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*Proceedings of the Madras Government, Revenue Department,
27th March 1871.*

Read the following:—

No. 413. Proceedings of the Board of Revenue, dated 17th November 1870,
No. 6,713.

Read the following letters:—

From the Acting Collector of Tinnevely, to the Acting Secretary to the Board of
Revenue, dated 6th August 1870, No. 391.

With reference to Board's Proceedings, No. 4,528, dated 23rd June 1869,
I have the honour to submit, herewith, copies of a letter and a statement from
Dr. Thompson in the prescribed tabular form on the result of the experimental
cultivation of Carolina paddy.

2. I am glad to say the experiment has proved successful, and my thanks are
due to Dr. Thompson for the great care taken by him in carrying out the experi-
ment. The crop, it will be observed, has, notwithstanding the unfavourable
character of the season and soil, as detailed in the report, yielded a larger quantity of
grain than the adjacent field of the same extent cultivated with indigenous paddy.
The length and weight of straw is also superior to the straw of the indigenous
product.

3. Out of the 196 measures of paddy which Dr. Thompson sent me, I forward
this day per banghy 10 measures as directed in the Proceedings quoted above;
the rest I have reserved for distribution among well-to-do ryots wishing to try it
~~next year: the result will be duly reported.~~

4. A drawing of the Carolina rice-plant in two stages of growth is also sub-
mitted, together with some of the soil on which the crop was grown.

ENCLOSURE No. 1.

From D. R. THOMPSON, Esq., M.D., Superintendent of the Jail, to the Collector of Tinnevely,
dated Palamcottah, 15th July 1870

In sending you the enclosed tabular report of the experiment on Carolina paddy which was
conducted at this station, I have the honour to forward a few remarks on the different modes of
cultivation adopted.

2. The seed which was received at first had, to the extent of more than 80 per cent., lost its
vitality, and that which sprouted soon showed signs of weakness. The blades from the latter
shrivelled, dried at the extremities, became covered with whitish spots, and then perished.
After some trouble and care a few plants were saved, which covered about 216 square-feet of
ground when transplanted; these yielded seven measures of good paddy, a rate of 1,411 measures
to an acre.

3. The soil on which the experiment was carried out is very poor, and, I think, contains
too much of either potash or lime, each bed had received the quantity of manure shown in the
tabular report.

4. The second supply* of seed (which you obtained from Madras) was sown in the same
beds, without the addition of any manure; this
paddy was very good, having scarcely 3 per
cent. of bad seed in it, and had it not been for the very heavy falls of rain when it was first sown,
the return would have been very large (notwithstanding the poorness of the soil), if we may judge
from the outturn, from that which was saved, after being sown as a dry crop, in drills, and in two
wet beds by transplantation, the increase from these three beds is shown in the tabular report.

5. The largest quantity (50 measures) was obtained from the transplanted wet bed, and
was the outturn from two measures of seed originally sown in one of the nurseries; but in reality,

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it was the produce of about only $\frac{1}{4}$ of a measure; the nursery from which the plants were taken was, like all the other beds, sown just a few days before the flood in November last, when the great rush of water from the tank which is near by carried away many of the young plants and seeds, so that when the transplanting took place the plants which remained were in number equal to about $\frac{1}{4}$ of a measure, and from this 50 measures were reaped, giving an actual increase of 67 fold.

6. The soil is poor, a kind of red loam, mixed largely with sand and gravel, but it has been for some years used as a nursery for Indian paddy, so that its surface to about the depth of three-quarters of a foot is a compost of some vegetable mould, mixed with ashes, and the original soil.

7. I think, too, it contains more lime than is good for the cultivation of paddy.

8. The implements used were the common Indian plough, which raked up the surface, after which it was deeply dug by large jail mamooties and allowed to lie fallow for about a fortnight.

9. The manures employed were a mixture of the leaves of the Neim and other trees and some ashes. I do not know that any comparison could be drawn between the growth of the roots of a transplanted and sown crop, since the roots of the former are to some extent destroyed during transplantation, whilst those of the latter increase without interruption.

10. The accompanying drawings taken by the lady of an officer of the 22nd Regiment M. N. I. show the increase of growth for the first two weeks. The smaller one is a life-size plant of one week taken from a nursery, the larger a life-size plant of two weeks taken from the dry-bed.

