

CONNECTICUT AGRICULTURAL EXPERIMENT STATION.

Bulletin 26.—May 16, 1879.

FERTILIZER ANALYSES.

258. Stockbridge Onion Fertilizer.

Sold by Hubbell & Wakeman, Sanganuck. Sampled and sent April 19, by T. B. Wakeman, Greens Farms, Ct. Weight claimed and found 200 lbs. per bag.

269. Raw Bone.

Manufactured by J. O. & E. Smith, Canterbury, Ct. Sampled from stock of Charles Backus, Andover, Ct., April 28, by John S. Welles, Hebron, Ct. Weight of bag 194 lbs., weight claimed 200 lbs.

	258	269
Nitrogen.....	8.91	4.07
Sol. Phos. Acid.....	5.73	
Reverted Phos. Acid.....	.63	20.40
Insol. " " " " " " " " " "	.13	
Potash.....	8.92	
Chlorine.....	13.99	
Estimated value.....	\$28.77	36.94
Cost.....	59.00	30.00

263. Sulphate of potash, containing 75 per cent. of sulphate or 41 per cent. of actual potash, by analyses of Drs. Ulex and Gilbert.

264. Sulphate of potash, 55 per cent.

265. Muriate of potash, containing 80 per cent. of muriate or 56 per cent. of actual potash.

The above potash salts are imported and sold by the New Haven Chemical Co., and were sampled by J. J. Webb, April 26.

	263	264	265
Potash.....	37.21	37.44	48.20
Sulph'ic acid.....	9.77	7.21	
Chlorine.....	36.07	37.24	
Soda.....		12.05	
Loss.....		1.44	

given the percentages of the several compounds that do or may actually exist in the samples so far as the analyses enable us to calculate them. Only in case of 264 is the analysis sufficient to make the statement complete.

	263	264	265
Sulphate of Potash.....	31.37	15.70	
Muriate of Potash.....	40.69	20.01	76.55
Common Salt.....		26.62	
Chloride of Magnesium.....		11.28	
Chloride Calcium, etc.....		1.92	
Water.....		14.37	
		100.00	

Reckoning all the potash in 265 and 264 as sulphate, we would have 68.80 per cent. and 47.80 per cent. of sulphate, respectively, instead of 75 per cent. and 55 per cent.

Of the 37.2 per cent. of actual potash in 263, only 11.5 per cent. can exist as sulphate, while 25.7 must exist in the form of muriate. Of the 27.44 per cent. of actual potash in 264, but 8.5 per cent. can be present as sulphate and the remaining 18.95 per cent. is in the state of muriate.

We observe that the amount of potash actually existing in these samples, as received at the Station, is several per cent. (4 to 8) less than claimed by the dealer.

The dealer's guarantee is based on the analyses of the Hamburg chemists, and the deficiency may be fairly attributed to absorption of moisture during or since importation.

We notice again, that the samples 263 and 264, sold as sulphate of potash, contain less than one third of their potash as sulphate, and more than two thirds as muriate.

Sulphate of potash is therefore a trade name, and, like many other trade names, involves a fiction more to the advantage of the seller than of the purchaser. The notion is

Magnesia.....	4.79
Insoluble in water.	3.85
Water, by difference,	14.37

108.39

Deduct ox. equivalent to chlorine	8.39
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100.00

Cost per ton,	\$35.00	\$29.00	\$35.00
Cost per lb potash	4 7-10c	5 3-10c	3 6-10c

The above figures express the percentages of potash, sulphuric acid, etc., as found in the analyses. In case of 264 the analysis was made complete, and thus exhibits the quantities of all the ingredients present. Since, however, potassium, sodium, and magnesium are partly in combination with chlorine instead of oxygen, stating them as potash (potassium oxide), soda (sodium oxide), and magnesia (magnesium oxide), makes the footing exceed 100 by an amount of oxygen chemically equivalent to the chlorine present (8.39 per cent.), which is therefore deducted.

In the following statements are

prevalent that sulphate of potash is a better fertilizer than muriate of potash. Some experiments have been published going to show that potatoes and tobacco raised with sulphate are of better quality than when raised with muriate. Whether this be the fact generally, may well be doubted and since these samples of "sulphate" both contain more chlorine than enough to make a muriate of all the potash, they cannot be expected to make better potatoes or better tobacco than a pure muriate.

We see, finally, that the cost of potash in the high grade muriate is considerably less than in the sulphates, evidently, therefore, muriate of potash is the cheapest source of potash. The common salt chloride of magnesium and water which make up more than half of 264, and more than one third of 263, have no commercial or agricultural value corresponding to their cost.

S. W. JOHNSON, *Director.*