HANDBOOK OF ORGANIC SPRAYS
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Introduction

Observation of a plant is the first step in good plant culture. If a plant looks sick, do not reach for a spray, reach for the magnifying glass – a 10x magnifying glass is an essential tool. Try to work out what the primary cause of the illness is.

Look, observe and analyse.
Check out the environment around the plant.
Is the lighting correct?
Is the temperature range correct?
Is it too hot, has there been a cold snap?
Is there sufficient air movement?
Have the plants been under / over watered?
Have the plants been under / over fed?
Is the plant a new purchase?
Are the leaves badly diseased, burnt, or have yellow or black tips?
What does the root system look like?

If you must spray, know what you are spraying for. Unless you know what is attacking your plants there is absolutely no sense in spraying. Know what effect the spray will have on the plant as well as you. Read all labels carefully before using a spray.

From the 1950s to the 1970s spraying was carried out regularly in a programmed cycle in huge over-kill doses of the deadliest chemicals known to man, Lindane and DDT included. Home growers and hobbyists had the same attitude. It has since been shown that insects and fungi can develop immunity to sprays if we overuse them.

Today's message in short is
'Don't spray unless it is absolutely necessary'

The following is a collection of useful hints about how to deal with a plant or a pest problem that may appear in your garden. It is not intended to be a definitive solution.

Note of caution. Please remember that any solutions and sprays are used at your own risk, and the risk of losing plants.

Look the plant over and stifle any ills early

Sanitation

The glasshouse and shadehouse should be kept clean. Remove all fallen leaves, debris and weeds. Keep a rubbish bin especially for that purpose. It is not a good idea to grow any plants or fernery under the benches as all sorts of nasties can hide there and come out to feed on your plants at night.

If your plants have been outside during a so-called summer, they will have picked up all sorts of things from the gardens in the vicinity. All it needs is a gust of wind and any airborne pest can be deposited on to your plant, where it will start to reproduce rapidly.

In the spring environment of the glasshouse and in the autumn inside or out, fungal diseases will flourish where there are warm or damp or overcrowded conditions without any air movement.

Before putting your plants back in the shadehouse or glasshouse in the autumn, check them carefully for any bugs, in particular red spider, aphids and scale. Wipe the leaves with a tissue dipped in a mixture of all-season oil and water (a teaspoon to a cup of water) to cover the leaf with a thin film of oil. Take care to hold new leaves at their base as they are wiped, because they are not attached to the plant very firmly and can pull away if you are not careful. Wipe gently to avoid damaging the leaf cuticle.

Good ventilation is important for controlling most plant diseases and make sure the plants are dry before dark. Keep your plants well apart, do not let leaves touch the outer wall of the glasshouse, it is always colder and sometimes wet with condensation and this can cause black leaf tips. It cannot be over emphasised the extreme necessity for giving, as well as a caution in giving too much, ventilation to plants grown under cover.

It becomes a competition of who is going to have the most enjoyment of your plant, the creepy crawly out for a good meal, or you out for a prize flowering plant.

Challenges in growing orchids can be divided into pests (chewers or suckers) and diseases (moulds, fungi and viruses).

Treat orchid hygiene the same as personal hygiene

Sterilisation

All tools used in the orchid house should be sterilised on a regular basis.

Scissors, secateurs and all cutting instruments need to be sterilised in between use on different plants.
The glasshouse itself should be sterilised before the placing of plants. Give it a good scrubbing with a solution of Jeyes Fluid and soap, or sprinkle a solution of Condy's crystals around. If major problems are evident, fumigate with a bomb.

Sodium triphosphate
Have a wide-mouth screw-top glass jar (not aluminium) so the cutting implement's blades can be immersed in the solution

Gently mix the Sodium triphosphate into warm water so it does not splash until no more will dissolve. The solution should be slightly milky. Change solution when it gets dirty or does not feel soapy.
Soak tools in solution for at least 5 minutes in between using on plants.

Bleach
Mix up a 2% solution of Sodium hypochlorite. Use for scrubbing pots. Do not forget to treat the stakes and clips as well.

Methylated spirits
Use neat to keep the cutting edges sterile.

Condy's Crystals
Make up a pink solution of crystals or liquid potassium permanganate. Drench the ground thoroughly. In the diluted form is non-toxic to humans, however will temporarily turn the skin yellow.

Fumigation Bomb
Get the professionals in. Do not try to do it yourself unless you have the right equipment to safeguard your health.

