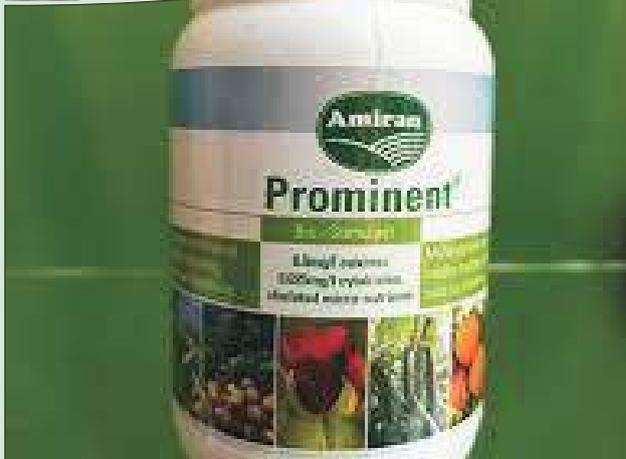


Agroecological Inputs



**A list of Natural Pesticides, fungicides,
organic fertilisers and where to source for them**

Be Safe. Use Harmless Inputs



By
PELUM Kenya

@2022

ORGANIC MANURE



Repairing Your Damaged Soils



KOFAR Rotuba fortified compost



Benefits

- Adds humus to soil.
- Helps the soil to be well aerated.
- Reduces soil acidity.
- Reduces soil infertility.
- Good to apply in all crops.
- As a result, it increases productivity



Call: Tel: 0727 690370, 0722 912903

SOIL HEALTH

1. Farmyard Manure

This is sourced from the cowsheds and poultry houses and is a mixture of animal manure, urine, fodder residues and bedding materials.

To process the manure;

- i. Heap the animal waste at one location
- ii. Cover it with twigs or bananas leaves
- iii. Alternatively, pile the manure under the shade
- iv. Ensure the pile is not rained on or hit by direct sunlight
- v. Let the heap decompose for a minimum of three months before use.



Source: G-BLACK

2. Bokashi Manure

Raw Materials

Ø rice or coffee husks - this is the main ingredient

Other ingredients;

Ø Quarry dust,

Ø Charcoal dust

Ø Bran

Ø Baking yeast

Ø Water

Note: If rice husks are unavailable, chop, sorghum or maize stalks in small pieces or even grass chippings. However, rice husks are a better raw material because they decompose faster and better.

The Process:

- i. Add baking yeast to water in a drum
- ii. Stir until the yeast particles are dissolved
- iii. Pile all the other materials on top of each other
- iv. Start turning the materials as you apply the mixtures of water and baking yeast.
- v. Turn the materials for a minimum of 5 times then turn it once or twice per day for a minimum of 14 days.

Note:

Your Bokashi will be ready for use in 14-21 days.

The Bokashi must be used within 3 months.

Bokashi is only used as an amendment agent.



Source: G-BLACK



Source: G-BLACK



Source: G-BLACK

A list of Natural Pesticides, Herbicides, fungicides, organic fertilisers

And Where to source for them

Be Safe, Use Harmless Inputs

Soil Health

Types of organic manure you can manufacture with ease on the farm:

1. Compost Manure

Process of manufacture

List of Sample Raw materials

- Øweeds,
- Øpruned plant materials,
- Øtree leaves,
- Øflower cuttings
- Økitchen waste like vegetable peels and egg shells.

The Process

- i. dig a shallow hole on the ground
- ii. Place the materials on top of the loose soil, starting with dry ones like maize, sorghum and millet stalks.
- iii. Add green materials like nitrogen-rich plants like sesbania, leucaena and any other materials like weeds that you get from your farms.
- iv. Add kitchen waste
- v. Repeat the process until the heap reaches 1.5 metres high. The width of the pile can be 1.5 meters by any length.
- vi. Let it decompose for a minimum of three months

Note: For good decomposition, apply water on it, especially if the manure-making process is not done during the rainy season. You will end up with quality organic manure that will help keep the environment cleaner and earn you big harvest

.2. The Vermi Compost

Vermicomposting is a natural process whereby earthworms convert waste material with rigid structures into compost.



Source: G-BIACK

The compost produced in this green process is traditionally and popularly used as a natural fertilizer for enhancing plant growth. Earthworms belong to the phylum Annelida, subclass Oligochaeta.

The method of making compost from kitchen garbage by using redworms is called vermicomposting. The steps for preparing vermin compost are:

- 1) Dig a pit about 30 cm deep.
- 2) Spread a chicken mesh or net at the bottom of the pit. A layer of sand of about 2-3 cm is also laid on the mesh.
- 3) Spread a layer or two of peels of fruits, vegetable wastes, green leaves, husk, pieces of newspapers, dried animal dung over the sand layer.
- 4) Sprinkle a small amount of water to make the layer wet.
- 5) Press the layers so that it has sufficient air and moisture.
- 6) Add some redworms into the pit.
- 7) Cover the whole pit loosely with a gunny bag or an old sheet of cloth.
- 8) Redworms need food. Add vegetables and fruit peels, coffee and tea remains and weeds from the field or garden.
- 9) Do not add salt, pickles, oil, vinegar, meat and milk preparations as they may cause growth of disease-causing organisms. Redworms do not survive in very hot or very cold surroundings.
- 10) After 3-4 weeks, add some more waste food in one corner of the pit to encourage the worms to shift towards the newly added food.
- (11) Remove the compost from the pit and dry it in the sun for a few hours.

The vermin compost becomes ready for use.

Note

In addition to quality manure, you also end up with vermitea that you can use as foliar or a top dressing agent.

You have to feed the worms on particular plants to end up with specific nutrients from the tea. To get potassium for example, feed the red worms on Russian Comfrey, commonly known as mabaki (in Kikuyu language). Once you feed them, apply water on the pile to wash down the nutrients into harvesting tanks. You then irrigate your crops with the nutritious tea for good harvest.



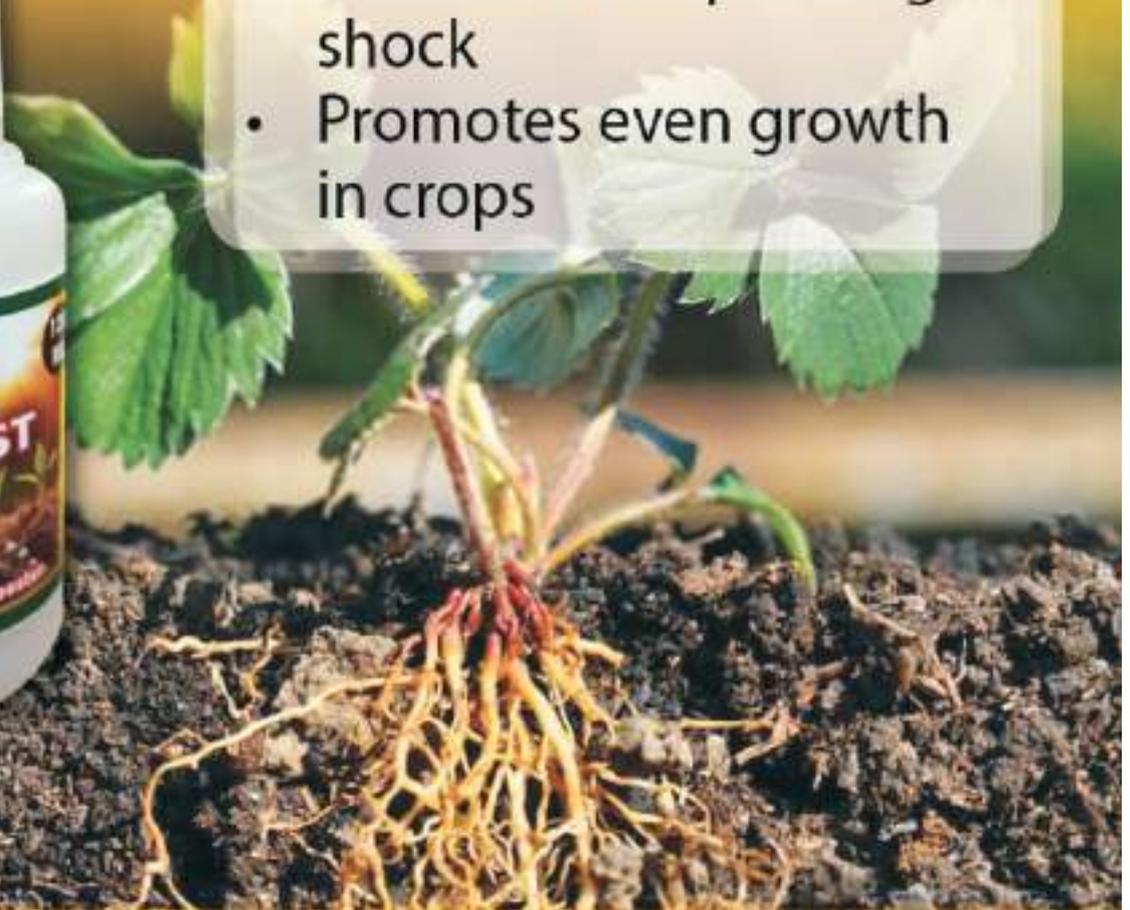
Source: G-BIACK



Repairing Your Damaged Soils

SEEDBOOST

- Increases feeder roots
- Reduces transplanting shock
- Promotes even growth in crops



“Doubles your quality yields”

KOFAR KENYA LTD

P.O. Box 337-10230, Sagana • Tel: +254 722 912903, 0727 690370

Email: kofarLtd@gmail.com • Facebook: KOFAR Kenya Ltd

www.kofarLtd.com



Repairing Your Damaged Soils

K-TIBA

- Loosens soils, breaking hard pan
- Improves aeration and water penetration in soils
- Clears chemical residues
- Comes in concentrates thus not bulky



"Doubles your quality yields"

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Repairing Your Damaged Soils

NANO-AG

- Increases microbial levels
- Boosts nutrients uptake
- Helps in decomposition of animal manures
- Clears nematodes and wilting in all crops
- Reverses acidity when applied after K-tiba conditioner

“Doubles your quality yields”

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FUNGICIDES



R-Fungalsol

R-Fungalsol biological sulphur-based fungicide and foliar fertilizer that works by assisting the plant to synthesize protein boosting it's ability to protect itself against viral, bacterial and fungal diseases while having Curative properties at the same time.

MODE OF ACTION:

R-Fungalsol contains biological sulphur which is nutritive in nature and it's uptake by the plant is 100% unlike chemically produced anti fungals whose uptake is only 30%.

Since plants do not consume chemicals by nature, conventional antifungals makes plants dependant on them and therefore highly susceptible to all kinds of plant diseases.

Organic sulphur based Rue Fungalsol assists the plant to develop its own defense mechanism through out the four levels of growth.

Level1: Fungalsol helps the seedling in it's photosynthesis process where it's life begins.

Level 2: Fungalsol helps the plant to synthesize proteins during the plant's vegetative growth stage allowing it to develop its immune system against diseases.

Level 3: Fungalsol actively helps the plant in lipid formation, a natural crop protection mechanism against high pest infestation by growing hairs around stem and branches.

Level 4: Fungalsol assists in plant hormonal formation at maturity stage enabling to facilitate optimum productivity.



Diseases

- Late & Early blight,
- Botrytis
- Downy & powderly mildew
- Anthracnose,
- Leaf & stem rust
- Leaf spot,
- Stem cankers

Megacopp-Cu

Megacopp-Cu is a powerful bio-fungicide and bactericide. It acts by stopping reproduction of fungal and bacterial spores. Preventive and Curative early and late blight, anthracnose, botrytis, stem and root rot, cankers leaf rust, leaf spot, powderly and downy mildews, thrips Attachments area





FC~FORTE

FC~FORTE is better known as Fungalsol meaning Fungalsolution.

FC~FORTE - ANTI-FUNGAL PROPERTIES

Fc forte is an organic Foliar Fertilizer and an anti-fungal remedy against a series of fungal diseases in plants all-in-one.

Fc~Forte is a jungle greenish gel with a yellow tinge which contains a combination of 100% biological sulphur and calcium among other naturally occurring essential micronutrients.

Preventive & Curative

Fc~Forte is effective against powdery mildew, stem rot, stem cankers, leaf spots, leaf rust, blossom end rot among others and has both protective and curative properties.