11. I regret I cannot give any data regarding the quantity of water which was supplied to the beds, as they were at one time flooded for nearly a week, during four days of which they were under 3 feet of water, the plants being entirely out of sight during this period. Besides, for a fortnight or more, there were such heavy falls of rain that a despatch of any success at all; and yet, under such trying circumstances, the young seedlings which had fixed themselves, grew and yielded the return noted in the report.

12. The great value of transplantation was strikingly illustrated in this experiment. One nursery (the result of which is not recorded in the tabular report) suffered immediately after the rains had stopped from a sort of blight, the plants which remained in it showed exactly the same indications of weakness as those which were raised from the first supply of paddy; the leaves changed colour, shrivelled, threw out white spots, and began to dry at their extremities, and would have, I am sure, all perished had they not been transplanted; as soon, however, as this was done, new blades sprang and scarcely a plant perished, but growing well to the height of four feet, yielded a return of 32 measures.

13. Most of the ears in each bed came to maturity at the same time; a few of the later ears were, of course, immature at the time of reaping, but I am now convinced that as stated in my report from Chingleput, if the plants are well, and continuously supplied with water, from the period just before the ears begin to form to their full maturation, very few will be immature at the time of reaping; but if this is neglected, most, if not all the lower, or later ears, will be immature, if not abortive; at the time of reaping the grain "sets," as the natives say, in the upper ones, before the lower ones are filled with "milk."

14. As stated also in my report from Chingleput, I found here that the grains in this variety of paddy are very firmly fixed to the ears, scarcely a seed is shed; indeed, on the other hand, considerable force is needed to separate the grains from the ears.

15. Although the straw is not so long as that which was grown at Chingleput, it is larger in quantity, and, judging from its appearance, much richer in quality than the straw obtained from the Indian paddy. In texture, it is a little coarser, but when properly crushed, by being trampled upon, cattle feed on it freely.

16. With the supply of water at command in and about Tinnevely two crops of Carolina paddy can be easily raised. The first crop should be sown, so that it may be gathered in just before the north-east monsoon begins. To accomplish this, it would be well to raise the first

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crop by transplantation; the operations in the nurseries could then be commenced at about the middle of the month of May, and the plants ready for removing by the middle or end of June; the crop could then be reaped on the first or second week in October.

17. In conducting the next experiment it would be useful to try the relative yield, under exactly similar circumstances, of the seed obtained from this experiment, and that received direct from England, bearing in mind the fact that the former was grown on very poor soil.

18. In distributing Carolina seed to land-holders it would be well to tell them to have a special field set apart for the production of seed for the next year's crop, and that special care should be taken to manure this field richly. By this means the original quality of the grain would, in a great measure, be maintained.

19. I do myself the honour of sending, herewith, 189 Madras measures of Carolina paddy seed, which was grown from the supply of paddy which you sent me the second time, and the seven measures grown from the paddy first received. With this, I also send some of the soil on which the paddy was grown.

ENCLOSURE No. 2.—Statement.

ENCLOSURE No. 3.—Two drawings of Carolina rice plant.

ENCLOSURE No. 4.—Parcels containing specimens of grain and soil.

From the Acting Collector of Tinnevely, to the Acting Secretary to the Board of Revenue, dated Courtallum, 29th August 1870, No. 115.

In re-transmitting the statement received with the Board's official memorandum, No. 857, of the 17th instant, I have the honour to state that the figures representing the rain-fall of the district refer to the period the grain was actually on the ground, i.e., from the date of sowing to that of reaping. The quantity of rain was shown in *inches* instead of *ounces* in accordance with instructions circulated with Board's official memorandum, No. 211, dated 6th March 1869. It has, however, now been corrected into ounces as directed.

2. The difference in the rain-fall on the adjoining plot of country paddy is owing to the fact of there not having been such heavy rain when the seed was sown as we had in November last, of which the plot selected for the cultivation of the Carolina paddy derived the full benefit.

3. An additional column has been opened in the statement showing the rain-fall in the Huzur during the periods in question.

From the Acting Collector of Tinnevely, to the Acting Secretary to the Board of Revenue, dated 19th October 1870, No. 528.

With reference to Board's official memorandum, No. 1,115, dated 27th September last, I have the honour to submit, herewith, a revised statement showing the result of the experimental cultivation of Carolina paddy.

2. Column 15 shows the average rain-fall of the district.

3. Column 16 shows the actual rain-fall to which the plants were exposed at Palamcottah, where the experimental cultivation was carried on.

ENCLOSURE No. 1.—Statement.

