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### UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

MAY 2 1 1998

Ms Mary McMahon Director, Regulatory Affairs Mycotech Corporation 529 E Front Street, P.O. Box 4109 Butte, MT 59702-4109

Dear Ms. McMahon:

SUBJECT:

Label Amendment Mycotrol ES (EPA Reg. No. 65626-8) Alternate Name (BotaniGard) and Removal of Chemigation Beauvaria bassiana GHA (ai#128924)

The Agency has reviewed your submission to use an alternate name, BotaniGard, for the currently registered end-use product, Mycotrol ES (EPA Reg. No. 65626-8) and to remove the chemigation language from the label. BotaniGard is intended for use in greenhouses and nurseries on food and non-food crops listed on the Mycotrol ES label. Since these are greenhouse and nursery uses, there is no need for chemigation on the alternate label. Your requests for the alternate brand name and the removal of the chemigation language from the label are granted.

A copy of the stamped approved label is attached for your records. Please submit 5 copies of the final printed label prior to release of the product for shipment.

If you have any questions, do not hesitate to contact Shanaz Bacchus at 703-308-8097.

Janet L. Andersen, Ph. D.

Director

Biopesticides and Pollution Prevention Division

SB:7511W:51598:656269:128924

SYMBOL . 7511 W 7511W

SURNAME . Backus Hurron

DATE . 51/5/98. 5/15/4

EPA Form 1320-1A(1/90)

OFFICIAL FILE COPY

## BOTANIGARD<sup>™</sup> ES

## Emulsifiable Suspension Mycoinsecticide

For use in controlling Whitefly, Aphids, Thrips, Psyllids and Mealybugs in Ornamentals and Vegetables, Indoor/Outdoor Nursery, Greenhouse, Shadehouse, Commercial Landscape, Interiorscape, and Turf.

\*Contains petroleum distillates.

\*\* Based on the weight estimate of 4.78x10<sup>-12</sup> grams per spore.

BotaniGard ES contains 2.3x1010 viable Beauverla bassiana spores per gram.

## KEEP OUT OF REACH OF CHILDREN

## WARNING - AVISO

Si Usted no entience la etiqueta, busque a alguien para que se la explique a Usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

### PRECAUTIONARY STATEMENTS

### Hazards to Humans and Domestic Animals

Causes substantial but temporary eye injury. Do not get in eyes or on clothing. Wear protective eyewear (goggles, face shield, or safety glasses). Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse. Harmful if swallowed, inhaled, or absorbed through ACCENTED nimize breathing mists or vapors. Use with adequate ventilation. Avoid contact with skin, eyes, or isother than contact, immediately flush eyes or skin with plenty of water. Get medical attention if irrighted persetter Dated

### FIRST AID

If Swallowed: Do not induce vomiting; call a physician immediately.

If Inhaled: If irritation persists, contact physician.

If On Skin: Wash with soap and water.

If In Eves: Flush with water.

5/21/98 or the Federal Ineq

Under the Federal Insecticide, Fundicide, and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No. 65626-8

USER SAFETY RECOMMENDATIONS: Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

### NOTE TO PHYSICIAN

Product costains percoleum distillates; vomiting may cause aspiration pneumonia.

### PERSONAL PROTECTIVE EOUIPMENT

pplicators and other handlers must wear: Long-sleeved shirt and long pants. Shoes plus socks. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

### ENVIRONMENTAL HAZARDS .

This product is potentially pathogenic to honey bees. Avoid applying to areas where honey bees are actively foraging or around bee hives. This product may be toxic to fish. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.

	Net Co	ntents:	
Lot Number:		Expiration Date:	
		MYCOTECH	. ·

117 South Parkmont P.O. Box 4109 - Butte, MT 59702-4109 EPA Registration Number 65626-8 EPA Establishment Number 65626-MT-02

Phone: (406)782-2386 Fax: (406)782-9912

Edition -980507

### GENERAL INFORMATION

BotaniGard ES contains live spores of the naturally occurring fungus, Beauveria bassiana Strain GHA. Spores are alive and may be harmed by storage at high temperatures or contact with water for more than 24 hours. See storage instructions on this label.

