CONNECTICUT AGRICULTURAL EXPERIMENT STATION.

Bulletin No. 52, Feb. 2, 1881.

COST OF ACTIVE INGREDIENTS OF FERTILIZERS DURING 1880 AND TRADE-VALUE ADOPTED BY THE STATION FOR 1881.

Organic Nitrogen has cost in the manipulated fertilizers, viz: superphosphates and special manures, on the average, more than the amount allowed in the valuations, *i. e.* twenty cents per pound. In dry fish scrap the cost has been eighteen cents. In the samples of low-grade dried blood and tankings analyzed by the Station, nitrogen has cost sixteen cents and in castor pomace and cotton seed meal it has also cost sixteen cents. The nitrogen of fine bone has been bought for fifteen cents. The ruling market price of nitrogen in the highest grades of dried blood, has been during the spring, until mid-summer, about fifteen cents. In the autumn, as usual, the price advanced because of active demand among the manufactures of superphosphates, etc., and reached eighteen cents 1879, at a cost of ten to eleven cents per pound in the imported superphosphate No. 436, p. 26 of forthcoming Report for 1880. In our home-made manipulated fertilizers it still costs twelve and one-half cents, and that may therefore remain as the Station valuation.

Reverted Phosphoric acid in the various manipulated fertilizers has cost no less than formerly, and the former price, nine cents, is retained.

Insoluble Phosphoric acid in dry fish and in the different grades of bone, has cost one cent per pound less than last year's valuation.

Potash, in nearly pure, high grade sulphate, is reckoned at seven cents, and in muriate, at three and one-half cents per pound. p. 39, Report for 1880. In low grade sulphates containing magnesium chloride, and in kainite, it would probably be fair to reckon potash at five and one-half cents.

For comparison of the average trade-values employed in 1880 with those it is proposed to use for estimating the commercial value of fertilizers in 1881, see the following statement.

Sample 494 was analyzed for private use and the Station has no information as to cost, &c.

Both 494 and 507 have a composition more nearly like that of leached ashes than anything of common occurrence with which they can be compared. From leached ashes they differ in containing little or no moisture and about 20 per cent. more lime. They agree in general with leached ashes in the proportion of alkalies, magnesia and phosphoric acid present although their potash is more and their phosphoric acid less than leached ashes commonly contain. Of the lime, in sample 507, about 31 per cent. exists as carbonate and about 21 per cent. as caustic lime. These ashes are in fact wood-ashes mixed with four or five times their weight of lime. They must be used with caution, but, if properly applied, will no doubt prove a valuable fertilizer on some soils. As to their money value, that is not easy to estimate with any accuracy. Doubtless however they are well worth 20 cents per bushel if equal to the sample.

per pound.

It is plain that there is a considerable and permanent difference between the trade-value or cost to the farmer, of organic nitrogen in the superphosphates and other manipulated fertilizers and that of the raw materials ordinarily accessible to the retail purchaser. To adapt our system of valuation more perfectly to this state of things, I shall continue to rate organic nitrogen in superphosphates and special manures and in fine steamed bone, finely ground and dry meat, blood and fish, and in Peruvian guano, at twenty cents. In view of the market prices that have ruled for two years, I shall rate together the nitrogen of coarse or moist meat, blood, tankage, castor pomace and cotton seed meal at sixteen cents. The trade-values of nitrogen in the various grades of bone will also be reduced to conform to their actual cost. See statement and Table on page 30 of Report for 1879.

Nitrogen in the form of Ammonia-Salts and Nitrates.—Ammonia salts do not appear in our retail market except as ingredients of some manipulated fertilizers, and the Station valuation for their nitrogen will remain as formerly. Nitrates in the single sample of nitrate of soda analyzed, has furnished nitrogen at twenty-eight cents, but since probably the price will fluctuate, no change in its trade-value appears to be called for.

Soluble Phosphoric acid has been procurable in 1880 as in

	Average Trade Value for 1879 and 1880. Cents per pound.	For 1881.
Nitrogen in nitrates	26	26
" in ammonia salts	22½	22½
" in Peruvian Guano, fine steamed bone, dried and fine ground blood, meat and fish, superphosphates and special manures	25	20
" in coarse or moist blood, meat or tankage, in cotton seed, linseed and Castor Pomace	20	16
" in fine ground bone, horn and wool dust	18	15
" in fine medium bone	17½	14
" in medium bone	16½	13
" in coarse medium bone	15½	12
" in coarse bone, horn shavings, hair and fish scrap	15	11
Phosphoric acid soluble in water	12½	12½
" " "reverted" and in Peruvian Guano	9	9
" " insoluble, in fine bone and fish guano	7	6
" " " in fine medium bone	6½	5½
" " " in medium bone	6	5
" " " in coarse medium bone	5½	4½
" " " in coarse bone, bone ash and bone black	5	4
" " " in fine ground rock phosphate	2½	2½
Potash in high grade sulphate	7½	7
" in low grade sulphate and kainite	6	5½
" in muriate or potassium chloride	4½	4½

The reasons for these changes are to be found in the Bulletins of the Station for 1880 and in the Report for 1880 now nearly printed.

FERTILIZER ANALYSES.

494 Lime-kiln ashes from New York State.

507 Lime-kiln ashes from stock of Ralph Barber, Rockville. Sampled and sent by H. A. Slater, North Manchester.

	494	507
Sand and insoluble	10.23	2.78
Silica		1.32
Char		4.98
Oxide of Iron and Alumina	3.79	.22
Lime	52.54	53.85
Magnesia	3.19	1.50
Potash	1.74	1.34
Soda	.55	.73
Phosphoric acid	.63	1.30
Carbonic acid	28.40	24.81
Water at 212°		2.13
Combined water and loss		4.64
Nitrogen	none	none
	100.00	100.00
Estimated value	?	?
Cost per ton	?	20cts

BAKER'S SPECIAL MANURES.

517 Tobacco manure.
518 Potato "
519 Onion "
520 Turnip "
521 Oat "
522 Wheat "
523 Cabbage "

The above seven samples were manufactured by H. J. Baker & Bro., of New York, and sampled from his stock by S. C. Hardin, Glastonbury, Dec. 15, 1880.

	Tobacco. 517	Potatoes. 518	Onions. 519	Turnips. 520	Oats. 521	Wheat. 522	Cabbage 523
Nitrogen as ammonia	4 64	4 77	4 09	3 47	3 60	4 66	4 25
Organic nitrogen	0 42	4 62	0 94	~~0 71~~	0 75	1 53	0 77
Soluble phos. acid	0 45	1 73	2 30	2 30	1 33	4 15	1 58
Reverted " "	4 75	4 58	3 91	3 72	4 30	1 98	3 97
Insoluble " "	1 59	3 42	1 30	1 69	2 08	1 17	1 18
Potash	11 98	22 92	9 44	20 58	11 32	3 93	10 61
Chlorine	4 20	4 25	2 73	3 22	3 44	1 93	3 61
Estimated value per ton	$44 65	49 54	47 06	52 79	46 91	49 00	48 14
Cost per ton	$47 50	48 50	47 50	52 00	47 50	47 50	48 00

S. W. Johnson, Director.

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