

DAHLIAS, INSECTS, & MORE

BY CATHRINE FEATHERBY, 2022



DESTRUCTIVE INSECTS

EARWIGS



EARWIG DAMAGE



EARWIG

EARWIG EGGS AND NYMPHS



**EARWIGS LAY EGGS IN SOIL,
DEBRIS, UNDER WOOD AND
POTS.**

**NATURAL PREDATORS ARE
BIRDS AND FROGS.**

EARWIG CATCHERS



**EARWIGS ARE NOCTURNAL
INSERT A NAPKIN INTO A
SMALL POT AND PLACE THE
POT ON TOP OF THE STAKE,
USING THE STAKE TO HOLD
THE NAPKIN IN PLACE.**

**DURING THE DAY REMOVE
THE POT AND QUICKLY
PLACE THE NAPKIN OVER A
BUCKET OF SOAPY WATER.**

**SHAKE THE NAPKIN SO
EARWIGS FALL INTO THE
BUCKET AND DROWN.**



APHIDS - GREEN AND BLACK



APHID DAMAGE



APHIDS WILL CAUSE DISTORTION OF BOTH THE LEAF SHAPE AND THE COLOUR. THEIR DAMAGE AFFECTS THE MOVEMENT OF CHLOROPHYL REMOVING NUTRIENTS FROM THE PLANT. THIS AFFECTS THE ABILITY OF THE PLANT TO THRIVE.

APHID PRODUCING YOUNG



ANTS AND APHIDS



ANT PROTECTING APHIDS



ANT MILKING APHIDS

GET RID OF ANTS TO HELP GET RID OF APHIDS

START REMOVING ANTS BEFORE PLANTING DAHLIAS

CORNMEAL - FEED THE ANTS WITH PRODUCTS THEY CANNOT DIGEST LIKE CORNMEAL. THEY WILL TAKE IT BACK TO THE NEST KILLING MORE ANTS.

BORIC ACID – MIX EQUAL PARTS OF BORIC ACID AND ANY SWEET SYRUP. PUT ON STRIPS OF WOOD OR CARDBOARD IN A DRY AREA AND ANTS WILL EAT AND TAKE IT BACK TO THE NEST.

SPLENDA – USING THIS TO KILL ANTS IS A MYTH. IT DOESN'T WORK.

USE BENEFICIAL INSECTS.

THERE ARE MANY OTHER PRODUCTS FOR RIDDING THE GARDEN OF ANTS CONNECTED TO APHIDS, BUT THOSE ABOVE ARE SOME OF THE SAFEST.

DIOTOMATIOUS EARTH WORKS WELL BUT KILLS MANY OTHER SOFT BODIED INSECTS THAT ARE BENEFICIAL.

CLICK BEETLE – MANY SPECIES



WIREWORM AND PUPA OF CLICK BEETLE



HOW TO REMOVE WIRE WORMS

PLANT MUSTARD AS A REPELLENT

**USE BENEFICIAL NEMATODES
(*Steinernema feltiae*) WHICH KILL
MOST PESTS**

**CULTIVATE THE TOP 6 TO 8 INCHES
OF SOIL**

**PRE-PLANT POTATO PIECES AND
MARK LOCATIONS. REMOVE AND
REPLACE AS THEY BECOME
INFESTED.**

CUTWORM MOTH AND LARVAE **BAD**



CUTWORM DAMAGE



**IF YOU FIND THESE
CURLED UP
LARVAE WHEN
WORKING IN
YOUR GARDEN,
REMOVE AND
DESTROY THEM.**

**SOME GROWERS
PLACE A COLLAR
AROUND THE
PLANT AND INTO
THE GROUND.**

CRANE FLY (LEATHERJACKET) AND LARVA

THE LARVA OF THE CRANE FLY CAN BE A REAL PEST IN SOME AREAS. IT MOVES FROM GRASS INTO GARDEN AND DAHLIA BEDS IN EARLY SPRING EATING EVERYTHING, INCLUDING THE YOUNG DAHLIA PLANTS, JUST LIKE THE CUTWORM.

