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Denomination of Pe: 20, a new race of downy mildew in spinach

Consistent, clear, and timely communication about new races of the spinach downy mildew pathogen is the common interest and aim of all members of the International Working Group for *Peronospora effusa* (Pe) (IWGP). The group fosters a uniform evaluation of Pe field isolates in different parts of the world and integrates and evaluates all information about Pe diversity continuously. Many Pe isolates with the same new virulence pattern have been reported from the USA and Europe in 2023, prompting IWGP to denominate race Pe: 20 today.

Race Pe: 20 poses a significant threat to the spinach industry in all parts of the world, and resistance to this new race is important. The stable performance of isolate RZ2331B, found in France, has been confirmed in validation tests by all IWGP members, and renamed as reference isolate Pe: 20. A new differential cultivar was added to the differential set to distinguish Pe: 20 from races Pe: 1 to Pe: 19. Race Pe: 20 is able to infect the differentials Viroflay, NIL 3, 4, 5, and the new differential host cultivar Yakalo.

The IWGP is continuously monitoring the appearance of strains of the pathogen that deviate in virulence from the known races. The virulence patterns of all races are published by the International Seed Federation (ISF) at <https://www.worldseed.org/our-work/plant-health/differential-hosts/>. In this way the IWGP aims to promote a consistent and clear communication between public and private entities, such as the seed industry, growers, scientists, and other interested parties, about all new races overcoming important resistant factors, that are persistent enough to survive over several years, occur in a wide area, and cause a significant economic impact.

The IWGP is operating internationally and is administered by Plantum located in The Netherlands. The IWGP consists of representatives from spinach seed companies (BASF, Bayer, Bejo, DeSeed, Enza, Pop Vriend Seeds / KWS, Rijk Zwaan, Sakata, Syngenta, Takii, and Vilmorin) and Naktuinbouw, and is supported by public research at the University of Arkansas. Spinach researchers

over the world are invited to join the IWGP initiative and use the common host differential set to identify new isolates. All denominated isolates and seeds of the differential set are available at Naktuinbouw (The Netherlands).

Table: Reaction phenotypes of Pe isolates to IWGP differentials.

Resistance is indicated by the symbols - or (-), susceptibility by the symbol +

	Viroflay	NIL 5	NIL 3	NIL 4	NIL 6	NIL 1	NIL 2	NIL 9	Caladonia	Meerkat	Hydrus	Yakalo
Pe: 1	+	-	-	-	-	-	-	-	-	-	-	-
Pe: 2	+	-	+	-	+	-	-	-	-	-	-	-
Pe: 3	+	+	-	-	-	-	-	-	-	-	-	-
Pe: 4	+	+	+	-	-	-	-	-	-	-	-	+
Pe: 5	+	+	-	+	-	-	-	-	-	-	-	-
Pe: 6	+	+	+	+	+	-	-	-	-	-	-	-
Pe: 7	+	+	+	+	-	-	-	-	-	-	-	-
Pe: 8	+	+	-	+	+	+	-	-	-	-	-	-
Pe: 9	+	+	-	+	+	-	-	-	-	-	-	-
Pe: 10	+	+	+	+	+	+	-	-	-	-	-	-
Pe: 11	+	+	-	+	-	-	+	-	-	-	-	-
Pe: 12	+	+	-	+	+	+	+	-	-	-	-	-
Pe: 13	+	+	+	+	-	(-)	+	-	-	-	-	-
Pe: 14	+	+	-	+	+	+	+	+	-	-	-	-
Pe: 15	+	+	+	-	-	-	-	+	+	-	-	-
Pe: 16	+	+	-	+	-	-	+	+	-	+	-	-
Pe: 17	+	+	+	+	+	+	+	+	+	(-)	-	-
Pe: 18	+	+	+	+	-	-	+	+	+	+	-	-
Pe: 19	+	+	-	+	+	+	+	+	-	+	+	-
Pe: 20	+	+	+	+	-	-	-	-	-	-	-	+

Editorial note

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