



# Crop Protection Solutions for Cocoa

ADAMA



Simply. Grow. Together



# Simply. Grow. Together

## Simply. Create simplicity in agriculture

Farming is complex and full of challenges. We work together with farmers, agronomists, distributors and the wider farming communities to find ways to simplify and improve their lives. We constantly question convention to move farming forward through simple, practical and innovative solutions in crop protection and beyond.

## Grow. Help farmers grow

Growth is the ultimate benefit of simplicity for farmers, in every sense of the word: yield growth, business growth, status growth, farming growth. We support farmers to get things done in their businesses and beyond – from sowing to sales, from their labor in the field to their families, their partnerships and elevating their status in society.

## Together. Connect people

“Together” is the specific way we develop and deliver simplicity – with employees, partners, farmers and their families, and our peers in the wider farming world – a call to work together across markets and functions for the benefit of agriculture. Our aim is to build close relationships with farmers by being honest, open and agile.

Years ago, we were part of a journey that helped farmers make the desert green in a sustainable way, allowing a nation to flourish. Now we empower our people to help farmers do the same again – on a global scale. As Adama employees, as farmers, as custodians of the land, we will work together to find ways that create simplicity and enable growth. Farming is too important for one person or business to lead the agenda alone: we all need to share the responsibility.

That's why we, at Adama, work hand-in-hand with farmers and farming to: **Simply. Grow. Together.**





## The Meaning of ADAMA

We are very proud of our heritage in Israel, and we are equally proud of the fact that we operate in over 50 countries around the world today. Adama reflects a global company in touch with our historic beginnings.

The name Adama is Hebrew for 'earth', the essential element of farming. Our strong connection to the land represents our commitment to agriculture as well as our down to earth, practical approach and culture.

'MA' ties us to the enduring legacy of Makhteshim Agan, the original name of the company.

The blending of 'ADAM' and 'AMA' represents humanity, male and female; in many languages 'Ama' means mother, a link to mother earth. And 'AD' represents 'Advancing the future of agriculture.'

- The three A's in our name remind us of our past, our present and our future, and the mark of quality. The A's harmonize to form our logo, an upward-pointing arrow, a simple, universal image of growth.
- Three layers in the logo bring our brand visually to life: the core epitomizes the farmer; the middle layer signifies farming and growth; and the outer envelope expresses how at Adama our aim is to bring these pieces together.
- The logo, like the Adama brand, was inspired by the land...as well as the hand of the farmer. The numerous meanings evoked by the Adama brand let us connect individually with each of our customers, partners and peers.





# Insect pests and diseases on Cocoa



Black Pod

07

Mirids/Capsids

08



Stem Borer

09

Stink Bug

10



# Black Pod

## Symptoms

Rotting or necrosis of pods. Pods can be attacked at any stage of development, and the initial symptoms are small, hard, dark spots on any part of the pod. Internal tissues, including the beans, are colonized and shrivel to form a mummified pod



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## Control

- Soil health and general good crop management are essential.
- Thinning the canopy for good aeration and facilitate pod inspections.
- harvest pods as regularly as possible.
- Destroy infected/infested crop residues.
- Remove soil tunnels built by ants on the surface of cocoa trunks to eliminate spores carried in infested soil and those carried by the ants themselves.
- Apply appropriate fungicides using correct application methods.  
Copper compounds and metalaxyl are fungicides that are effective.

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## Our solutions:

Banjo forte 400 SC

Vamos 500 SC



# Mirids/Capsids

Mirids or capsids are bugs. The most active are *Distantiella theobroma*, *Sahlbergella singularis* and *Helopetis* spp.

Adult mirids are about 7-12 mm long, distinctly lumpy thorax, protruding eyes and clubbed antennae.

## Symptoms

The capsids feed on pods and vegetative growth by piercing deeply into the plant tissue.

- Blackish marks on the pods
- Dried up leaves attached to the branches
- Formation of cankers, young buds drying up and falling
- Splits in lignified wood.



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## Control

Good farm maintenance such as the use of suitable shade trees and shade manipulation can minimize pest damage. Break in canopy should be avoid.

Alternative host plants should be destroyed.

Mistletoes and epiphytes should be removed from the cocoa plants.

Frequents weeding and removal of infested plants parts should be carried out.

Treat with insecticides at a rate of 2 applications per year in intervals of 2 months.

