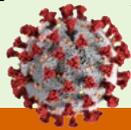


Dear reader,

The coronavirus pandemic is causing heavy losses and worry to many Kenyans. During such a crisis, farmers must steadfastly uphold their important responsibility of producing enough food for the country.

In this edition, we advise you on how to stay safe on your farm and why you should keep on producing food.

We have also compiled useful articles on ways to protect plants from pests and diseases, such



as the Fall armyworm, leaf miners and the banana cigar-end rot disease. On a brighter note, avocados are earning farmers good money. Read about the opportunities within this sub-sector and find out the pests and diseases that afflict the crop.

Learn about asparagus, a crop that takes two years to mature but keeps on producing for over 10 years. Lumpy Skin Disease (LSD) in cattle is on the increase and we tell you what causes it and its control.

Find out how cereals can provide cheap and nutritious meals for your family and their preparation. We also tell you why Kienyeji chickens rearing is a venture worth considering.

Finally, the Kenya Meteorological Department (KMD) forecasts that rainfall will peak this month, meaning a blossoming season for crops. We urge you to keep doing what you do best – growing food and rearing livestock.

From the editor

How to tackle coronavirus on the farm

It causes severe symptoms such as fever, coughs, headache, and difficulty in breathing. Early detection and treatment can aid in survival

By Clifford Akumu

The coronavirus, which causes the Covid-19 disease, continues to weigh down the economy, affecting all the sectors.

The aviation industry, arguably one of the worst hit, hotels, tourism and even agriculture have suffered, as job losses become the new reality. The number of people confirmed to be infected by the disease that was first reported in Wuhan, Hubei Province, China, had hit 336 in Kenya. The fear that it could spread to vulnerable environments with weak health systems and higher populations of elderly people is now real and every Kenyan is urged to play their role by following all set regulations.

Worried government officials estimated that the number of new infections could increase drastically, especially if Kenyans failed to follow the regulations given by the government. Only a month ago, most infections here were imported. However, the Ministry of Health has now confirmed that Kenya



is experiencing community transmission (transmissions amongst people who have no history of travel and who have also not been in direct contact with anyone who had travelled), which is a cause for concern. The virus spreads through contact with droplets produced by an infected person when they sneeze or cough, or through contaminated surfaces or objects. It causes severe symptoms such as fever, coughs, headache, body aches, and difficulty in breathing. Early detection and treatment can contrib-

ute to survival. Everybody is at risk of contracting the disease. So what can farmers do to protect themselves? It is critical to follow the government's safety regulations as stated below to the letter:

- Wash your hands regularly with soap and water for at least 20 seconds, or sanitise them using hand sanitizers. Avoid touching your face as the virus enters your body through your nose, eyes, and mouth. Avoid shaking hands, hugging and kissing. If you have to

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Why you need to add legumes to your family meals

They are cheap, locally available, easy to prepare for family meals and can reduce nutrition challenges. **Pg.4**

How to tackle Coronavirus on the farm

Continued from page 1

sneeze, use a tissue and dispose it off in the dustbin. If you do not have a tissue, cough into your elbow. Stay at home and avoid travel when you have flu-like symptoms.

- Observing social distancing, which means keeping a distance of at least one metre or two to three steps between people, is important.
- Thoroughly wash farm equipment with soap and water, rinse with clean water and hang upside down to dry;
- Minimise unnecessary farm entry by service providers such as feed deliveries, milk or produce collections by designating a drop-off point at the farm gate. The drop-off points should also observe the highest form of hygiene.
- To minimise human contact, farmers can order supplies using online platforms, contact addresses or social media;
- Farmers can also use locally available materials to avoid long journeys at this time of the curfew. Those who are able to buy feeds in large quantities can stock them to last the period of the curfew.
- Always wear a face mask that covers your nose and mouth when going out to public places.
- Respect the dusk-to-dawn curfew. do not attempt to travel to or from counties where travel into and out of these counties has been restricted. Counties currently under such restrictions are Nairobi, Mombasa, Kwale, and Kilifi which are considered the hot spots of the disease. The travel restrictions are in effect for an initial period of 21 days beginning April 7 in Nairobi and April 8 in Mombasa, Kwale, and Kilifi counties.
- Finally, the country will require lots of food and farmers should strive to produce as much as possible to ensure that there is regular supply, especially for those in the towns.

