

Two Product Doses Results in 13.5% Increase in Maize Yield and NET Economic Benefit of Twice the Cost of the Product

An ACF-AgKit trial was conducted on dry land maize to test the plant growth promoting effect of the product by measuring the yield increase. A single application (at seeding) was compared to two applications (at seeding, plus 4 weeks post emergence).

METHODS AND MATERIAL

The trial was conducted on the maize cultivar Pioneer 33H56 in the Eastern Free State, South Africa. All the treatment variations received the same fertilizer program: pre-plant Ammonia gas and chemical fertilizer. Treatment 1 and 2 received the following additional ACF applications.

- Treatment 1: Pre-plant application of 6 litre/ha **ACF-AgKit**
- Treatment 2: Pre-plant application of 6 litre/ha **ACF-AgKit** plus a foliar spray of 6 litre/ha **ACF-AgKit**, 4 weeks after emergence.

With the pre-plant application, the product was diluted in 200 litres of non-chlorinated water and applied on the soil surface as a full cover spray concentrated in the root zones. With the foliar spray the product was diluted in 200 litre non-chlorinated water and applied as a full cover leaf spray.

Table 1. Application rate, time and method of application

Treatment	Product Used	Application rate Liters per ha	Time of application	Application method
Control	-	-	-	-
Treatment 1	ACF-AgKit	6	Pre-plant	Soil surface spray
Treatment 2	ACF-AgKit	6	Pre-plant	Soil surface spray
	ACF-AgKit	6	4 weeks after emergence	Full cover foliar spray

RESULTS AND DISCUSSION

Table 2 gives a summary of the treatment cost, yield per ha and income differences between the control and treatments. The income was calculated on a market price of R 3 500/ton maize.

ACF-AgKit Treatment 1 with a pre-plant application of 6 litres ACF-AgKit per ha, resulted in a 0.17 Ton/ha yield increase (2.3%). The total cost of the treatment is R 900/ha, the yield increase in Rand value is R 595 and the net income decrease is -R 305/ha.

ACF-AgKit Treatment 2 with a pre-plant application of 6 litres ACF-AgKit per ha and foliar spray of 6 litres ACF-AgKit, resulted in a 1.02 Ton/ha increase (13.5 %). The total cost of the treatment is R 1 800/ ha, the yield increase in Rand value is R 3 459 and the net income increase is R 1 659/ha.

Table 2. Treatment cost, yield/ha and net income

Treatment	Cost of treatment	Yield Actual Ton/ha	Yield Boost Ton/ha	Yield Boost %	Yield difference in R value/ha	Net Income
Control	-	7.55				
Treatment 1	R 900	7.72	0.17	2.3%	R 595	-R 305
Treatment 2	R 1 800	8.57	1.02	13.5%	R 3 459	R 1 659

CONCLUSION

Compared to control, the low dose (Treatment 1) and the double dose (Treatment 2) both showed better yield than the control. A single soil surface spray (Treatment 1) helped yield increase (2.3%) but the cost of the single application exceeded the increase in crop value. *Using a double dose (Treatment 2) showed a net economic benefit after cost of the ACF-AgKit dosing.*

From the Farm Consultants: *“From the Treatment 2 results, ACF-AgKit dose (with initial dose, then repeat dose 4 weeks post emergence) increased the yield by 13.5% with NET economic benefit of R1 659 per Ha, and therefore confirms the plant growth promoting effect of the product as well as the NET economic benefit of R1 659 per Ha when two product application are made.”*

