УДК: 632.4
DOI: 10.35330/1991-6639-2020-6-98-103-112

BUILDING FUNGICIDAL PROTECTION OF POTATO WITH MINIMUM IMPACT ON THE PHOTOSYNTHETIC APPARATUS OF CULTURE

H.K. ABIDOV, A.Kh. ABAZOV, R.R. BUGOV, M.M. KHURANOV, Z.Kh. MARGUSHEVA

Institute of Agriculture –
branch of FSBSE "Federal scientific center
«Kabardino-Balkarian Scientific Center of the Russian Academy of Sciences»
360004, KBR, Nalchik, Kirov street, 224
E-mail: kbniish2007@yandex.ru

Obtaining virus-free seed material of potatoes is possible only in the absence of sucking insects, carriers of viral diseases. The foothills of the Caucasus are the best place for growing virus-free potatoes. However, in these conditions, the culture can be negatively affected by natural environmental factors. Low positive temperatures during the growing season, high solar insolation, winds - all this leads to the fact that many plants are on the verge of their functionality. Therefore, one of the objectives of the breeder is to reduce the impact of biotic stress caused by various diseases and to reduce the pesticide load.

The most significant diseases of potatoes in the conditions of the Kabardino-Balkarian Republic include late blight. The disease is successfully suppressed by fungicidal treatments. According to the Internet resource EcoPlant Agro (URL: http://www.ecoplantagro.ru), 38 active substances have been registered on potatoes in the Russian Federation, exhibiting fungicidal properties from 22 chemical classes. Despite the diversity of the choice of fungicides, copper-containing preparations are widely used in the practice of protecting potatoes. However, copper ions can have a negative effect on the physiological mechanisms of plants, especially photosynthesis, which leads to a reduction in the synthesis of photoassimilates. The aim of this work was to study the effect of copper-containing fungicides on potato plants grown in the foothills of the Caucasus to determine the minimum pesticide effect on the photosynthetic apparatus of potatoes.

Keywords: potato, plant protection, chlorophyll, photosynthesis, late blight, fungicides, phytotoxicity, pesticide load.

REFERENCES

1. Berezkin A.N., Malko A.M., Minina E.L., Lapochkin V.M., Cherednichenko M.Yu. *Normativno-pravovyye osnovy selektsii i semenovodstva: uchebnoye posobiye* [Normative-legal basis for selection and seed production: a tutorial]. M.: Lan, 2019. 252 p.

2. *Gosudarstvennyy katalog pestitsidov i agrokhimikatov, razreshennykh k primeneniyu na territorii RF* [State catalog of pesticides and agrochemicals approved for use on the territory of the Russian Federation]. M., 2018.

3. Koshkin E.I. *Patofiziologiya sel'skokhozyaystvennykh kul'tur* [Pathophysiology of agricultural crops]. M.: RG-Press, 2016. 304 p.

4. Sapozhnikov D.I., Maslova T.G., Popova O.F., Popova I.A. Koroleva O.Ya. *Metod fiksatsii i khraneniya list'yev dlya kolichestvennogo opredeleniya pigmentov plastid* [Method of fixation and storage of leaves for the quantitative determination of plastid pigments] // Botanical Journal. 1978. No 11. Pp. 1586-1592.

5. Smirnov A.N., Kuznetsov S.A. *Opredeleniye strategiy razmnozheniya i zhiznesposobnosti polevykh populyatsiy Phytophthora infestans* [Determination of strategies for reproduction and viability of field populations of Phytophthora infestans] // *Zashchita i karantin rasteniy* [Plant Protection and Quarantine]. 2006. No. 9. Pp. 30-31.

6. Fillipov A.V. *Fitoftoroz kartofelya* [Potato late blight] // *Prilozheniye k zhurnalu «Zashchita i karantin rasteniy»* [Supplement to the journal "Plant protection and quarantine"]. 2012. No. 5. P. 27.

Information about authors:

Abidov Hasset Kadirovich, Senior researcher, Institute of Agriculture – a branch of the Kabardino-Balkarian Scientific Center of the Russian Academy of Sciences.
360004, KBR, Nalchik,. Kirov street, 224.
E-mail: kbniish2007@yandex.ru

Abazov Anuar Khamidovich, Candidate of Agricultural Sciences, Leading Researcher, Institute of Agriculture – a branch of the Kabardino-Balkarian Scientific Center of the Russian Academy of Sciences.
360004, KBR, Nalchik, Kirov street, 224.
E-mail: kbniish2007@yandex.ru

Bugov Rezuan Ramazanovich, Junior researcher, Institute of Agriculture – a branch of the Kabardino-Balkarian Scientific Center of the Russian Academy of Sciences.
360004, KBR, Nalchik, Kirov street, 224.
E-mail: kbniish2007@yandex.ru

Khuranov Mukhamed Muaedovich, Junior researcher, Institute of Agriculture – a branch of the Kabardino-Balkarian Scientific Center of the Russian Academy of Sciences.
360004, KBR, Nalchik, Kirov street, 224.
E-mail: kbniish2007@yandex.ru

Margusheva Zagirat Khabalovna, Junior researcher, Institute of Agriculture – a branch of the Kabardino-Balkarian Scientific Center of the Russian Academy of Sciences.
360004, KBR, Nalchik, Kirov street, 224.
E-mail: kbniish2007@yandex.ru