YOU CAN REMOVE BY HAND OR APPLY A BIOLOGICAL NEMATODE *Bacillus thuringiensis* subsp. *israelensis* (Bti)



THRIPS ON AN EARLY BLOOM



A LARGE NUMBER OF THRIPS HAVE ATTACKED THIS BLOOM.

IF THIS HAPPENS, REMOVE AND DESTROY THE BLOOM AND THRIPS BY PLACING THEM IN A PLASTIC BAG YOU CAN SEAL. THIS CAN SAVE A LOT OF WORK LATER BY GETTING RID OF AN EARLY BATCH OF THRIPS.

THRIPS, VERY TINY AND **BAD**



THRIPS ARE ONE OF THE MOST DAMAGING INSECTS, ONCE THEY TAKE HOLD. THEY PENETRATE THE SOFT TISSUE OF THE PLANT TO LAY THEIR EGGS, WHICH HATCH WITHIN THE PLANT. BECAUSE OF THE PRODUCTION RATE AND THE FACT ALL ADULTS FLY, THEY ARE ONE OF THE WORST VECTORS FOR PASSING DISEASE AMONG PLANTS.

THRIPS LARVAL / PREPUPAL / PUPAL



ALL STAGES OF DEVELOPMENT ARE ON THE DAHLIA PLANT

PLANT DAMAGE - THRIPS



LEAFHOPPER AND NYMPH



**LEAFHOPPERS ARE SUCKING INSECTS – EATING SAP AND JUICES.
THEY ARE ANOTHER INSECT THAT PASSES DISEASES BETWEEN PLANTS.**

MORE LEAFHOPPERS



RED SPIDER MITE



RED SPIDER MITES, LIKE THRIPS, SUCK THE PLANT JUICES AND CAUSE DAHLIA FOLIAGE TO BECOME YELLOW AND MOTTLED. THE PLANT CAN BECOME DROOPY AND LEAVES MAY DROP OFF. YOU MAY SEE THE WEBBING WITHIN THE PLANT.

RED SPIDER MITE DAMAGE



COREOPSIS BEETLE



THIS STRIPED BEETLE CAN START ARRIVING ON DAHLIA PLANTS FROM MID MAY.

IT IS COMMON ON COREOPSIS PLANTS.

IT WAS NEVER SEEN ON DAHLIA PLANTS UNTIL 2021 AND WAS DEVASTATING FOR SOME GROWERS.

THE ADULTS FLEW TO THE DAHLIA PLANTS FROM AN UNKNOWN AREA AND PROCEEDED TO DEVOUR THE PLANTS AND BREED.

IT MAY OR MAY NOT ARRIVE IN THE FUTURE.

COREPSIS BEETLE LARVA



LET'S HOPE THE COREOPSIS BEETLE CANNOT COMPLETE IT'S CYCLE ON THE DAHLIA PLANT. NO ONE REPORTED DEALING WITH THE LARVA IN THE 2021 INVASION ONTO DAHLIAS.

THE BUGS CAN BE REMOVED AND DROPPED INTO A SOAPY BUCKET OF WATER, VACUUMED OFF PLANTS, OR SPRAYED. BEST TO USE INSECTICIDAL SOAP FOR A SPRAY AS THEY ARE HARD TO KILL WITH DISH SOAP. NOTE THAT INSECTICIDAL SPRAY WILL HARM BENEFICIAL INSECTS.

NEVER SPRAY WHEN THE SUN IS ON PLANTS AS SPRAYS WILL BURN LEAVES. EVENING WORKS WELL.

SLUGS



SLUGS CAN CAUSE A LOT OF DAMAGE IN A SHORT TIME. A POSSIBLE FIX IS SAFER'S SLUG BAIT SCATTERED IN A PERIMETER AREA KEEPING THE SLUGS AT BAY. TOO CLOSE TO THE PLANT AND THE SLUG MAY CHOOSE THE PLANT INSTEAD OF THE BAIT.