**Target Crops:
All crops.
Dosage:100mls/20lts**

**Post Harvest Interval:
3 days**



AMI ORGANIC CU

• F o l i a r F u n g i c i d e : 6 0 m / 1 6 m I P H I 3 D a y s

**Active
Ingredients**

Organic Copper: Garlic



Uses

- Used to treat blights and several other fungal infections
- Suppresses bacterial infections



MYCOAPPLY Endoprime EA

• **Soil drench**

4 g / 200 L

10 g / 500 L

**Active
Ingredients**

Has four species of mycorrhiza; Glomus intraradices, G.mosseae, G.aggregatum and G.etunicatum

Uses

- Extend root mass increasing roots soil coverage
- Produce more and vigorous plants by water and nutrient uptake
- Improving Reduce incidence of soil borne diseases ; through dominating the root zone
- Increase fertilizer uptake by unlocking bound nutrients e.g. phosphorous and zinc there by reducing nutrient loss



TRIANUM

- 90g /150l-F ertig atio n
- 5g /10l-S oil D ren ch

**Active
Ingredients**

Trichoderma harzianum strain
T22

Uses

? Has a symbiotic relation to most of the crops thus preventing fungal infections.

? Protects plant roots from soil-borne diseases such as Fusarium

? It also increases the resistance of plants to stress caused by diseases, suboptimal feeding and watering regimes or climatic conditions.



SPH BIO FUNGICIDE

- Foliar fungicide:
40ml/16l PHI 3Days

**Active
Ingredients**

Silicon & Potassium Bi-carbonate

Uses

- Preventative spray against wide range of fungal infections.
- Used to treat powdery mildew and leaf spots.





AQUACLEAN ACF-SR

- F o l i a r s p r a y
16m l / 16l P H I 3 D a y s
- F u n g i c i d e / 48m l / 300 l
- F e r t i g a t i o n
10m l / 10l Soil drench

**Active
Ingredients**

Beneficial Bacteria

Uses

?Helps in break down of nutrients to be available for the plant.

- Disinfects plant injuries thus preventing secondary infections.





PHOSPHITE

• Foliar Fungicide:
50m l/16l P H I 3D ays

• Drench soil
treatment: 70m l/10l

**Active
Ingredients**

Potassium Phosphite

Uses

- Used to control downy and powdery mildew
- Can suppress some bacteria l infections



SPH BIO FUNGICIDE

- Foliar fungicide:
40ml/16l PHI 3Days

**Active
Ingredients**

Silicon & Potassium Bi-carbonate

Uses

- Preventative spray against wide range of fungal infections.
- Used to treat powdery mildew and leaf spots.



TRIANUM

• 90g/150l-Fertigation

• 5g/10l-S oil Drench

**Active
Ingredients**

Trichoderma harzianum strain
T22

Uses

? Has a symbiotic relation to most of the crops thus preventing fungal infections.

? Protects plant roots from soil-borne diseases such as Fusarium

? It also increases the resistance of plants to stress caused by diseases, suboptimal feeding and watering regimes or climatic conditions.





REGAIN

Application rate and frequency of application
Apply 2 lt/ha weekly if powdery mildew pressures are high or if you are dealing with a highly susceptible variety.

Spray fortnightly if the pressures are medium to low. Alternating Regain with sulphur compounds can both prevent and cure powdery mildew.

Seek advice from your Real IPM Consultant/Technical Assistant on suitable application rates and methods for your crop and growing system.

Features and Benefits
Why use Mazao REGAIN®?

It has Zero Pre-Harvest Interval. As a result, application is possible during harvesting season. Unique mode of Action makes it possible to control pests resistant to chemical pesticides. Very selective in target pests which is useful in IPM programmes which also rely on beneficial insects. Does not harm non-target species. Non phytotoxic at the recommended rate of application. Can be used on many varieties of horticultural crops at different stages of growth. Wide product compatibility allows it to be mixed with most products used on horticultural crops.

Compatibility
It can be tank mixed with all fungicides and insecticides. Check the compatibility chart for more information.

Storage
Store in a cool, dry place. Refer to label for further storage instructions and expiry

MAZAO REGAIN® is a bio-fungicide containing *Bacillus subtilis* for the control of Powdery Mildew.

Bacillus subtilis is a ubiquitous gram-positive bacterium. It is isolated from the soil and formulated as a bio-fungicide for the control of powdery mildew. In addition, Mazao Regain contains properties that promote plant growth hence classified as a bio fertilizer.

Packaging

We sell Mazao Regain in various packages based on the market to suite farmers' needs;

- 5 L
- 1 L
- 100 ml

Mode of action

It controls powdery mildew by inhibiting spore germination, disrupting the germ tube growth and interfering with the attachment the pathogen to the plant.

To obtain best results with Mazao Regain, start treatments early before disease pressures are too high.

Preparation

Shake container well before use. Partially fill the spray tank with water, add required amount of Mazao Regain while agitating and top up spray tank to the required volume.

Follow instructions on the label.





AMI ORGANIC CU

• Foliar Fungicide:60m

l/16m

I P H I3D ays

Active Ingredients

Organic Copper: Garlic

Uses

- Used to treat blights and several other fungal infections
- Suppresses bacterial infections



PESTICIDES

SUSTAIN



Mazao Sustain® is a bio-pesticide formulated from *Trichoderma asperellum* for the control of soil borne pests. *TRICHODERMA ASPERELLUM* is ubiquitous, non-virulent beneficial fungi, present in the soils and other diverse habitats.

In addition, Mazao Sustain contains properties that increase root volume and promote plant growth hence classified as a bio fertilizer.

Packaging

Mazao Sustain is sold in various packages that vary based on the market;

5 L

1 L

40 ml Buy this package size online

Mode of action

Mazao Sustain utilizes different modes of action like competition with nematodes for space and substrates in the rhizosphere, mycoparasitism and the secretion of cell wall degrading enzymes, production of antifungal substances, growth promotion, solubilization of inorganic nutrients, and induction of systemic resistance.

Preparation

Shake container well before use. Partially fill the spray tank with water, add required amount of Mazao Sustain while agitating and top up spray tank to the required volume.

Follow instructions on the label.

Application rate, timing and frequency

Apply at 200 ml / ha

Spray interval is weekly

Seek advice from your Real IPM

Consultant/Technical Assistant on suitable application rates and methods for your crop and growing system.

Compatibility

Storage

Do not contaminate water, food or feed by storage and disposal. Store in a cool, dry place. Refer to label for further storage instructions and expiry.





CAMPAIGN

Application rate, timing and frequency
Apply at 200ml/ ha

Ensure contents of bottle are completely in suspension by vigorous agitation prior to dispensing into spray tank. Continue agitation in the spray tank

Metarhizium is killed by UV light. Optimum time to spray is late in the afternoon after 3 PM

Spray on the lower parts of the plants and on the growing media.

Also apply as a soil drench for control of soil borne and soil phases of insect pests.

Do not spray to 'run-off'

Scout consistently and often. The best time to apply fungi is before pest populations reach their peak.

Do not apply fungal products during droughts or dry spells since the environmental conditions will decrease their effectiveness.

Apply fungal inoculum carefully to get effective coverage.

Do not apply fungal products during the heat of the day since this will diminish the potency of the spores.

Apply once a week

Seek advice from your Real IPM

Consultant/Technical Assistant on suitable application rates and methods for your crop and growing system.

Compatibility

Storage

Do not contaminate water, food or feed by storage and disposal.

Store in tightly closed, original container, in a cool dry place away from direct sunlight

Refer to label for further storage instructions and expiry.

Mazao CAMPAIGN ® is composed of spores of the insect pathogenic fungus *Metarhizium anisopliae* strain ICIZE 69 and is used to control Whiteflies, Mealy bugs and Thrips.

Metarhizium anisopliae strain ICIZE 69 is a ubiquitous, insect killing fungus from the soil.

Packaging

Mazao CAMPAIGN is sold in various packages that vary based on the market;

5L

1L

40ml

Mode of action

Mazao CAMPAIGN contains live conidia as the active ingredient. The conidia germinate on contact with the cuticle of the insect, produce a penetrating germ tube and establish a systemic infection which kills the host in 7 to 21 days depending on conditions, especially temperature and dose.

Preparation

Shake container well before use. Partially fill the spray tank with water, add required amount of Mazao CAMPAIGN while agitating and top up spray tank to the required volume.



REAL AMBLYSEIUS

CUCUMERIS



Real Cucumeris is a living mite control product that contains a predatory mite *Amblyseius cucumeris*.

Amblyseius cucumeris is a beige mite less than 1/25-inch long, and is a predator of Thrips. It is very mobile on the underside of a leaf or in a flower

Packaging

For local market, Real Cucumeris are packed in 250 ml bottle containing 12500 live *Amblyseius cucumeris*.

We also pack in 500 ml bottle containing 25000 live mites.

Appearance

A beige mite less than 1/25-inch long. It is very mobile on the underside of a leaf or in a flower.

Optimum environmental conditions

Application

RATE OF APPLICATION:

25–30 individuals per 1 m²

METHOD OF APPLICATION:

There are 2 methods of application;

Shakers

Allow the mites in the tube to adjust to ambient temperature for five minutes before use active predators should be visible at the top of containers.

Turn and shake the tube to mix the predatory mites equally in the bran carrier.

Gently shake the content onto leaves throughout the greenhouse or growing media in contact with the plant stem.

Slow-release bags

These bags produce large numbers of predatory mites over a period of 4-6 weeks and can be simply hung up in the crop using hooks

Hang sachets into the crop at rates of 0.25 – 1/m².

Suitable for use over the leaf petiole, or can be hung on crop wires amongst foliage

TIMING OF APPLICATION:

Scout consistently and often. The best time to apply predatory mites is before pest populations reach their peak, so early application can increase their effectiveness.

Best results are obtained with temperatures between 20°C and 30°C.

Apply the product to crops as soon as night-time temperatures reach 15°C, and daytime temperatures are higher than 20°C.

It is well suited to use in crops grown in warm conditions.

Earlier application, before temperatures are sufficiently high, can reduce or prevent establishment.

Establishment will be most rapid on crops with ample pollen, such as pepper crops, as the pollen provides an alternative, high quality food source for the mites.

Crops without pollen will give slower establishment, but the use of sachets to give continuous releases of mites over several weeks will improve the results.

Mode of Action

Feeds on Thrips by piercing the victim by its chelicerae and sucks out the prey's body fluids.

Supply options

Compatibility

Pesticides (insecticides, nematicides, fungicides, etc.) can have short or long-term negative effects on one or more stages of beneficial organisms. Please, be careful if or when choosing pesticides.

Seek advice from Real IPM consultants/Technical Assistants before introduction and afterwards monitor your spray program by looking at the Sensitivity and Compatibility charts

Storage

It is always better to use Real Cucumeris as soon as possible after receipt. If storage is unavoidable, keep at 10-15°C and at least 85% relative humidity for the shortest amount of time possible.

Keep the product in a dark place away from direct sunlight with enough ventilation to avoid the narcotic effects of a possible CO₂

Nevertheless, always introduce the predatory mites as soon as possible to prevent unpredictable temperature fluctuations!



REAL PHYTOSEIULUS

PERSIMILIS



Real Phytoseiulus contains a predatory mite *Phytoseiulus persimilis* for the management of the two-spotted mite (*Tetranychus urticae*).

The predatory mite is specific to spider mites and consumes all stages of the spider mite. *Phytoseiulus persimilis* adults, protonymphs and deutonymphs predate on spider mites.

Packaging

For local market, Real Phytoseiulus are packed in clear tubes containing 1,000 live *Phytoseiulus persimilis*.

We also pack at; 2k, 10k, 25k, 50k and 1 million depending on the market targeted.

Appearance

Real *Phytoseiulus* are bright red to orange in color, with long legs and pear-shaped bodies, 0.5 mm long. Immature predators are a pale salmon color.

Optimum environmental conditions

Optimum conditions are 20-27°C (68-81°F) and relative humidity over 60%.

Application

If pure, mix vermiculite with *Phytoseiulus persimilis* as advised by the Real IPM Consultant/Technical Assistant, and then gently rotate the bottle to mix the mites with the carrier as you distribute the contents over the plants.

Mode of Action

Pierces and sucks dry all stages of spider mites.

