ECOSOIL NEWS

SAVE YOUR SOIL. SECURE YOUR LIVELIHOOD..

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ECOSOIL'S MISSION is to supply farmers with services and products that will enable them to increase profits in a sustainable and environmentally friendly manner, by decreasing their dependency on fertilisers and insecticides, as well as increasing volume and quality of production. OUR VALUE SYSTEM: Honesty, Integrity, Passion.

Massive success with dry land maize experiment: 6% production increase and R280/ha higher nett profit

After our recent success in the Western Cape with regards to dry land wheat where an increase of production by 14%, as well as the improvement of protein content by 0.5% were attained, we were very excited by the prospect of trying out Ecosoil's Compost Tea on dry land maize. Therefore a controlled experiment was set up to provide evidence that Ecosoil's Compost Tea can indeed increase yields of dry land maize considerably, and also that it can lead to savings on fertiliser.

Ecosoil owes Flip van der Merwe a great deal of gratitude for devoting his land, planter, harvester, as well as so much of his time to this experiment.

The area of the experiment site was about 2 hectares in total and was planted with sunflower during the previous season. The minimum till planter is furnished with tanks and pumps to spray the Compost Tea-Apex mixture directly on the maize seed. The Apex is a microbial food additive which further propagates the applied microbes in the soil. The white maize cultivar PHI 30B95 was used. There were 8 treatments and 4 repeats of each treatment.

Fertiliser from two different suppliers were used against two different fertilisation levels. The N,P,K-values are summarised in table 2. As illustrated supplier B's fertiliser has more phosphorous (P) and less nitrogen (N) than supplier A.

Table 1: Summary of treatments

	Fertiliser Treatments			
	Manufacturer A		Manufacturer B	
Compost Tea Treatments	220kg 3:1:0(30)	180kg 3:1:0(30)	230kg 5:4:0(21)	200kg 5:4:0(21)
Without Compost Tea and Apex	1	3	5	7
With Compost Tea and Apex	2	4	6	8

Table 2: N,P,K - values administered

Treatment Number	Treatments	Applied per treatment		
		N	P	K
1,2	220kg 3:1:0(30) Comp. A	49.5	16.5	0
3,4	180kg 3:1:0(30) Comp. A	40.5	13.5	0
5,6	230kg 5:4:0(21) Comp. B	26.9	21.4	0
7,8	200kg 5:4:0(21) Comp. B	23.4	18.6	0

In our experiment, all fertilisation was administered during the planting process and no follow-up fertilisation was done. It is standard practise on the farm to fertilise for a maize crop of 4.5 tons and consequently 40kg N and 15kg P is applied during the planting process, which is followed up by a further 35kg N at a later stage. Thus this experiment uses much less fertiliser than is the normal practice.

Across all the fertiliser treatments the addition of Ecosoil's Compost Tea and Apex has resulted in a 6% average increase in production (see table 3). This is a statistically significant difference. The cost of the Compost Tea treatment was R110/ha and compared to a maize price of R1500/ton this indicates an increase in income of R390/ha and consequently a profit increase of R280/ha.

Table 3: Effect of Compost Tea and Apex treatment

Treatments	ton/ha	% change	Mois-ture	Hecto-litre mass	Protein content	Oil content	Milling index
Without Compost Tea and Apex	4.05 a		11.15 a	76.14 a	6.91 a	3.68 a	82.69 a
With Compost Tea and Apex	4.31 b	6%	11.30 a	76.35 a	7.00 a	3.64 a	82.06 a
Least Significant Difference (LSD)	0.23		0.24	0.58	0.28	0.25	2.59

Table 4 (page 2) shows the effect that Ecosoil's Compost Tea-Apex treatment had in combination with the various fertiliser treatments. In all the various fertiliser treatments, the addition of Ecosoil's Compost tea and Apex has resulted in a yield increase between 4 and 9%, with an overall average increase in production of 6% (Table 3). It was also insightful that the yield of the lower fertilisation levels with compost tea compares well with the yields achieved with the higher fertilisation levels without compost tea (compare treatment 1 and 4, as well as 5 and 8). Thus it is just as insightful that treatment 2, where 40.5 kg N and 13.5 kg P was administered along with Compost Tea, a yield of 4.7 ton was achieved. Compare this result with the standard practice whereby a further follow-up fertilisation with 35 kg N is required to achieve similar yields. For a complete report regarding this experiment you can visit our website.