TRY NOT TO HARM OUR NATIVE BANANA SLUGS.

BLACK AND GREAT GREY SLUGS

VERY BAD



EAT PLANTS

NATIVE BANANA SLUGS – VERY GOOD



EAT DECAYING MATTER

MORE ON SLUGS

ALONG WITH THE GREAT GREY SLUGS THERE ARE MANY OTHER TYPES OF SLUGS THAT EAT OUR PLANTS

THERE'S A TINY SLUG THAT SEEMS TO GET INTO EVERYTHING AND IS COMMONLY FOUND ON THE BOTTOM OF POTS AND DEBRIS.

THEN THERE ARE ALL THE DIFFERENT SNAILS LOOKING FOR THEIR SHARE.

IF YOU PICK SLUGS PLEASE LOOK UP THE NATIVE BANANA SLUGS TO SEE WHAT NOT TO KILL. THERE ARE MANY DIFFERENT LOOKING BANANA SLUGS AND THEY ONLY CLEAN UP DECAYING DEBRIS AND DO NOT EAT YOUR PLANTS.

KEEPING INSECTS UNDER CONTROL



DEALING WITH THOSE PESKY INSECTS

**ALL SUCKING AND BITING INSECTS ARE VECTORS
THAT SPREAD DISEASE AND VIRUS WHILE THEY
ALSO DESTROY PARTS OF YOUR PLANT. NATURE
HAS PROVIDED MANY BENEFICIAL INSECTS TO
USE THE BAD INSECTS AS A FOOD SOURCE.**

BENEFICIAL INSECTS LIFE CYCLE

**THE COMPLETE LIFE CYCLES OF MOST OF
THE FOLLOWING PREDATORS WILL TAKE
PLACE ON YOUR DAHLIA PLANT.**

**WATCH FOR THE DIFFERENT STAGES.
CHECK FOR EGGS WHEN REMOVING
LEAVES.**

PREDATORY LADY BEETLES EAT APHIDS AND THRIPS



LADY BUG LAYING EGGS



LAYED ON THE UNDERSIDE OF LEAVES

LADY BUG NYMPHS START OUT VERY TINY AND BLACK



LADY BUG NYMPH METAMORPHIS



**NYMPH IS NOW MORE
ORANGE**



PUPA

PREDATOR LACEWINGS

GREEN LACEWING



BROWN LACEWING



NOCTURNAL SO CAN BE IN YOUR EARWIG CATCHER DURING THE DAY.

LACEWING EGGS



ALL LIFECYCLE STAGES ARE ON THE DAHLIA PLANT

LACEWING LARVA



Lacewing larva will collect debris on their backs as camouflage to move undetected and infiltrate ant colonies, to prey upon the ant's aphid farm. Sometimes they look like walking weeds.

LACEWING LARVA



The lacewing Larva will eat bugs much larger than itself. It is one of the best bad bug killers in your garden.

G254-37

LACEWING PUPA & COCOON

NOTE HOW TINY IT IS



MANY HOVER FLIES



**THE HOVER FLY
LOOKS LIKE A BEE
BUT IS A TRUE FLY.
THEY WILL HOVER
IN THE AIR, HENCE
THEIR NAME.
THEY WILL EAT
APHIDS, THRIPS,
AND CATERPILLARS
FROM YOUR
DAHLIA PLANTS.**

HOVER FLY AND EGGS



Photo: Dead Head Hoverfly (by G. Bradley)

www.uksafari.com

HOVER FLY LARVA AND PUPA PLUS PARASITISED APHIDS



TINY BRACONID WASP PARASITISING APHID

**IT LAYS IT'S EGGS WITHIN THE BODY OF THE APHID,
WHICH EMERGE AS ADULTS**



PREDATORY SOLDIER BUGS



THE PREDATORY (SPINED) SOLDIER BUG WILL EAT UP TO 100 SPECIES OF INSECT PESTS.

