

value of 88.83 at 6 wap but are significantly different from other treatments and the control [10].

Treatments	2	3	4	5	6
C	9.67 ab	11.00 c	12.67 d	16.33 b	23.33 c
M	9.33 ab	11.33 bc	14.33 bc	19.00 b	26.00 bc
D	8.33 b	12.00 abc	15.00 abc	19.67 ab	25.67 bc
M&C	9.00 ab	11.67 abc	15.33 ab	20.67 ab	31.00 ab
D&C	10.00a	13.00a	15.33a	24.00a	37.00a
O	8.67ab	12.67ab	14.67bc	16.67b	22.67c
SSP	8.33b	10.67c	13.67dc	16.33b	24.00c

Table 4: Effect of the inoculation of mycorrhizal and compost on the number of leaves at different weeks interval.

Means with the same letter are not significantly different at 5% level of probability using LSD. (C: Compost M: *Glomus mosseae*, D: *Glomus deserticola*, O: Zero inoculation of compost and mycorrhizal, SSP: Single Super Phosphate, WAP: Weeks After Planting).

Combine inoculation of *Glomus deserticola* with compost show higher significant difference in the number of leaves of soybean recorded at the vegetative stage at different week interval with a means value of 10.00 a at 2 wap and 37.00 at 6 wap but was not significantly different from combine inoculation of *Glomus mosseae* and compost which as mean value of 9.00 at 2 wap and 31.00 at 6 wap but was significantly different from other treatments and control .

Treatment	2	3	4	5	6
C	2.00 a	3.33 a	4.00 a	4.67 d	6.67 c
M	2.00 a	3.33 a	3.67 a	5.67 bc	7.33 bc
D	2.00 a	3.00 a	4.00 a	6.00 ab	7.33 bc
M&C	2.00 a	3.00 a	4.00 a	5.67 a	9.00 ab
D&C	2.00 a	3.33 a	4.33 a	6.67 a	10.67 a
O	2.00 a	3.00 a	4.33 a	4.67 d	7.33 bc
SSP	2.00 a	3.33 a	4.00 a	5.00 dc	6.67 c

Table 5: Effect of inoculation of mycorrhizal and compost on the number of branches at different week interval.

Means with the same letter are not significantly different at 5% level of probability using LSD. (C: Compost M: *Glomus mosseae*, D: *Glomus deserticola*, O: Zero inoculation of compost and mycorrhizal, SSP: Single Super Phosphate, WAP: Weeks After Planting).

Treatments	1st flowering	50% flowering	N uptake	P uptake
C	40.00 bc	42.33 ab	0.41 ab	2.33 ab
M	40.00 bc	42.66 ab	0.27 ab	1.90 ab

D	39.67 c	41.33 ab	0.20 ab	2.52 ab
M&C	39.33 c	43.00 a	0.24 ab	1.92 ab
D&C	39.67 c	40.00 b	0.44 a	3.22 a
O	42.00 a	41.00 ab	0.12 b	0.55 b
SSP	41.67 ab	41.67 ab	0.16 ab	1.99 ab

Table 6: Effect of the inoculation of mycorrhizal and compost on the number of days to flowering the nutrient uptake at flowering.

There were no significant difference in the number of branches of soybean inoculated at 2, 3, 4 wap for all the treatments that is sole application and combine application of the mycorrhizal and compost but at 5 and 6 wap significant difference was observed in the combine inoculation of *Glomus deserticola* and compost and *Glomus mosseae* and compost and are significantly different from other treatments and uninoculated control.

Means with the same letter are not significantly different at 5% level of probability using LSD. (C: Compost M: *Glomus mosseae*, D: *Glomus deserticola*, O: Zero inoculation of compost and mycorrhizal, SSP: Single Super Phosphate, WAP: Weeks After Planting).

Significant difference was observed in the control in the number of days to 1st flowering and 50% flowering which was not significantly different from combine inoculation of *Glomus mosseae* and compost at 50% flowering and sole application of mycorrhizal, compost and SSP at 50% flowering. No significant difference was observed among the treatment in the N and P uptake at 50% flowering except control but combine inoculation of *Glomus deserticola* and compost as a mean value of 0.44 and 3.22 for N and P uptake respectively which are higher than other treatments.

Treatment	Fresh shoot weight (g)			Dry shoot weight (g)		
	3	6	9	3	6	9
C	4.42 a	6.13 ab	15.93 bc	0.40 b	1.71 b	5.26 a
M	1.87 b	6.43 ab	17.66 b	0.35 b	1.71 b	5.15 a
D	2.13 b	6.37 ab	14.65 b	0.37 b	1.78 b	3.43 b
M & C	2.01 b	4.62 c	20.16 a	0.31 b	1.09 b	5.92 a
D & C	3.78 b	7.36 a	13.06 c	0.67 a	2.17 a	3.82 b
O	1.77 b	7.36 a	12.09 cd	0.33 b	1.84 b	3.09 b
SSP	1.93 b	5.65 bc	12.31 cd	0.42 b	1.54 b	3.17 b

Table 7: Effect of the inoculation of Mycorrhizal and compost on the fresh shoot weight and dry shoot weight at different week interval.