MODE OF ACTION AND APPLICATION TIMING Begin treatment of crops at the first appearance of the insect pest. Typically, it takes 7-10 days after the first spray to see control. Application rates, frequency, spray coverage and insect numbers impact the speed at which acceptable control is achieved. BotaniGard ES is most effective when used early, before high insect populations develop. Reapply as necessary under a pest management program that includes close scouting. Intense pest outbreaks may require combination of BotaniGard ES with a compatible insecticide.

Contact Mycotech Corporation or your distributor for specific information on compatible insecticides.

<u>PRE-HARVEST INTERVAL</u> Pre-harvest interval for BotaniGard ES is zero (0) days. BotaniGard ES can be applied up to the day of harvest.

### DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

## AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR, part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training; decontamination, notification, and emergency assistance. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is:

- Coveralls over long-sleeved shirt and long pants
- Goggles, face shield or safety glasses
- Waterproof gloves
- Shoes plus socks

4 9 12

### NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

Keep unprotected persons out of treated areas until sprays have dried.

For use in controlling Whitefly, Aphids, Thrips. Psyllids and Mealybugs in Omamentals and Vegetables, Indoor/Outdoor Nursery, Greenhouse, Shadehouse, Commercial Landscape, Interiorscape, and Turf. May be aerially applied. Suitable for use with ultra low-volume application equipment.

## INSECTS FOR WHICH BOTANIGARD ES MAY BE USED

### WHITEFLY, SUCH AS

Banded-winged Whitefly

Citrus Blackfly

Citrus Whitefly

Giant Whitefly

Greenhouse Whitefly Silverleaf Whitefly

Sweet Potato Whitefly (aka Tobacco Whitefly)

### APHIDS, SUCH AS

Bean Aphid

Cabbage Aphid

Cowpea Aphid

Green Peach Aphid

Greenbug

Hop Aphid

#### FUMU ALANG

Pea Aphid Potato Aphid

Rose Aphid

Russian Wheat Aphid

Melon/Cotton Aphid

Spotted Alfalfa Aphid

### THRIPS, SUCH AS

Greenhouse Thrips

Cuban Laurel Thrips

Pear Thrips

Potato/Onion Thrips

Thrips palmi

Western Flower Thrips

### PSYLLIDS, SUCH AS

Pear Psylla

Tomato/Potato Psylla

### MEALYBUGS, SUCH AS

Citrus Mealybug

Grape Mealybug

Buffalo Grass Mealybug Longtailed Mealybug

## SCARAB BEETLES, SUCH AS

Atenius

Green June Beetle

White Grubs

## PLANT BUGS (HETEROPTERA), SUCH AS

Chinch Bugs

Lace Bugs

### WEEVILS, SUCH AS

Black Vine Weevil Strawberry Root Weevil Fuller Rose Weevil

Rose Curculio Billbuss Root Weevil

## CROPS ON WHICH BOTANIGARD ES MAY BE USED

BotaniGard ES may be used on most crops since Beauveria bassiana Strain GHA, the active ingredient, is exempt from residue tolerances when applied to growing crops.

### VEGETABLES, SUCH AS

acerola arracacha arrowroot artichoke arugula asparagus atermoya balsam pear bamboo shoots beans (all varieties) beet blackeyed peas bokchoy

broccoli broccoli raab Brussels sprouts burdock cabbage cantaloupe carambols carrots casaba melons cassava catjang cauliflower celeriac celery

celtuce chayote chervil chickpeas chicory Chinese broccoli Chinese cabbage Chinese gai lon Chinese longbeans Chinese mustard

