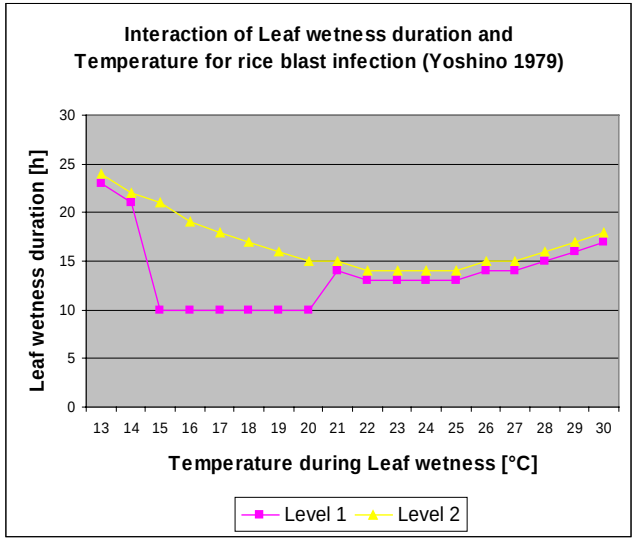
# Rice Blast Infection (*Pyrecularia grisea (oryzae)*) Infection Model based on Yoshino 1974, 1979 and Hashimoto et al 1984

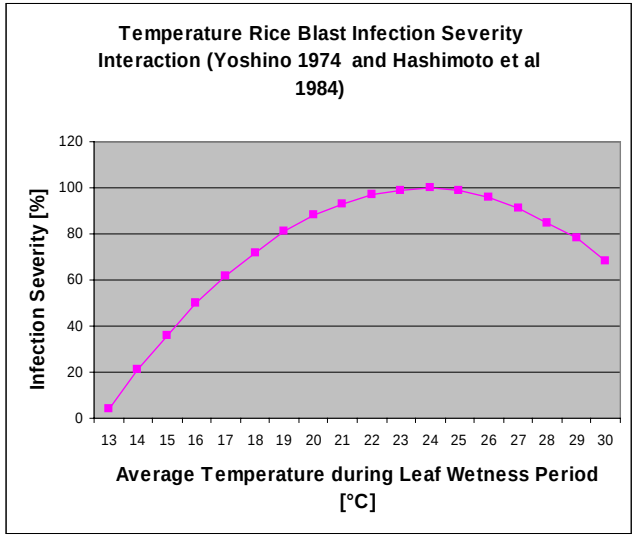
## Climate Sensors:

Air temperature

Leaf Wetness

Rainfall




## Infection starts if:

$18 <= (\sum_{1..120} T_{hour})/120 <= 25$

$R_{hour} < 4mm$

Leafwetness = True

**Infection finished** following the Graph above (Yoshino 1979). Infection Severity is estimated by the average temperature during the leaf wetness period leading to infection following the second graph above.

## Model Output:

Progress for Infection on Level1 and Level2 (0 - 100)

Infection severity (0 - 3)

Pessl Instruments

# Sheath Blight of rice (*Rhizoctonia solani*)

## Simple risk model

Check last 120 hours:

If consecutive leaf wetness accumulate temperature depending values for every minute:

(12°C - 15°C = 1, 16°C - 17°C =2, >18°C = 4)

If leaf wetness ends evaluate accumulated values:

Value > 4096 = RiskValue + 64 Points, Value - 4096
Value > 2048 = RiskValue + 16 Points, Value - 2048
Value > 1024 = RiskValue + 4 Points, Value - 1024

If global radiation is consecutive higher than 800 W/m² accumulate time in minutes and if radiation becomes lower evaluate values:

Value > 1024 = RiskValue - 32 Points, Value - 1024
Value > 512 = RiskValue - 8 Points , Value - 512
Value > 256 = RiskValue - 2 Points , Value - 256

Pessl Instruments

# Rice Blast Infection (*Pyrecularia grisea (oryzae)*) Infection Model based on Yoshino 1974, 1979 and Hashimoto et al 1984 and Sheath Blight of rice (*Rhizoctonia solani*) simple risk model

## Data Presentation

Rice Blast Hourly Values:

µMETOS and µLINK shows the hourly values of possible level1 and level 2 infection of Rice Blast and the severity of completed infections. All values are shown between 0 and 100 (= XX).

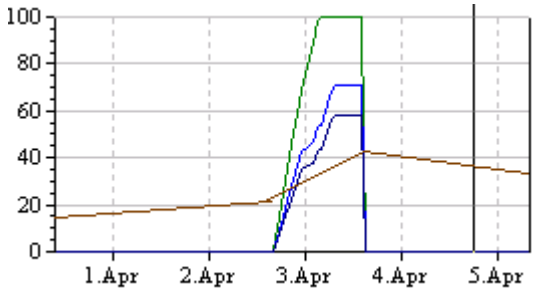
Rice Blast Infection
Level1 (L1), Level2 (L2), Infection Severity(SV)
M-DD HH L1 L2 SV

Label

5-12 07 90 70 00
5-12 08 XX 80 40

M-DD HH L1 L2 SV
M-DD HH L1 L2 SV

Screen




Sheath Blight Hourly Values:

Risk values from 0 to 100 are shown.

Sheath Blight Risk
M-DD HH RISK____

Label

5-12 07 90 ___
5-12 08 100___

M-DD HH RISK___
M-DD HH RISK___

Daily Values:

Maximum values of every day are shown.

Screen

Pessl Instruments

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## Practical Use:

The rice blast model points out infection date and infection severity. This information is valid to improve the applied spray program. In a preventative spray program plant growth is reducing the protected plant surface within days. An infection which takes place immidiatly after a preventative spray will be covered perfectly. If an infection will be 6 or more days after the last spray disease control can be sustainable reduced by the high volume of uncovered leaves. In this case a curative spray will be indicated to ensure the success of disease control.

The sheath blight model points out periods with a high risk for this disease. No sprays will have to be applied in periods where the risk is low. In periods with moderate risk spray interval can be prolongated and in periods with high risk spray interval may have to be reduced or more effective compounds will have to be used.