



# INFLUENCE OF PHYTOSANITARY TREATMENTS ON LATE BLIGHT (*Phytophthora infestans*) CONTROL AND POTATO YIELD UNDER THE AGRO-CLIMATIC CONDITIONS OF SUCEAVA

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**Abstract:** Late blight (*Phytophthora infestans*) is a major limiting factor for potato production in Suceava. Climate conditions during the 2023 season (8.6–19.4°C; 0–25.5 mm precipitation; 54–69% humidity) favored infection and epidemic development from late May to June. Five phytosanitary treatment schemes were applied at key BBCH stages to four potato genotypes. Yield was separated into <30 mm, 30–55 mm, and >55 mm tuber size classes and analyzed using ANOVA and LSD ( $p < 0.05$ ). Treatments did not affect small tuber yield, while a tendency of increase was observed for medium-sized tubers. The >55 mm fraction increased significantly under intensive and well-timed treatments. Treatments do not raise total yield, but shift production toward larger, market-preferred tubers, improving commercial value under late blight favorable conditions.

## • Introduction

In Suceava, seasonal humidity cycles often create conditions that favor disease development in potato crops, requiring well-timed phytosanitary treatments. Beyond disease control alone, treatment scheduling may affect tuber size distribution, which directly influences commercial value. The principal objective of the study is to determine how treatment timing impacts the proportion of marketable tubers.

## • Material and method

 **Suceava**  • cambic chernozem • pH 5.8 • Humus 3.7% • P=32 ppm • K=91 ppm • medium texture

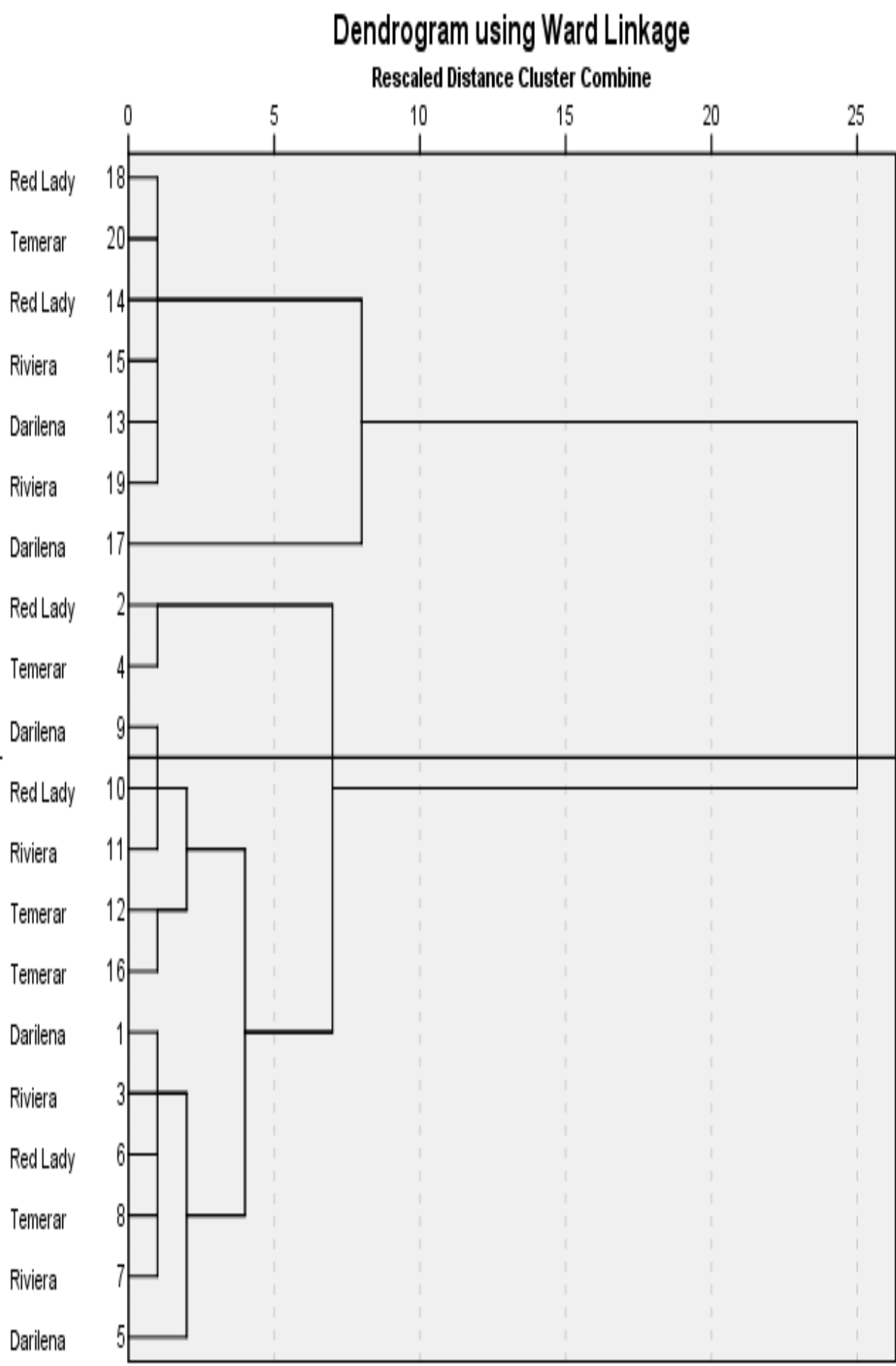
 - Darilena; - Red Lady;  B1 – Preventive; B2 – At first symptoms; B3 – Systemic + contact; B4 – Weekly contact; B5 – Untreated control  
- Riviera; - Temerar.