Supply options

Fixed Price Contract: For a fixed fee per month, you are supplied under technical advice from Real IPM consultants with Real *Phytoseiulus* and other mites control beneficial options to keep spider mites at bay. **Maintenance Programme:** Comes after completion of a Real IPM Fixed Price Clean Up Contract. Real IPM consultants will monitor spider mite levels with the farm manager and provide a weekly Real *Phytoseiulus* introduction plus other beneficial options.

Product Only: Growers order *Phytoseiulus* by the thousand and do not require Real IPM Advisor field visits.

Seek more information on supply options and application rates by contacting us

Compatibility

As Real *Phytoseiulus* are live predators, it goes that they are sensitive to some pesticides applied on the crop.

Seek advice from Real IPM consultants/Technical Assistants before introduction and afterwards monitor your spray program by looking at the Sensitivity and [Compatibility charts](#).

Storage

Best practice is to apply Real *Phytoseiulus* same day of delivery. If you must store, hold only at 6-8°C for not more than a day.





TICKOFF

If the insect is a host, the *Metarhizium* spore will germinate and proceed to enter the host, where it multiplies in the haemocoel of the insect, killing it. Death will occur within 2 to 4 days, depending on the temperature and susceptibility and size of the pest.

Real IPM (Kenya) has a unique relationship with the international research institute in Kenya (ICIPE) where the research on our *Metarhizium* isolates has been carried out over many years. Real IPM has global rights to isolates of *Metarhizium* 69, *Metarhizium* 78 and *Metarhizium* 62, and *Metarhizium* 7, which have economically important insect pest targets.

Metarhizium is a common insect-killing fungus that occurs naturally in the soil. These fungi are called entomo-pathogenic fungi (EPF). Insects are killed by EPFs only if that isolate 'recognizes' the insect as a host. This is why we have more than one isolate of the same organism in mass production as bio-pesticides.

Metarhizium is a 'contact' biopesticide and application methods are critical to its success. Applying it with too much water volume, will allow the biopesticide to 'run-off' the canopy without leaving an effective dose on the pest, which is in the canopy.

Real *Metarhizium* is compatible with fungicides and insecticides, so is very easy to use. Tank mixing Real *Metarhizium* with an insecticide sometimes provides a synergistic effect against pests.

Real *Metarhizium* has been tested against many common beneficial parasitoids and predators without harm. This makes Real *Metarhizium* a powerful tool for conservation of these essential biological control agents. The contact action of the Real *Metarhizium* is therefore complemented with the flying parasitoids and predators which can 'mop up' pests that were not contacted by the Real *Metarhizium* spray droplets.

Contact Real IPM for the Real Solution to your pest problems





SUPREME

Mazao SUPREME® is formulated as pure spores of the insect pathogenic fungus *Metarhizium anisopliae* strain ICIP 62 used to control Aphids. *Metarhizium anisopliae* ICIP 62 is an insect-killing fungus that occurs naturally in the soil.

Packaging

Mazao SUPREME is sold in various packages that vary based on the market;

5L

1L

40ml

Mode of action

Mazao SUPREME contains live conidia as the active ingredient. The conidia germinate on contact with the cuticle of the insect, produce a penetrating germ tube and establish a systemic infection which kills the host in 7 to 21 days depending on conditions, especially temperature and dose.

Preparation

Shake container well before use. Partially fill the spray tank with water, add required amount of Mazao SUPREME while agitating and top up spray tank to the required volume.

Follow instructions on the label.

Application rate, timing and frequency

Apply at 200ml/ ha

Ensure contents of bottle completely in suspension by vigorous agitation prior to dispensing into spray tank. Continue agitation in the spray tank. *Metarhizium* is killed by UV light. Optimum time to spray is late in the afternoon after 3 PM

Do not spray to 'run-off'

Scout consistently and often. The best time to apply fungi is before pest populations reach their peak.

Do not apply fungal products during droughts or dry spells since the environmental conditions will decrease their effectiveness.

Apply fungal inoculum carefully to get effective coverage.

Do not apply fungal products during the heat of the day since this will diminish the potency of the spores. Apply once a week.

Seek advice from your Real IPM Consultant/Technical Assistant on suitable application rates and methods for your crop and growing system.

Compatibility

Storage

Do not contaminate water, food or feed by storage and disposal. Store in tightly closed, original container, in a cool dry place away from direct sunlight. Refer to label for further storage instructions and expiry.



ACHIEVE



Mazao ACHIEVE® is a contact bio-insecticide composed of one isolate of the entomopathogenic fungus, *Metarhizium anisopliae* ICIPe 78. It infects and kills pest mites. It has negligible harmful effect in beneficial predatory mites.

Packaging

Achieve OD is available in;

1 L
100 ml
20 ml

Achieve OD is available in;

5 L
1 L
250 ml

Mode of action

Mazao ACHIEVE® is a contact bio-insecticide. When it comes into contact with a recognized host the spore will germinate within about two hours killing the insect in 3 to 5 days.

Preparation

Shake container well before use. Partially fill the spray tank with water, add required amount of ACHIEVE while agitating and top up spray tank to the required volume.

Application rate and frequency of application

The application rate is 1 L – 2 L / Ha depending on the risk of pest damage.

Spray at an interval of 3 – 14 days interval depending on risk of pest damage.

Seek advice from your Real IPM Consultant/Technical Assistant on suitable application rates and methods for your crop and growing system.

Compatibility

It can be tank mixed with many fungicides and insecticides. Check the compatibility chart for more information.

Storage

Store in a cool, dry place. Refer to label for further storage instructions and expiry.



REAL AMBLYSEIUS

CALIFORNICUS



Real Californicus contains a predatory mite *Amblyseius Californicus* for the management of spidermites.

The predatory mite feeds on spider mites' and broad mites' eggs, nymphs and adults.

Packaging

For local market, Real Californicus are packed in 250 ml and 500 ml bottles containing 12500, 25000 live *Amblyseius californicus* respectively.

Optimum environmental conditions

Active within temperature range of 13-35°C.
Total development time at 21°C is 10 days while at 30°C it reduces to 5 days.

The predatory mite prefers low humidity
These optimum environmental conditions align with those of the principal prey (spider mites), making it a perfect predator

Application

5 – 10 predatory mites per square metre.

TIMING OF APPLICATION

-Scout consistently and often. The best time to apply predatory mites is before pest populations reach their peak, so early application can increase their effectiveness.

-As with all biological control agents, Real Californicus works best as one component of a comprehensive integrated pest management (IPM) program;

-Real IPM Programmes use regular low dose applications of *Amblyseius californicus* after the Pure Phytoseiulus Clean Up Programme in order to prevent pest mite resurgence
Mode of Action

Pierces and suck out contents of prey

Supply options

Fixed Price Contract: For a fixed fee per month, you are supplied under technical advice from Real IPM consultants as part of a comprehensive IPM Program.

Product Only: Growers are supplied per order and do not require Real IPM Advisor field visits.
Seek more information on supply options and application rates by contacting us

Compatibility

As Real Californicus are live predators, it goes that they are sensitive to some pesticides applied on the crop.

Seek advice from Real IPM consultants/Technical Assistants before introduction and afterwards monitor your spray program by looking at the Sensitivity and Compatibility charts

Storage

It is always better to use Real Californicus as soon as possible after receipt. If storage is unavoidable, keep at 10-15°C and at least 85% relative humidity for the shortest amount of time possible.

Keep the product in a dark place away from direct sunlight with enough ventilation to avoid the narcotic effects of a possible CO₂.

Nevertheless, always introduce the predatory mites as soon as possible to prevent unpredictable temperature fluctuations!



REAL AMBLYSEIUS ANDERSONI



Real Andersoni is a living mite control product that contains a predatory mite *Amblyseius andersoni*.

Amblyseius andersoni, is a predatory mite that belongs to the family Phytoseiidae which includes numerous species of predatory mites. The predatory mite eats adult spider mites, eggs and nymphs.

Packaging

For local market, Real Andersoni are packed in 250 ml and 500 ml bottles containing 12500, 25000 live *Amblyseius andersoni* respectively.

Appearance

Beige in colour. The adult mite is about 0.4 mm in length.

Optimum environmental conditions

Application

RATE OF APPLICATION:

50-100 individuals/ M2

METHOD OF APPLICATION:

Allow the mites in the tube to adjust to ambient temperature for five minutes before use

Active predators should be visible at the top of containers.

Then turn and shake the tube to mix the predatory mites equally in the bran carrier.

After mixing gently shake the content onto leaves throughout the greenhouse or growing media in contact with the plant stem.

TIMING OF APPLICATION

Scout consistently and often. The best time to apply predatory mites is before pest populations reach their peak, so early application can increase their effectiveness. As with all biological control agents, Real Andersoni works best as one component of a comprehensive integrated pest management program; Real IPM Programmes use regular low dose applications of *Amblyseius andersoni* after the Pure Phytoseiulus Clean Up Programme in order to prevent pest mite resurgence.

Mode of Action

Feeds on adult spider mites, eggs and nymphs.

Supply options

Compatibility

As Real Andersoni are live predators, it goes that they are sensitive to some pesticides applied on the crop.

Seek advice from Real IPM consultants/Technical Assistants before introduction and afterwards monitor your spray program by looking at the Sensitivity and Compatibility charts

Storage

It is always better to use Real Andersoni as soon as possible after receipt. If storage is unavoidable, keep at 10-15°C and at least 85% relative humidity for the shortest amount of time possible.

Keep the product in a dark place away from direct sunlight with enough ventilation to avoid the narcotic effects of a possible CO₂. Nevertheless, always introduce the predatory mites as soon as possible to prevent unpredictable temperature fluctuations!





BioControl Methods for Thrips

Conserve natural enemies (predatory thrips, green lacewings, pirate bugs (Orius), parasitic wasps and predatory mites *Amblyseius* spp.; *Neoseiulus cucumeris*) by avoiding pesticides when natural enemy numbers are high enough to reduce the thrip population and by providing protective habitat.

Natural enemies commercially available are:

Real *Amblyseius cucumeris*, Thripex, Amblytech

(*Amblyseius cucumeris*, predatory mite)

Nematech (*Steinernafeltiae*, parasitic nematode)

Macro_Mite (*Macrochelirobustus*, predatory mite)

Bioscimitus (*Hypoaspis miles*/ *Stratiolaelaps scimitus*, predatory mite)

Hypotech (*Hypoaspis miles*, predatory mite)

Use blue or yellow sticky trap to attract and kill adults

(minimum of 8 traps per 0.5 acres) (products: Rolltech Trap, Sticktech Yellow)



Use pheromone lures in mass trappings and/or add a contaminant to kill thrips

Use of pathogens such as the fungi *Entomophthora*, *Verticillium lecanii*, *Beauveria bassiana* and *Metarhiziumanisopliae* are also important in natural control of thrips. Spray formulations of *Beauveria bassiana* are used for the control of thrips. This microorganism is most effective when used early before large thrips populations have built up.

Products available are:

Beauvitech, Biopower, Botanigard

(*Beauveria bassiana*) Spray *Beauveria bassiana* at the rate of 10 ml per 20L of water during late afternoon

Bio T Plus, Biokil, Halt Neo (*Bacillus Thuringiensis* var.

Kurstaki)

Biocatch, Lecatech (*Verticillium (Lecanicillium)*

lecanii

Requiem Prime (Terpenoid Blend)

Biomagic (*Metarhiziumanisopliae*)

Rhizo Protect (*Metarhiziumisopliae* +

Lecanicilliumlecanii)

Biopesticide Control Method for African Armyworm

1. Natural enemies:

Many birds, toads, lizards, small mammals, insects and spiders prey on the African armyworm at different stages of its life cycle: Natural enemies are mainly:

1.1. Lacewings, predatory wasps, parasitic wasps, flies, and spiders attack armyworm caterpillars.

1.2. Night birds and bats feed on the African armyworm moths.

1.3. Birds (storks and crows) may decimate small outbreaks but have little influence on larger ones.

Conserve natural enemies by avoiding pesticides when natural enemy numbers are high enough to reduce the whitefly population and by providing protective habitat (flowering plants).

2. Commercially available natural enemies are not available

3. Pathogens:

Only the use of *Bacillus Thuringiensis* is important in natural control of armyworms.

Products available are:

3.1. Halt Neo (*Bacillus Thuringiensis*)

4. Pheromones:

Help to attract and collect the armyworm. However no product is available/ registered in Kenya.