'to be sure, to be sure, to be sure'

Chewers and Suckers

Ants
Eliminating ants will eliminate 99% of all pest and disease problems in the orchid house and the garden as well. Ants like warm, dry conditions and their nests are found in buildings or under paving slabs. Often the first indicator of a local ant infestation is a line of moving ants to and from their nest. Ants harvest and collect the honey dew exuded by aphids, mealy bugs and some scales, or anything sweet.

Aphids or Green Fly
These are small, oval-shaped, green or black-backed sap-sucking insects. They like the young soft tissue of plants and are most prevalent in warm moist weather conditions. Found usually in clusters on tender plants where they suck the young parts of the plant causing a loss of growth and disease resistance. They can be found on most glasshouse plants where there is a lack of ventilation. They exude a honey dew that is harvested by ants.

Caterpillars
Caterpillars are the second stage of a butterfly's or moth's metamorphosis. They are often green but may be a multitude of colours and they normally live on the underside of fresh tender leaves. They can destroy new growths and leaves in very short time. An early catch is important before too much damage is done. Use a magnifying glass to find newly hatched caterpillars and unhatched eggs. Look for new growths that are distorted.

Cutworm
These destructive grubs are the larvae of moths. They live in soil during the day and attack seedlings and root crops at night. About 35mm long, the worm has a leathery, smooth skin.

Earwigs
Commonly found under bricks, bags or boxes where they shelter during the day, coming out at night to do damage to growing shoots.

Eelworms
Their presence can be suspected when plants wilt for no reason. Plant roots may have many swellings and lumps or the veins of the leaves will appear brown.

Flickers (Plant Hoppers, Passion-vine Hoppers)
The young have white-tipped tails and flick away when disturbed. These insects suck the plant juices through a proboscis.

Leaf Miner (Capsid Bug)
Tiny maggots that tunnel into the embryo buds and leaves of plants. They can be detected by white tracings they leave and also by the shrivelling of leaves and buds. Particularly noticeable on chrysanthemums and cinerarias.

Leather Jacket
The leather jacket (larvae of the crane fly) attacks the roots of many vegetables and flowers. They are about 25mm long being dark grey in colour with strong biting jaws.

Mealy bugs
Are insects about 2mm long, either pink or white and rather like a tiny slater in appearance. Under a magnifying glass the legs are visible. They are often found surrounded by a mass of wax (egg sacs) in colonies at the base of leaves, under leaves or in the crown of the plant. They attack a wide variety of plants including many indoor plants, ferns, cacti and many trees and shrubs, both fruiting and ornamental. They like warm, moist conditions and exude a honey dew. Controlling mealy bug is difficult, in part because the insect's waxy covering repels a water-borne spray.

Millipede
This worm-like creature is easily identified by its many legs. It attacks young seedlings and the tender roots of plants

Red Spider
A bright-red minute parasite which feeds on the underside of leaves, this pest likes warm, dry conditions and is therefore most troublesome in dry seasons and when plants are grown under glass. Regular misting and the moist atmosphere will reduce their impact. There are few plants the red spider does not attack when conditions are right.

Scale
There are two types of scale, soft (most common is the brown scale, *Coccus hesperidum*) and armoured (most notorious of these is the Boisduval scale, *Diaspis boisduvalii*).

Scale will feed and suck the sap on hundreds of different plants. If a plant is heavily infested, colonies can remove large quantities of the plant's fluids and this will cause wilting, a delay in leaf development, and production of fewer leaves, and fewer or poorer-quality flowers. These pests seldom kill their hos. Both immature and adult scale insects produce honeydew.

What all types have in common is their method of protecting themselves, developing either a soft or hard protective covering over their body, thus giving the impression of a 'scale'.

It takes about 60 days to complete a generation, and they can complete three to seven generations a year if temperatures and conditions are right. Younger adult female scale are pale yellowish-green through to yellowish brown and often mottled with brown spots, and the older females generally completely brown. The body is usually oval in outline, and can be up to 4-5mm in length and slightly convex (humpy) in profile. The shape tends to vary according to position on the host plant. Females will moult twice before reaching maturity.

The wingless immature females move from plant to plant via wind, breeze created by a fan, or by yourself during routine tending of plants. Females attach themselves to a plant and remain there until they die, and often for a number of years afterwards. After mating, females create an over-wintering protective covering and it is under this the eggs are laid. Once they hatch, the unprotected larvae (crawlers) remain under the body of the female for a short time before emerging and selecting a feeding site of their own. Crawlers and young nymphs are yellow and almost flat in profile, have well-developed legs and antennae and are quite active until selecting a settling site. Males are rarely seen. They resemble tiny wasps or flies. During their development the males will undergo four moults before emerging as winged adults.

