



**INSTITUTE of PLANT PROTECTION NAAS of UKRAINE**  
*Laboratory of Nematology*

## **DETECTION OF *DITYLENCHUS DESTRUCTOR* IN POTATO DURING THE GROWING SEASON AND IN STORAGE**



**D.D. Sigareva, T. M. Zylina,  
T.A. Galagan**

e-mail: [galaganta@mail.ru](mailto:galaganta@mail.ru)

# **Variants of field experiment:**

- 1 - all planted tubers were healthy;**
- 2 - all tubers were infested with *Ditylenchus*;**
- 3 - the tubers, without sorting;**
- 4 - the tubers were halved and the diseased tubers were discarded;**
- 5 - potatoes were washed in water and then the diseased tubers were eliminated;**
- 6 - the tubers were sprouted (for 15 days) and planted without additional sorting out;**
- 7 - tubers were sprouted (for 30 days) and planted after being sorted out again;**
- 8 - the planted potato tubers were peeled;**
- 9 - the planted tubers were infested, with the umbilical cord removed on the day of planting;**
- 10 - the planted tubers were infested, with the umbilical cord removed 20 days before planting, followed by sprouting of tubers/**

## **Results of phenological observations:**

**During the growing season infested potato plants in most variants did not differ in appearance from healthy ones,**

**with the exception of variant №2: some plants (about 30%) had shortened stems, deformed leaves with curved top outer edge.**

## **The period of sprouting:**

**The best results were observed when tuber sprouting was included in preventive measures (especially for 30 days):**

**During the first two counts (20 and 25 days after planting), there were evident differences between variants with and without sprouting.**

**However, the last two counts (30 and 40 days after planting) showed almost 100% germination in all variants of the experiment, except in control variant № 2 (germination up to 20% less than other variants).**

# The characteristic features of consecutive stages of ditylenhosis

<b>Stage of ditylenchosis</b>	<b>Percentage of damaged tubers</b>	<b>Method of detection</b>	<b>External symptoms</b>
<b>I</b>	<b>&lt; 5</b>	<b>skin removal</b>	<b>The hidden invasion (subtle off-white spots under the skin of apparently healthy tubers)</b>
<b>II</b>	<b>6-20</b>	<b>visual</b>	<b>The appearance of light, subtle lead-gray spots</b>
<b>III</b>	<b>21-40</b>	<b>visual</b>	<b>The darkening of the skin and the formation of pressed pits at the edges of healthy part</b>
<b>IV</b>	<b>41-60</b>	<b>visual</b>	<b>The skin breaks and cracks, which penetrate fungi and bacteria</b>
<b>V</b>	<b>&gt; 61</b>	<b>visual</b>	<b>tuber is already rotten, with small remaining areas of healthy tissue</b>

# Stages of ditylenchosis



**I**



**II**



**III**



**IV**



**V**

# Effect of prophylactic measures against ditylenhosis on potato productivity

<b>Variant</b>	<b>Crop loses, %</b>	<b>Percentage of marketability of bulbs, %</b>	<b>Percentage of diseased bulbs, %</b>
<b>1</b>	<b>0</b>	<b>81.7-</b>	<b>0</b>
<b>2</b>	<b>43.40</b>	<b>38.10</b>	<b>72.90</b>
<b>3</b>	<b>18.70</b>	<b>53.60</b>	<b>22.40</b>
<b>4</b>	<b>12.60</b>	<b>63.40</b>	<b>15.60</b>
<b>5</b>	<b>9.50</b>	<b>69.10</b>	<b>11.30</b>
<b>6</b>	<b>9.50</b>	<b>63.40</b>	<b>13.10</b>
<b>7</b>	<b>2.40</b>	<b>80.20</b>	<b>6.50</b>
<b>8</b>	<b>0.90</b>	<b>73.20</b>	<b>2.50</b>
<b>9</b>	<b>21.40</b>	<b>53.60</b>	<b>24.30</b>
<b>10</b>	<b>18.80</b>	<b>57.10</b>	<b>22.30</b>

## **Conclusions:**

- The best results were obtained when tubers were sorted out before and after sprouting that lasted for 30 days.**
- Our results show that the above measures cannot fully eliminate pest from seed material, yet make it possible to significantly reduce stem nematode infestation of new harvest tubers.**
- They can be applied for homestead lands if no other measures can be applied to obtain healthy seed potatoes.**
- In cultivation of commodity and seed potatoes on commercial farms it is necessary to adhere strictly to all phytosanitary requirements and norms.**



*Thank you for attention!*

*Laboratory of Nematology  
Institute of Plant Protection NAAS of Ukraine,  
33, Vasilkovskaya str., Kiev-022, 03022, Ukraine,  
e- mail [galaganta@mail.ru](mailto:galaganta@mail.ru)*