BioControl Methods for Spidermites

1. Natural enemies:

Conserve natural enemies by avoiding pesticides when natural enemy numbers are high enough to reduce the whitefly population and by providing protective habitat (flowering plants). Natural enemies are :

- 1.1. Predatory beetles such as ladybird beetles (Coccinellidae) or small Staphilinidae (Oligotaspp)
- 1.2. predatory mites (Amblyseius spp. And Typhlodromusspp)
- 1.3. parasitic wasps (Eretmocerus spp., Encarsiaspp, but mainly in greenhouses)
- 1.4. Lacewings (Chrysopidae)
- 1.5. Predatory thrips
- 1.6. anthocoridbugs (Oriusspp),
- 1.7. mirid bugs,
- 1.8. predatory flies such as cecydomyiid and hoverflies.

2. Natural enemies commercially available are:

- 2.1. Spical (Neoseiuluscalifornicus (Amblyseiuscalifornicus) by Koppert
- 2.2. Spidex (Phytoseiuluspersimilis) by Koppert



- 2.3. Thripex (Amblyseiscucumeris) by Flamingo Horticulture
- 2.4. Biophyto (Phytoseiuluspersimilis)
- 2.5. Amblytech (Amblyseiscucumeris, predatory mite) by Dudutech
- 2.6. Phytotech (Phytoseiuluspersimilis) by Dudutech
- 2.7. Real AmblyseiusAndersoni (Amblyseiusandersoni) by Real IPM

3. Pathogens:

Use of pathogens such as the fungi *Metarhiziumanisopliae* can help in the natural control of spidermites.

Products available are:

- 3.1. Achieve (*Metarhiziumanisopliae*) by Real IPM

BioControl Methods for Leafminer / TutaAbsoluta

1. Natural enemies:

Conserve natural enemies by avoiding pesticides when natural enemy numbers are high enough to reduce the whitefly population and by providing protective habitat (flowering plants). Natural enemies are mainly:

1.1. Parasitic wasps (Diglyphusisaea, Chrysocharisparksi)
The wasps need to present in the beginning of the lifecycle of the leafminer to be able to control effectively.

2. Commercially available natural enemies are:

2.1. Diglytech (Diglyphusisaea) by Flamingo Horticulture
2.2. Hypotech (Hypsaspis miles)

3. Traps:

Yellow traps attracting leafminers and can be controlled:

3.1. Delta Trap,
3.2. Rolltech,
3.3. Sticktech (by Dudutech)
3.4. Use black sticky traps (at 24 pieces/acre supplied by Koppert Biological Systems) placed at 15–20 cm above the ground to capture the adults (Tutaabsoluta only)

4. Pathogens:

Use of pathogens are also important in natural control of leafminers.

Products available are:

4.1. Beauvitech (Beauveriabassiana)
4.2. Lecatech (LecanicilliumLecanii
4.3. Nematoh H
(Heterorhabditisbacteriophora)



BioControl Methods for White Flies

1. Natural enemies:

Conserve natural enemies by avoiding pesticides when natural enemy numbers are high enough to reduce the whitefly population and by providing protective habitat (flowering plants). Natural enemies are :

- 1.1. ladybird beetles (Coccinellidae)
- 1.2. predatory mites (Amblyseius spp. And Typhlodromusspp)
- 1.3. parasitic wasps (Eretmocerus spp., Encarsiaspp, but mainly in greenhouses)
- 1.4. Lacewings (Chrysopidae)
 - 1.4.1. The dusty lacewing Conwentziaafricana is considered to be one of the most important predators of B. tabaci in East and southern Africa (Legg, 2003). Important to attract these in the beginning of growing season, so that whitefly eggs and nymphs can be eaten by the lacewing
- 1.5. Predatory thrips
- 1.6. Rove beetles



2. Natural enemies commercially available are:

- 2.1. Limonica (predatory mite, Amblydromaluslimonicus)
3. Sticky traps:
Use yellow sticky trap to attract and kill adults (1 to 4 per 300 squaremeter, replace every week). Products available are:

- 3.1. Rolltech Trap (Dudutech)
- 3.2. Sticktech Yellow (Dudutech)

4. Pathogens:

Use of pathogens such as the fungi Verticilliumlecanii, Beauveriabassiana, Metarhiziumanisopliae and Paecilomycesfumosoroseus are also important in natural control of whiteflies.

Products available are:

- 4.1. Beauvitech (Beauveriabassiana) Spray
Beauveriabassiana at the rate of 10 ml per 20L of water during late afternoon
- 4.2. Biocatch, Lecatech (Verticillium (Lecanicillium) Lecanii
- 4.3. Biomagic, Campaign (Metarhiziumanisopliae)
- 4.4. Pacyclos (Paecilomycesfumosoroseus)

BioControl Methods for Diamondback Moth

1. Natural enemies:

Conserve natural enemies by avoiding pesticides when natural enemy numbers are high enough to reduce the whitefly population and by providing protective habitat (flowering plants). Natural enemies are :

- 1.1. Birds (provide bird baths)
- 1.2. Spiders (provide rocks under which they can hide)
- 1.3. Lizards (provide rocks under which they can hide)
- 1.4. Ducks and chicken
- 1.5. Lacewings
- 1.6. Wasps (including parasitic wasps; Cotesia, Diadegma, Diadromus and Oomyzus)

Unfortunately, the locally existing wasps do not provide satisfactory control of the diamondback moth in eastern and southern Africa.

For this reason, two species of wasps (Diadegmasemiclausum and Cotesiaplutellae) were imported and released by ICIPE in Kenya, Uganda and Tanzania. The former has provided almost complete control of this pest in highland growing conditions while the second is specific to mid-altitude, semi-arid areas where it also provides good control.

2. No commercially available natural enemies or pheromones are available

3. Traps help to control the adult:

- 3.1. Delta Trap,
- 3.2. Wing Trap (by Dudutech)

4. Pathogens:

Use of pathogens are also important in natural control of Diamondback Moth. Pathogens like Bacillus thuringiensis and Beauveriabassiana are proven to control the larvae status.

Products available are:

- 4.1. Halt, BN3, Delfin (Bacillus Thuringiensis)
- 4.2. Biopower (Beauveriabassiana)

5. Pheromones:

help to attract and collect the caterpillar but are not available in East Africa



BioControl Methods for Caterpillar Biocontrol

1. Natural enemies:

Conserve natural enemies by avoiding pesticides when natural enemy numbers are high enough to reduce the whitefly population and by providing protective habitat (flowering plants). Natural enemies are :

- 1.1. Birds (provide bird baths)
 - 1.2. Spiders (provide rocks under which they can hide)
 - 1.3. Lizards (provide rocks under which they can hide)
 - 1.4. Ducks and chicken
2. No commercially available natural enemies are available

3. Pathogens:

Use of pathogens are also important in natural control of caterpillars. However only bacteria seem to be efficient.

Products available are:

- 3.1. Nematech (Heterorhabditisbacteriophora) by Dudutech
- 3.2. Xentari, Baciguard (Bacillus Thuringiensis)
- 3.3. Capsanem paste (Steinernemacarpocapsae)



Biopesticide Control Method for Root Knot Nematode

Galls on roots from root-knot nematodes

1. Incorporate neem cake powder into the soil if it is available.

References

2. Drench the root zone at transplanting with Azadirachtin based products e.g. Neemraj (300PPM) at 40ml/20L of water or Nimbecidine EC at 50ml/20L. Repeat this after 2 weeks

Other biopesticides available are:

1. Ozoneem, Achook, Nemroc (Azadirachtin)
2. AMINEM XY16 Liquid Emulsion (Carvacrol 2% w/v)



BioPesticide Control Method for Athracnose



1. Bio-Chance 150 (Naringin)

Copper:

There are many copper compounds that are used as fungicides. The most common are derived from either copper hydroxide or copper oxychloride. These products are readily available in most third world countries and very reasonably priced. Copper products are still accepted in organic farming provided that the number of applications is strictly followed and a proper soil amendment is observed to prevent copper accumulation in the soil. However they belong to the WHO II.

Available copper products are:

2. Champion 50, Amicop, Champflo, Cobox 50, Cupravit 50, Cuprocafforo Micro

BioControl Method for Termites

Natural enemies:

Natural predators include

1. ants,
2. dragon flies,
3. ground beetles,
4. some spiders,
5. bats,
6. many kinds of birds,
7. frogs, and
8. some large mammals (aardvarks, pangolins and monkeys).

Despite the large number of predators, most termites are able to maintain high populations by means of mass production of reproductive forms.

Conserve natural enemies by avoiding pesticides when natural enemy numbers are high enough to reduce the whitefly population and by providing protective habitat (flowering plants). Natural enemies are mainly:

Commercially available natural enemies are not available



Pathogens:

Control through pathogen application is generally difficult because of their social nature and secure enclosed environments that protect them against most natural enemies. Preparations based on insect-attacking nematodes and the fungi *Beauveria bassiana* and two species of *Metarhizium* are effective when applied into the mounds. Fungi spores can act as repellents.

Biopesticide Control Method for Termites

Neem products reportedly have a repellent effect on termites.

Odontotermes spp. and *Microtermesobesi* were repelled from scarifying groundnuts pods lying in heaps on the ground, by a layer of neem cake between the surface of the soil and the pods (Gold et al, 1989).

Neem oil and neem leaves reduced the weight loss of wood pieces exposed to termites.

Neem seed extracts have been used against *Microtermes* termites on trees and *Odontotermes* termites on field crops with good results (Schmutterer, 2002).

No product is registered particular for the termites or ants.

However products registered for other insect pests are:

1. Fortune, Magneto, Nimbecidine, Ozoneem, Neemark, Achook (Azadirachtin)
2. Flower, Pesthrin, Pyagro, Pyeneem (Pyrethrins)



BioControl Methods for Large Grainborer/ Weevils

The beetle *Teretrius* (formerly *Teretriosoma*) *nigrescens*, which is a specific predator of the larger grain borer in Central America, has been introduced into Africa. The adult and the immature stages of this beetle feed on eggs and larvae of the larger grain borer.

The predatory beetle has been released in Benin, Ghana, Guinea-Conakry, Kenya, Malawi, Tanzania, Togo and Zambia. It became well established and spread in most countries. However, despite the successful introductions, there are still regular outbreaks of the larger grain borer and farmers still suffer losses.

. Nevertheless this beetle has a role to play in the management of the larger grain borer, as it is able to reduce the density of the pest.



BioControl Methods for Aphids

1. Natural enemies:

Conserve natural enemies by avoiding pesticides when natural enemy numbers are high enough to reduce the aphids population and by providing protective habitat (flowering plants). Natural enemies are

- 1.1. predatory bugs (e.g. Anthocoridae, Miridae, Nabidae),
- 1.2. carabid beetles (Carabidae),
- 1.3. soldier beetles (Cantharidae)
- 1.4. predatory gall midges (Cecidomyiidae),
- 1.5. lacewings (Chrysopidae),
- 1.6. ladybird beetles (Coccinellidae)
- 1.7. hoverflies (Syrphidae) and
- 1.8. parasitic wasps (parasitoids)
- 1.9. Controlling ants feeding on honeydew produced by aphids, as they protect the aphids from natural enemies. One option to control is to hinder them from coming up to the leaves (spraying the stem with biopesticides or putting a sticky band around the stem)

2. Natural enemies commercially available are:

- 2.1. Aphitech (Aphidiustrascaspinus, parasitic wasp) from Flamingo Horticulture (K) Ltd., Naivasha (Dudutech)

3. Sticky traps:

Use yellow sticky trap to attract and kill adults (minimum of 2 traps per 30m²). Products available are:

- 3.1. Rolltech Trap (Dudutech)
- 3.2. Sticktech Yellow (Dudutech)

4. Pathogens:

Use of pathogens such as the fungi *Verticilliumlecanii*, *Beauveria bassiana* and *Metarhiziumanisopliae* are also important in natural control of aphids.