Chinese spinach Chinese waxgourd chrysanthemum (edible)

chufa cilantro citron melon collards com salad crenshaw melon cress cucumber

dandelion dasneen daikon dock edzmame egeplant endive escarole fennel garlic gherkin ginger golden pershaw melon

groundcherry guar honey balls honeydew melon horseradish kale kohlrabi leek lentils. leren lettuce mango melon

gourds (edible)

muskmeion hybrids/varieties mustard greens

New Zealand spinach okra onion orach parsley parsnip

peas (all varieties)

pepinos

pepper (all varieties) Persian melon pimento (all varieties) pineapple melon potato

pumpkin purslane radish radochio rambutan rape greens rapini rhubarb rutabaga salsify shallot snake melon soybeans spinach

squash (summer/winter) sugar beet sweet potato Swiss chard tanier tomatillo tomatoes

tumeric

yam zucchini

## FRUITS AND BERRIES, SUCH AS

apple
apricot
avacado
bananas
blackberry
blueberry
boysenberry
calamondin
carob
cherimoya

cherry (sweet/sour)
chironja
citrus citron
citrus hybrids
coffee
crabapple
cranberry
currant
dates
dewberry
durian

ckicabeary fejoa figs

gooseberry
grape (table, raisin, wine)
grapefruit
guava
huckleberry
kiwi
kumquat

lemon
limes
loganberry
loquat
lychee
mandarin
mango
manionberry
nectarine
olallie berry
olives (all varieties)

peach pear persimmon pineapple plum pomegranate prune pummelo quihuna quince raspberry sour cherry strawberry sweet cherry tangelo tangerine

уошебену

pennyroyal

orange

papaya

oriental pear

passion fruit

## HERBS AND SPICES, SUCH AS

allspice
anise
balm
basil
borage
burnet
chamomile
caper buds
caraway
cardamom
catnip
celery seed
chervil
chicory

chicory chives cilantro/coriander cinnamon clary

costmary comin curry leaf фЩ femei femgreek ginseng horehound hyssop mace marjoram min mustard nasturtium nutraeg oregano

paprika

ceriander

pepper (black/white)
peppermint
rosemary
rue
sage
saffron
savory
sesame
speamint
sweet bay leaf
tansy
tarragon
thyme
wintergreen

woodruff womwood

# ORNAMENTALS, INCLUDING FLOWERS, FLOWERING AND FOLIAGE PLANTS, BEDDING PLANTS, GROUNDCOVERS, SHRUBS, VINES, EVERGREENS AND TREES,

African lily
African violet
agerarum
alyssum
anthurium
arbor vitea
ash

asparagus sprengeri

aster
atlas cedar
azalea
bald cypress
balsam fir
bamboo
barberry
beech
begonia
birch
Boston fern
bougainvilla

boxwood
bridal veil
cacti
caladium
calceolara
calendula
calla lily
camella
camellias
carissa

camation ceanothus celosia chenille plant

cherro
Christmas cactus
chrysanthemum
cinararia
cleyera
coleus
cordyline
corylusavellana

corylusavellar cotoneaster cottonwood crabapple crepe myrtle crossandra croton cyclamen cypress daffodil dahlia daisy delphinium

deodar cedar dichondra diffenbachia dogwood Douglas fir dracaena dumb cane Dusty Miller elm

eucalyptus
fems
ficus
fig
firethorn
fittonia
floss flower
foliage plants
forsythia
freesia
fuchsia
gardenia
geranium

gerbera
gerber daisy
gladiolus
gloxinia
grape
gynura
gypsophilia
hackberry
hawthorne

hawthorne
hedera
hemlock
hibiscus
hickory
holly
honey suckle
hop bush
horsechesnut
hyacinth
hydrangia

iceplant

imitari impatiens India hawthom

iris ivy

Japanese aucuba
Japanese barbarry
Japanese boxwood
Japanese spindle tree
Japanese yew

juniper
kalanchoe
lantana
larch
larkspur
laurel
leasianthus
leatherleaf fern

libden
lilac
lily
lithodora
lobelia
loquat
magnolia
mandevilla
maple
marigold

Mediterranean fan palm mesembryanthemum

mimosa monstera

mother-in-law plant mountain laurel

mynle
nandina
narcissus
oak
oleander
olive
orchid

omamental kale pachysandra palms pansy parasol pine pelegonium

peony

petunia philodendron phlox

photina piggyback plant

pine pink pittosporum planetree

podocarous poinsettia poplar

pothos ivy prayer plant primrose privet

pteris fern pyracantha rhododendron

rubber plant salvia scabiosa

schefflera schlumbegera scdum

shrub verbena shrubby cinquefoil

smoke tree snapdragon spathiphyllum

spruce stock sweet gum sweet pea

sweet William

sycamore.