Slaters (wood lice)
These grey pests hide under boards, boxes and in cracks and crevices. They are oval shaped and approximately 10mm in length. They do most of their damage at night when they attack young seedlings and tender shoots of plants. When a board or box is placed on the ground it can be used as a trap for slaters as they will congregate under it during the day.

Slugs
Everyone knows the ravages and damage caused by these fat slimy pests. They are particularly severe on seedlings and tender plants. Many mature plants have suffered an attack. Slimy trails are indicative of their presence. Destroy unwanted vegetation and weeds so they cannot hide. Treat hiding places and around affected areas.

Snails
Normally a spring pest they can clean out a community pot or a row of seedlings overnight.

Thrips
Very small mobile insects that spread disease from plant to plant. They are only just visible to the naked eye, they are long in shape, yellow when young, grey or black when mature. They are able to pierce plant tissue, normally on the underside of the leaf, and suck the sap from the host plant.

White Fly
Many glasshouse plants are affected by a moth-like fly which causes the leaves to dry and die. They also produce honey dew.

Woolly Aphids
Seen as a white woolly substance on the plant. Infestation usually occurs on the soft tissue. The insect increases in size rapidly and is protected naturally by the woolly substance covering it. It seeks to be in the growth and crevices of the plant. When combating this pest by spraying, the compound used should be applied with considerable force in order that the insect may be reached.

Wireworm
These hard, wiry, worm like grubs that live in the soil for upwards of three years and do considerable damage to the roots of plants, are the larvae of the Click Beetle

Wasps
This obnoxious insect is usually attracted to feed on the honeydew generated by scale. Be especially careful when getting rid of these insects as their sting can be inflammatory, particularly when a group of wasps are aggravated.

Treat the cause not the symptom

Moulds and Fungi

Blight
Prevalent on potatoes and tomatoes and recognised by the dark spots on leaves, stems and fruit. If blight is not controlled the fruit or seed pod is likely to rot.

Botrytis
A furry grey mould that appears normally on the ripening fruit and young stems causing the plant or fruit to rot.

Damping Off and Wilt
Attacks stems of seedlings or young plants which collapse at the soil level causing them to fall over, rot and die. Young plants and seedling soil should be sterilised before they are set out. Do not over water.

Downy Mildew
Small, angular, brownish spots appear on the underneath of leaves forming white downy spots which later cause the growth to become stunted and wilted thus causing the plants to die. Treat immediately when discovered, apply weekly applications of suitable sprays.

Powdery Mildew
Common on many glasshouse plants. It is noticeable by a white powdery deposit on the leaves and flowers.

Sooty Mould
A black mould normally starts where honeydew from ants or scale has formed. This fungi can inhibit your plant's ability to carry out photosynthesis and this can cause infested plants to look unsightly.

Virus
If it looks like a virus, isolate the plant before making a decision. Incinerate the plant if you can afford to. If it is a rare specimen, or a special plant, get expert opinion to identify the virus.

Forethought will often save afterthought

Controls

The most effective cure is to attack these pests as soon as you notice them and prevent them becoming established in your valuable collection.

Physical Controls

Barriers work well until there is a leaf or flower touching the sides of the glass/shade house to provide a bridge. Continued monitoring is needed for barriers to be very effective for preventing all creepy crawlies, the munch bunch and the sap suckers from migrating into the orchid patch.

Grease or Vaseline
Apply a "grease barrier" on the bench legs. It is not an easy solution and is messy to do but is very effective.

Water
Stand the bench legs in shallow containers filled with water. Ensure the containers remain full as a moat, the water will disappear fast on a hot day.

Sand Paper
Staple sand paper to the legs of the bench grit side out.

Copper Foil
Tightly wrap copper foil around the bench legs. The copper reacts with the slime of the snail.

Diatomaceous Earth
Sprinkle a fine layer on the benches around your plants.

Digital Squeeze (Thumb and Forefinger Squash).
This method has immediate results. It can be a bit messy if the target has soft tissue. If queasy use a pair of gloves. Particularly effective with scale and aphids on hard wood. A small magnifying glass is most helpful in achieving as close to 100% kill on the first pass.

Study your plants and spray only when needed

Biological Controls

Ladybird bugs, praying mantis, centipedes and daddy-long-legs can all be considered biological controls. Unfortunately, the population of these beneficial insects is usually a lot less than the harmful insect population they are enticed to keep under control, therefore they can only be relied on as a supporting role.

Modern biological controls often have to be replenished due to their inability to breed in the environment.

