

opinions regarding horns differ within a distance of two to three hundred miles in this Presidency alone.

The Government Agricultural Chemist suggested the feeding of Sulphur to some young bulls with loose horns but this has had no effect. It is not a question of the growth of the horn itself but of the boney core inside the horn, this does not grow and the horn becomes slightly loose.

A STUDY OF THE WATER OF THE WELLS OF THE CENTRAL FARM, COIMBATORE

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As an introduction to a detailed study of the variations in the water table and composition of the well waters in the Central Farm, Coimbatore, as influenced by season, the nature and number of underground springs, the composition of the lower strata etc., a preliminary analysis of samples of water taken from 14 wells in the Farm area was made with a view to determine the chemical composition of the total solids dissolved in them. As this has provided interesting information showing the great variation between wells situated in the different parts of the Farm, it has been proposed to present here the analytical data obtained.

Samples of water from the different wells were taken on the 7th October 1931 and numbered from 1 to 14-A. Sample 11 was taken from the well proper (in the cotton station) and 11-A from the bore hole. Similarly Sample No. 14 represents the top spring and 14-A the bottom of the Farm Yard Well. The different samples were taken from the wells as shown below:—

Sample No.	Place taken from.
1.	Well in F. No. 76.
2.	" 77.
3.	" 68. (Students' Block)
4.	" Brickfield.
5.	in Field No. 59.
6.	" 57.
7.	" 50. (Sweepers' Quarters)

8.	"	38.
9.	"	near Insectary.
10.	"	No. 5 (Old Wind Mill.)
11.	"	in Cotton Station.
11-A.	"	" (Bore Hole).
12.	"	with new Wind Mill.
13.	"	in the Botanic Gardens.
14.	Farm Yard	Top Spring.
14-A.	"	Bottom of the Well.

The samples have been analysed and tabulated. The analytical figures are given in the table below. Considering the total solids, sample 7 (Well No. 50) shows the very high figure of 0.6 per cent. of total solids; perhaps the level of this well and its history regarding baling of water may throw some light on this, or the water bearing strata near this well also might be saline. When there are two springs at different levels feeding the well, as could be seen in sample No. 11, 11-A and 14 and 14-A, the top spring is more saline.

Taking the (percentage) composition of the total solids sample No. 7, which is the most saline has got a low percentage of CaO plus MgO. This is associated with the high pH of the water which probably precipitates most of the calcium and magnesium salts. The increase in the salinity is due to the sodium salts.

Samples 11 A and 14-A which are both from deep springs have got 20.9 and 18.3 per cent. respectively of CaO plus MgO indicating that deeper springs contain more of Ca and Mg salts which brings about temporary hardness of the water in this area. Samples 1, 2 and 7 show that an increase of pH brings about a lower concentration of CaO and MgO in the total solids.

Grouping the samples from wells adjacently situated to one another, as (a) 1 and 2, (b) 3, 4 and 5, (c) 8, 9, 10 and 11 (d) 12 and 13, it is seen that the amount of CaO and MgO per cent. in the respective groups are: (a) 8.6 to 8.8 (b) 15.5 to 16.1, (c) 12.9 to 13.8 and (d) 17.1 to 17.3. It would therefore be seen that the sum of CaO plus MgO per cent. is more or less the same for the wells situated in the same area.

Results of Analyses of the Waters of the Wells in the Central Farm, Coimbatore.
(Amounts in Grams per 100 c. c. of Water).

Heads of Analysis	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	11 A.	12.	13.	14.	14-A
Total Solids.	0.1103	0.1826	0.1217	0.1273	0.1505	0.2677	0.6194	0.1532	0.1894	0.1456	0.1304	0.0915	0.1398	0.0771	0.1923	0.1665
CaCO ₃	0.0096	0.0136	0.0204	0.0177	0.0223	0.0373	0.0132	0.0202	0.0246	0.0166	0.0162	0.0202	0.0214	0.0250	0.0243	0.0318
MgCO ₃	0.0088	0.0155	0.0172	0.0228	0.0226	0.0120	0.0242	0.0199	0.0253	0.0199	0.0184	0.0182	0.0255	0.0218	0.0270	0.0264
MgSO ₄	...	...	...	...	...	0.0325	0.0586	...	...	...	...	...	...	0.0178	0.0035	...
Na ₂ CO ₃	0.0166	0.0280	...	0.0037	...	...	...	0.0135	...	0.0148	0.0165	0.0063	0.0028	...	...	...
Na ₂ SO ₄	0.0206	0.0367	0.0168	0.0215	0.0265	0.0275	0.1141	0.0236	0.0374	0.0239	0.0173	0.0128	0.0239	0.0065	0.0452	0.0269
NaCl.	0.0604	0.0831	0.0602	0.0597	0.0707	0.1316	0.4010	0.0643	0.0903	0.0597	0.0440	0.0269	0.0636	0.0953	0.0895	0.0726
pH.	8.3	8.4	7.9	8.0	7.6	7.4	8.4	8.0	7.6	8.0	8.2	7.9	8.0	7.8	8.0	7.6
Percentage Composition of the Total Solids.																
CaCO ₃	8.7	7.5	16.8	13.9	14.8	14.0	2.1	13.2	13.0	11.4	12.4	22.0	15.3	14.1	12.7	19.1
MgCO ₃	8.0	8.5	14.2	17.9	15.0	4.5	3.9	13.0	13.2	13.7	14.1	19.9	18.3	12.3	14.1	15.9
MgSO ₄	...	...	...	...	...	12.20	9.5	...	...	...	...	...	...	10.0	2.0	...
Na ₂ CO ₃	15.0	15.3	...	2.9	...	...	...	8.8	...	10.2	12.7	6.9	2.0	...	...	...
Na ₂ SO ₄	18.7	20.0	13.8	16.9	17.6	10.30	18.5	15.4	19.7	16.4	13.3	14.0	17.1	3.7	23.5	16.2
NaCl.	55.0	45.5	50.0	47.0	47.0	49.2	65.0	42.0	47.5	41.2	33.7	29.4	45.5	54.0	47.0	43.6
CaO	4.95	4.16	9.4	7.8	8.3	7.82	1.19	7.4	7.3	6.4	7.0	11.8	8.6	7.9	7.1	10.7
MgO	3.65	4.65	6.75	8.55	7.25	6.25	5.20	6.2	6.4	6.5	6.75	9.1	8.7	9.25	7.3	7.56
Total of CaO & MgO	8.6	8.8	16.1	16.3	15.5	14.1	6.4	13.6	13.7	12.9	13.8	20.9	17.3	17.1	14.4	18.3