More on coronavirus can be found here; <https://www.infonet-biovision.org/HumanHealth/Corona-Pandemic-2019-20>



Banana cigar end rot disease, if uncontrolled, leads to losses



Initial stages of cigar end rot



Disease moves down the finger

Controlling Cigar-end rot of bananas

It begins with a slight rot at the tip of your banana fruit that looks like the burnt end of a cigarette, hence the name “cigar-end rot”

By Dennis Rapongo

This is a fungal disease that attacks bananas a few days after the emergence of the fruits.

Causal agent

The disease is caused by either of the two fungi, *Trachysphaera fructigena* or *Verticillium theobromae*.

Factors favouring spread of the disease

The pathogen enters banana fruits through the flower and spreads to the tips of the immature banana fingers. The spores (conidia) are spread and transmitted to other healthy plants through the air. The disease thrives in warm moist conditions and high altitudes. Plantations in shaded areas also encourage the occurrence and spread of the disease.

Signs and symptoms:

- The rotten portion of the banana finger looks like the burnt end of a cigarette;
- Infection spreads as the fruit grows, and eventually the whole bunch dies.

- The disease continues spreading even after harvest, in stores, and during transportation. It destroys the quality of bananas.

Monitoring and prevention

Regular monitoring of your banana crop will help to identify early signs and control the disease. Look out for any black necrosis on the fingers and floral parts.

- Use tolerant varieties such as Grande Naine.
- Maintain plants with well-aerated canopies. De-suck banana stools to maintain three to four plants per stool;
- Avoid damage to plant tissue during field work.
- Clean implements to reduce incidence of disease occurring during handling and storage.
- Prune banana leaves to reduce humidity within the canopy.
- Remove all floral remains after bunch formation.

Control

If your crop is infected then:

- Remove the infected fingers and burn or completely destroy them.
- In case of a mature fruit, harvest immediately to prevent any further transmission.
- Store in a cool and dry place and maintain high hygiene standards.

More on cigar end rot can be found here; <https://www.infonet-biovision.org/PlantHealth/Crops/Bananas>

Regular monitoring of your crop will help to identify early signs and control the disease. Look out for any black necrosis on the fingers and floral parts.

How to control avocado pests and diseases

Most avocado diseases are associated with poorly drained soils and poor agronomic practices

By Beritah Mutune

Avocado farming has grown in popularity in Kenya, and holds a lot of promise for farmers. However, to ensure a high quality fruit and maximum yield, it is important to understand the pests and diseases that afflict the crop. Most avocado diseases are associated with poorly drained soils, poor agronomic practices, or growing trees that carry pathogens.

Common pests include:

- **Spider mites:** They cause brown spots on leaves and fruits, which increase leaf falls. Proper pruning and irrigation can control them. Washing leaves using high-pressure hoses also helps reduce mite populations. Irrigate and fertilise heavily infested trees to maintain the flush of new growth after leaf shed.
- **Insect borers:** They tunnel into avocado trees and lay eggs causing branches to weaken and fall off. To prevent their spread, cut off infected branches.
- **Scales:** These are small, stationary brown-greenish insects often found sucking sap from the leaves. Although they do not cause internal damage, their presence on the skin could lead to rejection of fruits, especially if grown for export. Natural enemies like the parasitic wasp and ladybirds keep the insects in check.
- **Fruit flies:** Fruit flies lay eggs under the skin of the fruits. This can happen at any stage of the fruit development. When the fruit grows, a lesion appears as a slight puncture mark surrounded by a white substance. As the fruit develops, the lesion becomes dry and turns into a distinct star-shaped crack on the skin surface. The fruits may fall pre-maturely. Fruit flies can be controlled by proper orchard sanitation, monitoring, and using baits.



- **Lace bugs:** These damage leaves and cause yellow spots on them. Weakened leaves fall out, exposing fruits and the wood to destructive ultraviolet rays. Horticultural oils are used for their management.
- **Thrips:** They cause leathery scars on fruits. Organic mulch discourages their survival.
- **False codling moth:** Their caterpillars damage the fruit, flowers, and leaves. Sprays made using *Bacillus thuringiensis* (Bt) are effective. When spraying, pay special attention to the folded leaves where the caterpillars tend to thrive.