The gardener says I ought to add,
The centipede is not so bad;
He rather likes the brutes.
The millipede is what he loathes:
He uses wild bucolic oaths,
Because it eats his roots.
And if you see a centipede
Approaching with a millipede,
Some precious root of his,
On one of them you drop a stone
The other you leave alone.

A P Herbert

Environmental Controls

Get rid of rubbish, old dried and wet wood, old bark, dried leaves or anything which insects can hide under.
Reduce the amount of vegetation and rubbish in the surrounding area, in particular rotting vegetation, old wood, bags, pots etc. Reduce host plants, like Hostas (the Hilton for snails) in the immediate vicinity.
Consider companion plants that are hostile to the enemy.

'minimise, isolate, eliminate'

Chemical Controls

A Cautionary Note on Oils

Only apply oils, e.g. cooking, horticultural, or neem oil, and oil-base compounds or sprays, as in some insecticides (like Orthenex or Isotox), when the plants are cool to the touch, as in early morning, before solar heating of plant tissues takes place. If oils are applied to plants that are quite warm, even at night, there can be leaf burn and a damage or loss of inflorescences.

A Note on Soap

A lot of home remedy recipes call for soap as an ingredient. There is also a lot of speculation as to what role soap has in killing the insects. It could be by suffocation, by blocking their breathing holes, by breaking down of the waterproof waxy coating on the insect shells, by interfering with insect metabolism, by poisoning the insect, or as a fixative to the spray so that the spray does not run off straight away.

Soap is made by the mixing of a caustic solution with a fat or oil. The caustic mixture may be of sodium base giving hard soap or a potassium base making liquid soaps. The fat mixture may be of animal fat (eg, tallow) or vegetable oil (eg, palm, olive, coconut (copra), corn, linseed or soya bean). Not all soaps are effective in being an insecticide. Olive oil-base soaps have a long-chain non-polar tail and these are the most effective as a pesticide. Most synthetic detergents have shorter-chain non-polar tails.

The green liquid soap most commonly used for dishwashing (a potassium-based mixture of palm and olive oils) has been shown to be effective in controlling soft-bodied insects and aphids. Neem soap is also now available.

Please beware that dishwasher soaps often have powerful degreasing additives and these could affect the leaves of the plant.

To Spray or to Dunk

Dunking the whole orchid in a mixture will cover all surfaces and work deep down into the crown of leaves, these are areas you might miss while spraying. Dunking does the job more efficiently but is a lot more labour intensive. When deflasking, consider dunking the plants in an anti-fungus solution as a prophylactic treatment to give them a head start in the big wide world.

Try a spray on a few leaves first

Organic Recipes

Note of caution and disclaimer:
Please remember that solutions and sprays are used at your own risk, and the risk of losing your plants.

This is a list of preventative solutions and sprays that may not be generally known or used by all gardeners.

Apple Slice
Slugs:
When slug damage is detected cut slices of apple and lay on top of the growing medium. Check the next morning to see if the offender is attached and dispose of accordingly.

Beer
Slugs and snails:
Put a plate or plant saucer full of fresh beer on the ground. Stale beer has been shown to be a repellent not an attractor.

Chive Tea Spray
Excellent for black spot on roses and apple trees:
Boiling water
Dried chives
Pour a little boiling water over dried chives and infuse for 15 minutes.
Dilute with 2-3 parts water and use immediately.
The first month of vegetative growth is the most crucial time to control the disease, but cleanliness right up to picking time is also very important. Most black spot attacks are mild and should not cause panic.

Cinnamon
Fungicide, slime and mould:
Apply ground cinnamon directly to the affected part of the plant by dusting heavily (with a small paint or pastry brush, a toothbrush or pepper shaker). Cinnamon as a fungicide has all sorts of medicinal applications. Apply to the leaves after a fine misting of water.

Cinnamon paste
Fungicide:
Cooking oil
Cinnamon powder
Mix cinnamon powder and cooking oil to form a thick paste. Choose the consistency that is best for your situation. Apply to the wound and let dry.
The paste resists washing-off quite well when mounted plants get watered or misted frequently.

Can other host plants in the area be eliminated?

Cinnamon Spray
For powdery mildew, damping-off of deflasked seedlings:
40g cinnamon powder
600ml warm water or methylated spirits
Put cinnamon powder in warm water. Shake well and let stand overnight. Filter the solution to remove the sediment (coffee filters work well), and use the brown liquid as a spray.

Cinnamon spray can be prepared using either water or alcohol as the solvent. The alcohol infusion is faster to prepare, and offers some insecticide properties as well. Put one cup of the alcohol cinnamon extract in a pint bottle, add 2 tablespoons of liquid soap and top up with water. Use as a spray. The soap and alcohol are good insecticides, while the cinnamon is a fungicide.