THEY ARE A GENERALIST INSECT CONSUMER .

THEY ARE RECOGNIZABLE FROM OTHER STINK BUGS AS THEIR SPINES ARE VERY SHARP.

THE ADULT IS APPROX 11mm LONG.

THE EGG AND 5 NYMPH CYCLES WILL REMAIN ON YOUR PLANT.



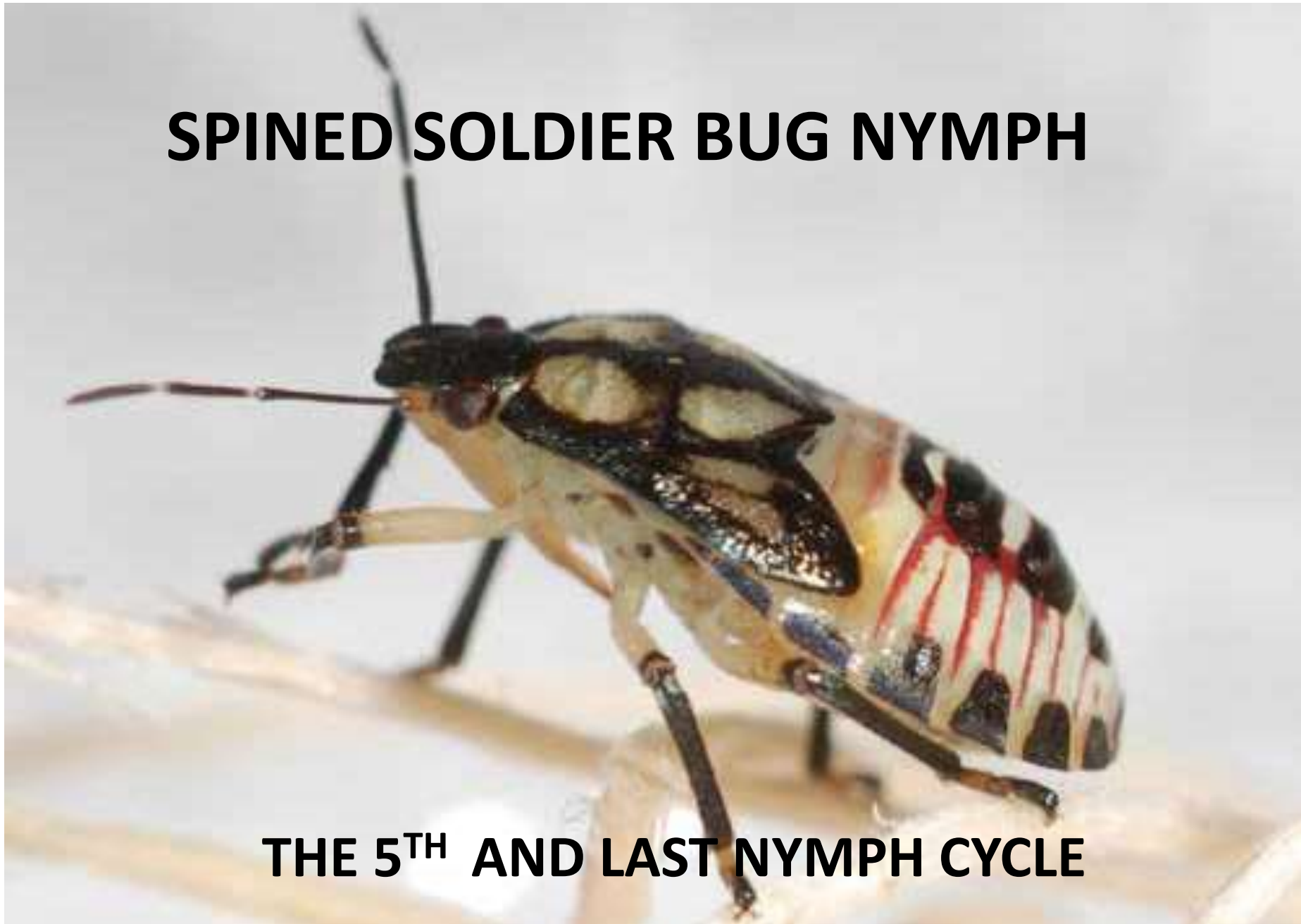
EGGS AND NYMPHS

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**SPINED
SOLDIER BUG
NYMPH
EATING**

