

# **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 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 sand 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)
<b>50% Copper Formulations</b>			
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

- (i)           Copper sulphate (CuSO<sub>4</sub>)           — 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)
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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