Cloves
Ants:
Place one or two cloves in the bottom of the pot when repotting.

Coffee
Bush snails:
Mix left over coffee with water and spray. If storing liquid add 40ml of methylated spirits to prevent mould growing on the surface.

Coffee Grinds
Slugs and snails:
Sprinkle spent coffee grinds on the pot surface.

Compost Tea Spray
Fungi and diseases that harm plants:
1-2 cups of really well-composted organic matter (the stuff at the bottom of the pile)
4½ litres of water
Put compost in a cloth bag (an old sock works well), and immerse it in the water at room temperature. Let it stand overnight or longer until you have a dark liquid. Remove the 'tea bag' and let the container sit outdoors for about two weeks. Remove the scum that forms at the surface, filter the liquid and spray. This brew will supposedly be loaded with bacteria and other micro-organisms that attack most of the fungi and diseases that harm plants. (It has also been suggested that the unfermented brew from above, once diluted to 1 part to 4 parts water, is as close to the natural food source an orchid gets in the wild!)

Eucalyptus Sprigs
Banishes spider mites:
Eucalyptus sprigs, the kind used in dried flower arrangements, cut about 75mm long. Stick them in the plant containers. Change the eucalyptus sprigs every spring.

Quarantine suspect plants

Eucalyptus oil
Insect deterrent, fungicide:
Place small, open containers of eucalyptus oil in the growing area. Dispersion of oil in alcohol and / or water, when sprayed directly on the plant, will damage flower buds.

Garlic Spray No 1
For chewing insects, aphids, white butterfly, bean fly and brown rot:
100g crushed garlic
20ml kerosene or white oil
10ml liquid soap
600ml boiling water
Mix garlic with kerosene and stand the mixture for 2-3 days.
Then add soap and water and stir into garlic mixture. Strain through a stocking and store in an air-tight non-metallic container.
Dilute 125ml to 4 litres of water and apply twice, 10 days apart.

Garlic Spray No 2
2 cloves garlic
2 hot peppers (chillies)
4½ litres of water
40ml blackstrap molasses
Liquify garlic and peppers in a blender half to two-thirds full of water.
Strain the solids and add enough water to the garlic/pepper juice to make 4½ litres of concentrate. Dilute 60ml of concentrate per 4 litres of spray. To make garlic tea, omit the peppers and substitute more garlic. Add molasses for more control.

Garlic, Chilli and Onion Spray
Superb for aphids, white butterfly, bean fly, leaf curl and brown rot:
10 chopped garlic cloves
4-5 chopped hot chillies
2-3 chopped onions
5ml liquid soap or milk
Boil the garlic, chillies and onions in the water for 5-10 minutes. Leave to stand overnight. Mix the soap or milk to help the spray cling to the foliage. Store in a glass bottle and use as needed. Dilute 1 of solution to 20 parts water.

Garlic and Rhubarb Spray
Will make aphids and white flies fly away:
4 cloves crushed garlic
4 cooked rhubarb leaves
5ml liquid soap
Strain through nylon stocking and dilute 1 part to 7 parts of water. Solution will keep plants healthy.

Set aside a 'plant hospital' for intense inspection regularly

Horse Radish Spray
Good for brown rot control:
Young horseradish leaves (amount to suit)
Water
Always use young horseradish leaves.
Pour boiling water over the leaves and allow the mixture to infuse for 15 minutes. Dilute with four parts water and apply immediately.
Use the spray at the first sign of attack.

Lettuce
Slugs and snails:
Place young lettuce leaves (not milky) on the potting mix. Check the underside of the leaves next day and deal appropriately with the habitants.

Mint Spray
Reported as giving good results for combating the green looper caterpillar:
Good handful of fresh mint leaves
125ml water
Cut up or mince the fresh mint leaves and mix with water. Measure, then add an equal amount of water. Let it stand 24 hours. Strain, then add a few drops of liquid soap. Spray undiluted.

Onion Spray
White butterflies, cabbage moths and snails:
450g diced onions
Boiling water
Cover onions with boiling water and stand for 12 hours. Add cold water to make 9 litres of mixture and apply to well moistened soil.

Potato or Turnip Boats
Slugs, snails and slaters:
Cut a potato or turnip in half and scoop out the centre
Or slice up raw potato into pieces about 30mm square and 50mm thick.
Place pieces in front of the benches cut side down.
Slugs seem to prefer raw potato above all other food.
A regular visit every night and morning is all that is necessary to collect and dispatch inhabitants with the thumb and forefinger crush or if queasy dip the potato into a bowl of hot water.
Change the pieces of potato every two or three days as dried potato is not appetising to anything.