 ANOVA + LSD ( $p < 0.05$ )

## • Results and discussions

|            |                |            |            | ANOVA          |    |             |      |
|------------|----------------|------------|------------|----------------|----|-------------|------|
|            |                |            |            | Sum of Squares | df | Mean Square | Sig. |
| Prod 30 mm | Between Groups | (Combined) |            | 3.183          | 4  | .796        | .807 |
|            |                | Linear     | Unweighted | 1.637          | 1  | 1.637       | .820 |
|            |                | Term       |            |                |    |             |      |
|            |                | Weighted   |            | 1.823          | 1  | 1.823       | .913 |
|            |                | Deviation  |            | 1.360          | 3  | .453        | .876 |
|            | Within Groups  |            |            | 29.949         | 15 | 1.997       |      |
| Prod 43 mm | Total          |            |            | 33.132         | 19 |             |      |
|            | Between Groups | (Combined) |            | 6.296          | 4  | 1.574       | .206 |
|            |                | Linear     | Unweighted | 4.414          | 1  | 4.414       | .046 |
|            |                | Term       |            |                |    |             |      |
|            |                | Weighted   |            | 4.557          | 1  | 4.557       | .043 |
|            |                | Deviation  |            | 1.739          | 3  | .580        | .613 |
| Prod 56 mm | Within Groups  |            |            | 14.042         | 15 | .936        |      |
|            | Total          |            |            | 20.338         | 19 |             |      |
|            | Between Groups | (Combined) |            | 19.167         | 4  | 4.792       | .022 |
|            |                | Linear     | Unweighted | 16.693         | 1  | 16.693      | .002 |
|            |                | Term       |            |                |    |             |      |
|            |                | Weighted   |            | 16.688         | 1  | 16.688      | .002 |
|            |                | Deviation  |            | 2.478          | 3  | .826        | .575 |
|            | Within Groups  |            |            | 18.106         | 15 | 1.207       |      |
| Total      |                |            |            | 37.272         | 19 |             |      |

|                          |    |    |         |        |      |
|--------------------------|----|----|---------|--------|------|
| Diameter of Tubers >55mm | 1B | 2B | .51000  | .80235 | .535 |
|                          |    | 3B | .77250  | .73700 | .311 |
|                          |    | 4B | 1.19750 | .73700 | .125 |
|                          |    | 5B | 2.81000 | .73700 | .002 |
|                          |    | 2B | -.51000 | .80235 | .535 |
|                          | 3B | 1B | -.77250 | .73700 | .311 |
|                          |    | 2B | -.26250 | .83911 | .759 |
|                          |    | 4B | .42500  | .77687 | .592 |
|                          |    | 5B | 2.03750 | .77687 | .019 |
|                          |    | 4B | 1.19750 | .73700 | .125 |
|                          | 2B | 1B | -.68750 | .83911 | .425 |
|                          |    | 3B | -.42500 | .77687 | .592 |
|                          |    | 5B | 1.61250 | .77687 | .056 |
|                          |    | 5B | 2.81000 | .73700 | .002 |
|                          |    | 2B | -.83911 | .83911 | .015 |
|                          | 3B | 1B | -.77687 | .77687 | .019 |
|                          |    | 4B | 1.61250 | .77687 | .056 |
|                          |    | 5B | 2.03750 | .77687 | .019 |
|                          |    | 4B | 1.61250 | .77687 | .056 |
|                          |    | 5B | 2.03750 | .77687 | .019 |



**Conclusion.** Yield of <30 mm tubers is not affected by treatments; A moderate increasing trend is observed in 30–55 mm tubers; Higher treatment intensity significantly increases >55 mm tuber yield ( $p < 0.05$ ); Treatments shift the size distribution, not the total yield; Commercial value improves with well-timed phytosanitary treatments.