in many of the Provinces the requisite agency still exists or could be readily revived.

16. In the North-West Provinces and the Punjab the putwarees, or village Accountants collect the materials and keep the records. What has been needed is the permanent employment of a special Officer to supervise the maintenance of correct village papers, and the supply of an annual series of Agricultural Statistics, as well as to see to the efficient instruction of the village Accountants, who form the working machinery by which these objects must be attained. The same Officer would finally arrange the statistics in the form required. As regards the North-West Provinces, Mr. Buck, the Secretary to the Board of Revenue, pointed out the necessity for such an appointment in a note, to which the special attention of the Government of India was called in a Despatch in the Revenue Department, dated the 27th of August 1874, No. 48. In this Despatch your Lordship requested that the subject might receive attention, and desired to be informed of any steps that might be taken in the North-West Provinces to secure the maintenance of correct agricultural records. A Minute by Sir John Strachey, forwarded with the Financial letter from India, dated the 22nd of January last, No. 23, shows that Mr. Buck's suggestions, to which you had called special attention, have been adopted.

17. Similar arrangements can, without difficulty, be made for the Punjab and the Central Provinces.

18. In Bengal, however, owing to the disintegration of the village system, and the absence of available machinery, no such general plan can be introduced, and, for the present, the only results to be expected must be those derivable from the tentative system introduced by Sir George Campbell.

19. In the Bombay Presidency much care and attention have been bestowed upon the form in which such statistics should be prepared. The minutest particulars respecting the land are systematically collected. In a Despatch written in the Revenue Department, on the 26th of November 1874, No. 39, your Lordship called for the detailed talooka accounts, and pointed out that some additional particulars and farther arrangement would be desirable.

20. The Bombay system has been introduced into Mysore, so that there will be the same machinery for collecting Agricultural Statistics in that State.

21. In Madras, notwithstanding an elaborate system of survey and assessment, there is great want of statistical information, though it is believed to exist in much detail in the different villages. Strong objections seem to be felt to anything which will cause any additional work. At the same time the information appears to be recorded, and to be available when required for the preparation of irrigation and other schemes.

22. We venture, then, to urge on your Lordship the importance of the resumption of measures for obtaining Agricultural Statistics from the various Districts throughout India. The mistake, which appears to have been committed on the former occasion, of worrying the Officers by calling for two separate sets of returns, should be avoided; the village Accountants or other Officers should be required to prepare, from the information in their possession, returns giving particulars of cultivation on one uniform plan to be prescribed for them, not going into too minute detail, but calculated to enable the superior authorities to form accurate general conclusions respecting the condition of the District; and, where the village machinery is really not available, as in Bengal, the plan in operation in that Province might be continued, of having a small staff specially appointed to collect the information in selected areas.

23. It is, however, necessary in the first place to decide what area shall form the agricultural unit in the treatment of Statistical Returns. In India this unit is the field, or "number" as it is called in Bombay. But, in the preparation of information in this country, it is desirable to select a larger space, which, while not so small as to render the returns unmanageable, will enable the facts to be shown in sufficient detail. The Districts or Collectors are too large for this purpose; they frequently include totally distinct regions, mountains and plains, with different climates, soils and agricultural products. The unit should, however, be one adopted in the Census Returns, so as to admit of ready comparison between the numbers and other particulars relating to the population in a given area, and the food or other products of the ground within that area. In the English returns the county, or riding is used; and in India the most suitable area will be found in the "Sub-Divisions" in Bengal and British Burmah, the "Tehseels" in the North-West Provinces, Oude, the Punjab and the Central Provinces, and the "Talookas" in Madras and Bombay.

Average size of these Sub-Divisions, &c.		Square miles.
Bengal	...	1,500
North-West Provinces	...	458
Oude	...	571
Punjab	...	786
Central Provinces	...	1,603
British Burmah	...	3,682
Madras	...	887
Bombay	...	593

found in the "Sub-Divisions" in Bengal and British Burmah, the "Tehseels" in the North-West Provinces, Oude, the Punjab and the Central Provinces, and the "Talookas" in Madras and Bombay.

24. In the next place, it is most desirable that, as far as possible, the returns should be framed on a uniform system, and that the terms used should represent the same thing in all cases. Thus, "culturable" land, while used in some Provinces to mean all land capable of cultivation, should not in others (as is apparently done in Bombay) be limited to land bearing assessment, all culturable waste land being omitted. Nor should, "prices" be taken to denote in some instances the number of rupees to be paid for a maund or garce, and in others the number of seers and chittacks to be obtained for a rupee.

