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WEEDS AS FERTILIZING MATERIAL.

BY CHARLES FREDERICK MILLSPAUGH.

WE have initiated a number of experiments at this station with a view of determining the actual average value of composted weeds as manurial substances upon the basis of the commercial value of their mineral constituents. For this purpose about fifty weeds have so far been gathered in the same manner and at the same time that the farmer should so gather them for compost. Our chemist, Dr. de Roode, finds that each has a certain value according to its species, yielding nitrogen, phosphoric acid, and potash, as seen in the following table, from which we have computed the money values according to the commercial value of the minerals at this place.

Name.	Nitrogen.	Phos. ac.	Potash.	Value.
Poke-weed, *Phytolacca decandra, L.*	3.34	.65	8.00	$21.93
Bitter Dock, *Rumex obtusifolius, L.*	2.94	.50	4.29	16.26
Common Thistle, *Cnicus lanceolatus (L.), Willd.*	2.44	.62	5.53	15.79
Crow-foot Grass, *Panicum sanguinale, L.*	1.89	.90	4.67	13.39
Sheep Sorrel, *Oxalis corniculata v. stricta. (L.), Sav.*	2.04	.61	3.02	12.74
Fox-tail Grass, *Setaria glauca (L.), Beauv.*	1.77	.75	4.52	12.41
Pleurisy-weed, *Asclepias tuberosa, L.*	2.02	.86	3.31	12.35
Sweet Clover, Bokhara Clover, *Melilotus alba, L.*	2.40	.50	1.95	11.87
Burdock, *Arctium lappa, L.*	1.85	.96	3.07	11.69
Ox-eye Daisy, *Chrysanthemum leucanthemum, L.*	2.12	.46	2.88	11.66
Horse-weed, Wild Lettuce, *Lactuca canadensis, L.*	1.07	.47	2.20	11.53
Wild Carrot, *Daucus carota, L.*	1.65	.62	4.21	11.47
Butter-weed, *Lactuca leucophœa (Willd.), Gray.*	2.06	.52	2.89	11.44
Deer-tongue Grass, *Panicum clandestinum, L.*	1 95	.76	2.90	11.44
Blue Thistle, *Echium vulgare, L.*	1.45	.80	4.56	11.35
Iron-weed, *Vernonia noveboracensis (L.), Willd.*	2.07	.42	2.11	10.63
Clot-bur, *Xanthium strumarium, L.*	1.51	.73	3.45	10.43
Climbing Buckwheat, *Polygonum dumetorum, scandens (L.), Gray.*	1.93	.40	2.31	10.38
Yarrow, *Achillea millefolium, L.*	1.71	.50	2.98	10.28
Wild Flax, Toad Flax, *Linaria vulgaris, Mill.*	1.83	.64	2.30	10.27
Lobelia, Indian Tobacco, *Lobelia inflata, L.*	1.79	.65	2.35	10.11
Stickweed, White Devil, *Aster lateriflorus (L.), Britt.*	1.92	.56	1.61	9.80
Briars, *Rubus villosus, Ait.*	1.51	.32	.74	9.68
Wing-Stem, *Actinomeris alternifolia (L.), D.C.*	1.40	.94	2.73	9.55
Old White-top, Velvet-grass, *Holcus lanatus, L.*	1.30	.45	3 72	9.38
Boneset, *Eupatorium perfoliatum, L.*	1.70	.53	1.94	9.23
Timothy, *Phleum pratense, L.*	1.48	.63	2.65	9.21
Milk-Weed, Wild Cotton, *Asclepias Syriaca, L.*	1.71	.93	.78	8.77
Blue Devil, *Aster cordifolius, v. laeviagatus, Porter*	1.49	.52	2 25	8.74
Wild Coreopsis, *Coreopsis triptris, L.*	1.56	.48	1.54	8.22
Nail-rod, Stick-Weed, *Aster lateriflorus, var. hirsuticaulis, Gr.*	1.47	.49	1.83	8.20
Wire-grass, *Eatonia Pennsylvanica (Spr.) Gray*	1.32	.52	2.26	8.10
Red-top, *Agrostis alba, var. vulgaris (With.) Thurb.*	1.39	.40	2.10	8.02
Quill-weed, Queen-of-Meadow, *Eupatorium purpureum, L.*	1.41	.36	1.81	7.83
Canada Thistle, *Cnicus arvensis (L.), Hoffm.*	2.06	.45	2.74	7.58
Sorrel, *Rumex acetosella, L.*	1.38	.21	1.89	7.47

Indian Hemp, Rheumatism-weed, *Apocynum androsaemifolium, L.*	1.60	.44	.69	7.47
Elders, *Sambucus canadensis, L.*	1.56	.31	1.00	7.41
Rag-weed, *Ambrosia artemisiaefolia, L.*	1.36	.41	1.79	7.32
Goldenrod, *Solidago juncea, Ait.*	1.27	.39	1.62	7.15
Spanish Needles, *Bidens frondosa, L.*	1.24	.32	1.92	7.14
Orchard Grass, *Dactylis glomerata, L.*	.95	.54	2.61	7.08
Naked-weed, Skeleton-weed, *Chondrilla juncea, L.*	1.13	.74	1.27	6.74
Oat-grass, *Danthonia spicata (L.) Beauv.*	1.13	.28	1.77	6.50
Old-field Balsam, *Gnaphalium obtusifolium, L.*	1.04	.41	1.75	6.35
Evening Primrose, Wild Beet, *Oenothera fruticosa, L.*	1.05	.39	1.68	6.29
Blue-joint, *Andropogon provincialis, Lam.*	.73	.24	1.29	4.44
Broom Sedge, *Andropogon scoparius, Michx.*	.78	.21	.68	3.68
Panicled Panic-grass, *Panicum virgatum, L.*	.60	.28	.68	3.40
Average	1.60	.53	2.51	$9.60