Means with the same letter are not significantly different at 5% level of probability using LSD. (C: Compost M: *Glomus mosseae*, D: *Glomus deserticola*, O: Zero inoculation of compost and mycorrhizal, SSP: Single Super Phosphate, WAP: Weeks After Planting).

Treatment	Spore count		Root infection	
	3	9	3	9
C	32.00 d	33.67 c	31.00 abc	44.67 c
M	39.00 b	40.67 c	30.33 abc	59.00 b
D	36.00 c	37.67 cd	30.30 abc	76.67 a
M & C	41.33 ab	59.67 b	35.00 a	76.67 a
D & C	42.00 a	71.33 a	34.33 ab	79.33 a
O	32.33 d	33.67 c	29.00 bc	36.33 d
SSP	31.00 b	34.67 de	27.33 c	36.33 d

Table 8: Effect of Mycorrhizal and compost application on the spore count and % root infection at 3 and 9 wap.

At 3 wap sole application of compost significantly enhanced the fresh shoot weight of soybean but at 6 and 9 wap combine application of mycorrhizal and compost and also sole application of compost and mycorrhizal significantly enhanced the fresh shoot weight of soybean while the dry shoot weight was significantly enhanced by the combine inoculation of *Glomus deserticola* and compost at 3 and 6 wap and sole application of compost and *Glomus mosseae* and combine inoculation of *Glomus mosseae* and compost also significantly enhanced the dry shoot weight of soybean at 9 wap. Means with the same letter are not significantly different at 5% level of probability using LSD. (C: Compost M: *Glomus mosseae*, D: *Glomus deserticola*, O: Zero inoculation of compost and mycorrhizal, SSP: Single Super Phosphate, WAP: Weeks After Planting. A great significant difference was observed in the combine inoculation of *Glomus deserticola* and compost and combine inoculation of *Glomus mosseae* and compost in the spore count and %root infection both at 3 and 9 wap but are significantly different to other treatment except for sole application of *Glomus mosseae*, *Glomus deserticola* and sole application of compost in the % root infection. The Table below shows that there is significant difference among all the yield component observed. Seed weight was higher in sole application of *Glomus Deserticola* (GD), *Glomus mosseae* (GM) combine with compost (GM & c) but were comparable to other treatments. Sole inoculation of *Glomus mosseae* (GM), combine inoculation of *Glomus mosseae* with compost (GM & c) and *Glomus deserticola* with compost (GD & c) produced higher seeds weight than control but were comparable to other treatments.

Treatments	Seed/Weight pot (g)	Seed Weight/ha/kg	Weight of 100 seeds (g)
C	10.97 ab	2456.0 ab	9.40 ab
M	11.83 ab	2650.3 ab	11.63 ab
D	13.97 a	3128.0 a	12.10 a
M&C	14.10 a	3157.7 a	12.67 a
D&C	12.53 ab	2807.0 ab	12.30 a
O	9.70 b	2173.0 b	8.60 b
SSP	10.32 ab	2312.0 ab	9.57 ab

Table 9: Effect of Mycorrhiza and compost on yield components.

Means with the same letters are not significantly different at 5% level of probability using LSD (C: Compost, M: *Glomus mosseae*, D: *Glomus deserticola*. O: Zero inoculation of compost and mycorrhizal, SSP: Single Super Phosphate, WAP: Weeks After Planting.

Discussion

The result of the study reveals the effectiveness of the combine inoculation of mycorrhizal and compost and sole application of the two crucial treatments.

Combine inoculation of *Glomus deserticola* and compost significantly supported the growth of the soybean plant which is in support of that mycorrhizal fungi usually enhanced the plant in the uptake of nutrient in the soil and improve plant growth most especially when the root of plant cannot intercept the available nutrient in the soil also at 50% flowering the combine inoculation of *Glomus deserticola* and compost also enhanced the uptake of N and P in the soil compare to other treatments which is support of that AM fungus colonization often leads to increase in nutrient in the soil both micronutrient and macronutrients.

Various investigation on the combine inoculation of AM fungi with compost as reveal that if quality of the compost is high it can often give substrate which can be adequate for mycorrhizal plant and also the yield was significantly enhanced mostly by the combine inoculation of *Glomus mosseae* and compost which is contrary to a conclusion in an experiment that Thus, at present it is not clear whether compost additions and mycorrhizal fungus inoculation are complementary measures to increase yield and yield stability in organic operations.

Conclusion

The study reveals that the treatment has effects on the growth and yield parameters of soybean inoculated. This implies that soybean responded to the treatments, the crop performed best in number of branches, numbers of leaves, leaf area and plant height with the combination of compost and *Glomus deserticola* (GD & c). This occurred as a result of high phosphorus uptake due to the presence of *Glomus deserticola* and slow release of phosphorus in compost.

The Study concludes that the combination of the treatments *Glomus deserticola* and compost (GD & c) contribute to the growth of soybean while the yield of soybean was enhanced by *Glomus mosseae* combine with compost (GM & c).

Recommendation

I will recommend that it may be necessary in future to conduct the trial in a field situation. Moreso, with adequate mycorrhizal inoculant available to farmers at affordable price and from authorized distributor in a specific location.

Also, a good briefing on the importance of the mycorrhizal inoculant and compost preparation should be implemented in farmers training both at commercial and subsistence level as these, will minimize the cost compare to chemical fertilizer leading to profit maximization.

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