SPINED SOLDIER BUG NYMPH



THE 5TH AND LAST NYMPH CYCLE

PREDATOR APHID MIDGE AND EGGS

VERY TINY 3mm FOR THE ADULT



APHID MIDGE LARVA & PUPA

THE ADULT ONLY COMES OUT IN THE EVENING SO DIFFICULT TO SEE



PIRATE BUG ORIUS

VERY TINY



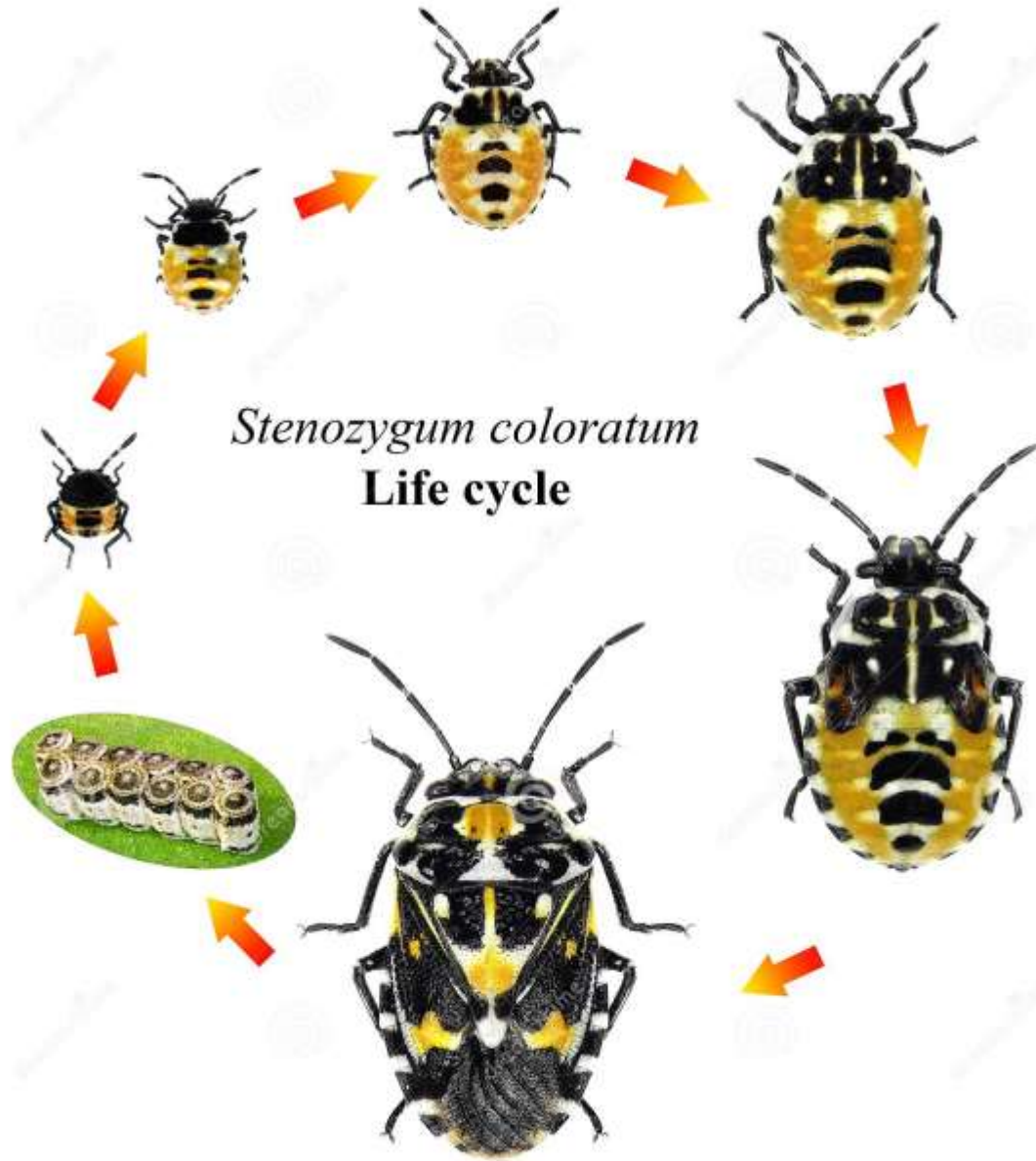
ADULT SIZE IS APPROX.

