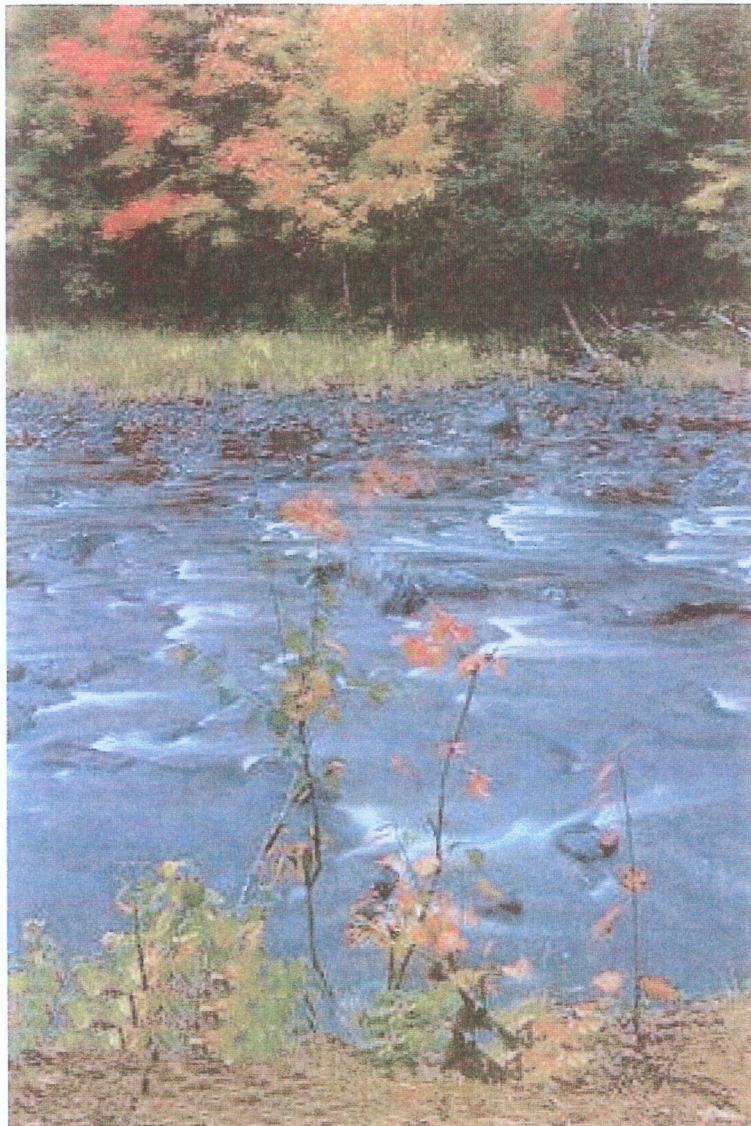


Report On
The Effect of Biosol
On the Soil's Water Balance
(Water Holding Capacity)



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R e p o r t

regarding the concluded trials carried out in the research center Seibersdorf.

Purpose: effect of dry mycelium and Neuprodukt (new product, not defined) on the soil water balance.

Method: dry mycelium and Neuprodukt were mixed with three different substrates (sand, Seibersdorfer, Einheitserde) with different ratios (0.5, 2.0, 6.0, 10.0 kg/m³).

The fertilized substrates were filled into plastic containers with 182 cm² surface area and 5 cm depth (910 cm³) and brought to 100 % water holding capacity with desalted water.

The trial containers were transferred to the container test station and weighed daily to determine the water loss.

Two series of experiments were conducted in parallel with mineral fertilizers (OSMOCOTE) and untreated substrates to compare the effect of dry mycelium and Neuprodukt on the soil water balance.

Properties of the Selected Substrates

	Sand	Seibersd.	Fruhst.
Water content %	6.13	7.45	37.95
Dry weight %	93.87	92.55	62.05
Max. water hold. capac. %	16.00	23.00	65.00
Composition	100 % sand (0 – 4 mm)	55 % sand 45 % clay + silt	30 % clay 20 % foamed material 50 % peat

Results:

1.) Fruhstorfer Substrate

After 6 days, the untreated series of experiments showed a 13-% loss of the water balance due to evaporation.