*Proceedings of the Madras Government, Revenue Department,
27th March 1871.*

THE late Acting Collector's report of the 6th August last, No. 391, together with the amended statement received with this letter and specimens of the grain and soil will now be forwarded to Mr. Robertson for his remarks. The Board are glad to see that the experiment has proved fairly successful. In future, the Collector may omit columns 10 and 11 of the Return.

No. 414. Proceedings of the Board of Revenue, dated 25th January 1871, No. 395.

Read again Board's Proceedings, dated 17th November 1870, No. 6,713.
Read also the following letter from the Honorary Secretary, Government Experimental Farm, to the Acting Secretary to the Board of Revenue, dated Madras, 19th December 1870, No. 97.

I HAVE the honour to forward, herewith, the remarks of the Superintendent, Government Farm, on the experimental cultivation of Carolina Paddy at Palamcottah by Dr. Thompson.

2. I observe that the ground was "deeply dug by large jail mamooties." This would, of course, make a great difference in the results. Had the soil been simply ploughed the returns would have been much smaller.

3. I also notice that the country paddy was not sown till November 1st and reaped on April 28th, whereas the Carolina Paddy was sown a month earlier and reaped on March 15th. April in Palamcottah is a very hot month, and the rain-
~~which fell on the Carolina was only one-third of the quantity which fell on the Carolina.~~

4. No fair comparison can, therefore, be made of the two crops.

ENCLOSURE No. 1.

From W. R. ROBERTSON, Esq., Superintendent, Government Farm, to the Honorary Secretary, Government Farm Committee, dated Sydapet, 15th December 1870, No. 209.

With reference to the Proceedings of the Board, No. 6,713, dated 17th November 1870, containing a report on the experimental cultivation of Carolina Paddy in the Tinnevely District, I have the honour to submit the following observations.

2. In paragraph 3 the reporter states that "the soil on which the experiment was carried out is very poor, and, I think, contains too much of either potash or lime." Such a statement should certainly have been accompanied by some explanation; as it stands, superficial thinkers will be very apt to conclude that lime or potash is noxious to paddy. Nothing can be more erroneous. Lime and potash are the essentials in plant nutriment, especially of plants belonging to the cereal order; indeed, I can imagine nothing that will more conduce to the success of the paddy grower than the frequent use of both lime and potash as top-dressings. It is, however, perfectly true that these minerals may be present in the soil in too large a proportion or in too soluble form, and therefore be prejudicial. This does not appear to have been the case in these instances, for we read in paragraph 4 that a fresh sample of seed sown in the same beds would have produced a very large return, had it not been for the very heavy fall of rain when it was first sown.

3. I must again point out the fallacy of calculating the outturn by the relation the grain yielded bears to the number of plants transplanted. It is perfectly true that every plant is the production of a single seed, but it does not follow that every seed produced a plant. In this instance, two measures of seed were sown; however, the reporter found that, when the plant had arrived at a stage fit for transplanting, they only represented, on the assumption that one plant was

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the production of one seed, three-quarters of a measure, and that as the yield was fifty measures, the outturn was, therefore, sixty-seven fold. If we are to continue to assess the value of our efforts in growing a grain crop by the rude system—the so-called number of fold—we can only deal with the quantity *actually sown*. The farmer who obtains twenty-five outturn on the quantity sown will not find his circumstances at all improved when informed that by computing in another manner the outturn will be sixty-seven fold.

4. Our sowings are always subject to damage by floods, by weather, by rats, squirrels, slugs, etc. It is true that we waste an enormous quantity of valuable food by thick sowing; but it is equally true that, until the number of our foes are reduced, we must continue to sow a much larger number of seeds than is represented by the number of plants at harvest.

5. The number-of-fold test is a test of cultivation, and is almost useless as affording any indication of the productive powers of a grain. Of what value is such a test when the same sample of grain sown in the same field will yield, in one instance, 150 fold, and in another only thirty?

6. The yield of grain under dry cultivation, though very small in proportion to the yield from wet cultivation, is very satisfactory; indeed, it is the largest I remember to have seen recorded. I can account for this unusual result only by supposing either that the air was unusually humid during the growth of the crop, or that the soil upon which it was grown was very retentive.