Check other plants in the house for infection.

Pyrethrum Spray
Aphids and caterpillars:
Make an extract by grinding dry pyrethrum flowers and mix with a little kerosene. Solution remains toxic for 12 hours.
Although non-toxic to warm-blooded animals, it kills bees, ladybirds and their larvae and many other beneficial predators.

Quassia Wash
Control of green fly:
200g Quassia wood chips
1.2 litres water
60ml liquid soap
Place Quassia wood chips in a basin, cover with water and allow to soak for 12 hours, stirring occasionally. Then add water, pour into a saucepan and simmer for at least 12 hours. Allow to cool and strain thoroughly. In another vessel mix soap with warm water. Pour into the Quassia extract and mix well. For use, dilute 1 part to 9 parts of water.

Rhubarb or Elder Leaves Spray
Great for tackling aphids and mildew, made with elder leaves, it is excellent for mildew on roses:
1½ kg rhubarb or elder leaves (not the stalks)
4 litres water
15ml liquid soap
1 litre water
Cut up leaves and boil in water for 30 minutes and strain.
When mixture is cold, add soap in the remaining water and mix the two solutions together. Use as a general spray for aphids. When made with 1½ kg of older rhubarb leaves it can also be used to combat mildew.

Sawdust
Slugs and snails:
Sawdust or wood shavings can be used to deter slugs and snails. Do not use treated wood or treated wood products. Fumes from wood products like particle board/chipwood may give off formaldehyde while treated wood residue (copper / arsenic) will poison the soil.
Softwood sawdust will break down faster than hardwood sawdust.
Sawdust should not be used around plants that require dry soil in summer.

Stinging Nettle Spray
Liquid herb manure acts as a repellent to aphids:
1kg nettle stalks and leaves
1 litre water
Cut up nettle, steep in water for 24 hours.
Sieve and spray generously. Reapply after 5 days.
Note if accidentally stung by nettle leaves, rub the affected area with a fresh dock leaf to reduce the stinging.

Treat sick plants individually.

Household Compounds

Note of caution and disclaimer.
Please remember that solutions and sprays are used at your own risk, and the risk of losing your plants.

Ammonia Spray 1
For spider mite:
20ml household ammonia
1 bucket water.
Spray over and under the leaves and let it go through the pots as well. The aroma soon dissipates. Beware of overdosing with ammonia, the high pH will burn leaves.

Ammonia Spray 2
Spray for aphids, scale and mealy bugs:
10ml household ammonia
10ml citronella
15ml liquid soap
1 litre water
Add soap, ammonia and citronella to water as base mixture that keeps well.
Add 40-60ml of base mixture to each litre of water. Does not mark flowers and has the smell of lemon cordial.

Ant Poison 1
Ants and cockroaches:
20g borax
20g icing sugar
Mix both ingredients together sprinkle near the ant nest.

Ant Poison No 2
60g boric acid powder
60g sugar
60g candle wax
Melt the candle wax, then slowly stir in sugar and boric acid powder. When thoroughly mixed, pour into a pan, creating a 6-12 mm thick slab. Cut or break into chunks and distribute around the greenhouse. Be sure to keep them away from children and animals.

Ant Poison 3
500ml water
40g borax
10g boric acid powder
2 cups white sugar
Mix borax and boric acid with water, add sugar, stir continually and gently heat if necessary (do not boil) to dissolve sugar. Solution should be a slightly opaque syrupy liquid. Bottle when cool.
Set syrup in caps or something similar adjacent to ant trails.

Pests are those people who come to visit when you want to work.

Aspartame
Ants:
Ants are attracted to the sugar substitute NutraSweet, and when it is taken back to the colony the lot are killed.
It may be found necessary to dampen the powder or granules to make it attractive to the critters.

Aspirin
Fungal and viral pathogens:
One 325mg Aspirin tablet (do not exceed this amount)
6 litres water
Use as a spray.

Baking Soda 1
For black spot, powdery mildew, brown patch and other fungal diseases:
15ml baking soda
45ml oil, cooking or horticultural
15ml liquid soap
4½ litres water
Mix baking soda and oil into soapy water. Shake well and spray without diluting. Spray lightly on foliage of afflicted plants, cover both sides of the leaf and repeat three times at 7-10 day intervals. Try it on a few leaves first. Avoid over-using or pouring on the soil.