Common diseases include:

A. Fungal diseases

- **Avocado root rot:** A serious and common disease caused by *Phytophthora cinnamomi*, which is a fungal pathogen that thrives in moist, poorly drained areas. It causes pale wilted leaves and very small fruits. When planting, hot water treatment of seeds and grafting can help prevent this.
- **Scab:** This disease is caused by *Sphaceloma perseae*, a fungus which attacks fruits, twigs and leaves. The symptoms are oval or irregular spots on the fruits. Poor drainage accelerates growth and spread of the fungus. Remove dead branches and twigs and clear fallen fruits from the field. Apply copper-based fungicides such as Bordeaux mixture (a solution of copper sulfate, lime, and water)
- **Anthraxnose:** This is caused by pathogen *Colletotrichum gloeosporioides*. It affects the fruits, leaves, and flowers, leaving dark spots and defoliation. For prevention, prune the dead branches of the affected tree before the fungi produce spores. Also store the harvested fruits in a dry, clean and well ventilated place.

- **Avocado black streak:** This infection causes black streaks on the bark of the tree. It can be prevented through proper fertilisation and irrigation.
- **Cercospora fruit spot:** *Pseudocercospora purpurea* fungi affect fruits and leaves, leaving small light yellow spots that eventually turn brown. This disease occurs due to poor field sanitation.

B. Viral diseases

- **Algal leaf stain:** Caused by the virus *Cephalosporium virescens*, it affects the trees, causing red spots on the leaves, twigs and branches. Preventive measures include proper weed-ing and pruning.
- **Sun blotch:** This is a serious condition that causes stunted growth of trees, discolouration of fruits and leaves and reduced yields. Once contracted, it cannot be cured. Maintain proper field sanitation. The disease can be transmitted through grafting. Therefore, farmers must purchase certified seedlings.

C. Bacterial diseases

- **Bacterial soft rot:** Causes a dark, stinking rot on the fruit. Once contracted, the disease cannot be cured. Farmers must always buy certified seeds or seedlings and maintain a high level of sanitation.
- **Wilts and blights:** They are characterised by dead areas in trees, especially when only a part of the tree is affected. Unsurprisingly, these cause sudden wilting of leaves and death of branches. Pruning the symptomatic tissues and providing good support can help your avocado recover.

More on avocado pests can be found here; <https://www.infonet-biovision.org/PlantHealth/Crops/Avocados>



Why you need to add legumes to your family meals

According to a study conducted by the World Health Organisation (WHO), the incidence of under-nutrition and stunting in children has increased, even as global hunger decreases

By Mary Mutisya

Food price increases, coupled with lack of information, have strained many Kenyan households' budgets, with the majority settling for nutritionally unbalanced meals. This has led to an increase in the number of underweight people and children suffering from malnutrition and stunted growth.

According to a study conducted by the World Health Organisation (WHO), the incidence of under-nutrition and stunting in children has increased, even as global hunger decreases.

About 795 million people are underweight globally and 99 million children under the age of five remain malnourished. However, legumes, which are cheap, locally available and easy to prepare for family meals, can reduce the nutrition challenges. Legumes are



highly consumed in many communities worldwide. They include chickpeas, beans, peas, lentils (kamande) and lupins (yellow legume seeds belonging to the same plant family as peanuts).

Nutritional benefits of legumes:

1. They are rich in proteins, carbohydrates, vitamins and minerals with high levels of protein and dietary fibre.
2. Legume root nodules contain nitrogen-fixing bacteria, making them richer in protein than other cultivated plants.
3. Bean protein is rich in lysine, an essential amino acid that enables normal growth, muscle development, and stress reduction. It also assists in the absorption of calcium, which is needed for stronger and healthier bones.
4. Legumes contain bioactive components known as antioxidants that reduce the

body's vulnerability to and effects of non-communicable diseases such as cancer, diabetes, obesity and heart-related problems.

5. They contain phytochemicals that help lower blood pressure and cholesterol, thus enhancing the absorption of minerals in the body.
6. Legumes have high anti-thrombotic properties and help prevent blood from clotting in veins.
7. They reduce constipation and maintain healthy bowel functions.
8. They give a filling effect, which reduces the total amount of food consumed and helps one stay for long without the urge to eat, thus helping in weight loss.
9. They also improve the rate at which glucose is converted into sugar in the body, making it efficient in the regulation of type 2 diabetes.

Asparagus, the little-known high value vegetable

This vegetable is gaining popularity in Kenya, with farmers in Gilgil, Nakuru County, grabbing the opportunity to grow it for the high-end market in Westlands, Nairobi, where a kilo retails for Ksh500

By Naisiae Lempushunah

Asparagus (*Asparagus officinalis*) is a vegetable with long, pointy spears and green shoots.