It will be seen, that, if this is a fair number of species to draw conclusions from, weeds properly composted should be worth $9.60 per ton. These values are of course computed upon a water-free basis, while the farmer would gather with his weeds about 50 per cent of their weight in water. We have, however, proved that proper composting, especially with the addition of lime, rots and kills all the seeds of the weeds gathered; and argue that, if the farmer thus removes the weeds from his lands and roadsides, thereby decreasing the annual production and continued presence of the same, that if he thus relieves his fields of the trash, giving more room for good, clean grass, that if he places upon his cultivable ground the humus that it would otherwise never receive, that if he is thus taught to utilize all such matter as has heretofore gone to waste upon his farm and in his ditches and roads, this compost would be raised by these profitable issues to the full value of the dry material as given above.

W. Va. Agr. Exp. Station.

NOTES ON LOCAL MEMBRACIDÆ AND FULGORIDÆ.

BY E. B. SOUTHWICK, PH.D.

IN the MEMBRACIDÆ, the sub-family DARNINÆ is represented by *Ophiderma salamandra* Fairne., which with us is very rare. *Ophiderma mera* Say and *O. arcuata* Say are both recorded from New Jersey, and Fitch records *mera* as occurring in New York and feeding on the butternut.

In the sub-family SMILIINÆ we have several species, *Acutalis tartaria* Say being quite common and very variable in coloration, some of them being nearly black. *Acutalis calva* Say is much smaller and exceedingly rare.

Telamona ampelopsidis Harr. is represented by half a dozen specimens. It is quite rare. A friend informs me that a few years ago he found it very common on Ampelopsis in this city. I have one specimen of what is labeled *Tragopa calva* Say. It is shaped very much like *T. ampelopsidis* Harr., save that the apex of the hump is more narrow I have not taken any other species of *Telamona*, although several are recorded from New Jersey and New York.

Thelia is represented by *bimaculata* Fabr. It is rare, and but two specimens were taken, both from elder (*Sambucus*).

Ceresa is represented by three species: *brevicornis* Fitch, *bubulus* Fabr., and *diceros* Say, the latter being very rare, and the other two species common.

Stictocephala festina Say is very common and very uniform in size. *S. festina* Say I have never taken, although it should occur with us.

In the sub-family HOPLOPHORINÆ I have never taken a representative species. But *Plotycoris quadrivittata* Say and *P. vittata* Fabr. are both recorded from New Jersey, and should occur here also.

In the sub-family MEMBRACINÆ, *Enchenopa binotata* Say is very common indeed. I have taken it from the butternut, Viburnum; New Jersey tea (*Ceanothus*), bittersweet (*Celastris*), and white birch. *Ptelea*, grape, *Cercis*, and locust are also given as its food-plants. On *Ceanothus* it is very abundant in all stages of transformation, and a species of black ant is very attentive to it in the pupa state, no doubt obtaining from it honey-dew, as in the case of Aphides. When disturbed they become formidable enemies and bite one's hand very severely.

Enchenopa curvata Fabr., now known as *Campylenchia curvata* Fabr., is exceedingly common; and the length of the projection of the thorax, for a long time, led me to believe there were two species. But Professor Van Duzee says they are one and the same species; that is, those with the long, curved thorax and those with the short and less curved thorax.

In the family FULGORIDÆ and sub-family CIXIINÆ I have one species of *Phypia* not known to Professor Van Duzee. *Cixius stigmatus* Say is very rare, or at least is so very delicate as to be easily torn and unnoticeable, which may account for its scarcity in my collection.

Otiocerus Degeerii Kirby is represented by a single pair. This is a very curious, as well as beautiful insect, with its long fore-wings widening out like a fan at the ends.

In the sub-family DITYOPHORINÆ we have *Scolops sulcipes* Say and *S. angustatus* Uhl., the former a common species and the latter quite rare. *Monopsis tabida* Spin. I have never taken, but it probably occurs here.

In the sub-families ISSINÆ and CALOSCELINÆ I have never taken a single representative species. But, in the sub-family FLATINÆ, *Ormenis pruinosa* Say and *O. septentrionalis* Spin. are very common. *Pruinosa* has formerly been known as *Flata pruinosa* and *Poeciloptera pruinosa* Say. This insect is common on the white birch; but I have taken it from the elm and maple, more particularly from the young sprouts. Dr. Riley records it as feeding on red clover, *Erigeron canadensis*, and quite a number of other plants and shrubs, not specified; and Dr. Fitch records it as occurring on the gooseberry and rhubarb. It is quite a general feeder, but with us it seems to affect the white birch most. Dr. Fitch also mentions its occurrence on the privet in New York, but I have never discovered it on this shrub, although it is everywhere abundant in Central Park.

Amphiscepa bivitata Say is very common with us; but I have not as yet, from my own observation, found out what plant it feeds upon most, as the sweep-net gathers it from grasses and weeds alike.