Bleach
For control of a wide variety of pathogens and algae:
15ml household chlorine bleach
4½ litres water
Couple of drops of liquid soap.
Add bleach and soap to water and spray on utensils, benches, even young plants.

Boiling Water
Good for killing all unwanted plants, weeds and insects. Do not use in the vicinity of any desirable plants.

Buttermilk
Red spider mite:
Equal parts buttermilk and water
Few drops liquid soap.
Blend for 15 seconds, transfer to sprayer and spray exposed parts of affected plants.

Condy's Crystals 1
Slug and snail deterrent:
Place a ring of crystals around your choice plants.
Condy's Crystals can be used as an insecticide and also to kill moss.

Condy's Crystals 2
Slugs and snails are killed immediately (deterrent for slaters, aphids and white butterflies):
Make up a pink solution of Condy's Crystals with water.
Apply a monthly drench of Condy's over the plants, under the benches, and through the potting mix on a warm day.
As a preventative when planting all leafy crops make up a watering can of Condy's and water the bed thoroughly, then plant and water the plants in with the rest of the can.
The diluted form is non-toxic to humans but will turn the skin yellow.

Copper Sulphate
Slugs and snails and is a fungicide:
Sprinkle around the area that is being infested with slugs and snails.
Sprinkled on pathways it will clear away moss, but it will leave a red stain on uncoloured concrete.
For use as a moss killer, dilute 1 part Copper sulphate to 160 parts water.

Corn Meal
Algaecide (for cooling pads):
250g whole ground corn meal
4½ litres water
Place corn meal in an old sock or panty hose leg and immerse in water.
Let stand for a couple of days.
Use the liquid as a spray. If placed in a cooling system water tank the algae will dissolve in a few days.

Jeyes Fluid Spray
Slaters, earwigs and woodlice:
20ml Jeyes Fluid
4½ litres water.
Water plants first, then drench plants. Spray around the top of pots.

Kerosene
Carrot fly:
Soak carrot seed overnight in kerosene before planting. Spraying carrots when 50mm high will act as weed and fly control

Listerine
Fungicide:
20ml Listerine
1 litre water
Spray the affected area.

'An ounce of prevention is worth a pound of cure'

Methylated spirits 1
Scale:
Note that this is a concentrated spray, and a very labour-intensive activity.
Neat methylated spirits
Soak a cotton swab or a hobby type paintbrush with meths and wipe / touch insects. For larger infestations of woody plants (not recommended for orchids), spray the entire plant, being sure to thoroughly wet all surfaces. Repeat every 3 days for about two weeks to ensure that any of the pests that emerge after the initial spraying do not have the opportunity to become re-established.

Methylated spirits 2
Scale:
Note that this is a concentrated spray.
Mix equal parts of methylated spirits and water in a spray bottle.
Spray the affected area. Use for large infestations that need to be brought under control quickly.

Methylated Spirits 3
Scale and mealy bug.
40mls methylated spirits
10mls white garden oil or Conqueror spraying oil
40mls liquid soap
4½ litres of water
Mix all together. Spray plant thoroughly once a week for three weeks.
This is good for thick leafed plants (cattleya and phalaenopsis, etc).
For thin-leafed plants, such as masdevallia, or very valuable plants, use diluted 1 to 4 parts water.
Spray on days that are not too hot or too cold.
Use regularly as needed and spray adjacent plants within reach with the leftover liquid.
Principle of this spray is meths helps to dissolve the waxy protection that mealy bugs have, making them susceptible to dehydration and drowning.

Oil Spray
Aphids, whitefly, mites, ants, fungi, slaters or other sucking insects.
20mls of vegetable oil (sunflower, soya bean)
10mls liquid soap
1 litre water
Mix soap, vegetable oil and water together.
Keep at a temperature under 26ºC.
Repeat every 3 days for about 2 weeks.
Results were good with no marking of flowers.

Concentrate your efforts on growing healthy plants by ensuring they are in a suitable environment.

Peroxide Spray
Whitefly.
Note this is a concentrated spray
Spray with 10% peroxide for 3 consecutive days
If phalaenopsis look like they are starting to get crown rot, sometimes pouring some neat hydrogen peroxide on the wound can stop the rot. Be sure to tilt the plant and drain the crown after about five minutes so it can dry.

Peroxide Spray
An effective user-friendly spray for white fly:
40ml peroxide (10% solution)
1 litre water,
Squirt of liquid soap
Mix peroxide into water, add a little soap as a fixative and spray daily for 3 days. Repeat if necessary.

Salt Spray
Caterpillars, red spider mite, leather jackets and grass grub:
30g common salt
4½ litres water.
Dissolve salt in water and spray.