3mm LONG

**THIS IS AN
AGGRESSIVE
THRIPS KILLER OF
ALL MOBILE
STAGES. POSSIBLY
THE MOST
EFFECTIVE THRIPS
KILLER OF ALL THE
BENEFICIALS.**

MINUTE PIRATE BUGS EGGS AND NYMPH





LIFECYCLE OF PIRATE BUG

PREDATORY PIRATE BUG ORIUS

BOTH IMMATURE STAGES (NYMPHS) AND ADULTS FEED ON A VARIETY OF SMALL PREY INCLUDING THRIPS, SPIDER MITES, INSECT EGGS, APHIDS, AND SMALL CATERPILLARS.

THE ADULTS ARE THE ONLY KNOWN BENEFICIAL TO ATTACK ADULT THRIPS.

I HAVE FOUND IT WINTERING IN MY MASON BEE TUBES.



**FLIES ARE CARNIVEROUS AND THIS LITTLE FLY IS
COMMONLY SEEN ON DAHLIA PLANTS**



PAPER WASP WITH NEST
ALL WASPS ARE CARNIVEROUS

BENEICIALS ARE WORTH PROTECTING IN OUR GARDENS.

THE LARVA AND ADULT STAGES OF THE BENEFICIAL INSECTS NOTED HERE ARE VORACIOUS CONSUMERS OF MANY DAMAGING INSECTS. SOME SPEND THEIR WHOLE LIFE CYCLE ON AND AROUND THE DAHLIA PLANT.

WHEN WORKING WITH YOUR DAHLIAS, LOOK FOR THEM AND TRY NOT TO DISTURB THEM.

THE MORE NATIVE BENEFICIALS WE CAN PROTECT THE BETTER THE ECO SYSTEM ON THE WHOLE.

MANY A TIME I HAVE PUT A PLANT WITH BUGS FROM THE GREENHOUSE OUTSIDE, AND A WEEK LATER IT'S CLEAN, YET I NEVER DID SEE BENEFICIALS EATING THE BUGS.

REMEMBER SOME OF OUR BENEFICIALS, LIKE THE LACEWINGS AND FROGS, ARE NOCTURNAL.

DAHLIA DISEASES



POWDERY MILDEW - FUNGUS



PREVENTION AND TREATMENT

REMOVE LOWER AND INSIDE LEAVES FOR BETTER AIR FLOW.

REMOVE OLD FOLIAGE & AFFECTED LEAVES.

USE MULCH TO PREVENT DISEASED SPORES FROM SPLASHING ONTO PLANTS.

WATER IN A.M. SO PLANTS ARE DRY LATER IN THE DAY.

TREAT WITH SULPHUR AND COPPER BASED FUNGICIDES, OR POTASSIUM BICARBONATE PRODUCTS, OR WHAT YOU FIND WORKS.

**GOOGLE “PLANET NATURAL RESEARCH CENTER”
– IT’S FOR ORGANIC GARDENERS**

DAHLIA SMUT



THIS TOO IS CAUSED BY A FUNGUS. IT PRESENTS WITH PALE SPOTS, THEN SPORES, USUALLY STARTING ON THE LOWER LEAVES.