Products available are:

- 4.1. Beauvitech, Biopower, Botanigard (*Beauveria bassiana*) Spray *Beauveria bassiana* at the rate of 10 ml per 20L of water during late afternoon
- 4.2. Biocatch, Lecatech (*Verticillium* (*Lecanicillium*) *Lecanii*)
- 4.3. Biomagic, Supreme (*Metarhiziumanisopliae*)
- 4.4. Pacyclos (*Paecilomycesfumosoroseus*)



SAF-T-CIDE 800EC

Foliar spray:
64ml/16l PHI 1Day

Active Ingredients

-Mineral oil: Parrafinic oil 80%

Uses

- To control wide range of pests such as Aphids, Whiteflies, spider mites.
- Used as an adjuvant.
- Mixed with Levo to control TutaAbsoluta
- To control diseases such as: Black Spot, Powdery Mildew, Rust, Sigatoka, Sooty Mold.

Mode of Action

- Suffocation of eggs, larvae and nymphs of insects and mites and adults of soft-bodied insects.
- Interferes with the attachment of the pathogen to the host.





BOTANIGUARD

1-3L/Ha
40ml/20l

Active Ingredients

-Beauveria basiana (GHastain) 11.3% w/w

Uses

- For the control of sucking insects [adult and immature stages of aphids, thrips, whiteflies]
- Also controls psyllids, chinch bugs and many other problematic insects

Mode of Action

- Acts by contact
- This fungus attacks insects where they hide and keeps killing them long after other insecticides have stopped working





LEVO

Foliar spray
10ml/16l PHI 1 Day

Active Ingredients

-Plant derivative: Prosular Oxymatrine 2.4%

Uses

- Mixed with Saf-T-side to control Tuta Absoluta.
- Mixed with farm made insecticide for more lethal action
- Use d to control cutworms army worms, whiteflies and thrips.

Mode of Action

- Direct contact as a stomach poison.
- Anti-feeding and repelling



ACHOOK

Foliar spray
16ml/16L
PHI 8hrs

**Active
Ingredients**

-Neem based; Azadirachtin and neem limonoids

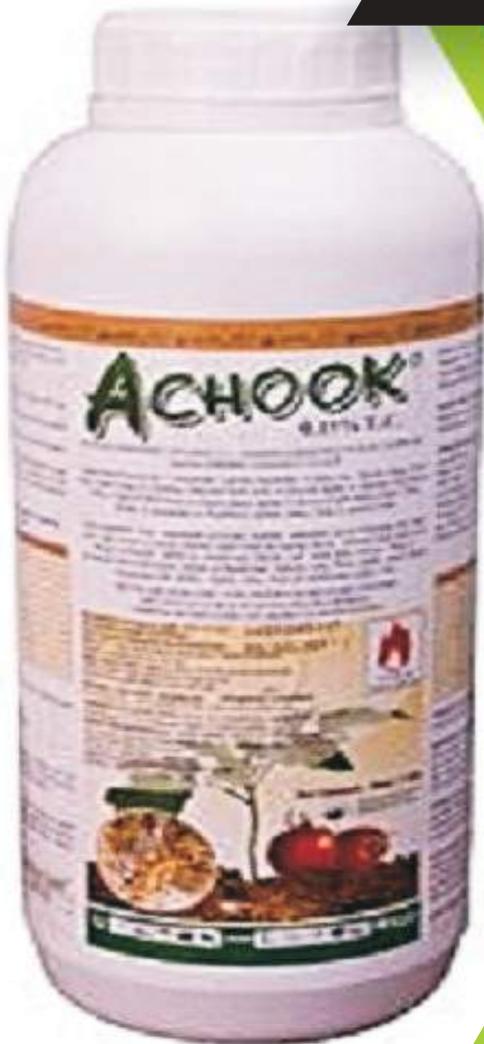
Uses

? Controls Root Knot Nematodes and other parasitic nematodes.

? Controls aphids, and other wide range of pests.

**Mode of
Action**

- Inhibits eggs from hatching, larvae from emerging and penetration ability of the larvae.
- Growth disruption.





PYEGAR™ 35EC

Foliar spray 48MI/16L

Active Ingredients

Contains: Pyrethrins 1%,
Garlic extracts 34%,
active ingredients 65%

Uses

• Effective in control of worms, caterpillars, thrips, aphids, scales, white flies and mites.

Mode of Action

• Provides a quick knockdown .



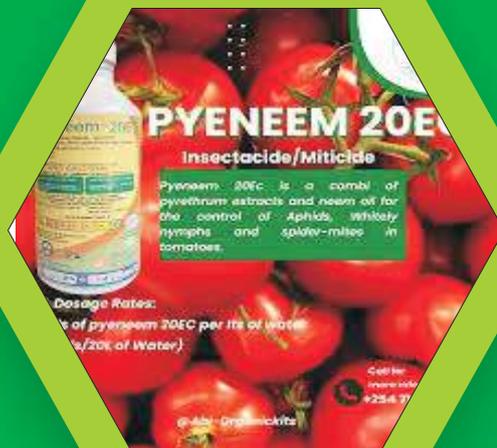
Pyeneem TM 20EC

**Foliar spray
48ml/16l**

Active Ingredients Pyrethrins 1%
Neem oil 1%

Uses • Combination of pyrethrum extracts and neem oil for control of aphids, whiteflies and spidermites.

Mode of Action • Contact action and has IGR action





Pyerin TM EC

Foliar spray
48m I/16l

**Active
Ingredients**

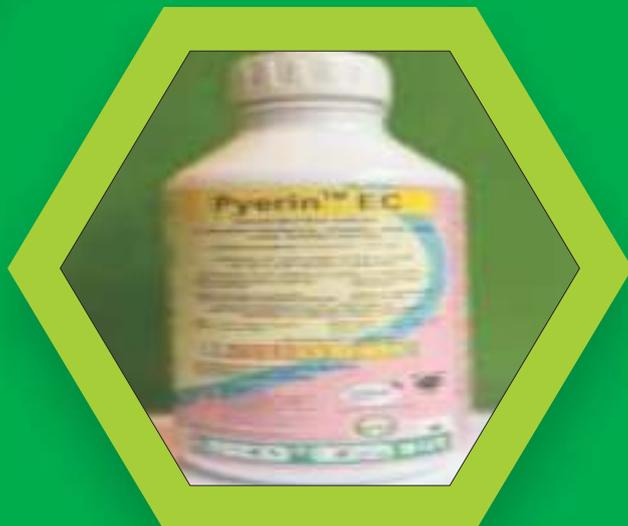
Pyrethrins 7.5%

Uses

- Natural pyrethrum based for control of bollworms, caterpillars, thrips, aphids, scales and mites.

**Mode of
Action**

? Contact poison.



ROOTGUARD

**Active
Ingredients**

Tichoderma count 5 x 10⁶
Bacteria count 2 x 10⁶
Soluble potassium phosphate
90%

Uses

The natural ingredients in the rootguard colonize the plants root system thus shielding the roots from pathogens such as Fusarium, Pythium etc.

**Mode of
Action**

Soil drench 160g/16l

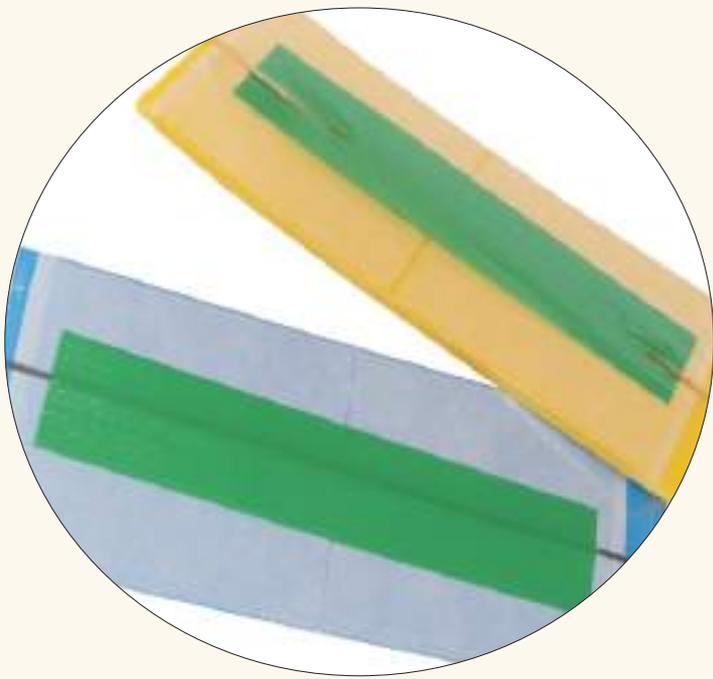


ENTRAP



- Small yellow and blue sticky traps (25cm X 10cm) with wet glue ideal for mass trapping.
- Pack size: 20 cards.
- Has glue on both sides of the trap.
- Peel off traps from a pad, as required.
- For mass trapping use 1 trap per 10 metre square (1000 per hectare).

MONITRAP



Monitrap are sticky traps used for monitoring/ scouting purposes in field and green house crops. They are used to catch flying pests to identify and count the numbers in order to understand pest pressure trends.

- Small yellow and blue sticky traps (25 cm X 10 cm).
- Pack size 10.
- Peel of sections of protective plastic each week to expose glued sections gradually to complete the 4 sections per trap.
- Provides easy monitoring of weekly levels of pests in the greenhouse.
- Has dry glue to allow for easy pest identification and counting.
- For monitoring use 1 trap per greenhouse bay.



ROLLER TRAP



-Long yellow and blue sticky traps. The Blue traps are 15 cm X 100 metres and the Yellow are 15 cm X 125 metres size.

-Used for mass trapping of flying pests such as whiteflies, fruit fly, bean fly, thrips, leafminers, moths and winged aphids.

-Pack size 1.

-Hang roller traps in most bays, particularly near greenhouse doors and along the vents.

-Use blue roller traps where thrips pressure is high and is the major flying pest to be controlled.

-Yellow roller traps ideal for trapping whitefly, leafminer, bean fly, winged aphid and fruit fly.



PEATMOSS KEKKILA

• M i x w i t h P h y m y x t o
s t a r t a t r a y n u r s e r y .
R a t i o 2 : 1

Active Ingredients

Mixed Raw materials:

50% Brown Sphagnum peat
(H4-6 VonPost)

50% Black Sphagnum peat

Uses

•Used in tray nursery
establishment

• as soil less media mixed with
compost

• Used as potting media

• Can be used to improve clay
soils increasing drainage or
sandy soils to increase water
holding capacity.

KEKKILÄ
PROFESSIONAL

Peat

KEKKILÄ
PROFESSIONAL

SUBSTRATE

SUBSTRAT · KASVUALUSTA
TORF · SUSTRATO DE CULTIVO
ပဲနီပဲနီ · 專業栽培
ΥΠΟΣΤΡΩΜΑ · س

70L

KEKKILÄ
PROFESSIONAL

SUBSTRATE

SUBSTRAT · KASVUALU
TORF · SUSTRATO DE CU
ပဲနီပဲနီ · 專業栽培
ΥΠΟΣΤΡΩΜΑ ·

FERTERLIZERS

GRO PLUS



Gro-plusTM is a nitrogen free fertilizer used for treatment for all crop seeds; both farm-saved local and hybrid seeds. It contains phosphate (P₂O₅) and Potash (K₂O) which makes plants germinate faster and improves the crop vigor.

Properties

Consists of 100% plant nutrients

Has a moderately low pH

Highly pure

Compatible with other fertilizers applied normally during crop life.

USAGE

It is a starter fertiliser, which in particular has shown valuable means of giving a seed an early boost, promoting root growth and strong establishment.

Gro Plus can be used in a wide range of planting seeds such as cereals (maize, wheat, millet & sorghum) and in vegetables including tomatoes, potatoes, kales, melons, butternut, carrots, onions, peas, beans and any seed directly planted in nursery or on the field.

It is cheap, easy to use and contributes to increased yields.

Application rate and Directions

Application Rate: For maize and beans treat 2 Kg of seeds with 50 gm Gro-plus. Refer to the instruction manual that comes with the product for other seed types.

Direction:

- Put the seeds in a tin or bowl not used for eating. Add on a little water, just enough to make the seeds only moist.
- Sprinkle on some Gro-plus powder using a teaspoon to measure the amounts as per the application rate given above. .
- Mix the powder with seeds, making sure that every seed is covered and sticky.
- Spread the seeds thinly so that they are not on top of each other and let them dry completely until they have a powdery coating.
- Water the soil well then sow the seeds as normal.
- Keep the soil moist at all times, especially in the first few weeks.
- Best results are attained when normal fertilizer application is maintained.

Storage and Disposal

Do not contaminate water, food or feed by storage and disposal.