syngonium

taxus

Texas sage tulip

tulip tree verbena vibemum vinca

Virginia creeper

walnut

wandering Jew

willow yew yucca zinnia

## TURF. INCLUDING LAWN AND SOD TURF GRASSES

Bermuda grass

fescue

zoysia grass

blue grass

St. Augustine grass

## MIXING AND APPLICATION

SHAKE WELL BEFORE USING. BotaniGard ES may be applied using hand-held, ground and/or aerial spray equipment, or low-volume application. BotaniGard ES contains emulsifiers and mixes readily in water. Mix well by external mixing, in-tank mixing, or pump circulation to form an emulsion. To mix, fill spray tank with half the desired amount of water and start agitation. Shake BotaniGard ES to suspend spores then with agitator running, slowly add desired quantity of BotaniGard ES to spray tank. Add remainder of desired amount of water. Continue agitation throughout loading and spraying. Triple rinse empty BotaniGard ES container with water and add rinse water to spray tank. For best results, continue agitation during spraying. Do not mix more BotaniGard ES than needed for that day. Do not mix BotaniGard ES the day before application. Spores will die if left overnight or longer in the spray tank.

Contact your dealer or Mycotech Corporation for recommendations about specific crops, insects and spray equipment.

## DOSAGE RATE FOR GREENHOUSE, SHADEHOUSE, INDOOR/OUTDOOR NURSERY. LANDSCAPE AND INTERIORSCAPE

High volume application: Apply at a rate of up to one (1) quart per 100 gallons in high volume sprays (2 tsp., or 0.33 fluid ounces per gallon). Mix well by external mixing, in-tank mixing, or pump circulation to form emulsion. SPRAY TO WET, BUT AVOID RUNOFF.

Typical Application Rates/100 Gallons

depending on insect population and foliage density. Low volume sprays: Apply at a rate equivalent to area coverage of high volume spray. This would normally be ½ quart to 2 quarts for 5,000 to 20,000 square feet. Follow spray equipment manufacturer's instructions for final spray volume to obtain adequate coverage. DO NOT APPLY THROUGH A THERMAL PULSE FOGGER.

Contact your dealer or Mycotech Corporation for specific recommendations.

### **CUTTINGS DIP**

Applications of BotaniGard ES may be used as pre-plant dips for cuttings as noted below. To prepare dip solution, thoroughly mix ½ - 1 oz BotaniGard ES per gallon of water, (5 - 10 oz. per 10 gallons water). Prepare only as much dip solution as can be used in one day. Do not use dip solution for more than one day. Spores in water for more than 24 hours will die. Dip a small number of plants in dip solution and observe for plant damage before using dip meatment. Do not use dips if there is any visible damage to test plants.

### **Unrooted Cuttings**

Dip the unrooted cuttings in the BotaniGard ES solution just long enough to wet all surfaces, then removing to a flat area and allow cuttings to dry. For water-sensitive varieties, cover to protect until dry. Then proceed with normal planting and misting.

### Rooted Cuttings

Holding by the roots, briefly dip in the BotaniGard ES solution just long enough to wet all surfaces, including leaves and stems. Once removed from the dip solution, cuttings can be potted, but allow plants to dry before watering.

# DOSE RATE FOR TURF, FOR SOIL APPLICATIONS IN ORCHARDS, CONTAINER ORNAMENTALS AND LANDSCAPE/INTERIORSCAPE

For most soil applications, apply 2-8 fluid ounces BotaniGard ES per 1,000 square feet. For difficult to control soil pests, especially citrus root weevil (*Diaprepes abbreviatus*), apply BotaniGard ES at the upper rate (8 fl. oz. per 1,000 square feet).

Do not apply to water-saturated soil. Apply BotaniGard ES in enough water to ensure good coverage of treated area, at least one gallon per 1,000 square feet. Irrigate treated area after application to disperse BotaniGard ES into soil.