It is a herbaceous perennial plant and a member of the lily family that grows to a height of between 100cm to 150cm. Worldwide, the biggest producers are China, Peru, Germany, Belgium and the United States of America.

This vegetable is gaining popularity in Kenya, with farmers in Gilgil, Nakuru County, grabbing the opportunity to grow it for the high-end market in Westlands, Nairobi, where a kilo retails for Ksh500.

There are many varieties of asparagus in Kenya such as Jersey King F1, Mary Washington, Dorbone, Huchel, Staudenaussnese, and Jersey Giant F1.

Climatic conditions for growing Asparagus

Temperature

Asparagus requires day temperatures of between 23 and 29 degrees Celsius and night temperatures of between 13 and 23 degrees Celsius.

Altitude

It does well in sub-temperate and sub-tropical climatic regions above 1,000 metres above sea level.

Soil conditions

Test your soil to know its acidity and nutrient conditions before planting. The vegetable grows in different soil types but thrives in a light and well-drained soil, with enough organic matter. The soil should not be compact and should have a pH of 6.5 to 7.5.

Land preparation

Locate your asparagus bed where it will not interfere with other farm activities, as the crop will occupy the same spot for 20 years or more. Plough the land 20-25cm deep and then harrow it two to three times. Make sure the planting site is weed-free and the soil is well levelled. Make broad ridges measuring about 45cm for plantation and leave 20cm furrow space to be used for irrigation.

Manure application

Add compost manure before planting and repeat this annually. If you decide to

Continued on page 6

Why you need to add legumes to your family meals

Continued from page 4

How to cook dried legumes

- Remove stones and foreign objects from your dried legumes.
- Rinse in cold water.
- Smaller legumes like lentils and split peas do not need to be soaked before boiling. Other legumes like beans can be soaked.
- For beans, soak in water and boil for three to four minutes. Remove from stove, cover your pot and leave them for about four hours.
- Drain the water used for soaking, as it has absorbed all the gas-producing compounds.
- Add fresh water to boil the beans and cook them.
- Adding one or two teaspoons of oil prevents foaming and boiling over;
- When your pot begins to boil, maintain a gentle simmer and not a rapid boil, which ensures they cook without breaking their skin;
- Avoid using baking soda to cook your beans. It tenderises them but destroys the vitamin B – thiamine in the beans.
- A pressure cooker cooks your beans in half the time.
- Ensure that beans are well cooked as undercooked beans can cause stomach upsets.
- Drain water and consume or fry them to suit your preference.

NB: If legumes cause bloating, introduce them gradually to your diet until your stomach gets used to digesting them.

795m

People that are underweight globally, According to a study conducted by the World Health Organisation (WHO)

99m

Children under the age of five that are malnourished. However, legumes, which are cheap, locally available and easy to prepare for family meals, can reduce the nutrition challenges





apply green manure, do it before planting to ensure that the organic residues decompose well.

Planting

Propagation can be through seeds or crowns. Plant seeds either directly in a well-prepared site or in a field nursery to be transferred later to the planting site.

If you choose to use crowns, get them from a reputable nursery to avoid introducing pests and diseases into the farm. Use male crowns, since the male hybrid is high yielding.

Crowns mature faster than seeds. Use one year old crowns and avoid two-year-old crowns, as they are more affected by transplant shock and will not produce any faster than one-year-old crowns.

Soak the crowns in compost tea for 20 minutes before planting. Plant them in trenches 1½ to 2 feet apart. Cover with two to three inches of soil.

After two weeks, add another inch or two of soil. Continue adding soil every two weeks, until it is slightly mounded above surface level to allow for settling.

Mulching helps to control weeds. Water regularly during the first two years to establish a strong crop.

Thereafter, the crop will have developed deep roots and can survive with less water.

However ensure that your soil remains moist as this enables your crop to produce higher yields. Top dress with compost tea and add compost manure every year to maintain your crop.

Pest and Disease Control

Diseases that affect the vegetable are fusarium wilt, crown rot, and rust.

Fusarium wilt: Afflicted asparagus spears are small, wilted and may turn brown. Yields and plant life are reduced. To minimise attacks, use resistant varieties and avoid farms where the crop

has been grown in the last eight years.

