

Instruction manual

NeemAzal[®] -T/S

1% Azadirachtin A

Plant extract from the seed kernels of the tropical Neem Tree
for use in

**Orcharding, Ornamental plants,
Vegetable gardening and Agriculture**

**Against freely living sucking and biting
insect pests and spider mites**

- non toxic to honey bees
- non hurtful for specified beneficial species
- no distance to waterbodies required
- no waiting period required



Producer:

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Hochreine Biosubstanzen

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Mode of action

NeemAzal-T/S contains **NeemAzal**, the purified active ingredient of the seed kernels of the tropical Neem tree *Azadirachta indica* A.Juss. The active substance permeates into the leaves and is distributed partially systemic in the plant; the pest insects take it up orally upon feeding (sucking or biting).

NeemAzal-T/S has a special mode of action. It stops the insect's feeding and damaging activity. However, a „knock down“ effect should not be expected. Within a few hours after application of **NeemAzal-T/S** pest insects as Aphids, White Flies, Thrips, Leaf Miner, Winter Moth, Colorado Potato Beetle and other sucking and biting insect pests and spider mites become inactive; larvae react with feeding and moulting inhibition and mortality; adult (beetle) show feeding inhibition, infertility and to a lesser degree mortality. After a few days the population does not develop any longer and collapses. Aphid colonies are still some time visible, larvae do not develop any longer.

As a result of this comparatively slow „insectistatic“ mode of action of **NeemAzal-T/S** a monitoring of the plant protection features should be done 7 – 10 days after application. The following criteria are appropriate for the monitoring: loss of leaf mass, reduction of damage to leaves, formation of honey dew, yield of crops, development of the pest population, positive effects on beneficials. Results of the monitoring are more important for the assessment of effect of the treatment than the number of dead pest insects

NeemAzal-T/S doesn't hurt specified beneficial species – beneficials are an important factor in the control of the remainder of the pest population. Therefore **NeemAzal-T/S** can favourably be combined with the use of beneficials in the plant protection conception.

Preparation of spraying solution, application

Fill spray tank with the required amount of water and add **NeemAzal-T/S** under thorough stirring. Use the solution on the day of preparation. Do not prepare more spraying solution than necessary.

NeemAzal-T/S is generally used as a 0,3% to 0,5% aqueous solution, at a rate of 1,5 – 3l/ha of cultivated area. Usually 300 l to 1000 l of spraying solution are applied per hectare and complete wetting of the plants with the spraying solution is essential for the success. The treatment should be repeated if rainfall follows the application within about 8 hours.

Apply **NeemAzal-T/S** in the evening hours to assure, that the active substance can permeate into the leaves.

NeemAzal-T/S should be applied usually with beginning of infestation or visibility of first symptoms, respectively.

Application ranges:

- registered applications for NeemAzal-T/S in Germany
(by Federal Office for consumer protection and food safety):

Application area	Pest (max. number of treatments during vegetation period)	Treatment time	Application rate	Comments
Greenhouse				
Ornamental plants:	Aphids (2), White Fly (2), Thrips (2), other sucking insects (2), miner fly (4), spider mite (2)	- with beginning of infestation	0.3 ml/m ²	Spraying in intervals of 7 – 14 days
Outdoor				
Orcharding: - Apple	Rosy apple aphid (1)	- with beginning of infestation - red bud state up to balloon state (majority of blooms in balloon state)	1.5 l/ha and per 1m crown height	Spraying
Orcharding: - black elder	Elder aphid (1)	- with beginning of infestation - up to beginning of the bloom	1.5 l/ha and per 1m crown height	Spraying
Orcharding: - stonefruit, pipfruit, soft fruit except strawberries Ornamental plants: - adornment groves, except adornment conifers	Winter moth (1)	- with beginning of infestation - Larvae state L1 up to L2 - red bud state up to balloon state (majority of blooms in balloon state)	1.5 l/ha and per 1m crown height	Spraying
Ornamental plants: - adornment groves	Web moth (1)	- with beginning of infestation - Larvae state L1 up to L2	1.5 l/ha and per 1m crown height	Spraying
Ornamental plants: - ornamental plants	Sucking insects (2), Spider mite (2), White Fly (2)	- with beginning of infestation	3 l/ha, White Fly 0,3 ml/m ²	Spraying in intervals of 7 - 14 days
Agriculture: - Potato	Colorado Potato Beetle (2)	- 5 days after occurrence of more than 10 egg clutch on 50 plants - young larvae	2,5 l/ha	Spraying

- **approved applications**
(according to § 18a, German plant protection law)

