E R G O F I T O  I N  A C T I O N

Give Nature What Nature Wants

# Tobacco Diseases

ERGOFITO
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## LIST OF TOBACCO PLANT DISEASES:

Tobacco plant diseases are classified in five sections:

1. Bacterial disease
2. Fungal diseases
3. Nematodes, parasitic
4. Viral and Phytoplasma diseases
5. Miscellaneous diseases and disorders

| **Bacterial diseases** | |
|---|---|
| Angular leaf spot | Pseudomonas amygdali pv. tabaci |
| Granville wilt | Ralstonia solanacearum formally Pseudomonas solanacearum |
| Hairy roots | Agrobacterium rhizogenes |
| Hollow stalk | Erwinia carotovora subsp. carotovora<br>E. carotovora subsp. atroseptica |
| Leaf gall | Rhodococcus fascians |
| Wildfire | Pseudomonas syringae pv. tabaci" |

| **Fungal diseases** | |
|---|---|
| Anthracnose | Colletotrichum destructivum Glomerella glycines [teleomorph] |
| Barn spot | Cercospora nicotianae |
| Barn rot | Several fungi and bacteria |
| Black root rot | Thielaviopsis basicola |
| Bikini | Phytophthora nicotianae |
| Blue mold (downy mildew) | Peronospora tabacina<br>Peronospora hyoscyami f.sp. tabacina |
| Brown spot | Alternaria alternata |
| Charcoal rot | Macrophomina phaseolina |
| Collar rot | Sclerotinia sclerotiorum |

| | |
|---|---|
| Damping-off, Pythium | Pythium spp. Pythium aphanidermatum Pythium ultimum |
| Frogeye leaf spot | Cercospora nicotianae |
| Fusarium wilt | Fusarium oxysporum (several f. sp.) |
| Gray mold | Botrytis cinerea Botryotinia fuckeliana [teleomorph] |
| Mycosphaerella leaf spot | Mycosphaerella nicotianae |
| Olpidium seedling blight | Olpidium brassicae |
| Phyllosticta leaf spot | Phyllosticta nicotiana |
| Powdery mildew | Erysiphe cichoracearum |
| Ragged leaf spot | Phoma exigua var. exigua Ascochyta phaseolorum |
| Scab | Hymenula affinis Fusarium affine |
| Sore shin and damping-off | Rhizoctonia solani Thanatephorus cucumeris [teleomorph] |
| Southern stem rot<br>Southern blight | Sclerotium rolfsii Athelia rolfsii [teleomorph] |
| Stem rot of tranplants | Pythium spp. |
| Target spot | Rhizoctonia solani |
| Verticillium wilt | Verticillium albo-atrum Verticillium dahliae |

| **Nematodes, parasitic** | |
|---|---|
| Bulb and stem (stem break) | Ditylenchus dipsaci |
| Cyst | Globodera solanacearum Globodera virginiae Globodera tabacum |
| Dagger, American | Xiphinema americanum |
| Foliar | Aphelenchoides ritzemabosi |
| Lesion | Pratylenchus brachyurus Pratylenchus penetrans Pratylenchus spp. |

| | |
|---|---|
| Reniform | Rotylenchulus reniformis |
| Root-knot | Meloidogyne arenaria Meloidogyne hapla Meloidogyne incognita Meloidogyne javanica |
| Spiral | Helicotylenchus spp. |
| Stubby-root | Paratrichodorus spp. Trichodorus spp. |
| Stunt | Merlinius spp. Tylenchorhynchus spp. |

| Viral mycoplasmalike organisms [MLO] diseases | |
|---|---|
| Alfalfa mosaic | Alfalfa mosaic virus |
| Aster yellows | Phytoplasma |
| Beet curly top | Beet curly top virus |
| Bushy top | Tobacco vein distorting virus and tobacco bushy top virus in combination |
| Cucumber mosaic | Cucumber mosaic virus |
| Lettuce necrotic yellows | Lettuce necrotic yellows virus (in Nicotiana glutinosa) |
| Peanut stunt | Peanut stunt virus |
| Rosette disease | Tobacco vein distorting virus and tobacco mottle virus in combination |
| Stolbur | Phytoplasma |
| Tobacco etch | Tobacco etch virus |
| Tobacco leaf curl | Tobacco leaf curl virus |
| Tobacco mosaic | Tobacco mosaic virus and Satellite Tobacco Mosaic Virus |
| Tobacco necrosis | Tobacco necrosis virus |
| Tobacco rattle | Tobacco rattle virus |
| Tobacco ring spot | Tobacco ring spot virus |
| Tobacco streak | Tobacco streak virus |
| Tobacco stunt | Tobacco stunt virus |
| Tobacco vein mottling | Tobacco vein mottling virus |

| | |
|---|---|
| Tomato spotted wilt | Tomato spotted wilt virus |
| Vein banding | Potato virus Y |
| Wound tumor | Wound tumor virus |

| **Miscellaneous diseases and disorders** | |
|---|---|
| Brown root rot | Pratylenchus spp. (nematodes) |
| Drought spot | Drought |
| False broomrape | Unknown |
| Frenching | Metabolite of Bacillus cereus |
| Stem break (in Europe) | Ditylenchus dipsaci (nematodes) |
| Sunscald | High light intensity and high temperatures |
| Weather fleck | Ozone |

**How does Ergofito help the plants combat plant sicknesses?**

The multiplication of the beneficial bacteria acts in an antagonistic and repressive way towards the phytopathogenic microorganisms, particularly present in soils lacking humus. The mechanism of this antagonistic/repressive action towards the phytopathogenic micro-organisms can be summarized as follows:

- **Micro parasitism:** Occurs when the lyses of the cell of fungi and pathogen mildew or nematodes through enzymatic activity are attacked.
- **Soil sanitation:** Occurs with the entry of toxic metabolites for the pathogen microorganisms, such as phenols, tannins, chlorogenic acid and auxins (biochemical resistance)
- **Food competition:** This action takes place by the new microorganisms devouring the existing food source present in the soil thus starving the pathogens.
- **Strengthening of the threshold resistance:** Promote the structural thickening of the tissues of the epicuticular layers of protection of the leaves and roots that impede penetration into the plant.