Crown rot: This disease is caused by a soil-borne fungi *Fusarium oxysporum* f. sp. *asparagi* and *Fusarium proliferatum*. The point where the stem and roots join begins rotting. It eventually kills the plants. Farmers should plant resistant varieties.

Rust disease: This is common where there is high humidity and warm temperatures. Small orange patches appear on asparagus spears. Avoid it by planting rust-resistant varieties.

Pests

Pests such as cutworms, asparagus aphids, asparagus beetles and Japanese beetles are common. Adult beetles lay rows of black eggs on young shoots, which hatch in a week. The larvae feed on the shoot tips for a few weeks before dropping to the soil, where they eventually mature to adult beetles.

Control beetles by brushing off or handpicking the eggs and larvae. Also, encourage beneficial insects such as ladybugs, which feed on the larvae.

Thrips can be harmful. Detect by shaking a fern over black paper. Control them by spraying crop with a high-pressure hose. A mixture of oil, water and soap can also be applied. Application of neem is effective.

Harvesting: This begins two or three years after planting to give the plant enough time to develop. Harvest the spears of the plant. The green upper part (spear) is cut with a knife at the ground level when they are 18cm - 25cm tall.

In the first year of cutting, limit harvesting to a 10-day period. In the second year, harvest for two weeks and, thereafter, for up to six weeks. Stop cutting when spears get thinner than a pencil.

After harvesting, bundle plants according to length ready for sale. Dipping them in water prevents the plant from withering.

Benefits of asparagus: It is an excellent source of fibre, vitamins and minerals. It has macronutrients such as iron, zinc and riboflavin. It also has high levels of vitamin K, which is essential in blood clotting and for healthy bones.

Asparagus is also rich in folic acid, which helps in brain development, formation of red blood cells, which are critical nutrients for expectant mothers.



Asparagus is an excellent source of fibre, vitamins and minerals. It has macronutrients such as iron, zinc and riboflavin. It also has high levels of vitamin K, which is essential in blood clotting and for healthy bones. Asparagus is also rich in folic acid, which helps in brain development, formation of red blood cells, which are critical nutrients for expectant mothers

Dealing with lumpy skin disease in livestock

It is caused by a poxvirus closely related to the one that causes sheep and goat pox, and can result in 40 per cent mortality rate

By Caroline Mwendwa

Lumpy Skin Disease (LSD), a condition that afflicts livestock, is transmitted by insects such as mosquitoes and flies, and is common at the onset of the rains.

It is caused by a poxvirus closely related to the one that causes sheep and goat pox, and can result in 40 per cent mortality rate.

It can easily be confused with diseases such as the Pseudo-Lumpy Skin Disease (PLSD), which is only seen on the outer layers of the skin or confined to the teats or diseases like besnoitosis (a coccidian protozoal infection caused by *Besnoitia bennetti* affecting both wild and domestic animals), dermatophilosis (a bacterial skin infection affecting multiple species of animals), and ringworms.

LSD Mode of spread

This is commonly spread through insect bites but animals can also contract the disease through infected saliva.

New outbreaks begin from sources such as permanent swamps and can easily spread, affecting thousands of animals. Local breeds are more resistant to LSD than imported breeds.

Symptoms:

- Animals produce excessive saliva and have a clear discharge from the eyes and nose that later becomes grayish or white.
- The cattle become emaciated and stop eating. They have a fever that sometimes goes down after one or two days then goes up again. Animals produce little milk and pregnant cattle often abort.
- Lumps appear on the body, usually around the head and neck, under the abdomen, on the legs, or around the genitals and the udder. Sometimes, the whole body is covered in lumps.
- The lumps are hard and usually the



same size, from 0.5 to 5.0cms in diameter. They are located within the skin. They are firm, raised, round, and flattened. Softer, yellowish or grey lumps may appear on the mouth. They rub off easily, leaving sore red patches. The hair on the lumps stands up.

- The lymph nodes enlarge and sometimes a leg swells with persistent, painful oedema, accompanied by shedding layers of the skin, leaving a large, open wound that oozes pus. Scars may be left, which damage the hide. Healing may take several weeks, and hardened lumps may remain.
- Adult cattle do not usually die but young calves often do.
- In extreme cases, nodules spread to the upper respiratory tract, causing difficulty in breathing, and death within 10 days.

LSD can affect animals at any age. Its incubation period ranges from two to four weeks.