## APPLICATION FREQUENCY

Apply BotaniGard ES at 5-10 day intervals. High insect populations, especially whitefly and aphids, may require application at 2-5 day intervals. Repeat applications for as long as pest pressure persists. There is no limit on the number of applications or total amount of BotaniGard ES which can be applied in one season.

### PLANT SAFETY

BotaniGard ES has shown plant safety but has not been tested on all plant varieties or in all tank mixes. Test BotaniGard ES on a small number of plants to check for potential damage before applying to larger number of plants. Do not apply on poinsettias after bract formation.

<u>TANK MIX COMPATIBILITY</u> BotaniGard ES is physically and biologically compatible with a wide range of insecticides and spray adjuvants. It is not compatible with fungicides in tank mixtures. Fungicides will kill the spores.

Aditivants BotaniGard ES is designed for application without additional wetting agents and spreaders. If adjuvants are needed for some other reason, contact your dealer or Mycotech Corporation for specific recommendations. Some wetting agents and spreaders kill the spores, the active ingredient in BotaniGard ES, or contribute to poor mixing and spray problems.

<u>Compatibility With Chemical Insecticides</u> BotaniGard ES is compatible with most chemical insecticides. However, some insecticide formulations can kill the fungal spores, the active ingredient in BotaniGard ES. If you are going to use BotaniGard ES in combination with other pesticides, contact your dealer or Mycotech Corporation for specific information. In all cases, pesticides should be used in accordance with their labels.

<u>Compatibility With Fungicides</u> BotaniGard ES is <u>not</u> compatible in tank mix with fungicides. Contact Mycotech or your dealer for specific recommendations on using BotaniGard ES with fungicides.

## Spray Drift For Aerial Application

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment-and-weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops. These requirements do not apply to forestry applications, public health uses or to applications using dry formulations.

- The distance of the outer most nozzles on the boom must not exceed ¾ the length of the wingspan or rotor.
- 2 Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

Where states have more stringent regulations, they should be observed.

The applicator should be familiar with and take into account the information covered in the <u>Acrial Drift Reduction Advisory Information</u>.

### INFORMATION ON DROPLET SIZE

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

Volume - Use high flow rate nozzles to apply the highest practical spray volume.
Nozzles with higher rates flows produce larger droplets.

Pressure - Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.

Number of Nozzles - Use the minimum number of nozzles that provide uniform coverage.

Nozzle Orientation - Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.

Nozzle Type - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angels produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

### **BOOM LENGTH**

For some use patterns, reducing the effective boom length to less than ¾ of the wingspan or rotor length may further reduce drift without reducing swath width.

### APPLICATION HEIGHT

Applications should not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

### SWATH ADJUSTMENT

When applications are made with a crosswind, the swath will be displaced downward. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

### WIND

Drift potential is lowest between wind speeds of 2-10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

### TEMPERATURE AND HUMIDITY

When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

## TEMPERATURE INVERSIONS

Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable direction due to the light

variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

### SENSITIVE AREAS

The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas).

### STORAGE AND DISPOSAL

### STORAGE

- Do not contaminate water, food; or feed by storage or disposal.
- Store in a cool, dry place. Avoid storage below freezing temperatures or above 85°F. BotaniGard ES stability decreases with time at elevated temperatures above 85°F. Tightly reclose the container of unased product. Do not containate unused product with water.

#### PESTICIDE DISPOSAL

Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waster representative at the nearest EPA Regional Office for guidance.

#### CONTAINER DISPOSAL

Do not reuse as a container. Triple rinse (or equivalent). Then offer for recycling or recorditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

### CONDITIONS OF SALE

BotaniGard ES conforms to the description set forth on this label and is reasonably fit for the purposes described herein when used according to the label directions and specified conditions. The manufacturer disclaims any and all other express or implied warranties of merchantability and fitness for particular purpose. Buyers and users shall assume all risk and responsibility for potential loss or damage if this product is used, stored, handled or applied in a manner inconsistent with this labeling. To the extent permitted by law, manufacturer shall not be liable for more than the purchase price for the quantity involved including incidental, consequential or special damages.