25. In some of the Provinces no great difficulty seems to have been found in filling up the forms drawn out by the Statistical Committee in 1862; but the accuracy of the information appended to the Administration Reports is so frequently questioned in the reports themselves, that they can be used to a very slight extent.

26. The chief points required appear to be—

- See Appendix A. Area under rubbee and khurreef crops, unirrigated and irrigated, including bhagayat, or garden crops;
- Area of fields not under cultivation;
- Amount of pasture and of forest land;
- Extent of barren or waste unculturable land;
- Total area assessed;
- Total assessment;
- See Appendix B. Area under cultivation of the chief products of the District;
- See Appendix C. Amount of stock, specifying the number of the principal kinds of animals;
- See Appendix D. Average rates of wages for skilled and unskilled labour;
- And average rates of hire for live and dead stock.

27. With the view of assisting the preparation of these returns in a uniform shape, we append a series of tables embodying in what appears to us to be a convenient form the desired information; and also a list prepared in the Department of the Reporter on products, showing the principal kinds of crop under their English and Scientific names, and the Native names used in the several parts of India. We would also suggest that each District Officer should append to his agricultural returns a brief note, showing in what class of soils each of these principal products is cultivated, at what season of the year, and of what quality, and whether it is consumed within the District, or exported, and if so, in what directions, and to what extent; he should also mention if there is any considerable importation of the same articles, and for what purposes they are chiefly used. It would be also useful that he should specify the quantity of seed required for sowing an acre; the estimated average yield per acre, of each principal kind of crop; the average price of each principal kind of produce; the average rent per acre for each principal crop; and the number of ploughs and carts.

28. These forms, or modifications of them might, when finally approved by the Government of India, be forwarded for the guidance of the Officer in the North-West Provinces selected by Sir John Strachey; and instructions might be given for similar arrangements in other parts of British India.

29. These returns should be filled up with care, and duly criticised so that any obvious errors may be at once detected; and then it may be hoped that before long the materials will exist for the compilation of a useful agricultural map of India, showing the area over which the main staples are chiefly cultivated, and that India will not be the only important part of the British Empire for which no information on the subject of agriculture can be laid before Parliament.

LOUIS MALLET.
ANDREW CASSELS.
HENRY WATERFIELD.
C. CAMPBELL PRINSEP.
H. READER LACK.

APPENDIX A.

AGRICULTURAL STATISTICS.

Statement showing the area in acres, cultivated and uncultivated, &c., area assessed, and amount of assessment in each Sub-Division of Districts in

District.	Sub-Division.	Area of each Sub-Division.	AREA CULTIVATED.							AREA UNCULTIVATED.				Total area assessed.	Total assessment in rupees.	
			Unirrigated.			Under Irrigation.				Total of columns 6, 9 and 10.	Fields not cultivated.	Pasture and forest lands.	Barren or waste land unculturable.			Total of columns 12, 13 and 14.
			Rubbee.	Khurreef.	Total of columns 4 and 5.	Rubbee.	Khurreef.	Total of columns 7 and 8.	Bhagayat or garden crops.							
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.

Note—The total columns 11 and 15 should equal column 3.

APPENDIX B.

AGRICULTURAL STATISTICS.

Statement showing the total area in acres under cultivation of the chief products of each Sub-Division.

[illegible]

Notes.—The total area is to include all land under cultivation of such chief product, both irrigated and unirrigated, and for both rice and kharreef crops.

APPENDIX C.

AGRICULTURAL STATISTICS.

Statement showing the number of live and dead stock.

[illegible]

APPENDIX D. AGRICULTURAL STATISTICS.

Statement showing average rates of wages for skilled and unskilled labour and rates of hire for live and dead stock per day.

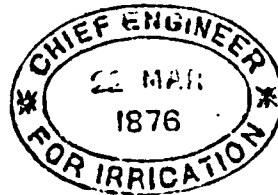
District.	Sub-Division.	AVERAGE WAGES PER DIEM.		RATE OF HIRE PER DIEM FOR LIVE STOCK.								RATE OF HIRE PER DIEM FOR DEAD STOCK.	
		Skilled.	Unskilled.	Camel.	Draught bullocks.	Donkeys, per score.	Elephants.	Horses.	Mules.	Ponies.	Boats.	Carts.	
1	2	3	4	5	6	7	8	9	10	11	12	13	
		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.

APPENDIX E.

Principal crops under cultivation in India.