Application area	Pest (max. number of treatment during vegetation period)	Treatment time	Application rate	Comments
Greenhouse				
Vegetable gardening: - Leaf- and stem vegetables in crops for seed production	Sucking and biting insects (2)	- with beginning of infestation	3 l/ha in 500 l - 600 l water/ha	Spraying in intervals of 7 - 14 days
Outdoor				
Orcharding, Tree nurseries: - Stone fruit, pip-fruit except pears	Cherry Moth (2)	- with beginning of infestation - swelling flower buds up to the end of bloom - young larvae	1.5 l/ha per 1m crown height	Spraying in intervals of 7 – 10 days
Orcharding, Tree nurseries: - Sour cherry	Black Sour Cherry Aphid (2)	- with beginning of infestation - sepals opened till end of bloom - young larvae	1.5 l/ha per 1m crown height	Spraying in intervals of 10 - 14 days
Orcharding, Tree nurseries: - Stone fruit, pip-fruit except pears	Miner Moth (2)	- with beginning of infestation - till the end of bloom - young larvae	1.5 l/ha per 1m crown height	Spraying in intervals of 10 - 14 days
Tree nurseries: - Horse chestnut	Chestnut Moth (2)	- with beginning of infestation - larvae state L1 up to L2	1.5 l/ha per 1m crown height	Spraying in intervals of 10 - 14 days
Ornamental plants, Tree nurseries: - Softwood, hardwood	Pine Lappet (2), Gypsy Moth (2), Oak Processionary (2), Green Oak Roller Moth (2), Nun Moth (2)	- with beginning of infestation - larvae state L1 up to L2	3 l/ha in 800-1000 l water	Spraying in intervals of 10 - 14 days
Vegetable gardening: - Asparagus in young- and yield plants	Biting insects (2)	- with beginning of infestation after harvest - young larvae	1,5 l/ha in 600 l - 900 l water/ha	Spraying in intervals of 7 - 10 days
Viniculture: - Grape-vines in grape-vine schools, "mother gardens"	Vine pest; Grape phylloxera - leaf form Dactulophaera vitifolii (2)	- with beginning of infestation - young larvae	3 l/ha	Spraying in intervals of 10 - 14 days

Information about current registrations can be seen on www.neemazal.de

Phytotoxicity information

NeemAzal-T/S was tested with many plants under outdoor and greenhouse conditions and shows generally good plant compatibility during the warm season. The compatibility of **NeemAzal-T/S** depends on the species and cultivar of plants.

With species, which reacts normally insensible, some cultivar may show incompatibility. Because of alternating season conditions for crops and because of the multiplicity of species and cultivar it can't be excluded that plants which show normally good compatibility may show damages. Therefore a binding statement for the compatibility of **NeemAzal-T/S** cannot be given. We don't assume an application risk on account of this! Before first use of **NeemAzal-T/S** application sensitivity tests with few plants or some leaves in the respective growth stadium (3 to 5 days before treatment or larger areas) are recommended.

In **orcharding** a treatment of pear trees is excluded due to available experiences. The varieties **Conference, Alexander Lukas, Bristol Cross, Comice, Guyot, HW 606, Illinois 13 b 83 Maxi, Lectier, Trevoux** and **Winterdechant** react already at drift with phytotoxic damages on the leaves.

In **ornamental plants** the following species and cultivars show

Good leaf- and blossom compatibility: *Antirrhinum majus, Acalypha hispida, Argyranthemum frutescens, Astericus, Begonia*-Knollenbegonien-Hybriden, *Bidens ferulifolius, Brachycome, Chrysanthemen (Merced, Bronze Arola, Kory), Celosia cristata, Convolvulus sabatius, Coreopsis (Mädchenaugen), Dendranthema grandiflorum, D. indicum, Diascia, Euryops chrysanthemoides, Fuchsia, F.-Hybriden, Gazania splendens, Gerbera jamesonii, Gerbera sp. (Hydroponics - Azur, Bandola, Bounty, Chateau, Dino, Explosive, Figoury, Goldi, Golden Serena, Harley, Kaliki, Kayla, Kimsey, Lucky, Luna, Lyrix, Mistique, New Look, Opium, Optima, Red Ruby, Taifun, Tamara,), Glechoma, Helichrysum petiolare, Hibiscus 5 cv's, Kalanchoe (Boston), Lantana-Camara-Hybriden, Lobelia, L. speciosa, Manettia bicolor, Mentha, Nelken (Aristo), Pantoffelblume, Pelargonien, Petunia, Pilea microphylla, Rosen (Komet), Rudbeckia, Sanvitalia procumbens, Scaevola, Sutera, Tagetes (yellow), Torenia fournieri, Verbena (Tapien blau, Sunvop (P).*