Store in tightly closed, original container, in a cool dry place away from direct sunlight



ROOT PROMOTER

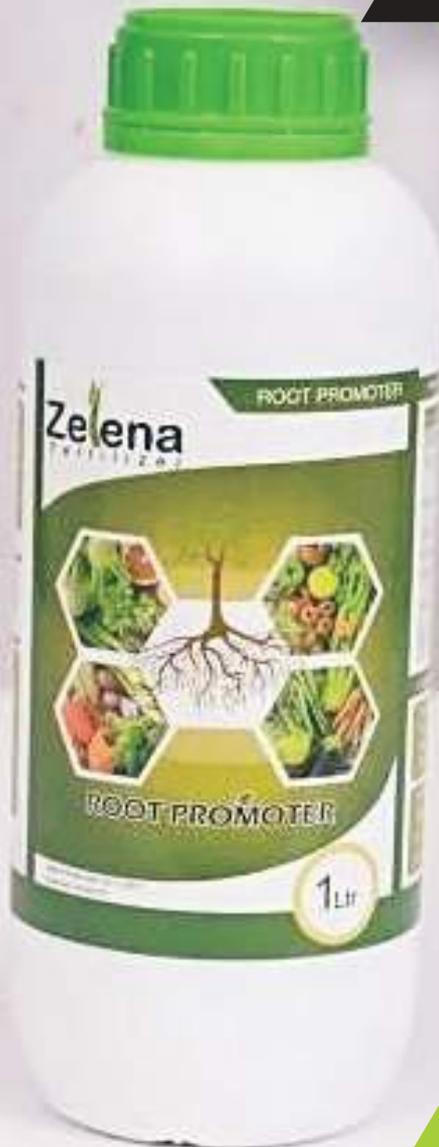
Drenched on the soil
40ML/20L

**Active
Ingredients**

- Organic matter
- Amino acid
- NPK.
- Trace element.
- Seaweed extract.

Uses

- It is an indispensable liquid fertilizer which provides; frost resistance, bio balancing, improved flowering, fruit set and stress resistance.
- Promotes growth of plant root system, enhance root resistance to bacteria and diseases.
- Fertilizes the soil to inhibit harmful bacteria.



NUTRIENTS APPLIED IN LIQUID FORM



NHANCE FOLIAR

32ml/16l

Active Ingredients

- Organic seaweed extract

Uses

- Enhances root development with improved utilization of soil nutrients and fertilizers.
- Enhances Root Development.
- Increases Crop yields.



ZEFUN

40ml/20l

**Active
Ingredients**

- NPK
- Alginic acid
- Organic matter
- iron
- copper
- zinc
- manganese

Uses

- Promotes early fruit ripe
- Contain full spectrum of cheleted micro nutrients
- Promotes growth of sprout and root.



BIOZYME

0.5L/Ha

Active Ingredients

- Natural plant extracts 78%Mg
0.1: S 0.4: Mn 0.1: Fe 0.4: Zn
0.3: Bo 0.3%

Uses

• Enhance fruiting, Flower quality and yield.



BORON PLUS

Foliar spray 15ml/20l

**Active
Ingredients**

- Humic acids and micro elements

Uses

- Corrects Boron deficiency.
- Promotes pollen viability.
- Protects flower abortion.
- Increases nitrogen up take.



NUTRIENTS APPLIED IN LIQUID FORM



SUPERLINK

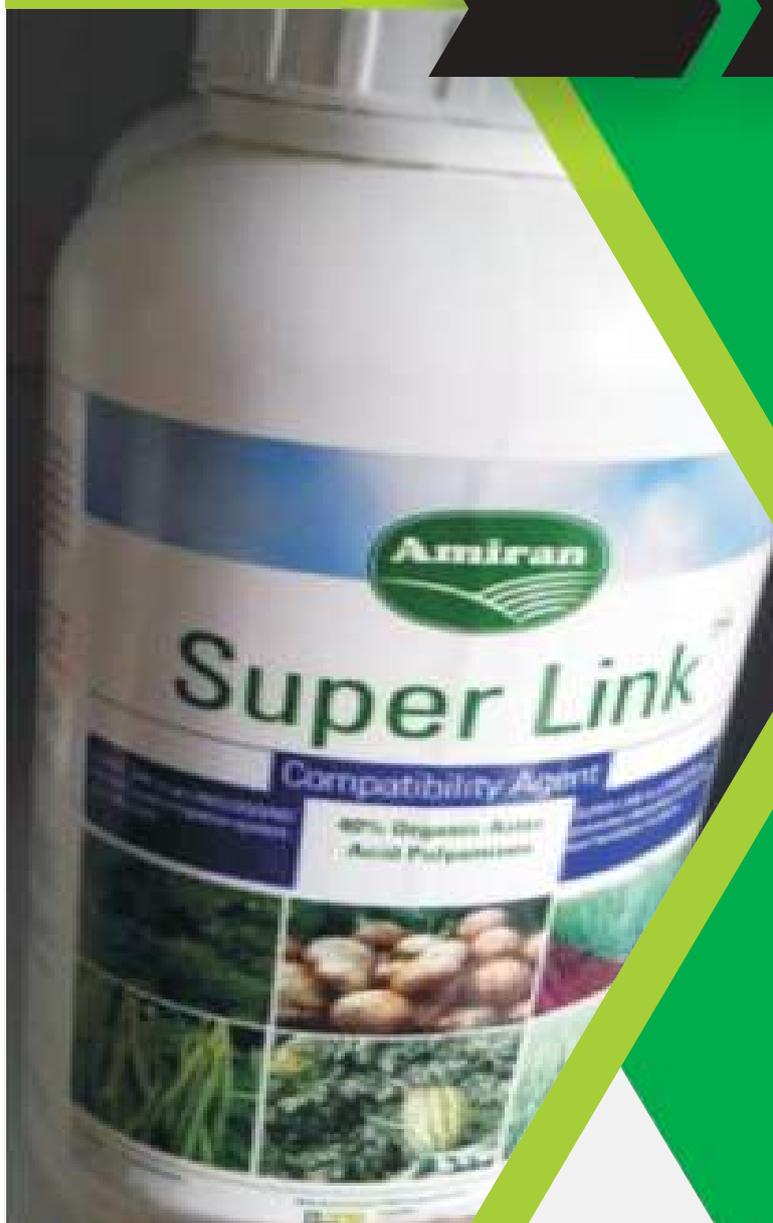
Drip cleaning: 3ltrs/Ha

Active Ingredients

-Organic Polyamines (NITROGEN BASED)
:Penetrate, compatibility and unclogging agent.

Uses

- Used to unclog drip lines.
- Supplies plants with nutrients





AMI (K) PLUS (NPK Ratio 6:0:46)

Foliar spray
40ml/16l
PHI 1Day

**Active
Ingredients**

- Hydrolyzed Soy & other
Plant extracts

Uses

- Supplies large amount of potassium to fruiting crops and to other crops which require extra potassium supply.
- For fruiting crops application starts immediately after on set of flowering.



NUTRIENTS APPLIED IN LIQUID FORM



ORGANIC MICROMIX

Foliar spray 40ml/20l

Active Ingredients

- Boron, Humic acids and micro elements

Uses

- It's corrects micro nutrients deficiency
- supplements micro nutrients to plants
- Improves flavor of fruits & flower color
- Effective for podding stage for



TOP FOLIAR

40ml/20l

**Active
Ingredients**

- Seaweed acid 20g/l
- Organic matter 100g/l,
- Amino acid 20g/l,
- NPK 120g/l
- Trace element 50g/l

Uses

- Breaks seed dormancy and increases seed germination
- Improves the development of roots and enhances the ability of resistance to stress.
- Promotes differentiation of flower buds.





PHYTOKING (19.19.19)

Foliar spray 40ml/16l
1 Day PHI 1Day

**Active
Ingredients**

- Derived from freshly cut
amaranthus and other plant
materials.

Uses

- Used as an organic NPK foliar or drench.
- During nursery or early crop establishment stage its sprayed on newly germinated plants every day in the morning to boost the growth.
- Applied in every week's time there after till crop maturity





PROMINENT

Foliar spray 32ml/16l

Active Ingredients

- Kelp extract.
- Contains auxins
- Cytokinins
- Micro elements.

Uses

- Boost germination in nurseries.
- Will boost all aspects of growth all through the season while applied twice a month.
- Reduces plant stress and help healing plants.
- Increase flower retention and help in fruit setting.



ORGANIC FERTILIZERS



PHYMIX

50Kgs mixed with 25Kgs fertigold
(500g or 250g per planting hole at
transplanting)

**Active
Ingredients**

- Spent Mushroom

Uses

- It's compost used as basal fertilizer and soil conditioner.
- Applied during nursery establishment, direct planting, transplanting, top dressing or compost tea formulation



ASILEE

10g per planting hole
10kg/acre

**Active
Ingredients**

-Soil conditioner
-Cold pressed seed cakes

Uses

- Builds soil structure and water holding capacity
- Increases aeration
- Improves nutrient availability and soil texture



GROW NURSE

Foliar spray 40ml/20l

**Active
Ingredients**

- Micro elements and organic matter

Uses

- Promotes plant ability of anti freeze and drought resistance.
- Accelerate the transportation and accumulation of nutrient.
- Improve quality and increase yield.
- Promotes the ability of the plant to resist diseases.





EARTHLEE

Coat 1kg of Earthlee with 50kg of minjingu and/or 1/2 g per plant

Active Ingredients - Humate powder



- Uses**
- Frees locked nutrients in soils
 - Encourages beneficial micro organism activity
 - Improves the water holding capacity of the soil over time
 - Improves soil structure over time
 - Coating on to granular fertilizer reduces loss of nutrients (leaching)



MINJINGU

50Kgs-100Kgs per Acre

Active Ingredients

-Organic phosphate:
Contains calcium, phosphoric acid and silica.

-Also contains, Magnesium, Boron, Ferric oxide & Sulphur.

Uses

-Used to lower soil PH on acidic soils.

-Used as the main Phosphorus and calcium source thus applied during land preparation, or during planting / transplanting

-Periodically applied around perennial crops to supply the listed nutrients.



SUPER K

Super K contains High K and High Boron levels, Organic acids and Zinc. It greatly improves fruit quality giving it a very attractive appearance. These organic acids are Potassium fulvate Potassium humate and magnesium humate. Super K helps the plant to develop drought tolerance, increases plant resistance against fungal, bacterial and viral diseases, cold hardness, plumpness and quality of grain and seed, lastly but not least, Super K detoxifies pesticide residues that may have been sprayed on the crop.





STOPGEL

STOPGEL THE FOLIAR

It is better known as Rue Foliar STOPGEL Fertilizer:

StopGel is a 100%organic thick liquid gel biege-brown in colour and contains essential micronutrients indicated on the products' label.



StopGel - The Biopesticide

Other than being a highly potent foliar Fertilizer, StopGel also breaks the life cycle of most common pests upon contact.

Stopgel is a fast acting and long lasting biopesticide for the control (lepidopteran) pests in wide range of vegetables. It's mode of action on pest is suffocation and dehydration hence it leave no chemical residue on crops.

Pests

- Fall army worm
- tuta absolute
- scales
- mealybugs
- slugs
- ticks
- bedbugs
- and all chewing pests

Target Crops:

**All crops, All stages.
Dosage: 100mls/20lts**

Mode of Action:
Its mode of action in killing pests is mechanical suffocation.



M~Forte

Never wait until the crop has wilted and start treating it.

M~Forte treats the soil to remove undesirable elements that kills the plants.

Most of the actual wilting commences during flowering stage by which time the disease has advanced to the level if 'rotting' inside the stem and the damage is already done.

M~Forte protects the crop against wilting and also adds essential micronutrients to the soil thro drenching and boosts the crop as a foliar feed.

Mix 200mls/20lts of water and drench the soil around root system, then apply on the leaves as foliar Fertilizer.

NB: Usually should be applied during planting stage to allow time for the Fortefied Bio-active Microbes to 'eat' up the pathogens that cause bacterium wilt, fusilium wilt and even nematodes.



CALCIUMAX

CALCIUMAX

is foliar fertilizer containing pure organic calcium that helps the plant to build its natural immunity against plant diseases such as blossom end rot, flower abortion, and increase production.