Class.	English name.	Scientific name.	Native names.	Description and illustration.
I.—CEREALS	1.—Wheat	Triticum vulgare	Gloos, Hind. Gom, Beng. Godumbay arasee, Tam. Jow Jao, H. Barlee arasee, Tam. Java, Tel.	Madras Jury Report, 1897, plate 1. Dict. Sci. Nat. 23, 24. Madras Jury Rept. pl. 4. Ditto, pl. 3. Ditto, pl. 7. Ditto, pl. 2. Rheede Hort. Mal., xii, 61. Madras Jury Rept., pl. 8.
	2.—Barley	Hordeum hexastichon, &c.	Dhan, H. Arisee, Tam.	
	3.—Paddy and rice	Oryza sativa	Mukka, H. Mukka-cholum, Tam.	
	4.—Maize	Zea Mays	Jowar, H. Jowaree, Dec. Cholum, Tam.	
	5.—Great millet	Sorghum vulgare	Bajree, H. Cumboo, Tam.	
	6.—Spiked	Penicillaria spicata	Kunchoo, H. Tenney, Tam.	
	7.—Italian "	Setaria Italica	Chenna, Dec.	
	8.—Raggee	Eleusine coracana	Raggee, H. Muroos, B. Natchnee, Dec.	
	9.—Chenna	Panicum milaceum	Sawa, Chenna, H. Katakuny, Tam. Warree, Dec.	
	10.—Koda	Paspalum scrobiculatum	Koodaka, H. Koda, B. Kodro, Mahr.	
	11.—Others.			
II.—PULSE	12.—Gram	Cicer arietinum	But, Chenna, H. Cadalei, Tam.	Bot. Mag., pl. 2274. Bot. Reg., 31, pl. 31. Hort. Mal., viii, pl. 50. Bot. Mag., pl. 15.
	13.—Cajan pea	Cajanus indicus	Urhar, Toor, H. Towaray, Tam. Kandalo, Tel.	
	14.—Horse gram	Dolichos uniflorus	Koolthee, H. Kooloo, Tam.	
	15.—Green "	Phaseolus Roxburghii	Moong, H. Mash, B.	
	16.—Black "	" Mungo	Oorud, H. Kalk-moong, B. Ool-andoo, Tam.	
	17.—Peas	Pisum sativum	Muttur, H. Wattana, Dec.	
	18.—Lentils	Ervum lens	Pattana, Tam.	
	19.—Chuckling vetch	Lathyrus sativus	Mussoor, H.	
	20.—Others.		Kessaree, B. Kussoor, H.	
III.—ORCHARD AND GARDEN PRODUCE (exclusive of condiments and spices).	21.—Opium	Papaver somniferum	Afium, H. Abine, Tam. Afium, Dec.	Engl. Bot., 2145. Woodv. Med. Bot. ii., pl. 77. Hort. Mal. x., 60, 61. Woodv. Med. Bot. iv., pl. 274. Ditto, pl. 225. Wight, Icones, 1, pl. 53. Woodv. Med. Bot. v., pl. 26. Woodv. Med. Bot. 2, pl. 80. Wight, Icones, pl. 1034. Hort. Mal. xi., pl. 12. Bot. Mag., pl. 2307. Hook, Bot. Misc., pl. 26. Hort. Mal. iii., pl. 22. Eng. Bot. pl. 2146. Woodv. Med. Bot. iii., 202. Wight, Illus., pl. 163. Wight, Icones, pl. 365. Wight, Icones, pl. 187. Bot. Reg., pl. 170. Roxb. Corom., pl. 269. Ditto, pl. 190. Bot. Mag., pl. 2810, and Wight, Icones, pl. 511. Eng. Bot., pl. 1357. Roxb. Cor., pl. 193. Hort. Mal. x., 60, 61.
	22.—Tobacco	Nicotiana tabacum, &c.	Tambaca, H. Tumak, B. Pochei, Tam.	
	23.—Hemp	Cannabis sativa	Bhang, H. Ganja, B. Gunja, Tam.	
	24.—Chinchona	Chinchona succubra, &c.		
	25.—Ipecacuanha	Cephaelis ipecacuanha		
	26.—Tea	Thea Sinensis	Cha, H. Cha-i, Guz.	
	27.—Coffee	Coffea Arabica	Kawa, H. Capis, Tam.	
	28.—Hop	Humulus lupulus		
	29.—Others.			
IV.—DRUGS AND NARCOTICS.	30.—Chilhes	Capsicum sp.	Mirchie, H. Moolaghai, Tam.	Woodv. Med. Bot. 2, pl. 80. Wight, Icones, pl. 1034. Hort. Mal. xi., pl. 12. Bot. Mag., pl. 2307. Hook, Bot. Misc., pl. 26. Hort. Mal. iii., pl. 22. Eng. Bot. pl. 2146. Woodv. Med. Bot. iii., 202. Wight, Illus., pl. 163. Wight, Icones, pl. 365. Wight, Icones, pl. 187. Bot. Reg., pl. 170. Roxb. Corom., pl. 269. Ditto, pl. 190. Bot. Mag., pl. 2810, and Wight, Icones, pl. 511. Eng. Bot., pl. 1357. Roxb. Cor., pl. 193. Hort. Mal. x., 60, 61.
	31.—Cardamoms	Elettaria cardamomum	Elachee, H. Aila-cheddie, Tam.	
	32.—Pepper	Piper nigrum	Yaylakooloo, Tel.	
	33.—Ginger	Zingiber officinale	Mellaghoor, Tam.	