These results thus prove clearly that it is extremely important to stimulate soil microbial life. The best and cheapest way to do this with regards to dry land crops is to administer

Table 4: Interactive effect of various fertilisation levels with Compost Tea and Apex

Treatment Number	Treatments	ton/ha	% change	Moisture	Hectolitre mass	Protein content	Oil content	Milling index
1	220kg 3:1:0(30)	4.45 ab		11.40 a	76.25 a	6.88 a	3.40 b	82.28 a
2	220kg 3:1:0(30) + 100L CTea + 5L Apex	4.71 a	6%	11.43 a	76.37 a	7.23 a	3.48 b	82.75 a
3	180kg 3:1:0(30)	4.35 ab		11.32 ab	76.52 a	6.75 a	3.40 b	81.83 a
4	180kg 3:1:0(30) + 100L CTea + 5L Apex	4.51 a	4%	11.32 ab	76.48 a	6.90 a	3.60 ab	81.18 a
5	230kg 5:4:0(21)	3.99 bc		10.90 b	75.98 a	6.90 a	3.90 ab	84.45 a
6	230kg 5:4:0(21) + 100L CTea + 5L Apex	4.29 ab	8%	11.25 ab	76.43 a	7.05 a	3.70 ab	83.78 a
7	200kg 5:4:0(21)	3.42 d		10.98 ab	75.82 a	7.13 a	4.00 a	82.20 a
8	200kg 5:4:0(21) + 100L CTea + 5L Apex	3.73 cd	9%	11.20 ab	76.15 a	6.83 a	3.78 ab	80.55 a
	LSD	0.46		0.47	1.15	0.56	0.50	5.19

Ecosoil's Compost tea and Apex on the seed during the planting process. Read more about Compost Tea and why you need it, on our website. Within one season improved growth, production (with regards to annual crops) and soil fertility can be observed. Please have a look at our clients' feedback on our website.

Large-scale production of Compost Tea simplified by Ecosoil

With the experiment above, 100L Compost Tea and 5L Apex per hectare was administered. On average farmers plant between 20 ha to 100 hectare per day. Therefore massive amounts of Compost Tea must be manufactured on a daily basis during planting season. Ecosoil has taken the lead and designed 2500L and 5000L tanks especially to produce compost tea.

Our new tanks' bottom is designed in such a manner that there are no dead areas where anaerobic organisms can breed. All organic material moves downward toward the bubbling pipes and are picked up again and circulated. An additional benefit is that these tanks are also extremely suitable for the mixing of fertiliser, as well as water purification.

Compost and nutrients that are used in the tanks are supplied by Ecosoil. The organisms in the compost are extracted and increased over a 24 hour period. It is then pumped into a transport tank with a submersible pump and taken to the planter, and from there it is pumped across to the tanks on the planter.

Quite a lot of interest has already been shown by farmers who visited our exhibition at the NAMPO-show. Producers who are interested in administering Compost Tea during the approaching season should please contact us as soon as possible to avoid disappointment.

2500L tank

2 x 5000L tanks

The bubbling pipes in the tanks. The stainless steel sieve aerating the compost is also visible.

Wheat planter with 1000L tank for compost tea. The compost tea is pumped out by a diaphragm pump.

The Apex is administered from a separate tank with a dositron pump.

The Compost tea-Apex mixture is sprayed onto the seed while it is being planted.