Benefits

- Prevents blossom end rot in tomatoes, capsicums, etc.
- Participates in metabolic processes of other nutrients uptake.
- Promotes proper plant cell elongation.
- Helps in protecting the plant against diseases – numerous fungi and bacteria secrete enzymes which impair plant cell wall. Stronger Cell walls, induced by calcium, can avoid the invasion.



MAZAO FLOURISH



Mazao FLOURISH® is a biological mixture of beneficial microbes, which can be used as a biofertiliser for promoting growth and yield of horticultural crops. As a bio-fertilizer, Mazao Flourish helps reduce fertilizer input costs as you can complement fertilizer application with it.

Packaging

- 1 L
- 500 ml
- 100 ml

Application

For seeds, start by bio priming if possible
Follow up with at least 2 – 3 drenches after emergency or after transplanting shock is over at a rate of 100ml/20L knapsack for heavy feeders and or 50ml/20L knapsack for light feeders.

PREPARATION

Shake the container well before use. Partially fill the spray pump with water, add the required amount of Mazao Flourish and top up the spray pump to the required volume.

Follow instructions on the label
Seek advice from your Real IPM consultant/Technical assistant on suitable application rates and methods for your crop and growing system.

Mode of Action

The living organism when applied to the soil, seed or plant surface colonizes the rhizosphere and promotes growth by increasing the supply and or availability of nutrients to the host plant.

To obtain best results with Mazao Flourish start by bio-priming or start as early as after emergence and or after transplanting.

Features and Benefits (Why use Mazao Flourish)

- Reduces fertilizer costs
- Ideal product for organic systems/ IPM growers
- Robust root development
- Increases plant growth and crop yields.
- Increases yields by up to 25%
- Increases seed germination and seedling vigor.
- Helps plants overcome environmental stress through strong and robust root development
- Minimizes disease damages from soil fungal pathogens
- Zero post-harvest interval (PHI)
- Zero minimum residue levels (MRL)
- Compatibility
- Do not tank mix with carbendazim and copper.

Check the compatibility chart for more information.

Storage

Store in a cool dry place
Shelf life: 6 months from the date of manufacture in original unopened container.



SafiOrganics

Safi Sarvi Planting Fertilizer

Uses

- Boosts soil Fertility.
- Prevents Soil Erosion.
- Improves soil quality by raising Soil PH.
- Traps moisture, attracting more beneficial fungi and microbes.
- Improves water quality by retaining agrochemicals and metals.
- Improves cation (position ion) exchange capacity.
- Helps the soil hold nutrients.

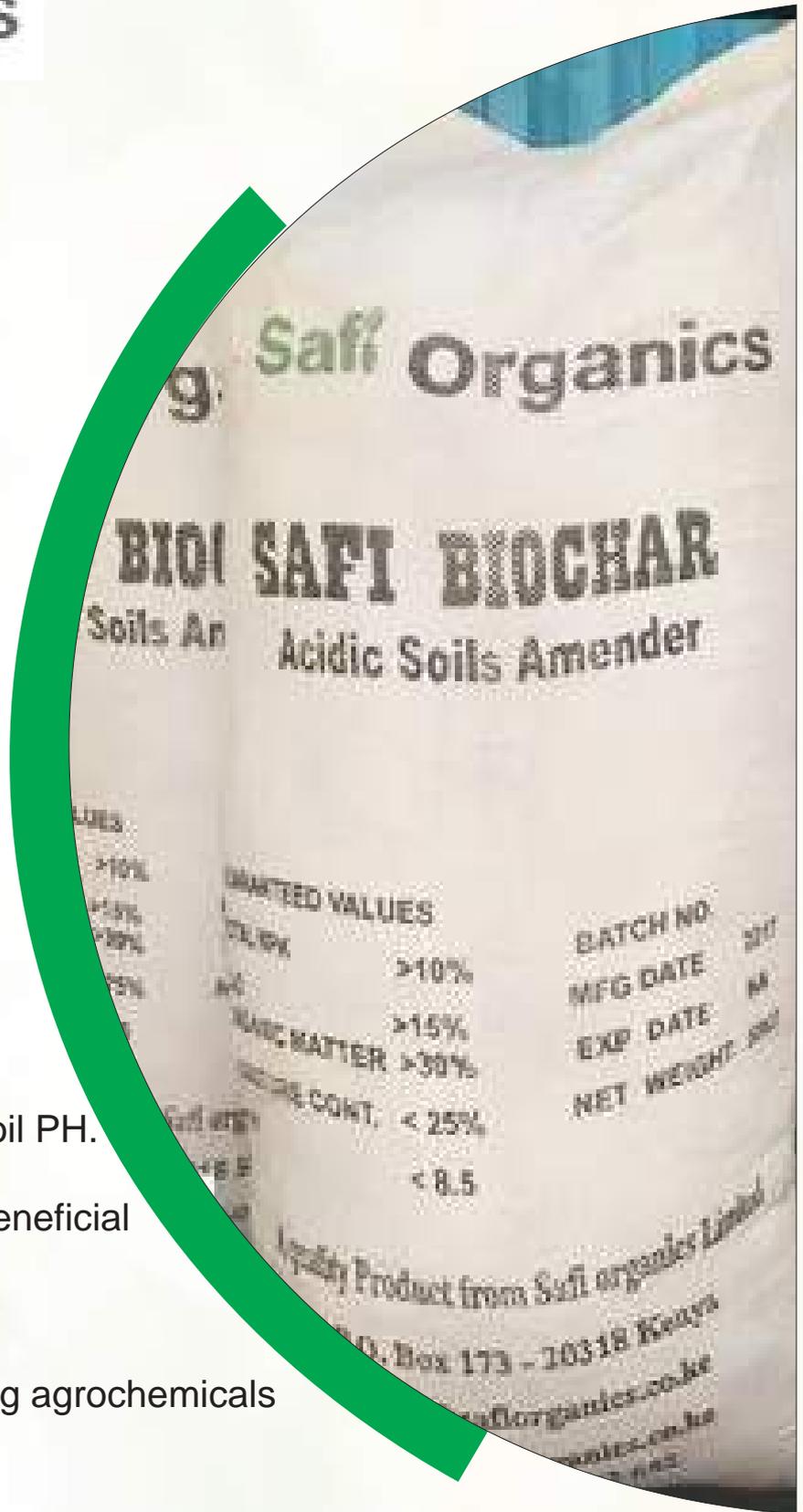


SafiOrganics

Safi Biochar (Acidic Soil Amender)

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- Boosts soil Fertility.
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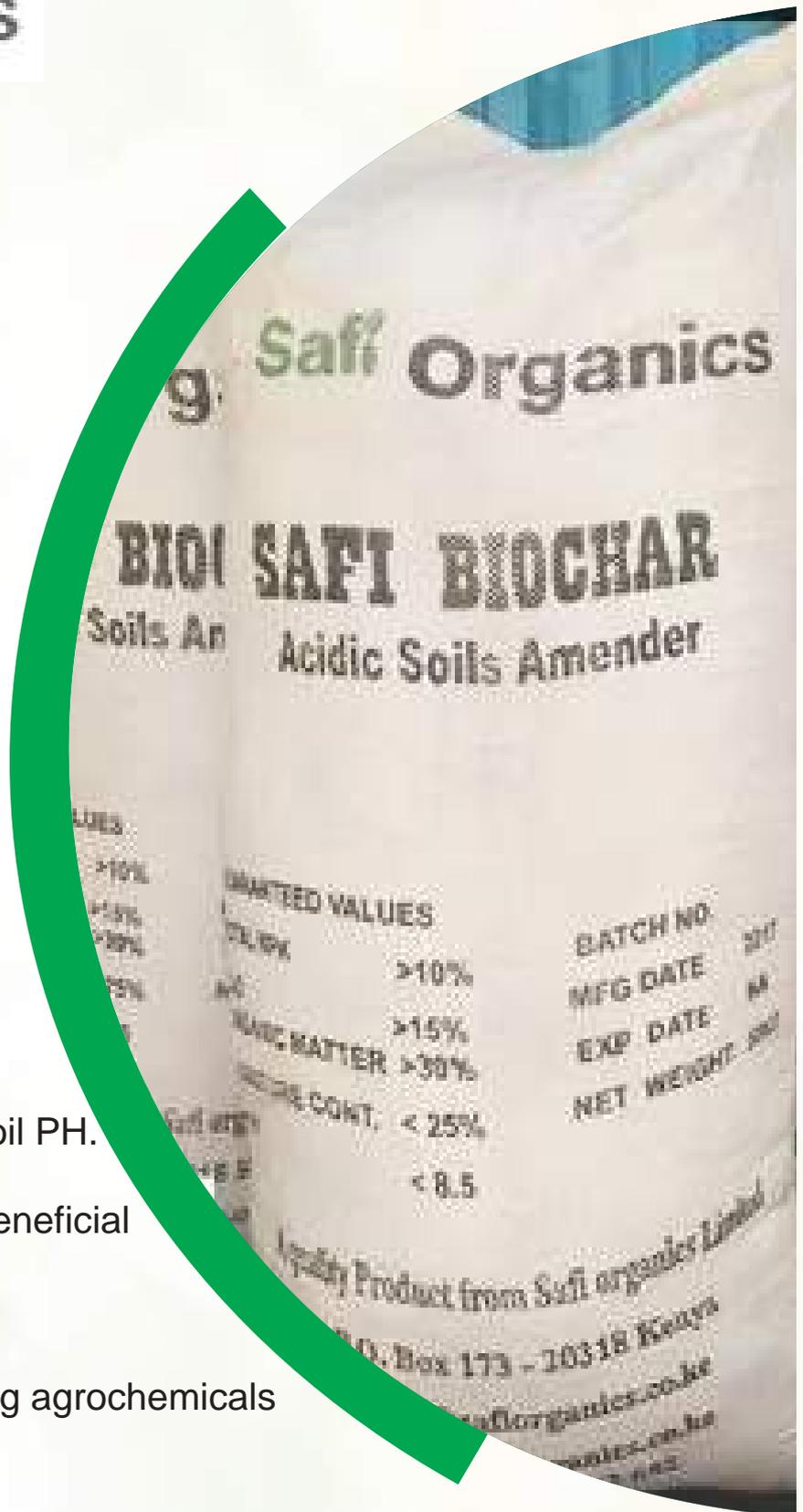


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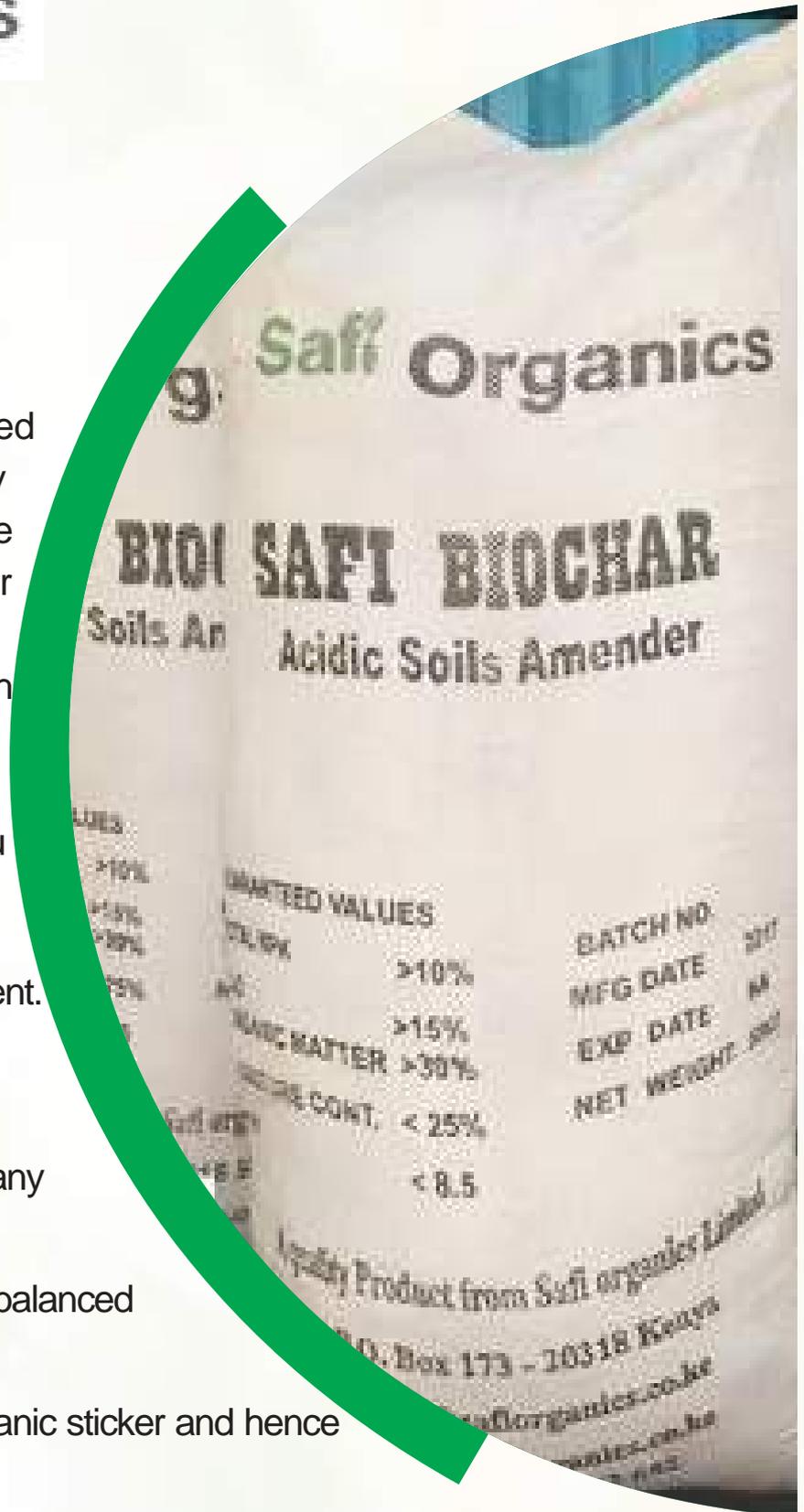
SafiOrganics