Good leaf compatibility: *Agerathum houstonianum, Alonsoa, Alyssum, Amaranthus, Calceolaria-Hybriden, Callistephus chinensis, Calocephalus brownii, Centaurea, Cestrum, Clarkia, Cleome, Coleus, Cosmos, Cuphea, Cynara scolymus, Dahlia, Dianthus barbatus, Dimorphoteca, Eucalyptus, Eustoma grandiflorum, Ficus, Felicia, Gazania, Gnaphalium, Helianthus, Heliotropium arborescens, Iresine lindenii, I. herbstii, Kochia, Lavatera, Limonium, Lotus, Lysimachia, Melampodium paludosum, Mesembryanthemum crystallinum, Nicotiana, Nigella, Pennisetum, Penstemon, Plectranthus fruticosus, Polygonum, Portulaca, Primula, Ricinus, Roses (Hydroponics – 6 cv's, Ambiance, Avelance, Beauty Bijoger, Bulls Eyes, Esperance, First Red, 01-344 van Terra Nigra, Passion, Poison, Rossi, Roxette, Sabine, Swing, Utopia), Salvia farinacea, Saintpaulia (Miho io), Senecio, Serenoa, Streptocarpus, Tanacetum, Tithonia, Trachelium, Veronica, Zinnia.*

Cultivar dependent blossom damages: *Begonia semperflorens, B. elatior-Hybriden, Chrysanthemen (Deep Luv), Euphorbia pulcherrima (Peter Star, Cortez), Gerbera (Pretty Red, Sigma, Luciana, Hydroponics – Chateau, Emperor, G'oldspark, Icefolly, Leila, Margarita, Mario, Napoli, Olilia, Optima, Purity, Red Explosion, Rosty, Ruby Red, Santos, Serena, Timo, Vigoury, Dream, Kimsey, Siby), Impatiens-Neu-Guinea-Hybriden, Impatiens walleriana, Isotoma Pratia fluviatillis (Blue Star Creeper), Pelargonien-Peltatum-Hybriden, P.-Zonale-Hybriden, Solanum rantonnetti, Saintpaulia (Miho io), Tagetes, Tulbaghia vioacea (Tricolos Society), Verbenen (several sorts).*

Leaf damages (to wave, rolling in): *Abutilon-Hybriden, Begonia elatior-Hybriden, Callistemon citrinus (Dwarf Bottle Brush), Cestrum, Clytostoma callistegiodes (Lavender Trumpet Vine), Dahlia-hybrid (Dwarf Dahlia), Datura, Euphorbia pulcherrima, Impatiens-Neu-Guinea-Hybriden, Impatiens walleriana, Gypsophila paniculata (Baby's Breath), Liriope spicata (Silver Dragon Lilyturf), Magniloa stellata (Royal Star), Passionsblume, Solanum rantonnetti, Rosen (Alina, Arabia, Baronesse, Black Magic, Funky Jazz Ducat, Eveline, Lola, Noblesse Papa Meilland, Saphir, Roulette, White Noblesse, Hydroponics – First Red, Lenny, Poison, Prima Donna, Red Berlin).*

The data concerning possible plant damaging effects of **NeemAzal-T/S** correspond to experiences under practical conditions as customary and are given without obligation.

Safety measures

Avoid every unnecessary contact with the product. Abuse can damage your health. Keep out of reach of children. Follow the general protective measures: keep away from food, beverages and feed. Do not eat, drink or smoke at work. Avoid skin contact. In rare cases of especially sensitive persons **NeemAzal-T/S** may lead to reversible skin or eye irritations. In case of contact wash with plenty of water.

Waiting period:

not required

Effect on honey bees:

No effect on honey bees under the recommended application conditions

Effect on beneficials:

Harmless for populations of *Typhlodromus pyri* (Acarina), *Poecilius cupreus* (Coleoptera), *Coccinella septempunctata* (Coleoptera), *Aphidius rhopalosiphi* (Hymenoptera), harmful for populations of *Episyrphus balteatus* (Diptera).

Water protection:

No distance to waterbodies required. Do not dispose the product or remains thereof into water.

Waste disposal:

Recycle empty and cleaned packages

Stability:

Two years after date of manufacture. Store cool and dry! Storage below 10°C can lead to precipitations in the product. The precipitation can be re-dissolved by warming up to approx. 20-30° C without loss of activity.

Active substance:

1% Azadirachtin A (10 g/litre) corresponding to max. 4% **NeemAzal-T/S** (natural Neem-Kernel-Extract).

Formulation:

Plant oil and surfactants based on renewable natural products.

Other details:

Because application of **NeemAzal-T/S** is beyond our influence we assume liability only for consistent quality.

To avoid risks for humans and environment instructions of the instruction manual are to be kept.



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