7. It is desirable that these tabular returns should contain a column in which to record the measure of grain realized or sown. Before any correct conclusion can be formed on the results of these experiments, it is necessary that both the volume and weight of the grain yielded should be known. A result in one instance of 800 lbs. of grain, weighing 3 lbs per measure, may be more satisfactory than another result of 1,000 lbs. if in the latter case one measure of grain only weighed 100 lbs. ~~as in the former case one measure of grain only weighed 100 lbs.~~ expected to give as good results as seed weighing 3 lbs. per measure.

SUBMITTED for the information of Government.

No. 415. ORDER THEREON, 27th March 1871, No. 558.

Miscellaneous.

ORDERED to be recorded.

(True Extract.)

(Signed) CHAS. MACLEAN,
Acting Under-Secretary to Government.

To the Board of Revenue.
" the Agri-Horticultural Society.
" the Honorary Secretary, Government Farm.

Exd. F. R. Bantleman.

No. 395.

PROCEEDINGS OF THE BOARD OF REVENUE, dated 25th January 1871.

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2. I observe that the ground was "deeply dug by large jail mamooties." This would, of course, make a great difference in the results. Had the soil been simply ploughed the returns would have been much smaller.

3. I also notice that the Country Paddy was not sown till November 1st and reaped on April 28th, whereas the Carolina Paddy was sown a month earlier and reaped on March 15th; April in Palamcottah is a very hot month, and the rainfall during the cultivation of the Country Paddy was only one-third of the quantity which fell on the Carolina.

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3. I must again point out the fallacy of calculating the out-turn by the relation the grain yielded bears to the number of plants transplanted. It is perfectly true that every plant is the production of a single seed, but it does not follow that every seed produced a plant. In this instance, two measures of seed were sown; however, the reporter found that, when the plant had arrived at a stage fit for transplanting, they only represented—on the assumption that one plant was the production of one seed—three-quarters of a measure, and that, as the yield was fifty measures, the out-turn was, therefore, sixty-seven fold. If we are to continue to assess the value of our efforts in growing a grain crop, by the rude system—the so-called number of fold—we can only deal with the quantity actually sown. The farmer who obtains twenty-five out-turn on the quantity sown will not find his circumstances at all improved when informed that by computing in another manner the out-turn will be sixty-seven fold.

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5. The number-of-fold test is a test of cultivation, and is almost useless as affording any indication of the productive powers of a grain. Of what value is such a test when the same sample of grain sown in the same field will yield, in one instance, 150 fold, and in another only thirty?

6. The yield of grain under dry cultivation, though very small in proportion to the yield from wet cultivation, is very satisfactory; indeed, it is the largest I remember to have seen recorded. I can account for this unusual result only by supposing either that the air was unusually humid during the growth of the crop, or that the soil upon which it was grown was very retentive.

7. It is desirable that these tabular returns should contain a column in which to record the measure of grain realized or sown. Before any correct conclusion can be formed on the results of these experiments it is necessary that both the volume and weight of the grain yielded should be known. A result, in one instance, of 800 lbs. of grain weighing 3 lbs. per measure may be more satisfactory than another result of 1,000 lbs., if in the latter case one measure of grain only weighed 2 lbs. So also in sowing, seed which only weighed 2 lbs. per measure could not be expected to give as good results as seed weighing 3 lbs. per measure.

SUBMITTED for the information of Government.

(True Copies and Extract.)

H. C. Stokes

Acting Sub-Secretary.

To the Secretary to Government, Revenue Department,
with Board's Proceedings, 17th November 1870, No. 6,713.

Copy to the Honorary Secretary, Government Farm.

to the Collector of Tinnevely.

Exd. A. S. Rodgers.

Me 413

*14 Police Office D. 20
16 - Horticultural Society
16 - Hon. Secy Govt Farm*

Dec. 1871. Col. H. C. Stokes
BOARD of SUPERINTENDENT,
MADRAS. 17-374

PROCEEDINGS, 25th JANUARY 1871, No. 395.

Copy 3 - 17/1/71

Received 4-1-71

JANUARY.
No. 395.

Carolina paddy - Remarks of Superintendent of Government Farm on experimental cultivation of, by Doctor Thompson at Palamcottah in Tinnevely District, submitted to Government.

11764/1/1871

*7-5-58
27-8-1871*

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H. C. Stokes

Acting Sub-Secretary.

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Me 413

*14 Police Office D. 1871-20
16 - Horticultural Society
16 - Hon. Secy Govt Farm*

Dec- 1871. Clk H.
**BOARD of SUPERINTENDENTS,
MADRAS. 1871-72.**

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11764/11/1871

*71-558
27-8-1871*