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## Our solutions:

Galil 300 SC

Aceta star 46 EC



# Stem Borer

Stem borer (*Eulophonotus myrmeleon*) Female moths are larger with alternating black and white spotted marking on the the forewings and a wing span of 52 - 57 mm. Males are smaller with membraneous wing of 30 - 32 mm. Colour of the adult moths render them well camouflaged withn the tree.

## Symptoms

- Larva bores into stems and branches
- causes premature death of branches and young trees



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## Control

- Maintain a healthy and balanced ecosystem to preserve natural enemies that kill the stem borer caterpillars.
- Use pesticides rationally to keep insect pests in check and to preserve natural enemies of stem borer.
- Plant a barrier crop that is not attractive to stem borers, such as: cocoyam, sweet potato or Pueraria species.

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## Our solutions:

Aceta star 46 EC

Galil 300 SC



# Stink Bug

The stink bug (*Bathycoelia thalassina*) Adults are about 20 mm long and 5 mm wide, greenish in colour with 2 yellow dots on the prothorax. Antennae are long and slender.

## Symptoms

*B. thalassina* feeds directly on developing cocoa beans, causing premature ripening. Green pods fed on stop growing and turn yellow. Damaged beans become brown and die, leaving empty shells.



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## Control

Good farm maintenance such as the use of suitable shade trees and shade manipulation can minimize pest damage. Break in canopy should be avoided. Alternative host plants should be destroyed. Mistletoes and epiphytes should be removed from the cocoa plants. Frequent weeding and removal of infested plant parts should be carried out.

Treat with insecticides at a rate of 2 applications per year in intervals of 2 months.

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## Our solutions:

Aceta star 46 EC

Galil 300 SC





# Cocoa spary calender



Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Banjo forte

Banjo forte

Vamos

Vamos



Black Pod

Galil

Galil

Aceta Star

Aceta Star



Mirids | Stem Borer | Stink Bug

**For more and better yield**  
Adama Solutions for Cocoa





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# Banjo forte 400 SC

A non-copper fungicide with two active ingredients for the control of black pod disease on cocoa.

Effective against both spore germination and spore growth with a good residual effect and rain fastness.



## Mode of Action

Protectant and translaminar activity

## Directions for use

Half fill the spray tank with clean water.

Add the recommended amount of Banjo Forte 400 SC and the remainder of the water while agitating the spraying machine continuously.

Spray to drip on pods, including cherrels.



Target	Application rate
Black pod	75 ml in 15 L of water (1.125 L in 225 L of water/ha)

Formulation: Suspension Concentrate  
WHO Class: III

Active ingredients: Dimethomorph 200g/l + Fluazinam 200 g/l



# Vamos 500 SC

A non-copper fungicide for the control of black pod disease. Inhibits spores germination, provides a good residual effect and has good rain-fastness.



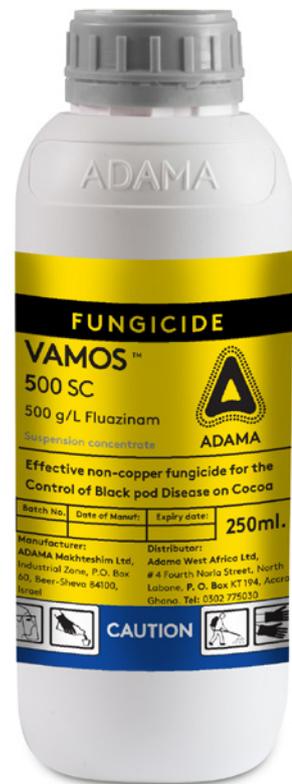
## Mode of Action

Protectant and anti sporulant activity

## Directions for use

Half-fill the spray tank with clean water and begin agitation.

Add the recommended amount of Vamos 500 SC and the remainder of the water. Continue agitation until spraying is complete.



Target	Application rate
Black pod	50 ml in 15 L of water (750 ml in 225 L of water/ha)

Formulation: Suspension Concentrate  
WHO Class: III

Active Ingredient: Fluazinam 500 g/l



# Aceta star 46 EC

An insecticide for the control of mirids, stink bugs, borers and defoliators



## Mode of Action

Contains Acetamiprid, a systemic Insecticide with translaminar activity and with contact and stomach action. Bifenthrin is a synthetic pyrethroid with contact and stomach action.

## Directions for use

Mix with water at the recommended rates.