V.—CONDIMENTS AND SPICES.	34.—Others.		Adrak, H. Sookhoo, Tam. Souti, Tel. Udruck, B.	
VI.—STARCHES	35.—Arrowroot	Maranta arundinacea	Tikur, H. Kooa, Tam.	Bot. Mag., pl. 2307. Hook, Bot. Misc., pl. 26. Hort. Mal. iii., pl. 22. Eng. Bot. pl. 2146. Woodv. Med. Bot. iii., 202. Wight, Illus., pl. 163. Wight, Icones, pl. 365. Wight, Icones, pl. 187. Bot. Reg., pl. 170. Roxb. Corom., pl. 269. Ditto, pl. 190. Bot. Mag., pl. 2810, and Wight, Icones, pl. 511. Eng. Bot., pl. 1357. Roxb. Cor., pl. 193. Hort. Mal. x., 60, 61.
	36.—Others.			
VII.—SUGARS	37.—Cane	Saccharum officinarum	Shukhr, H. Sukkaree, Tam.	Hook, Bot. Misc., pl. 26. Hort. Mal. iii., pl. 22. Eng. Bot. pl. 2146. Woodv. Med. Bot. iii., 202. Wight, Illus., pl. 163. Wight, Icones, pl. 365. Wight, Icones, pl. 187. Bot. Reg., pl. 170. Roxb. Corom., pl. 269. Ditto, pl. 190. Bot. Mag., pl. 2810, and Wight, Icones, pl. 511. Eng. Bot., pl. 1357. Roxb. Cor., pl. 193. Hort. Mal. x., 60, 61.
	38.—Palm	Elate sylvestris	Kajar, H. Eetchumpannay, Tam.	
	39.—Others.			
VIII.—OILS AND SEEDS (not Forest).	40.—Rape	Brassica Napus	Sursoo, H., B.	Eng. Bot. pl. 2146. Woodv. Med. Bot. iii., 202. Wight, Illus., pl. 163. Wight, Icones, pl. 365. Wight, Icones, pl. 187. Bot. Reg., pl. 170. Roxb. Corom., pl. 269. Ditto, pl. 190. Bot. Mag., pl. 2810, and Wight, Icones, pl. 511. Eng. Bot., pl. 1357. Roxb. Cor., pl. 193. Hort. Mal. x., 60, 61.
	41.—Mustard	Sinapis sp.	Surson, Toria, H. Racee, B. Kadashoo, Tam.	
	42.—Linseed	Linum usitatissimum	Tan, Ulsee, H. Musina, B.	
	43.—Sesame	Sesamum indicum	Til, H. Noovooloo, Tel. Gingly, B.	
IX.—DYES (not Forest).	44.—Others.			Bot. Mag., pl. 2307. Hook, Bot. Misc., pl. 26. Hort. Mal. iii., pl. 22. Eng. Bot. pl. 2146. Woodv. Med. Bot. iii., 202. Wight, Illus., pl. 163. Wight, Icones, pl. 365. Wight, Icones, pl. 187. Bot. Reg., pl. 170. Roxb. Corom., pl. 269. Ditto, pl. 190. Bot. Mag., pl. 2810, and Wight, Icones, pl. 511. Eng. Bot., pl. 1357. Roxb. Cor., pl. 193. Hort. Mal. x., 60, 61.
	45.—Indigo	Indigofera tinctoria	Neel, H. Neelum, Tam. Neelia, Tel.	
	46.—Munjeet	Rubia cordifolia	Munjista, H. Manjittee, Tam.	
	47.—Safflower	Carthamus tinctorius	Koosum, H. Kocumbha, B. Sendoorium, Tam.	
X.—FIBRES	48.—Others.			Bot. Mag., pl. 2307. Hook, Bot. Misc., pl. 26. Hort. Mal. iii., pl. 22. Eng. Bot. pl. 2146. Woodv. Med. Bot. iii., 202. Wight, Illus., pl. 163. Wight, Icones, pl. 365. Wight, Icones, pl. 187. Bot. Reg., pl. 170. Roxb. Corom., pl. 269. Ditto, pl. 190. Bot. Mag., pl. 2810, and Wight, Icones, pl. 511. Eng. Bot., pl. 1357. Roxb. Cor., pl. 193. Hort. Mal. x., 60, 61.
	49.—Cotton	Gossypium herbaceum	Kapas, H.	
	50.—Bombay Hemp	Hibiscus cannabinus	Ambaree, Dec. Mesta pat, H. Gouzkura, Tel.	
	51.—Jute	Corchorus olitorius, &c.	Kooshta, H. Bhungee Pat, B.	
	52.—Flax	Linum usitatissimum	Tisi, Ulsee, H. Dec. Musina, B.	Bot. Mag., pl. 2307. Hook, Bot. Misc., pl. 26. Hort. Mal. iii., pl. 22. Eng. Bot. pl. 2146. Woodv. Med. Bot. iii., 202. Wight, Illus., pl. 163. Wight, Icones, pl. 365. Wight, Icones, pl. 187. Bot. Reg., pl. 170. Roxb. Corom., pl. 269. Ditto, pl. 190. Bot. Mag., pl. 2810, and Wight, Icones, pl. 511. Eng. Bot., pl. 1357. Roxb. Cor., pl. 193. Hort. Mal. x., 60, 61.
	53.—Sunn hemp	Crotalaria juncea	Sunn, B. H. Jannapa-nar, Tam. Shanamoo, Tel.	
	54.—True hemp (when cultivated as fibre not narcotic).	Cannabis sativa	Bhang, H. Ganja, B. Gunja, Tam.	
	55.—Others.			