Soil Foliar Fertilizer

Safi Foliar fertilizers is a well-balanced organic foliar fertilizer used to supply plants with macro-nutrients and trace elements. The fertilizer is to be either drenched during planting or to be sprayed during the vegetative growth of the plant directly on the leaves.

With Safi Organic Foliar fertilizer you will see the following benefits;

- It will kindle increased root development.
- Our Organic foliar ensures better and healthy crops.
- Our foliar is fast acting hence solves any nutrient deficiency.
- An efficient way to feed your crop on balanced nutrients.
- Safi Foliar fertilization contains an organic sticker and hence can't be washed off.
- Foliar nutrition improves the quality and quantity of your yield.
- It is easy to apply hence saves time.
- You'll save money with foliar nutrition.



SafiOrganics

Safi Sarvi Topper Fertilizer

Uses

SAFI Sarvi Topper fertilizers are biochar-based, fortified organic fertilizers made from the most nutritious plant residues for a slow steady release to improve your soil fertility for maximum yields for a lifetime.

Due to a good supply of Nitrogen, Safi Sarvi Topper is used as a top-dressing fertilizer



SUPER MARGO (SM)

PICTORIAL



SUPER MARGO (SM)

Super Magro (SM) The Super Magro is a bio-fertilizer or organic fertilizer that comes from the decomposition of organic material (plant and animal) along with other components.

A fermentation process occurs, and the result is liquid and solid matter. The liquid residue is used as a natural defensive and foliar fertilizer.

The added micronutrients are materials required for metabolism, growth and production of plants. The Super Magro acts also as defensive of the plants since it contains a large number of micro-organisms, which provoke great competition and control between them.

This allows the plant to increase resistance against the attack of pests and diseases.



POWERFLOW

SEA WEED EXTRACT
ORGANIC BIOSTIMULANT

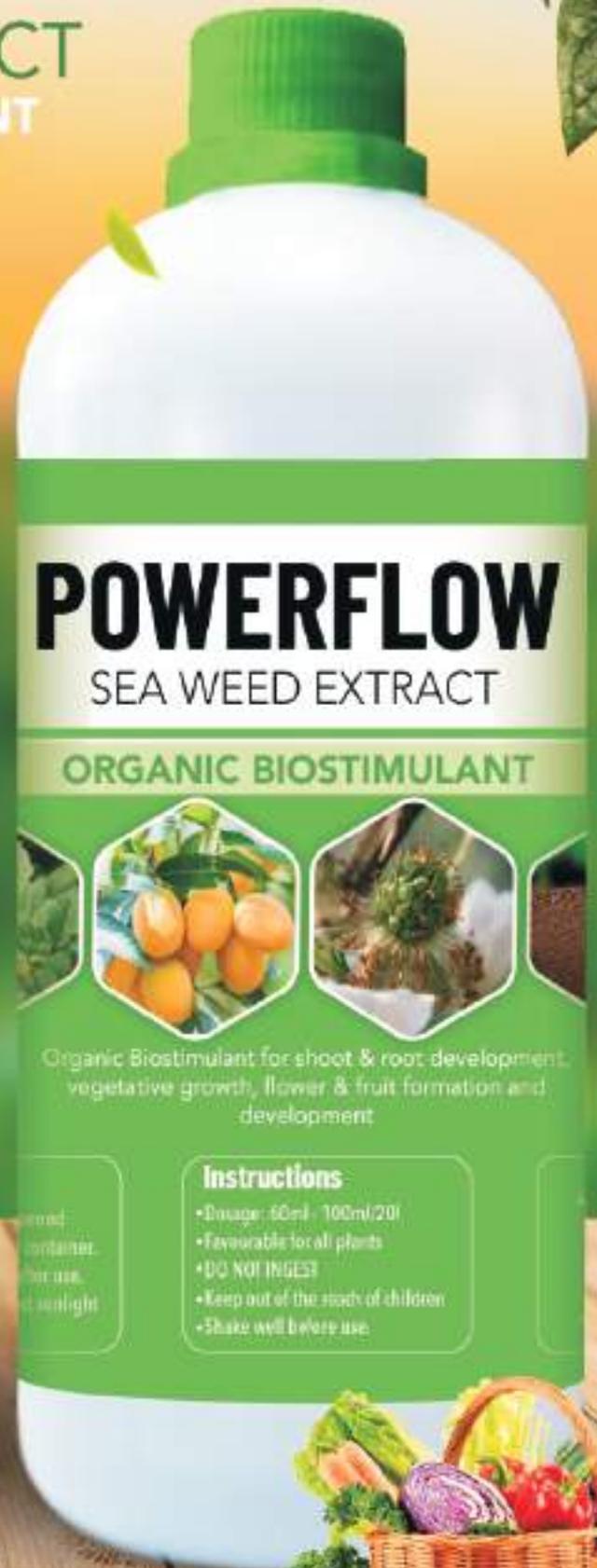
PowerFlow is a premium organic plant biostimulant based on various carefully extracted seaweeds.

Powerflow supplies cocktail of organic macro and (many) micro nutrients

Its rich in Gibberellins and cytokinins responsible for rapid crop growth, bud initiation, breaking dormancy and flowering, hence increasing productivity.

Powerflow increases disease and drought resistance therefore improving general plant health.

With additives of neem extract, powerflow has an ability reduce pests populations in the field.



POWERFLOW
SEA WEED EXTRACT

ORGANIC BIOSTIMULANT

Organic Biostimulant for shoot & root development, vegetative growth, flower & fruit formation and development

Instructions

- Dosage: 60ml - 100ml/20l
- Favourable for all plants
- DO NOT INGEST
- Keep out of the reach of children
- Shake well before use



For More Information
+254 724 131 480

Packed by EFFECTIVE IPM P.O. Box 202 00232 Ruiru

HYGROW

Organic Fertilizer *Mazao Mengi*



HOW HYGROW WORKS

Stimulates soil micro-life

- ✓ Adds beneficial microorganisms
- ✓ Restores biological activity
- ✓ Increases disease resistance by strengthening roots

Improves soil - structure

- ✓ Better water retention
- ✓ Increased humus
- ✓ Better soil aeration

Increases mineral nutrients

- ✓ Provides binding sites for added nutrients
- ✓ Reduces leaching
- ✓ Unlocks soil nutrients
- ✓ Add macro and micronutrients and trace elements



Certified Organic

NB: Hygrow is a high-quality, fully decomposed organic fertilizer that adds soil nutrients, and increases the uptake of chemical fertilizers. Apply Hygrow to your farm to see healthier crops and 30% higher yields this season.

Research & Produced by:
Organic Fields, Ruiru Eastern Bypass
P.O.Box 961-032 Ruiru, Tel:+254 791 355 137

BIODAMA (TM) - Indoor and Outdoor Plant Fertilizer – All Purpose Plant Food - Eco-Friendly and Chemical-Free

Biodama (TM) promotes solubilization of phosphates and micro nutrients. It increases the number of deep roots, there by increasing food intake and plant resistance to drought. It can be used in all plant stages from nursery, planting and top dressing.



**ADDRESS: RUIRU - Bypass - Kenya
EMAIL: info@organicfields.co.ke
PHONE: +254791355137**

Champion Organic Foliar Fertilizer - Indoor and Outdoor Plant Fertilizer – All Purpose Plant Food - Eco-Friendly and Chemical-Free

Contains organic and natural plant materials including Lithonia, Russian, Comfy & Ash blended together to yield a high quantity organic fertilizer.



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Organic Copper Power - Indoor and Outdoor Plant Fertilizer – All Purpose Plant Food - Eco-Friendly and Chemical-Free

This is a copper deficiency corrector and is formulated with organic acids. These organic acids are highly mobile and no-toxic to plants, Organic Copper power provides the plant with an adequate supply of copper, boosting plant metabolism, health, and photosynthesis. It provides the plant with all the benefits associated with copper concerning defense against attacks by external fungal agents.



**ADDRESS: RUIRU - Bypass - Kenya
EMAIL: info@organicfields.co.ke
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EFFECTIVE IPM ASSOCIATION

Website: www.e-ipma.org

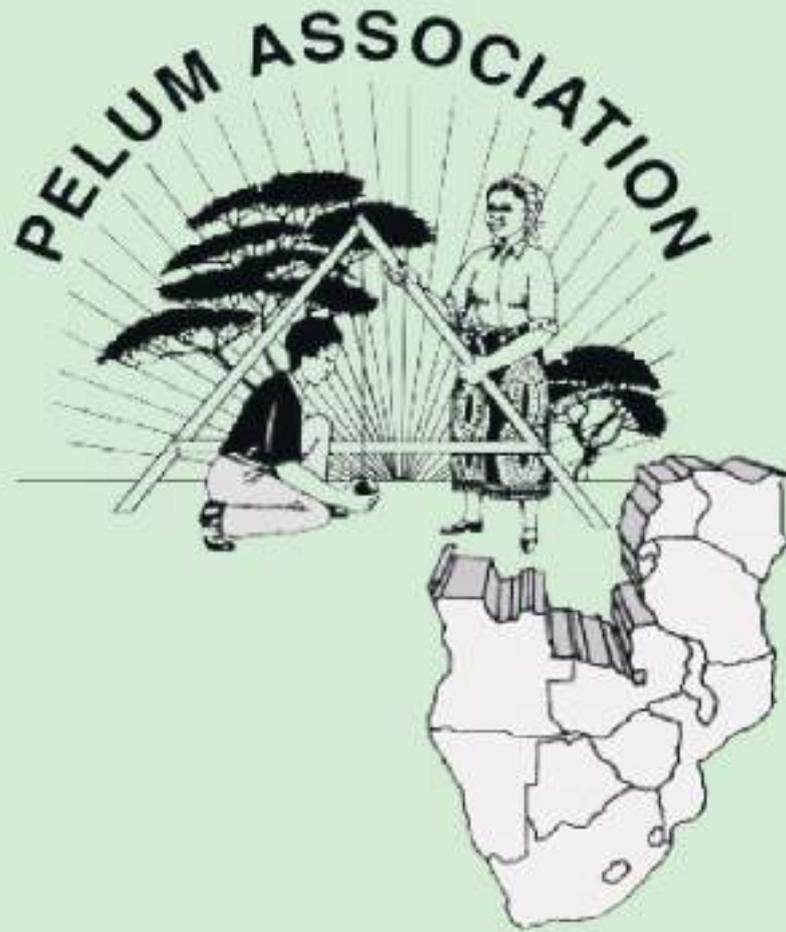
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PELUM KENYA



Networking For A Greener Kenya

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