Target	Application rate
Mirids, stink bugs, borers, defoliators	120 ml /1l of water ( 600 ml/ha)

Formulation: Suspension Concentrate  
WHO Class: II



# Galil 300 SC

An Insecticide with the lowest application rate for mirids control



## Mode of Action

Systemic and non-systemic insecticide with direct contact and stomach activity.

## Directions for use

Mix the required amount of Galil with sufficient water and apply on sighting of insects and once more during the growing season of the crop.



Target	Application rate
Mirids, stink bugs, borers, defoliators	13 ml/11 L of water (65 ml/ha)

Formulation: Suspension Concentrate  
WHO Class: II

Active ingredients: Imidacloprid 250 g/l + Bifenthrin 50 g/l



# Pyrinex Quick 256 EC

A Broad-spectrum insecticide against a wide range of pests and termites



## Mode of Action

Contact and Systemic activity

## Directions for use

To prepare a spray solution, half fill the spray tank with clean water. Pour the required quantity of Pyrinex Quick into the spray tank; Gently agitate the machine. Fill the spray tank with water to the required level while agitating continuously. Application- Pyrinex Quick can be applied by means of any suitable knapsack sprayer (including motorized) which is able to distribute the spray solution evenly and effectively over the target area.



Target	Application rate
Termites	50- 100 ml in 10 L of water

Formulation: Suspension Concentrate  
WHO Class: II

Active ingredients: Chlorpyrifos-ethyl 250 g/l + Deltamethrin 6 g/l



# Glyphogan 480 SL

Broad spectrum, post herbicide for the control of annual and perennial weeds

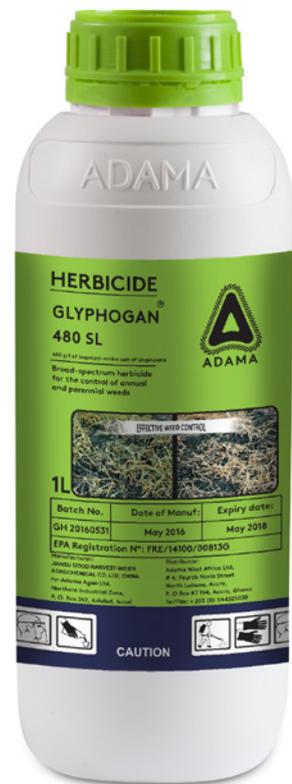


## Mode of Action

Glyphogan 480SL is systemic where it is absorbed through the green leaves and stems and translocated from treated vegetation growth to underground roots, rhizomes or stolons of weeds.

## Directions for use

Application should be carefully directed to avoid any spray Contact with green parts of the crop. Spraying should Coincide with active growth particularly during long and Short rains.



Target	Application rate
Annual and perennial weeds	150 - 300 ml in 15 L of water ( 2 - 4 L/ha)

Formulation: Soluble Liquid

Active Ingredient: 480 g/l of Isopropyl-amine salt of Glyphosate



# Zoomer 390 SC

Non-selective, broad spectrum, post emergence systemic herbicide for the control of annual and stubborn weeds.

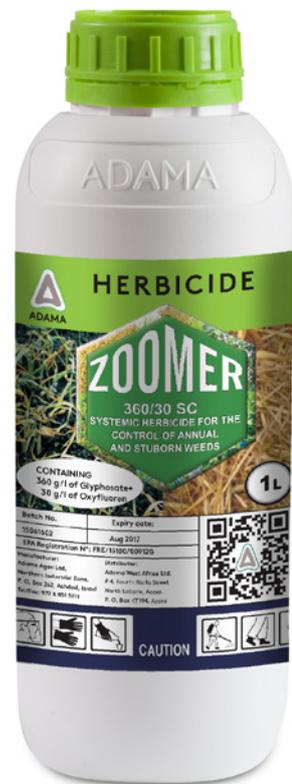


## Mode of Action

Glyphosate inhibits Systemic Non-selective activity, Oxyflurufen inhibits Contact & Translocative (systemic) activity

## Directions for use

Application should be carefully directed to avoid any spray Contact with green parts of the crop. Spraying should Coincide with active growth particularly during long and Short rains.



Target	Application rate
Annual and perennial weeds	150 - 300 ml in 15 L of water ( 2 - 4 L/ha)

Formulation: Soluble Liquid

Active Ingredients: Glyphosate 360 g/l + Oxyfluorfen 30 g/l



# Team members by Region

Ashanti, Brong Ahafo	0544343532
Central, Western	0540124402
Eastern	0544348821
Volta	0544348823
General	0544325030





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