


KOBE 1.2 SL™

Kobe 1.2SL™– A Novel Bio-Fungicide/ Bactericide / Viricide for Tobacco Crop Protection

Onze Livre BV

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- Kobe 1.2SL™ contains Chrysophanol Parietin, extracted from the plant *Rheum officinale* Baill
- The solution for effective disease management.

Tobacco (*Nicotiana tabacum*) is today the most cultivated non-food crop in the world. Tobacco contributes to the economy, agricultural, fiscal, manufacturing and exporting sectors and offers farmers a substantial income and means of development.

Like other crops, tobacco suffers from a wide range of diseases, like Gray Mold, Powdery & Downy Mildew, Bacterial (wildfire) and Viral diseases that cause significant losses.

Kobe 1.2SL™ with its novel mode of action as a SAR and ISR inducer, offers effective crop protection throughout the cultivation period.

Kobe 1.2SL™ – Mode of Action

Kobe 1.2SL™ as a SAR and ISR inducer, offers a revolutionary approach for Tobacco crop protection. Apart from attacking directly the pathogen, Kobe 1.2SL™ activates the plant's immunity by eliciting the Systemic Acquired Resistance (SAR) of the attacked plant and by inducing the systemic resistance mode of action (ISR). This causes plants to arm their own defense systems against the attacking pathogens. One of the most effective resistance self-immunity mechanisms is manipulating the plant to regenerate phytoalexins that prevent spores, fungus and bacteria from penetrating the plant tissues.

The key active ingredients in Kobe 1.2 SL™ are natural substances extracted by a unique extraction process from the herbal plant *Rheum officinale* Bail and a patent protected isolation method from the roots of the plant *Rumex crispus.*

Rate of Application

Crop	Disease	Application Rate
Tobacco	Viral - PVY, TMV, TSWV	1.0-2.0 lt per Ha
	Fungal Diseases	
	Bacterial Diseases	

Note

- Apply evenly and thoroughly prior to the appearance or when the disease first appears.
- Repeat at 10 day intervals when necessary.
- The higher rate is in case of actual introduction of the disease in the field.

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Major Fungal Diseases and their characteristics

Common Name	Scientific Name	Notes on The Disease	Kobe 1.2SL™ Application Rate
Foliar Diseases			
Powdery Mildew	*Erysiphe sp.*	Very common disease and favoured by high humidity levels.	Apply Kobe 1.2SL™ as a foliar spray at a rate of **1.0-2.0 lt per Ha**
Downy Mildew / Blue Mold	*Peronospora tabacina*	Highly destructive. Blue mold can affect plants in the field throughout the growing season.	
Gray Mold	*Botrytis cinerea*	Very common and widespread. Can cause serious damages on tobacco seedlings.	
Frog-eye leaf spot	*Cercospora nicotianae*	Attacks all life stages of the tobacco plant and even harvested leaves during curing.	
Soil Borne Diseases			
Black Shank	*Phytophthora nicotianae*	Affects tobacco plants at all growth stages. Disease begins on young seedlings or transplants.	Apply Kobe 1.2SL™ either as a foliar spray or through fertigation at a rate of **1.0-2.0 lt per Ha**
Pythium root rot (PRR)	*Pythium* sp.	Can cause serious damages on tobacco seedlings in seedbed.	
Fusarium wilt	*Fusarium oxysporum*	Key diagnostic feature: When cutting through the stem of a diseased plant, the xylem tissue will be brown-to-black in color.	

Major Bacterial Diseases and their characteristics

Common Name	Scientific Name	Notes on The Disease	Kobe 1.2SL™ Application Rate
Wildfire / Angular Leaf Spot	*Pseudomonas syringae pv. tabaci*	The symptoms of the tox+ (toxin producing) and tox- (non-toxin producing) forms of this disease differ among them.	Apply Kobe 1.2SL™ either as a foliar spray or through fertigation at a rate of **1.0-2.0 lt per Ha**
Bacterial wilt	*Ralstonia solanacearum*	Very difficult to manage soil borne bacterial disease.	

Wildfire / Angular Leaf Spot Diseases

The bacteria that cause wildfire and angular leaf spot diseases are identical in all aspects. However, the wildfire bacteria produce a toxin, whereas the angular bacteria do not. Wildfire is therefore caused by the "tox+" strain and angular leaf spot by the "tox-" strain

Wildfire (tox+) is characterized by a small brown or black water soaked lesion, surrounded by a broad chlorotic halo. The lesions increase in diameter and may coalesce until the diseased tissue eventually falls out leaving ragged holes. Wildfi e can be systemic in seedlings, causing distortion of the apical bud and leaves.

The Angular (tox-) lesion is brown, dark brown or black, much larger than the wildfire lesion and has little or no chlorotic halo. It has angular margins because the lesion is confined by the lateral veins.

Wildfire tox- symptoms

Wildfire tox- severe symptoms

Wildfire tox+ symptoms

Wildfire tox+ severe symptoms

Major Viral Diseases and their characteristics

Common Name	Scientific Name	Notes on The Disease	Kobe 1.2SL™ Application Rate
Tobacco mosaic	*TMV (Tobacco mosaic Virus)*	The transmission is either mechanical or with insect vectors.	Apply Kobe 1.2SL™ as a foliar spray at a rate of **1.0-2.0 lt per Ha**
Tomato spotted wilt	TSWV (*Tomato spotted wilt virus*)	Transmitted mainly by thrips.	
Vein banding	PVY (*Potato Virus Y*)	Transmitted mainly by aphids.	

Hail & Tobacco

A significant abiotic factor that can adversely affect tobacco production is hail. Hailstorms can cause yield losses in tobacco ranging from slight to complete destruction of the crop. Hail can cause both direct and indirect damages. It directly damages the tobacco plants and indirectly the damaged plant tissues can become an entrance point for the different pathogens that affect the crop. Kobe 1.2SL™ with its unique mode of action protects the plant from pathogen attack and helps it to recover from adverse abiotic conditions like hail.

Disclaimer

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