Even though there is no treatment for LSD, it is important to prevent secondary infections from wounds. Give an antibiotic injection to protect the damaged skin from bacterial infections

Prevention and control:

- Remove all sick animals from the herd to reduce spread of the disease;
- Vaccinate all animals in contact with the disease.
- Preventive vaccination is also advisable using the modified sheep/goat pox vaccine made by Kenya Veterinary Vaccines Production Institute (Kevevapi) in Nairobi. Lumpy-vax vaccine is available in most agrovet shops;
- Contact a veterinary officer for advice if you suspect your livestock is suffering from LSD and inquire about vaccination campaigns against the disease.

Even though there is no treatment for LSD, it is important to prevent secondary infections from wounds. Give an antibiotic injection to protect the damaged skin from bacterial infections.

With good care, animals generally recover; but this may take up to six months.

The process of healing involves the drying of nodules, which slowly begin to separate from the surrounding skin. In the end, this part gradually peels off creating an ulcer that heals leaving a scar.

For more information on lumpy skin disease, visit <https://www.infonet-biovision.org/AnimalHealth/Skin-problems>



Location	Frequency
Nairobi	102.7
Kakamega Bungoma Busia	91.5
Malindi	106.3
Webuye	95.9
Garissa	88.7
Taita	107.4

Location	Frequency
Narok	102.3
Nyeri	105.7
Machakos Makueni Kitui	93.8
Meru	105.1
Marsabit	88.3
Kisii	91.3

Location	Frequency
Kisumu	105.3
Nakuru Gilgil	104.5
Mombasa	105.1
Kericho	90.5
Eldoret	91.1

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Controlling leaf miners

By Emmanuel Atamba

A leaf miner is any one of the numerous species of insects, which in the larval stage, lives inside the leaf and feeds on its tissues.

They include moths, wasps and flies. Leaf miners are stubborn, as they are not exposed to predators and attack many farm crops, including tomatoes, spinach, cabbages, pepper, beans, and peas.

Though leaf miners do not pose a serious threat to the overall health and development of the affected plant, they can result in significant leaf fall, affecting plant growth, if not well managed. Leaf miner activity also exposes the crop to fungal and bacterial diseases.

Symptoms of attack:

- They leave a trail on leaves (light path with only the upper and lower transparent surface of the leaf left).
- The leaf does not die immediately, but may eventually die off with more feeding by the miner.
- The pest can also be spotted, usually at the end of the path.

Control

For small and backyard gardens, crush the leaf miner by pressing on the pest located at the edge of the path. You can use a paper when doing this to avoid touching the leaf with your bare hands.



This stops the attack, but might not be practical with high levels of infestation and on bigger farms. Other approaches to control the leaf miner include:

Cultural practices

- Ensure that plants access the right nutrients through healthy soils, manure and compost. Strong, healthy plants are less likely to be attacked by leaf miners.
- Regular monitoring ensures that attacks are identified and managed early, preventing further damage.
- Use of trap crops such as lambs' quarter (a member of the expansive amaranth family, whose leaves are rich in vitamins A and C, as well as in calcium, iron, and protein), which attract the pests, diverting them from your crops.
- Use of a soil cover. Usually applicable in greenhouses or when growing high value crops such as tomatoes. A plastic cover placed over the soil helps to break the cycle for most leaf miners by preventing adults from coming out of the ground.

Organic control methods

Depending on the size of your farm, the

following products can be used to control leaf miners:

- **Neem oil** - apply neem oil 2 to 4 times, every two weeks. It suffocates the leaf miners. It contains azadiractin, a chemical compound that kills the pest.
- **Use of spinosad**, which is derived from the fermentation juices of a lowly soil bacterium called *Saccharopolyspora spinosa*. This is an organic pesticide that kills pests by introducing a fungi pathogen. However, for spinosad to work on the leaf miner, the pest must feed on it. Distribute the spray evenly to ensure effectiveness. This product is dangerous for bees and other beneficial insects and should not be sprayed in their presence.
- **Cooking oil and soap mixture** - (more applicable for small gardens). Use about 50ml of cooking oil and 50ml of liquid soap. Mix them with 500ml of water and spray evenly on the affected plants. Avoid spraying during sunny days as the chemical can burn your crops. Spray late at night or early morning.

<https://www.infonet-biovision.org/Plant-Health/Pests/Leafmining-flies-Leafminers>

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