Snail and Earwig Bait
½ kg bran or rolled oats.
100g sugar
100g blood and bone
30ml Maldison
Mix all together and sprinkle on the surface, or hide in bait tins. Best applied in the evening in late spring.

Snail Bait No 1
½ kg bran or rolled oats.
50ml treacle
50g arsenate of lead
Mix all ingredients together to form a paste. Place lumps around troublesome areas.

Snail Baiter
Cut both ends out of a tin (baked bean) or a piece of drain pipe and put the bait / pellets inside the horizontal tin. This saves replacing the bait after rain.

Soap Spray
Aphids, caterpillars, beetles, midges and scale insects:
50ml liquid soap.
4½ litres warm water.
Dissolve soap in water spray when cool.

Enjoy your plants daily, water them by hand.

Sulphur
Fungicide: Use a tooth brush or salt shaker to dust cuts or fungi with flowers of sulphur.

Vinegar Herbicide
Full strength household vinegar
Note that this is a concentrated spray. Do not spray on orchids
Spray on weeds, repeat daily as needed. DO NOT use on weeds growing in the pots of plants, but is good in driveways, walkways, the greenhouse floor, patios, etc.

Vinegar spray
Ants:
1 part malt vinegar
5 parts water
Mix and spray to deter ants.

Winter Oil
Aphids, thrips, mealy bug, whitefly, mites, scale, insects, canker worms, eggs of codling moth and various leaf roller:
Only suitable on hardwood trees.
Apply before buds open while the tree is leafless.
Residual effect will last several days if the coating is good. If the tree has leaves use oil in diluted form. With a concentrated spray the oil will coat the leaves and interfere with the respiration.

'Make a little go a long way'

Organic Fertilisers

Build up the plants' health and strength in time to be ready for the formation of spikes the following year. There are many proprietary brands of fertiliser that do a great job – but often a change can give your plants that extra boost needed.

Natural fertilisers
Blood & Bone Juice
1 kg blood & bone / dried blood & bonemeal
20 litres of water
Tie blood and bone into a muslin bag like a Christmas pudding and suspend it in the water for several weeks. Stir the liquid and serve a cup to each Cymbidium every week between August and October. This will fatten up the shrivelled back-bulbs ready to provide food for new growths. Sprinkle a teaspoon of dried blood over the mix in February and March to provide nitrogen as a growth booster.

Compost
A compost pile can be started in the sun or shade at any time of the year. Good ingredients include leaves, hay, grass clippings, tree trimmings, non-greasy food scraps, bark, sawdust, rice hulls, weeds, nut hulls and animal manure.
Mix the ingredients together in a container of wood, hay bales, hog wire, concrete blocks or simply pile the material on the ground.
The best mixture is 75-80% vegetative matter and 20-25% animal waste, although any mix will compost. The ingredients should be a mix of coarse and fine-textured material.
Avoid having all the pieces of material the same size, since the variety of sizes will help air to move through the pile. Oxygen is a critical ingredient. Turn the pile at least once a month, more often speeds up the process. Keep the pile moist, roughly the moisture of a squeezed-out sponge, to help the living micro-organisms thrive and work their magic. Compost is ready to use when the ingredients are no longer identifiable. The colour will be dark brown, the texture soft and crumbly and the aroma that of a forest floor. Use compost in all bed preparation and as a high-quality mulch around annuals and perennials.

Try growing your orchid in a different area.

Garden Juice Foliar Feed
Non-toxic, highly effective home-brew.
Per 5 litres of water:
20ml seaweed concentrate
20ml natural apple cider vinegar
20ml blackstrap molasses
500ml manure compost tea
The following may be added for disease control.
20g Epsom Salts
25ml baking soda or potassium bicarbonate
80ml garlic tea
For a greater growth response, add fish emulsion and/or a commercial bio-stimulant.
For iron deficiency, add 20g chelated iron.
Spray during the cool part of the day.

Spring and Autumn Fertiliser Mix
(a) Water all plants well.
(b) In a 4-litre ice-cream container place:
- 250g super-phosphate
- 250g Dolomite lime
- 250g blood & bone
- 125g dried blood
- 125g Epsom Salts

Mix all together well. Depending on the size of the plant, sprinkle this mix around. For big plants use 2-3 teaspoonfuls per plant; reduce for smaller plants. About 3-4 days later, again water all plants thoroughly. This mix can also be used in the garden.

A teaspoon of Epsom Salts added to each 4 litres of fertiliser will help prevent the red cast that shows up in some cattleya leaves.

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