THE PROBLEMS DEVELOPS DURING COLD, WET CONDITIONS.

DAHLIA SMUT CAN OVERWINTER IN SOIL AND ATTACH TO TUBERS.

IT IS RECOMMENDED TO REMOVE THE PLANT AND ANY UNATTACHED LEAVES, AND DESTROY.

DAHLIA VIRUS

**THERE ARE MANY DIFFERENT TYPES
OF DAHLIA VIRUS BUT DON'T LET
THAT SCARE YOU**

DAHLIA VIRUS

NOTE HOW THIS VIRUS PRESENTS WITH CIRCLES MUCH LIKE DAHLIA SMUT



DAHLIA VIRUS SYMPTOMS

DAHLIA VIRUS PRESENTS IN MANY FORMS BUT THE MOST NOTED IS THE BREAKDOWN OF CHLOROPHYLL AND INTERFERENCE WITH INTERNAL TRANSPORT OF PLANT METABOLITES.

YOU MAY SEE LIGHT AND DARK, PATCHY LEAVES, YELLOWING OF THE VEINS AND OR LEAVES, OR OTHER ANOMOLIES.

THE FIRST THING TO DO IS FEED YOUR PLANT TO MAKE SURE IT IS NOT CAUSED BY NUTRITIONAL DEFICIENCIES. DAHLIAS ARE HEAVY FEEDERS AND SOME CULTIVARS DO REQUIRE EXTRA NUTRITION.

IF YOU DO HAVE A PLANT WITH VIRUS, ANY OFFSPRING WILL ALSO HAVE VIRUS. THE ONLY COARSE OF ACTION IS TO **DISCARD AND DESTROY. THIS IS EXTREMELY DIFFICULT WITH FAVOURITE PLANTS BUT WILL BENEFIT US ALL IN THE LONG RUN.**

DAHLIA VIRUS





**SOME DAHLIA VIRUS
REMAINS IN THE SOIL AND
POTS SO REMOVE THE SOIL
AND ALL ROOTS FROM THE
AREA.**

**ALSO, WASH AND DISINFECT
YOUR POTS AND TOOLS.**

**THE AMERICAN DAHLIA
SOCIETY HAS PROVIDED
LOTS OF GREAT
INFORMATION ON VIRUS SO
CHECK OUT THEIR WEBSITE.**

CLEANING YOUR TOOLS

The recommended methods for this are:

Bleach (10 per cent) + 4 tsp. Dawn dish soap to 5c water.

Ethanol (70%)

Alcohol (98%) wipe tools after treating.

DAHLA PLANTS WILL PROVIDE YOU WITH SOME OF THE MOST DIVERSIFIED AND BEAUTIFUL BLOOMS IN THE FLOWER WORLD. THEY DO NEED SOME TLC AS PLANTS DO BEST WHEN FED AND CARED FOR. THIS MAKES THEM MORE RESISTANT TO BEING ATTACKED BY BOTH INSECTS AND DISEASES.

HAVE FUN & ENJOY YOUR DAHLIAS

HAPPY GARDENING



MANY OF THE BENEFICIAL INSECTS ARE NOW AVAILABLE FROM THE INTERNET OR LOCAL OUTLET. USE THE INTERNET TO LOOK THEM UP. THE COMMON NAME WILL WORK.

A VERY BIG THANK YOU TO ALL THOSE WHO POSTED PHOTOS ,ON THE INTERNET, THAT I DID NOT HAVE. YOU MADE IT POSSIBLE FOR ME TO PUT TOGETHER THIS PRESENTATION AS EDUCATION MATERIAL FOR THOSE WHO GROW AND LOVE DAHLIAS.

WITHOUT YOU, WE WOULD NOT HAVE THIS KNOWLEDGE TO PROTECT, NOT ONLY OUR DAHLIAS, BUT ALSO PROTECT ALL THESE BENEFICIAL INSECTS AND PROVIDE FOOD FOR BEES.