https://doi.org/10.29321/MAJ.10.A04921

made and any useful results obtained may be vigorously advocated. A systematic survey of the Presidency has to be made for assessing the seriousness of the problem in Madras, so that adequate measures for the prevention of soil erosion may be put into operation. The disappearance of the prickly pear through the cochineal insect has resulted in the loss of a valuable plant, which until man found it necessary to remove it and cultivate the cleared land, has been one of the best agencies in the protection and retention of the soil.

Soil erosion is a national menace and calls for joint action and sustained effort on the part of the cultivators on the one hand and the Government on the other. If this colossal waste of basic capital accumulated patiently through centuries is prevented, the foundations of a new agriculture will have been well and truly laid.

Literature Cited.

1. Miller and Duley. "Studies of water absorption etc., under field conditions." *Missouri Sta. Bull. No. 169*, pp. 65–66.
2. Do. "Soils." *Missouri Sta. Bull. 172.*
3. Middleton, H. E. "Properties of soils which influence Soil Erosion." *U. S. A. Tech. Bull. 178*, (1930).
4. Duley and Miller. "Erosion and Surface run-off under different soil conditions." *Missouri Sta. Res. Bull. 63*, (1923) pp. 5–50.
5. Agarwala, S. "Soil Erosion in the United Provinces." *India Jr. of Economics*, Vol. XI, Part 1, (1930) pp. 77–83.
6. Miller, M. F. "Erosion as a factor in soil deterioration." *Science* Vol. LXXIII, 1931, No. 1882.
7. Roper, I. M. "Spartina and Coast Erosion." *Royal Bot. Gardens, Kew. Mis. Information Bull 1*, (1918), pp. 26–31.
8. Cleghorne, W. S. H. "Practical Soil Erosion Control Measures." *Farming in S. Africa*, Vol. V, 1931, No. 59, pp. 535–536.
9. Hamilton Roberts, R. "Soil Erosion—Note on Contour Ridging." *The Rhodesian Agrl Jrl* Aug. 1930, pp. 841–845.
10. —— "Resolutions of the Soil Erosion Council." *Farming in S. Africa*, Vol. V, No. 57, Dec. 1930, P. 451.
11. Mallory, W. H. "China—Land of Famine." P. 26.
12. King, F. H. "Farmers of Forty Centuries." P. 112.
13. —— "Proceedings of the Board of Agriculture in India, Pusa, 1916."
14. Howard, A. "Notes on Soil denudation and drainage." Proceedings of the Board of Agriculture in India, Pusa, 1916.

MECHANICAL ANALYSIS OF SOILS

By T. R. SESHADRI,

Formerly Soil Physicist, Coimbatore.

&

S. V. KUPPUSWAMI,

Assistant to Government Agricultural Chemist, Coimbatore.

Though a detailed mechanical analysis is done as a regular routine in the course of a soil study, a rapid separation into two fractions one of which is the coarse fraction including coarse and fine sand and the

other is the fine fraction including silt and clay has been found to yield useful preliminary information and to be valuable in advisory work especially when large numbers of samples have to be dealt with rapidly. The fine fraction is determined by Robinson's pipette method and the residue left after the removal of clay and silt by the sedimentation method (beaker method) is the coarse fraction. Both these fractions may be estimated directly or one of them alone determined directly and the other obtained by subtraction from 100.

With several kinds of soils the results of the above rough separation do not seem to be affected by the method of dispersion employed. Simple shaking of the sample with distilled water for twelve hours is found to be enough and as good as adopting the International method or the Puri method. There are, however, certain cases where efficient dispersion is necessary for obtaining correct information and the percentages of the two fractions vary markedly with the method of dispersion employed. Typical results obtained with highly silty soils characteristic of the deltas are given below :

Shaking with distilled water.

Soil No.	Coarse fraction.	Fine fraction.	Total.
1	32·1	59·9	92·0
2	36·5	56·8	93·3
	International method.		
1	33·6	67·0	100·0
2	34·8	66·1	100·9

It will be noticed that with imperfect dispersion the fine fraction is found to be too low and the total is much less than 100. However, the coarse fraction is found to be almost the same by the two methods of dispersion. The explanation seems to be that when not properly dispersed during the estimation of the fine fraction by the pipette method, a portion of it seems to behave like the coarse fraction and during the subsequent repeated washing in the course of the estimation of the coarse fraction by the beaker method, this portion seems to get dispersed and removed as silt or clay leaving the correct coarse fraction alone behind. The easiest method of analysing such samples is to shake them with distilled water, estimate the coarse fraction directly and obtain the fine fraction by subtraction from 100.

With red soils particularly of the Lateritic type complete dispersion by the International method has been found to be essential, otherwise the results for the fine fractions are markedly low. Boiling with water as a method of dispersion is found to be not desirable since in certain cases it has a coagulating effect. Clayey calcareous soils also require thorough dispersion. The following table summarises a few typical results obtained with black cotton soils.

Shaking with water.

Sample.	Fine fraction.	Coarse fraction.	Total.
1	68·2	32·5	100·7
2	70·1	31·3	101·4
	International method.		
1	69·4	23·2	92·6
2	70·3	23·1	93·4
	Puri method.		
1	75·3	24·9	100·2
2	78·0	23·0	101·0

On comparing the International method and Puri method which employs sodium saturation, it will be noticed that the former gives too low values for the aggregate and the values for the coarse fractions are almost the same. It may, therefore, be concluded that the deficit is entirely due to the fine fraction which seems to contain all the soluble portion. It is immaterial which of the two methods of dispersion is adopted provided the coarse fraction is estimated directly and the fine fraction calculated by difference. Simple shaking with water gives obviously high results for coarse fractions and low results for fine fractions.

When a large number of soil samples of the same type have to be studied rapidly it is advisable to find out with one sample whether it requires efficient dispersion or not. Subsequently it is enough to estimate only the coarse fractions which is quite early and rapid and calculate the fine fractions therefrom.

Acknowledgments. Part of this work was done in the Agricultural Research Institute, Coimbatore and our thanks are due to the Agricultural Chemist for facilities offered.

PINEAPPLE CULTIVATION IN MALABAR

By E. K. GOVINDAN NAMBIAR, L. Ag.,

Farm Manager, Agricultural Research Station, Taliparamba.

In all countries where the value of fruit diet has been recognised, pineapple occupies a high rank. In most of the western countries and in all tropical islands within easy reach of the West this has assumed great commercial importance. In India where the plant seems to have been introduced about 300 years back and has spread through the West Coast to Bengal Assam and Burma, little attention seems to have been paid to improve the quality or commercial possibilities of this valuable fruit plant.

In this Presidency it occurs in several places as a hedge plant or as an ill-kept bush yielding stray fruits of small size and of an insipid sour taste. In the Simhachalam hills of the N. Circars and in isolated estates of the southern and western portions of the Western Ghats it