# The manurial value of seaweed [microform]

by

Shutt, Frank T. (Frank Thomas), 1859-1940; Dominion Experimental Farms and Stations (Canada)

Publication date

1920

Topics

Marine algae as fertilizer, Engrais et amendements, Algues marines (Aliment), Fertilizers

Publisher

Ottawa : Dept. of Agriculture

Collection

university_of_alberta_libraries_microfilm; university_of_alberta_libraries; toronto; microfilm; additional_collections

Digitizing sponsor

University of Alberta Libraries

Contributor

Canadiana.org

Language

English

Original issued in series: Circular / Dominion Experimental Farms and Stations (Canada) ; no. 19

CIRCULAR No. 19

# THE MANURIAL VALUE OF SEAWEED

BY

FRANK T. SHUTT, D.Sc., *Dominion Chemist.*

Seaweed is essentially a potassic fertilizer, being specially rich in potash, but it also contains notable amounts of nitrogen and other elements of plant food, so that it might be termed a complete manure.

Fresh seaweed is undoubtedly a watery manure, containing from 65 to 90 per cent of water and it is this fact, no doubt, (the cartage being a more or less expensive feature) that limits its use to those living more or less close to the shore. A part of this useless water may be got rid of by drying the seaweed on the beach for a few days before hauling to the farm. But notwithstanding its large percentage of water, seaweed compares quite favourably, weight for weight, with barnyard manure, and it has this advantage that it brings to the farm no weed seeds nor insects nor fungus pests.

Analyses of many Canadian seaweeds, more especially from the Atlantic seaboard, have been made in the Experimental Farm laboratory at Ottawa, and we append in tabular form certain of the data as illustrative of their general composition.

ANALYSES OF SEAWEEDS (FRESH) COLLECTED ON THE ATLANTIC SEABOARD

| — | Fucus furcatus | Fucus vesiculosus | Ascophyllum nodosum | Porphyra laciniata | Laminaria longicruris |
|---|---|---|---|---|---|
| Water | 63·49 | 88·29 | 75·14 | 79·42 | 88·30 |
| Organic matter | 27·93 | 7·61 | 19·30 | 15·15 | 7·15 |
| Ash or mineral matter | 8·58 | 4·10 | 5·56 | 5·43 | 4·55 |
| | 100·00 | 100·00 | 100·00 | 100·00 | 100·00 |
| Nitrogen | ·468 | ·182 | ·273 | ·928 | ·251 |
| Phosphoric Acid | ·108 | ·037 | ·070 | ·068 | ·134 |
| Potash | 2·025 | ·615 | ·619 | ·619 | 1·546 |

ANALYSES OF SEAWEEDS (DRY) COLLECTED ON THE PACIFIC SEABOARD

| Nature of Sample | Water | Analysis of Water-free Material | | | | |
|---|---|---|---|---|---|---|
| | | Organic Matter | Ash | Nitrogen | Phosphoric Acid | Potash |
| | p.c. | p.c. | p.c. | p.c. | p.c. | p.c. |
| Fucus evanescens | 11·08 | 73·53 | 26·47 | 1·56 | ·34 | 4·54 |
| Ulva lactinea | 10·92 | ..... | ..... | 4·70 | ·66 | 4·33 |
| Nereocystis luthea (frond) | ·50 | 44·60 | 55·40 | 3·73 | 1·44 | 13·71 |
| Fucus furcatus | 4·78 | ..... | ..... | 5·26 | ·99 | 5·48 |
| Laminaria saccharina | 2·70 | 57·16 | 42·84 | 1·97 | ·61 | 5·40 |
| L. trellata (old plants) | 3·04 | 61·36 | 38·64 | 1·49 | ·65 | 6·73 |
| Nereocystis lutheana (frond) | 1·12 | 57·22 | 42·78 | 1·47 | ·62 | 3·33 |
| Fucus evanescens | 5·20 | 71·98 | 28·02 | 1·60 | ·50 | 0·62 |
| Laminaria saccharina (old plant) | 1·65 | 53·80 | 46·20 | ..... | ·54 | 1·34 |
| Fucus spiralis platycarpus | 4·56 | 48·20 | 51·80 | 1·63 | ·37 | 4·38 |
| Fucus spiralis platycarpus | 4·37 | 72·91 | 17·09 | 1·55 | ·37 | 3·17 |

The essentially potassic character of seaweeds is well brought out by the analyses given, but it will also be noted that they are especially rich in nitrogen. Seaweed may therefore be considered a nitro-potassic fertilizer. It is further worthy of note that seaweed supplies a considerable amount of vegetable organic matter, which has a distinct value for increasing the soil's store of humus.

The differences in composition between the varieties may in part be accounted for by the stage of growth or maturity at the time of collection, and in this connection it is interesting to note that for several varieties collections made during the winter have shown a higher potash content than samples taken in summer.

Seaweed that has been allowed to remain exposed on the seashore for any great length of time is very poor as compared with the fresh material.

The manurial value of seaweed is greatly enhanced by its ready decomposition in the soil: most varieties quickly decay liberating their plant food in forms at once available for plant growth. It is essentially therefore of the nature of a quickly acting forcing manure. It would be unnecessary to compost it, though probably little loss would ensue if composted with muck or peat and good loam to absorb and hold the decomposition products, providing the heap were protected from leaching rains. On the whole, the best plan is to apply the seaweed direct to the soil and if the time of year permits, to lightly plough it under or work it into the soil with a heavy disc. We do not think, however, that if working into the soil were impracticable any great loss of fertilizing constituents would follow from the spreading of the seaweed on the land in the fall or winter, unless the rains were heavy and continuous and soil very light. In this matter, the farmer would be guided very largely by the question of labour and abundance of the seaweed, remembering that in the soil the losses will be less than on the soil.

Seaweed can be employed for all classes of crops, though it will be found most useful for roots, vegetables and those with an abundance of foliage, since it is essentially a nitrogenous and potassic manure. It has given excellent results as a top dressing for grass lands, encouraging the growth of clover more particularly. Its composition suggests that if a more complete fertilizer is desired it should be supplemented by superphosphate, basic slag or bone meal. Seaweed gives its best returns on moderately light loams that are warm and moist and its poorest on wet, illdrained, heavy clays.

The use of seaweed as a fertilizer dates back to historic t[illegible] value for the upkeep of the soil fertility has been generally and practica[illegible]d in both the old world and the new by farmers residing not too far dist[illegible] coast line. Seaweed occurs on both our Atlantic and Pacific coasts (more a[illegible] probably on the latter) and may be collected in large amounts at little [illegible] on many sea beaches, where it is thrown up by storms at times in prodigous quantities. It can also be collected in boats from rocks and floating masses not far from the shore. There are many varieties, some are quite small, others attain large proportions, but all are valuable, though naturally differing somewhat in composition.