During the same period, the Osmocote (mineral fertilizer) series of experiments showed a greater loss of the water balance, namely 15 %.

The series of experiments using dry mycelium and Neuprodukt produced the following results (after 6 days).

	<u>Dry mycelium</u>	<u>Neuprodukt</u>
0.5 kg/m ³	13 %	12 %
2.0 kg/m ³	12 %	11 %
6.0 kg/m ³	13 %	11 %
10.0 kg/m ³	14 %	12 %

Based on these results, we can safely state that dry mycelium and Neuprodukt have no favourable effect on Fruhstorfer soil and similar types of soil.

The series of experiments using Neuprodukt showed an advantage of 1 % - 2 %; however, this does not result in an improved water balance in practice.

Water Loss in % of the Water Balance

Days	3	6	9	13	15	
Untreated	6	13	25	41	52	
Osmocote	7	15	30	48	59	
Dry mycelium kg/m ³	0.5	6	13	26	42	54
	2.0	6	12	24	37	46
	6.0	6	13	25	38	45
	10.0	7	14	27	41	49
Neuprodukt kg/m ³	0.5	5	12	23	37	44
	2.0	5	11	22	35	43
	6.0	5	11	22	33	39
	10.0	6	12	23	34	38

2.) Seibersdorfer Soil

After 6 days, this light soil yielded the following results:

Untreated series of experiments: 44 % loss of the water balance.

Osmocote series of experiments: 38 % loss, that is an inhibition of evaporation of 6 %. However, this does not apply to all types of mineral fertilizers.

The series of experiments using dry mycelium brought an advantage of 1 % - 3 % of the water balance.

The series of experiments using Neuprodukt yielded up to 4 %.

The series of experiments carried out with dry mycelium and Neuprodukt revealed that the inhibiting effect on evaporation is increased up to 9 % after 15 days.

In practical use, these data cannot be applied as the cultures are irrigated after not more than 3 days.

Water Loss in % of the Water Balance

Days		3	6	9	13	15
Untreated		20	44	61	69	73
Osmocote		17	38	60	68	72
Dry mycelium kg/m ³	0.5	20	41	62	70	74
	2.0	22	43	60	67	71
	6.0	20	42	60	67	71
	10.0	20	42	58	65	69
Neuprodukt kg/m ³	0.5	22	44	59	66	70
	2.0	24	46	59	66	70
	6.0	20	40	56	62	66
	10.0	22	41	54	61	64

3.) Sand

The results show a fast drying process. Up to 90 % loss of water balance were found in the untreated series of experiments.

The following table shows an advantage (after 8 days) when using dry mycelium and Neuprodukt. They can hold up to 19 % of the water balance.

Water Loss in % of the Water Balance

Days		3	6	9	13
Untreated		38	71	90	99
Osmocote		34	62	87	97
Dry mycelium kg/m ³	0.5	33	64	87	98
	2.0	30	59	84	94
	6.0	34	60	79	89
	10.0	34	54	71	80
Neuprodukt kg/m ³	0.5	27	51	78	89
	2.0	29	56	81	92
	6.0	31	55	74	84
	10.0	33	56	72	81

4.) Summary

Dry mycelium and Neuprodukt have no favourable effect on Seibersdorfer and Fruhstorfer types of soil (also similar soils) in Europe.

They have a favourable effect on sand, in particular in warm climates (the Middle East, Arabian countries etc.).

This can be established with certainty after carrying out a trial series with planting.

This will be performed in July 1980 at the BOKU (university of soil science), Vienna.

Vienna, June 2, 1980

Legend to the Attachment:

Neuprodukt

Bodenwasserhaushalt

Kontrolle

Tage

Trockenmycel

Bacterial Biomass

soil water balance

control

days

dry mycelium