GEORGE BIRDWOOD, M. D.,



cl's 59/1/16

PTW 2354/16

Nos. 104—13 I.

GOVERNMENT OF INDIA.

PUBLIC WORKS DEPARTMENT.

CIVIL WORKS.

Irrigation.

To

THE GOVERNMENTS OF MADRAS, BOMBAY, BENGAL, NORTH WESTERN PROVINCES AND
PUNJAB, IN THE PUBLIC WORKS DEPARTMENT, IRRIGATION BRANCH.
THE CHIEF COMMISSIONERS OF OUDH, CENTRAL PROVINCES, BRITISH BURMAH, AND
MYSORE AND COORG.
THE RESIDENT AT HYDERABAD.

Fort William, March 11, 1876.

Sir,

In continuation of Circular No. 7, dated the 5th February 1870, regarding Agricultural Statistics, I am directed to forward herewith copy of a Despatch (No. 55 of 24th June 1875) from the Secretary of State on the subject, and to state that the Government of India considers the collection of these Statistics of great importance, and to request that instructions may be issued to all Officers of the Public Works Department to afford what aid they can by the observation of facts and collection of information on this subject.

I have the honor to be

Sir,

Your most obedient Servant,

R. A. Colonel, R. A.,
Secy. to the Govt. of India.

*To The Joint Secy to the Government of Madras
in the P. W. Dept. Irrigation Branch*

*Chief Engineer
1876
No 2354*

GOVERNMENT OF INDIA.
PUBLIC WORKS DEPARTMENT.
CIVIL WORKS.
Irrigation.

To
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BENGAL, THE NORTH WESTERN PROVINCES
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PARTMENT, IRRIGATION BRANCH.
THE CHIEF COMMISSIONERS OF OUDH, CENTRAL
PROVINCES, BRITISH BURMAH, AND MYSORE
AND COORG.
THE RESIDENT AT HYDERABAD.

Nos. 104-131.

Dated March 11, 1876.

Received.
Recd. 31 March

Encls 1/1

Collection of Agricultural Statistics.

No. 222, P. W. D. Press-11-3-76-60.

No 857 P.W.D. June 8
Proceedings of the Madras Govt
Under date the 1st April/76
Read the following...

in the Govt of India (H.E. No 104-131/76) Encls 1/1

*Communicated
to District Engineers
for information
and guidance.*

Adm. S.
[Signature]

*Is concerned - 122
C.B. for I. 5-17
B. Canara. Special Agents
Bangalore*

Recd 28/4/76

1st May 1876

235745 ✓
Govt. of Madras.
PUBLIC WORKS.

To
The Engineer-in-Chief

3/4/76

Dated

Issued

Recd

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G. O. No. 476, No.

85

Nos. 7-8

Classification of Land &
Crops — Letter from the Govt.
of India, enclosing the
Communicated to Govt.
Engineer for information

Sent to Govt.
29-4-76.