**The mechanism:**

The stimulation of the bacterial activity allows the beneficial (Ergofito) microorganisms to occupy spaces in the plant and the surrounding soil in a complex series of physical, chemical and biological reactions that act against the agent that cause plant diseases.

- Reduction of the spaces which are normally occupied by pathogens Creation of biological antagonistic control of pathogens
- Accentuation in the reaction of the plant's immune system
- Stimulation of the production Phytoalexin

**Ergofito Action in Preventive and Curative Situations:**

- More efficient defense against parasitic insects due to the plant strengthening
- Fungal preventive action to confront the infections due to Mycogone and Verticillum
- Rot control in seedbeds caused by Pythium & Phytophothra.
- Basal rot control of vegetable crops, agricultural and ornamental due to Phycomycete and Rizoctomia, Sclerotium, Sclerotinia, Botrytis etc.
- Reduction in the incidence of vascular diseases responsible for the withering caused by Fusarium- um and Verticillum. Preventive and curative action in the arboreal cultures (orchards, urban greenery, citrus etc.) as well as forestal fragrances towards the responsible agents for branch cancer (Nectria, Cytospora, Phopsis etc.). Also towards radical attacks due to Basidiomycetes (Armillaria, Fomes, Stereum, etc.) It will also protect leaves cuts from been penetrated by pathogenic fungi.

**TREATING BACTERIAL DISEASES:**

Over and above the recommended Ergofito Fertilization, apply the following for bacterial diseases:

**RADICAL APPLICATION:**

| Bio Agent | Quantity | When |
|---|---|---|
| **Ergofito Defense** | 4 Kg Per Hectare | Immediately |
| **Ergofito Defense** | 4 Kg Per Hectare | Ten Days Later |
| **Ergofito Defense** | 4 Kg Per Hectare | Ten Days Later |
| **Ergofito Defense** | 4 Kg Per Hectare | Ten Days Later |

(If the sickness persists, apply the above given dosage every 30 days after the initial treatment)

**TREATING FUNGAL DISEASES:**

Over and above the recommended Ergofito Fertilization, apply the following for fungal diseases:

**FIRST APPLICATION RADICAL:**

| Bio Agent | Quantity | When |
|---|---|---|
| **Ergifito Tobacco Fungal (A)** | 31 Kg Per Hectare | Immediately |

**SECOND THIRD AND FOURTH APPLICATION FOLIAR:**

| Bio Agent | Quantity | When |
|---|---|---|
| **Ergifito Tobacco Fungal (B)** | 11 Kg Per Hectare | 10 Days Later |
| **Ergifito Tobacco Fungal (B)** | 11 Kg Per Hectare | 10 Days Later |
| **Ergifito Tobacco Fungal (B)** | 11 Kg Per Hectare | 10 Days Later |

**TREATING VIRAL DISEASES:**

Over and above the recommended **Ergofito** Fertilization, apply the following for viral diseases:

**FIRST APPLICATION RADICAL:**

| Bio Agent | Quantity | When |
|---|---|---|
| **Ergifito Tobacco Viral (A)** | 31 Kg Per Hectare | Immediately |

**SECOND THIRD AND FOURTH APPLICATIONS - FOLIAR:**

| Bio Agent | Quantity | When |
|---|---|---|
| **Ergifito Tobacco Viral (B)** | 11 Kg Per Hectare | 10 Days Later |
| **Ergifito Tobacco Viral (B)** | 11 Kg Per Hectare | 10 Days Later |
| **Ergifito Tobacco Viral (B)** | 11 Kg Per Hectare | 10 Days Later |

**TREATING NEMATODES/ PARASITIC DISEASES:**

Over and above the recommended Ergofito Fertilization, apply the following for Nematodes/Parasitic diseases:

**ALL APPLICATIONS RADICAL:**

| Bio Agent | Quantity | When |
|---|---|---|
| **Ergifito Nemacontrol (A)** | 105 Kg Per Hectare | Immediately |
| **Ergifito Nemacontrol (B)** | 5 Kg Per Hectare | 10 Days Later |

Over and above the recommended **Ergofito** Fertilization, apply the following for miscellaneous diseases and disorders:

**MISCELLANEOUS DISEASES AND DISORDERS: RADICAL APPLICATION:**

| Bio Agent | Quantity | When |
|---|---|---|
| **Ergofito Defense** | 4 Kg Per Hectare | Immediately |
| **Ergofito Defense** | 4 Kg Per Hectare | 10 Days Later |
| **Ergofito Defense** | 4 Kg Per Hectare | 10 Days Later |
| **Ergofito Defense** | 4 Kg Per Hectare | 10 Days Later |

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