

## CHAPTER 6 PLANT PROTECTION

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### THE EFFICIENCY OF FUNGICIDES FOR PROTECTION OF MIDDLE-LATE MATURITY VARIETIES OF POTATO IN EDUCATIONAL-SCIENTIFIC CENTRE OF LVIV NAU

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**Problem formulation.** Potato in Ukraine is significant food crop. Now its cultivation concentrates in households. Some agricultural companies cultivate this crop although. Breeding organizations constantly renovate potato assortment considering to needs of food qualities of tubers and cultivating technologies. In Lviv National Agrarian University have breeding of potato by list of agronomic valuable features. And new perspective middle-late variety Zvaba was given to State sort testing. Significant and actually task is selection of effective pesticides for protection of new variety against main diseases.

**Results.** The experiment was provided in Educational-Scientific Centre of Lviv NAU during 2016–2017. For detecting of fungicides efficiency was used recommended middle-late maturity potato variety Chervona Ruta and perspective variety Zvaba.

The scheme of experiment was included 5 variants with two-time spraying of potato plants: first spraying – at plants height 15–20 sm (BBCH 19–25), second spraying – in phase budding-flowering (BBCH 59–65) (table 1).

Table 1

The experiment scheme of fungicides efficiency on potato

Variant	Application time	
	plants height 15–20 sm	budding-flowering
I (control)	water	water
II	Antracol WP 70 (propineb 700 g/kg), 2,0 kg/ha	Nautil WG 73 (cymoxanil 50 g/kg + mancozeb 680 g/kg), 2,0 kg/ha
III		Consento SC 450 (propamocarb hydrochloride 375 g/l + fenamidone 75 g/l), 2,0 l/ha

IV	Consento SC 450 (propamocarb hydrochloride 375 g/l + fenamidone 75 g/l), 2,0 l/ha	Nautil WG 73 (cymoxanil, 50 g/kg + mancozeb, 680 g/kg), 2,0 kg/ha
V	Consento SC 450 (propamocarb hydrochloride 375 g/l + fenamidone 75 g/l), 2,0 l/ha	Consento SC 450 (propamocarb hydrochloride 375 g/l + fenamidone 75 g/l), 2,0 l/ha

The development of diseases of different ethyology was detected on plant of investigated varieties in condition of ESC of Lviv NAU in 2016–2017. Late blight and early blight had prevailing parts of diseases in conditions of both years. The part of late blight in 2016 was 43%, in 2017 – 47% due more wet conditions of vegetation period in 2017. The part of early blight conversely was somewhat more in 2016 than in 2017 – 37% and 32% appropriately.

Significant decrease of late blight and early blight development was in all variants with treatments by fungicides in comparison with control. Summary development of diseases in control was 53,5% while in variant with Antracol WP 70 for first spraying and Nautil WG 73 for second spraying it was not exceed 9,5%.

Technical effectiveness of tested fungicides was in the range from 74,8 to 84,1%. The indexes of technical effectiveness of all tested fungicides were somewhat higher on variety Zvaba in comparison with variety Chervona Ruta. We detected somewhat higher indexes of technical effectiveness of fungicides against early blight in comparison with late blight: 75,3–80,8 and 76,3–83,7% appropriately.

Fungicides and varieties had impacted on potato productivity. Average yield of variety Chervona Ruta in experiment was 30,6 t/ha that on 1,5 t/ha less in comparison with variety Zvaba (32,1 t/ha).

Variant with applications of fungicides Antracol WP 70 and Nautil WG 73 had highest yield – 34,2 t/ha that is reliable different from other variants (31,6–33,4 t/ha).

**Conclusions.** On middle-late potato varieties late blight and early blight was dominant with part in diseases structure 32–47% in conditions of ESC of Lviv NAU in 2016–2017. Spraying of potato plants at height 15–20 sm by fungicides Antracol WP 70 or Consento SC 450 and at phase budding-flowering by Nautil WG 73 decreased late blight and early blight development at 4,1–5,6 rates in comparison with variant without chemical treatments. Technical effectiveness of tested fungicides varied in the range from 74,8% to 84,1%. First spraying potato plants by fungicide Antracol WP 70 and second spraying by Nautil WG 73 was provided the highest yield of potato variety – 34,2 t/ha in average on two years.

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