Symbiotic Microbes Pesticide (SMP)
Fermented Hot Chillies – Neem – Garlic – Ginger

What are Symbiotic Microbes?
Symbiotic Microbes (SM) are a diverse blend of naturally occurring beneficial bacteria, fungi and yeasts that work together to improve soil quality and encourage healthy plant growth. They add more life to soil and assist with the decomposition of organic matter, producing nutrient-rich soil for plants, strengthening plants, and helping fight pests.

What is Symbiotic Microbes Pesticide:
Symbiotic Microbes Pesticide (SMP) is a versatile natural insecticide that keeps pests at bay. SMP is a great alternative to chemical-laden pesticides. It controls fruit flies, white flies, aphids, weevils, leafhoppers, mealybugs, and other pests. The high concentration of fermented neem and chillies in SMP gives your plants lasting protection from pests without causing damage to the environment.

Additional Benefits:
- SMP has antibacterial, fungicidal, insecticidal, and nematicidal properties.
- It repels insects and inhibits them from feeding on plants. Insects will avoid treated plants or cease eating them after digesting them.
- It disrupts the growth, metamorphosis, and reproduction of many pests.
- It can inhibit moulting in larvae, preventing them from developing into pupae.
- It acts as a poison or irritant that might kill several pests.
- It is effective against various stages of the pest's life cycle, including eggs, larvae, and adults.

Ingredients:
Symbiotic microbes, fermented herbs (neem, chillies, garlic, and ginger), sulphur-free blackstrap molasses, raw apple cider vinegar, natural ethanol, and fountain water.

How to use Symbiotic Microbes Pesticide (SMP):
- Foliar spray/soil drench
  - **Foliar spray:** 2-5ml per litre of water *(spray upper and lower surfaces of leaves)*
  - **Soil drench:** 5-10ml per litre of water
- Pest and disease prevention
  - 2-5ml per litre of water once a week
  - You may alternate weekly with Symbiotic Microbes with Algae (SMA) or Symbiotic Microbes with Fermented Nutrients (SMFN)
- Pest and Disease Outbreak
  - 2-5ml per litre of water daily for at least 12 days
  - You may alternate daily with Symbiotic Microbes with Algae (SMA) or Symbiotic Microbes with Fermented Nutrients (SMFN). Start the first day with 10-15ml per litre of water. From the second day, use 2-5ml per litre of water.

Keep in mind: *SMP has a broad-spectrum effect and can kill beneficial insects as well. Therefore, it should be used with caution.*

When to apply:

DO NOT apply in direct sunlight. It is best to apply it late afternoon or early in the morning before the soil and leaves are exposed to any direct sunlight. The microbes will attach to the leaf surface or enter the soil, feeding the plant and providing excellent organic fertilization and resistance to pests and diseases.

Storage and Shelf Life:

Store in a cool, dark place out of direct sunlight. **Symbiotic Microbes Pesticides (SMP)** contain living organisms and pressure may build up. Unscrew the cap without removing it to release pressure and secure it tightly. Shelf life is six (6) months when stored correctly.

More about the Ingredients

Why do we use fermented herbs instead of a standard extract?
Fermentation increases the diversity of beneficial bacteria and fungi. It enhances the nutraceutical profile and bioavailability of the herbs. Symbiotic microorganisms can degrade plant cell walls via hydrolysis, converting the cell's complex organic compounds into smaller molecules, such as polysaccharides, lipids, and proteins. This enhances insecticidal, antifungal, antibacterial, antioxidant, and anti-inflammatory activities. Symbiotic microbe's proteases yield bioactive peptides with multiple health benefits, such as ACE inhibition and immune system modulation. During fermentation, apple cider vinegar and natural ethanol are added to extract more nutrients and beneficial phytochemicals. The resulting serum is rich in nutrients and phytochemicals.

Neem
Azadirachtin has been identified as neem's principal active compound. It acts on insects by repelling them, inhibiting feeding, and disrupting their growth, metamorphosis, and reproduction. Fermented neem does not kill most insects; it alters their behaviour to reduce pest damage to plants. Azadirachtin affects insect physiology by mimicking a natural hormone that inhibits egg production and hatching rates. Azadirachtin can inhibit moulting in larvae, preventing them from developing into pupae.

Many foliage feeding species will avoid plants treated with neem compounds or will cease eating after ingesting them. It has proven effective as an antifeedant on about 100 insect species. Thus, the extracts work especially well to protect plants from defoliation without affecting beneficial pollinating insects like honeybees.

Chillie
Chillies contain capsaicin, a natural plant chemical that is a broad-spectrum pesticide and insect repellent. It deters or even kills harmful insects. Chillies function as a stomach poison, antifeedant and repellent to several pests. Capsaicin causes a painful burning or stinging sensation on the skin, digestive system, and eyes. It is also an animal repellent against mice.

Garlic
Garlic has antifeedant (stop insects from feeding), antibacterial, fungicidal, insecticidal, nematicidal and repellent properties. Garlic is effective against a wide range of disease-causing pathogens and insects at various stages in their life cycle, including eggs, larvae, and adults. This includes ants, aphids, armyworms, diamondback moth and other caterpillars such as the false codling moth, pulse beetle, whitefly, wireworm, cutworms, khapra beetle, mice, mites, moles, Epilachna beetles, termites, mosquitos, flies, as well as fungi bacteria and nematodes.

Ginger
Ginger has antibacterial and antifungal properties with enormous potential in fighting against common vegetable pests. It has anti-rhino viral activity due to the compound sesquiterpenes. Ginger is a natural insecticide and is an essential element in pest control management programs.