

Identification and Management of Bacterial Blight of Coffee (BBC)

Elgon/ Solai Die-Back



1.0 Cause

The Bacterial Blight of Coffee (BBC) is also known as Elgon/Solai. The die-back is caused by a bacterium *Pseudomonas syringae* pv *Garcae*. The bacterium is found on all healthy parts of the coffee tree.

2.0 Occurrence

BBC is confined to a few coffee growing areas, (Solai in Nakuru and around Mt Elgon - North Rift). Recently, a few cases have been reported in the East of Rift.

3.0 Conditions favorable to the disease

Cool, wet weather triggers the multiplication of the bacteria, rapidly causing an epidemic.

4.0 Symptoms

4.1 On leaves :

- Lesions appear on leaves, soggy and black margins at start of infection. Leaves eventually dry up and roll inwards turning brown.
- Dead and dried leaves do not shed but remain attached to the plant.

4.2 On twigs:



- Terminal bud is attacked.
- Infection then extends downwards, resulting in die-back.

4.3 On young succulent branches:

- Infection starts from the stipules, then the entire node is attacked.
- Infection spreads to internodes. Branch then dies above the blackened node.



- Internode are infected through wounds caused by hail damage or sucking insects. This is not a common mode of infection

4.4 On flowers and pinhead stage:

- Entire trusses or pinheads may be attacked and appear black and soggy
- Flower and pin-heads shrivel and turn black
- The entire crop may be lost

5.0 Management of BBC



5.1 Cultural methods

- Cut off infected twigs and branches

5.2 Chemical methods

- Critical spray time is just before, during and after flowering especially when these coincide with wet weather
- Complete first spray by mid-February and continue through the rains at two week intervals and after rains at three week interval
- Details on recommended chemicals (see Table 1- 4)
- Plant shade trees and wind breaks on exposed sides of BBC areas.

- Observe field hygiene by disinfecting tools used for pruning infected trees with a suitable disinfectant such as Kerol 0.1 % , Lysol 3%.
- Avoid planting materials from known BBC areas.

* Bordeaux mixture may be prepared on the farm as follows:

Table 1: Recommended Bactericides for the control of BBC

Common name	Proprietary / Trade name	Formulation	Rate (kg/ha)
50% Copper Formulations			
a) Cupric hydroxide	Kocide 101	50% W.P	7.0
	Parasol	50% W.P	7.0
	Champion	50% W.P	7.0
b) Cuprous oxide	Copper Sandoz	50% W.P	7.0
	Copper Nordox	50% W.P	7.0
C) Copper Oxychloride	Cobox	50% W.P	7.0
Copper sulphate + lime (proprietary pre-mix)*	Procide Bordeaux Mixture	25% W.P.	10.0
Copper + Kasugamycin antibiotic (Proprietary mixture)	Kasumin Bordeaux	45% + 5% W.P.	4.0

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|-------|--------------------------------------|--------------|
| (i) | Copper sulphate (CuSO ₄) | — 10.0 kg |
| (ii) | Lime (CaO) | — 10.0 kg |
| (iii) | Water | — 1,000 l/ha |

Key

Table 2: Spray programme for the control of BBC

Programme	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
I		(+)	+	++	++	+	++	+	++	+	+	
II		(+)	*	+	+	+	+	*	+	+	*	
III		(+)	+	++	++	+	+	*	+	+	*	
IV		(+)	+	++	++	+	##	#	##	#	#	

- + Straight copper sprays or Kamusin - Bordeaux
- * Tank-mixture of Copper + CBD organic fungicide at reduced rates
- # Copper sprays timed by 125 + 10 mm rainfall
- (+) Spray if the weather is wet in the year. This spray can be withheld if the long rains are delayed.
- ++ 2 straight Copper sprays of Kamusin - Bordeaux.
- *+ Copper spray or Kamusin– Bordeaux followed by a tank mixture.
- *+ Tank mixture followed by Copper spray or Kamusin- Bordeaux.

5.3 Integrated Control of BBC and CBD

Use a tank mixture of either ;

- 2.2 kg Daconil 75 % WP + 4 kg Copper 50 % WP per ha (1000 lt of water)
- 1.6 kg Delan 75 % WP + 4 kg Copper 50 % WP per ha (1000 lt of water)
- Good Agricultural/Hygienic Practices
- Apply only recommended amounts and rates of fungicides to prevent pesticide residue accumulation
- Sterilise all implements used on diseased plants
- Use only recommended fungicides
- Avoid planting materials from BBC known areas
- Use Personal Protective Equipment when applying agro-chemicals

Table 3: Recommended rates for small holders for BBC

Chemical	Formulation	Field rate	Rate per debe (20 lt) for 25 trees using "KIWI" tinfuls and/or equivalent weight			
		Kg/ha	%	Small tins (15 ml)	Medium tins (40 ml)	Large tins (100 ml)
Kocide 101	50%WP	7.0	0.7	23 (140 g)	11 (140 g)	4 (140 g)
Parasol	50% WP	7.0	0.7	16 (140 g)	6 (140 g)	3 (140 g)
Champion	50% WP	7.0	0.7	23 (140 g)	14 (140 g)	4 (140 g)
Funguran – OH	50% WP	7.0	0.7	14(140 g)	7(140 g)	4 (140 g)
Cobox	50 % WP	7.0	0.7	13 (140 g)	6 (140 g)	2 (140 g)
Copper Nordox	50% WP	7.0	0.7	7 (140 g)	3 (140 g)	1 (140 g)
Procida Bordeaux Mixture	25% WP	10.0	1.0	22 (200 g)	10 (200 g)	4 (200 g)
Supanil D.G.	*****	7.0	0.7	7 (140 g)	3 (140 g)	2 (140 g)
Kasumin Bordeaux	45% + 5%WP	4.0	0.4	9 (80 g)	4 (80 g)	2 (80 g)

Table 4: Tank Mixture for control of BBC and CBD

For the tank mixture measure either of the following						
Chemical	Formulation	Field rate		Rate per debe (20 litre) for 25 trees using "KIWI" tinfuls and/or equivalent weight		
		KG/H	%	Small tins (15 ml)	Medium tins (40 ml)	Large tins (100 ml)
Kocide 101	50%WP	4.0	0.4	13(80g)	6(80g)	3(80g)
Copper Nordox	50%WP	4.0	0.4	4(80g)	2(80g)	1(80g)
Copper Sandoz	50%WP	4.0	0.4	4(80g)	4(80g)	1(80g)
Cobox	50%WP	4.0	0.4	7(80g)	3(80g)	1(80g)
And mix with either						
Delan	75%WP	1.6	0.5	5(30g)	3(30g)	
Daconil 2787	75%WP	2.2	0.2	6(40g)	3(40g)	





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