

Simulator for the comparison of fungicides, cultivar resistance, and Decision Support Systems in the control of the late and early blight of potato

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The presented simulator is based on the known van der Plank hypothesis (1968), which assumes a direct ratio between the area under the curve, describing the seasonal disease dynamics on the potato foliage, and the yield losses. According to our long-term field studies (Gurevich, Filippov, and

$$\omega = \frac{AUDPC}{q} \cdot 100,$$

Tverskoy, 1977), this dependency can be expressed by the following equation: where ω is a yield loss (%), caused by a premature leaf decay, AUDPC is an area under the curve, describing the disease dynamics, and q represents the number of days between the bud formation phase and the decay of non-infected leaves. The average q value for the early, intermediate, and mid-late potato cultivars is 46, 52, and 84 days, respectively. If the foliage is killed by frost or desiccant or the harvesting is carried out before its natural death, then q is considered as a number of days, passed between the bud formation stage and the moment of the foliage death.

Fig. 1. Working window of the simulating program for the calculation of yield losses, caused by the development of late and early blight on the potato foliage (http://vniif.ru/index.php?option=com_content&view=article&id=40&Itemid=30&lang=ru).

It was found that the standard deviation of calculated yield losses from the actual losses was 9.8% for the set of 219 independent late blight dynamic curves.

REFERENCES

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